Pennsylvania
Department of
Environmental Protection

May 7, 2025

Mr. Christopher Madden – Manager, Environmental Compliance
Keystone Cement Company, Inc.
Routes 329 & 987
P.O. Box A
Bath, Pennsylvania 18014-0058
via email: cmadden@keystonecement.com

Re: Hazardous Waste Permit Reissuance
Keystone Cement Company, Inc.
Application #PAD002389559-A182
APS ID #974249, AUTH ID# 1239215
East Allen Township, Northampton County

Dear Mr. Madden:

Enclosed is Hazardous Waste Permit No. PAD002389559. This permit is reissued under the provisions of the Pennsylvania Solid Waste Management Act of July 7, 1980 (public Law 380, No.97). Keystone Cement Company, Inc., located in East Allen Township, Northampton County, is an existing permitted Hazardous Waste Storage and (Energy Recovery Within Cement Kiln) Facility that specializes in the storage of approved liquid wastes prior to the beneficial use of the liquid waste as a fuel in the site cement kiln.

As per the Hazardous Waste Regulation, 25 Pa. Code Section 270a Hazardous Waste Permit Program, Subchapter II Public Notice and Hearings, the public was afforded forty-five (45) days to comment on the draft permit prepared under the Solid Waste Management Act.

A public meeting/hearing was held on October 28, 2024, at the Nitschmann Middle School located at 1002 W Union Blvd, Bethlehem, PA. The Department also extended the comment period until November 15, 2024.

A public Comment-Response Document is included as an attachment to this this approval. The Hazardous Waste regulations require DEP to prepare a summary of the comments submitted during the public comment period and provide responses to the comments. The Comment-Response Document summarizes public comments received by DEP during the comment period and at the public hearing and provides the Department's responses to those comments. All commenters are individually listed in this document.

The attachments to the permit as well as a complete pdf of the permit with the attachments included are available through the DEP Northeast Regional Office. You, along with the entities cc'd on this letter will be provided access to a DEP shared folder through a follow-up email. If you have any issues accessing this shared folder, please contact me at the email address/phone number below.

The documents will also be made available at the DEP Northeast Community Information website at : Keystone Cement | Department of Environmental Protection | Commonwealth of Pennsylvania

Any person aggrieved by this action may appeal the action to the Environmental Hearing Board (Board) pursuant to Section 4 of the Environmental Hearing Board Act, 35 P.S. § 7514, and the Administrative Agency Law, 2 Pa. C.S. Chapter 5A. The Board's address is:

Environmental Hearing Board
Rachel Carson State Office Building, Second Floor
400 Market Street
P.O. Box 8457
Harrisburg, PA 17105-8457

TDD users may contact the Environmental Hearing Board through the Pennsylvania Relay Service, 800-654-5984.

Appeals must be filed with the Board within 30 days of receipt of notice of this action unless the appropriate statute provides a different time. This paragraph does not, in and of itself, create any right of appeal beyond that permitted by applicable statutes and decisional law.

A Notice of Appeal form and the Board's rules of practice and procedure may be obtained online at http://ehb.courtapps.com or by contacting the Secretary to the Board at 717-787-3483. The Notice of Appeal form and the Board's rules are also available in braille and on audiotape from the Secretary to the Board.

IMPORTANT LEGAL RIGHTS ARE AT STAKE. YOU SHOULD SHOW THIS DOCUMENT TO A LAWYER AT ONCE. IF YOU CANNOT AFFORD A LAWYER, YOU MAY QUALIFY FOR FREE PRO BONO REPRESENTATION. CALL THE SECRETARY TO THE BOARD AT 717-787-3483 FOR MORE INFORMATION. YOU DO NOT NEED A LAWYER TO FILE A NOTICE OF APPEAL WITH THE BOARD.

IF YOU WANT TO CHALLENGE THIS ACTION, YOUR APPEAL MUST BE FILED WITH AND RECEIVED BY THE BOARD WITHIN 30 DAYS OF RECEIPT OF NOTICE OF THIS ACTION.

Should you have any questions, please contact me at rbellas@pa.gov or 570-826-2201.

Sincerely,

Roger Bellas

Roger Bellas
Program Manager
Waste Management Program

Enclosure – Permit No. PAD002389559

cc: Northampton County w/enc. (via email: lheffner@northamptoncounty.org)
Lehigh Valley Planning Commission w/enc. (via email: cruggiero@lvpc.org)
East Allen Township w/enc. (via email: manager@eatwp.org)
Stuart H. Guinther w/enc. (via email: sguinther@keystonecement.com)
Claudia Scott, U.S. EPA Region III w/enc. (via email: Scott.Claudia@epa.com)
Thomas Mellott, PADEP Division of Hazardous Waste Management w/enc. (via email: mtmellott@pa.gov)

PERMIT
FOR

HAZARDOUS WASTE STORAGE AND (ENERGY RECOVERY WITHIN CEMENT KILN) FACILITY

Permit Number: **PAD002389559**

Date Issued: **May 7, 2025**

Date Expires: **May 7, 2035**

Under the provisions of the Pennsylvania Solid Waste Management Act of July 7, 1980, Act 97, a permit for hazardous waste storage, treatment, recycling, and disposal in (municipality) **East Allen Township** in the County of **Northampton**

is granted to (applicant) **Keystone Cement Company**

(address) **Route 329, P.O. Box A**

Bath, PA 18014-0058

This permit is applicable to the facility named as **Keystone Cement Company** and described as:

Latitude: 40 °42 ' 57.7 " North

Longitude: 75 ° 23 ' 55.5 " West

This permit shall become effective on **May 7, 2025**

This permit allows for the acceptance, blending, and storage of approved hazardous waste and residual wastes in the approved hazardous waste storage tank system prior to the beneficial use of the wastes as fuel in the existing rotary cement kiln (Kiln #1) per the Approved Application as superseded by the Hazardous Waste regulations and conditions and terms of this permit.

This permit is subject to modification, amendment and supplement by the Department of Environmental Protection and is further subject to revocation or suspension by the Department of Environmental Protection for any violation of the applicable laws or the rules and regulation adopted thereunder, for failure to comply in whole or in part with the conditions of this permit and the provisions set forth in the application No. **PAD002389559** which is made a part hereof, or for causing any condition inimical to the public health, safety or welfare.

See attachment for waste limitations and/or special conditions.

Roger Bellas (signature)

FOR THE DEPARTMENT OF ENVIRONMENTAL PROTECTION

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INTRODUCTION

Permittee: **Keystone Cement Company**

Facility: **Keystone Cement Company – Route 329, Bath, PA 18014-0058**

This permit is issued by the Commonwealth of Pennsylvania Department of Environmental Protection (DEP, hereinafter called the Department), under authority of the Act a.k.a. the Pennsylvania Solid Waste Management Act, the Act of July 7, 1980, Act 97, 35 P.S. Section 6018.101 et seq., Department waste regulations and Federal hazardous waste regulations to Keystone Cement Company (hereafter called the Permittee), to operate a Hazardous Waste Storage and Energy Recovery within an approved cement facility located in the East Allen Township, Northampton County, at latitude 40 ° 42 ‘ 57.7 longitude 75 ° 23 ‘ 55.5 “. See Parts **I – VI** for additional permit restrictions.

The Permittee must comply with all terms and conditions of this permit. This permit consists of the conditions contained herein (Parts **I – VI** consisting of pages **1 through 42** and the applicable regulations contained in 25 Pa. Code Chapters §§260a-270a, 40 CFR §§260-270 and 273 as incorporated by reference in 25 Pa. Code Chapters §§260a-270a and 25 Pa. Code Chapters §§287-299 (hereinafter called “regulations”) as specified in the permit.

This permit is based on the assumption that the information submitted in the permit application received by the Department on August 3, 2018 (as subsequently revised on June 9, 2020 and December 21, 2022, respectively) (hereinafter referred to as the “Approved Application” or “permit renewal application” or “Application”) is accurate and the facility will be operated as specified in the Approved Application. Any inaccuracies found in this information may be grounds for the revocation or modification of this permit and potential enforcement action. The Permittee must inform DEP of any deviation from or changes in the information in the application, which would affect the Permittee’s ability to comply with the applicable regulations or permit conditions.

This permit is conditioned upon full compliance with all applicable provisions of the Act a.k.a. Pennsylvania Solid Waste Management Act, the Act of July 7, 1980, Act 97, 35 P.S. 6018.101, et seq.; Department regulations contained in 25 Pa. Code Article VII Hazardous Waste Chapter 260a – 270a; 25 Pa. Code Article IX Residual Waste Chapters 287-299; Federal regulations contained in 40 CFR Parts 260 – 270 and 273 as incorporated by reference in 25 Pa. Code Chapters 260a – 270a; the Clean Streams Law, 35 P.S. 691.1 et seq.; the Air Pollution Control Act, 35 P.S. 4001 et seq.; the Dam Safety and Encroachments Act, 32 P.S. 693.1 et seq.; the

Surface Mining Conservation and Reclamation Act, 52 P.S. 1396.1 et seq.; the Coal Refuse Disposal Control Act, 52 P.S. 30.51 et seq.; the Storage Tank and Spill Prevention Act, 35. P.S. 6021.101 et seq.; 25 Pa. Code Chapter 245 Storage Tank and Spill Prevention Program; 25 Pa. Code Article II Erosion Control Chapter 102; all other Pennsylvania statutes related to the protection of the environment; and all Pennsylvania statutes related to the protection of public health, safety, and welfare.

This permit is effective as of **May 7, 2025,** and shall remain in effect until **May 7, 2035**, unless revoked and reissued, or terminated in accordance with 25 Pa. Code §§270a.41, 270a.42, 270a.43 and 40 CFR §§270.41, 270.42, and 270.43 as incorporated by reference at 25 Pa. Code §270a.1.

All conditions of the attached permit supersede conditions of the original permit and permit modifications issued under this Hazardous Waste Management Permit Number except as specifically noted within this permit. Conditions contained herein that reference “permit” refer to the hereby reissued permit. The Permittee retains liability and responsibility from the original issuance date **(December 27, 1991)** of compliance history, and other responsibilities under the Solid Waste Management Act, the Environmental Protection Acts, PA Title 25 Environmental Protection Regulations, and the terms and conditions of the permit

PART I – STANDARD CONDITIONS

A. EFFECT OF PERMIT

This permit authorizes only the management of hazardous and residual waste expressly described in this permit and does not authorize any other management of hazardous or residual waste. Issuance of this permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local laws or regulations. Compliance with the terms of this permit does not constitute a defense to any action brought under the Act or any other law governing protection of public health or the environment.

B. PERMIT ACTIONS

This permit may be modified, revoked and reissued, terminated for cause as specified in 25 Pa. Code §§270a.10, 270a.41, 270a.42, 270a.43 and 40 CFR §§270.41, 270.42, and 270.43 as incorporated by reference at 25 Pa. Code §270a.1 or suspended in accordance with the Act. The filing of a request for a permit modification, revocation and reissuance, or revocation or the notification of planned changes or anticipated noncompliance on the part of the Permittee does not stay or supersede the applicability or enforceability of any permit condition.

C. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held to be invalid, the application of such provision to other circumstances and the remaining provisions of this permit shall not be affected thereby.

D. DEFINITIONS

For the purpose of this permit, terms used herein shall have the same meaning as those in Title 25 of the Pennsylvania Code and Title 40 of the Code of Federal Regulations (25 Pa. Code Chapters 260a – 270a and 40 CFR 260 – 270 & 273 as incorporated by reference in 25 Pa. Code 260a -270a and applicable sections of the Residual Solid Waste Regulations 25 Pa. Code 287 – 299), unless this permit specifically states otherwise; where terms are not otherwise defined, the meaning associated with such terms shall be as defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term. “The Department” is the Department of Environmental Protection of the Commonwealth of Pennsylvania.

E. REPORTS, NOTIFICATIONS AND SUBMISSIONS TO THE DEPARTMENT

All reports, notifications or other submissions which are required by this permit to be sent or given to the Department should be sent electronically via the Department’s Public Upload system or via certified mail to:

Program Manager

Waste Management Program

Commonwealth of Pennsylvania

Department of Environmental Protection

2 Public Square

Wilkes-Barre, PA 18701-1915

F. SIGNATORY REQUIREMENTS

All reports or other information requested by the Department shall be signed and certified as required by 40 CFR §270.11 as incorporated by reference at 25 Pa. Code §270a.1 and as modified by 25 Pa. Code §270a.10(c)(2).

G. DOCUMENTS TO BE MAINTAINED AT THE FACILITY SITE

The Permittee shall maintain at the facility, until closure is completed and certified by an independent

registered professional engineer, the following documents and amendments, revisions, and modifications to these documents:

1. Waste analysis plan required by 25 Pa. Code §264a.13, and 25 Pa. Code §297.203 and this permit.

2. Personnel training documents and records required by 40 CFR §264.16(d) as incorporated by reference at 25 Pa. Code §264a.1 and this permit.

3. Contingency plan required by 40 CFR §264.53(a) as incorporated by reference at 25 Pa. Code §264a.1 and this permit.

4. Closure plan required by 25 Pa. Code §§264a.115, 264a.120, 40 CFR §264.112(a) and (b) and 40 CFR §264.118(a) and (b) as incorporated by reference at 25 Pa. Code §264a.1 and this permit.

5. Annually-adjusted cost estimate(s) for facility closure required by 25 Pa. Code §§264a.115, 264a.120, 264a.162, 40 CFR §§264.142 and 264.144 as incorporated by reference at 25 Pa. Code §264a.1 and this permit.

6. Operating record required by 40 CFR §264.73 as incorporated by reference at 25 Pa. Code §264a.1 and Part II, Section H.1 of this permit.

7. Inspection schedules and logs required by 25 Pa. Code §264a.15 and 40 CFR §264.15(b)(2) as incorporated by reference in 25 Pa. Code §264a.1 and this permit.

8. Documents required by Part I, Sections H.9, H.13, H.14, H.15, I, and J; by Part II, Sections B, D, E, F, H, I, J, L, and M.2; by Part III Sections F.3, K.2, L.2, M, and P.4; Part IV Sections B, E; Part V Sections B, C, D, E, Part VI Sections A, B, I, F, and renewal application Appendix A of this permit.

9. Source Reduction Strategy required by 25 Pa. Code §§262a.100 and 287.53 for wastes generated by the permitted operations at this facility.

H. DUTIES AND REQUIREMENTS

1. Duty to Comply: The Permittee shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and the regulations promulgated hereunder and is grounds for enforcement action; for permit revocation, termination and reissuance, or modification; or for denial of a permit renewal application.

2. Duty to Reapply: If the Permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the Permittee must submit a complete application for a new permit at least one hundred eighty (180) days before this permit expires.

3. Permit Expiration: This permit and all conditions therein will remain in effect beyond the permit's expiration date if the Permittee has submitted a timely, complete application and through no fault of the Permittee, the Department has not issued a new permit.

4. Need to Halt or Reduce Activity Not a Defense: It shall not be a defense for the Permittee in an enforcement action to argue that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

5. Duty to Mitigate: In the event of noncompliance with the Act, the regulations, or this permit, the Permittee shall take all necessary steps to prevent and abate any releases to the environment, and shall carry out such measures as are necessary to prevent significant adverse impacts on human health or the environment.

6. Proper Operation and Maintenance: The Permittee shall at all times properly operate and maintain all facilities and systems of storage, treatment and control (and related appurtenances) which are

installed or used by the Permittee to achieve compliance with the Act, the regulations, and the conditions of this permit. Proper operation and maintenance shall include effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. The Permittee shall operate back-up or auxiliary facilities or similar systems if necessary, to achieve compliance with the Act, the regulations, and the conditions of the permit.

7. Duty to Provide Information: The Permittee shall furnish to the Department within a reasonable time, any relevant information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Department, upon request, copies of records required to be kept by the Permittee pursuant to the Act, the regulations, or any permit condition.

8. Inspection and Entry: The Permittee shall allow the Department, its agents, and authorized representatives, upon the presentation of credentials and other documents as may be required by law, or without advance notice or a search warrant to:

   a. Enter at reasonable times upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records concerning the regulated facility or activity are kept;

   b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

   c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under the Act, the regulations, or this permit;

   d. Sample or monitor any substances or parameters at any location for the purposes of assuring permit compliance or as otherwise authorized by the Act or the regulations; and,

   e. Engage in any other activities necessary or appropriate to the documentation of events or conditions at any locations including the taking of photographs; the performing of measurements, surveys, and other tests; to inspect monitoring equipment; to inspect methods of operation; and to inspect and/or copy documents, books and papers required by the Department to be maintained.

9. Monitoring and Records:

   a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the waste to be analyzed must be the appropriate method from Appendix I of 40 CFR Part 261 – Criteria, Identification and Listing of Hazardous Waste as incorporated by reference at 25 Pa. Code §261a.1 or an equivalent method approved by the Department. Laboratory test methods must be those incorporated by reference in 40 CFR 260.11 and ; Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (U.S. EPA Document SW-846, most recent edition); Standard Methods of Waste Water Analysis (U.S. EPA; most recent edition); or an equivalent method approved by the Department and as specified in renewal permit application Appendix B.

   b. The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports and records required by the Act, the regulations, or this permit, and all records of all data used to complete the application for this permit for a period of at least three (3) years from the date of the sample, measurement, report or record, or application. These periods may be extended by request of the Department at any time and are automatically extended during the course of any unresolved enforcement action regarding this facility.

   c. The Permittee shall maintain any required records of groundwater quality and groundwater surface elevations for the active life of the facility and during the post-closure care period as well.

d. The Permittee shall, at a minimum, keep monitoring records which include the following information:

i. The dates, exact place, and times of sampling or measurements;

ii. The individuals who performed the sampling or measurements;

iii. The dates analyses were performed;

iv. The individuals who performed the analyses;

v. The analytical techniques or methods used; and,

vi. The results of such analyses.

e. Please see Operating Record under Part II Section H.1 for other record and retention requirements

10. Reporting Planned Changes: The Permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility. This notice must include a description of all incidents of noncompliance reasonably expected to result from the proposed changes. The Permittee shall not modify the facility without first obtaining a permit or permit modification from the Department.

11. Anticipated Noncompliance: The Permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

12. Transfer of Permits: This permit shall not be transferred or assigned to any other person or municipality.

13. Twenty-Four Hour Reporting: The Permittee shall report to the Department any noncompliance with the Act, the regulations or any condition of this permit or any occurrence or event at the facility which may endanger health or the environment.

a. Information shall be provided orally within twenty-four (24) hours from the time the Permittee becomes aware of the circumstances. The Permittee should notify the Bethlehem District Office at 610-861-2070 and the Regional Office at 570-826-2511. This report shall include the following:

i. Information concerning release or potential release of any hazardous or residual waste from the facility that may endanger public drinking water supply sources.

ii. Any information of a release, potential release, or discharge of hazardous or residual waste from the facility, or information of a potential or actual fire or explosion at the facility, which may threaten the environment or human health.

b. The description of the occurrence and its cause shall include:

i. Name, address, and telephone number of the owner or operator;

ii. Name, address, and telephone number of the facility;

iii. Date, time, and type of incident;

iv. Name and quantity of material(s) involved;

v. The extent of injuries, if any;

vi. An assessment of actual or potential hazards to the environment and human health at or near the facility; and,

vii. Estimated quantity and disposition of recovered material that resulted from the incident.

c. A written submission shall also be provided to the Department within five (5) days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance (including exact dates and times); if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. The Permittee need not comply with the five (5) day written notice requirement if the Department extends it to fifteen (15) days.

14. Other Noncompliance: The Permittee shall report to the Department all other instances of noncompliance not otherwise required to be reported above, at the time monitoring reports are submitted. The reports shall contain the information listed in Part I Section H.13.

15. Other Information: Whenever the Permittee becomes aware that it failed to submit any relevant facts in the permit application, or submitted incorrect information in a permit application or in any report to the Department, or whenever the Permittee becomes aware of circumstances which require a modification or clarification of any fact or representation made to the Department in connection with a permit application, it shall promptly submit such facts or information to the Department.

16. Administrative Fees. The Permittee shall submit the annual administrative fee per 25 Pa Code §§264a.82 and 264a.83.

17. Information Repository. The Permittee shall comply with 25 Pa Code §270a.84.

I. COMPLIANCE SCHEDULE REPORTING

1. The Permittee shall submit written reports of compliance or noncompliance with interim and final requirements contained in any compliance schedule of this permit to the Department no later than fourteen (14) days following each schedule date.

2. See Part IV Section E for the Compliance Schedule

J. CERTIFICATION OF CONSTRUCTION OR MODIFICATION

The Permittee may not manage hazardous waste at the facility at any new or modified waste management area/unit until:

1. The Permittee has submitted to the Department by the submittal methods listed in Part I, Section E, a letter signed by the Permittee and a registered professional engineer stating that the facility has been constructed or modified in compliance with the permit; and,

2. The Department has inspected the modified or newly constructed facility and finds it in compliance with the conditions of the permit; or,

3. The Department has either waived the inspection or has not within fifteen (15) days notified the Permittee of its intent to inspect.

PART II – GENERAL FACILITY CONDITIONS

A. DESIGN AND OPERATION OF FACILITY

The Permittee shall maintain and operate the facility to minimize the possibility of a fire, explosion, or release of hazardous or residual waste or waste constituents to air, soil, surface water, or groundwater which could threaten human health or the environment.

B. GENERAL WASTE ANALYSIS

1. Analytical Procedures. The Permittee shall follow the procedures described in renewal permit application Waste Analysis Plan, Appendix B. The Permittee shall verify its waste analysis as part of its quality assurance program, in accordance with current EPA practices (Test Methods for Evaluating Solid Waste: Physical/Chemical Methods SW-846, most recent edition) or equivalent methods approved by the Department in accordance with procedures in 40 CFR §260.21 as incorporated by reference at 25 Pa. Code §260a.1; and at a minimum maintain proper functional instruments, use approved sampling and analytical methods, verify the validity of sampling and analytical procedures, and perform correct calculations.

2. New Waste Streams. Before accepting new hazardous or residual waste streams by any generator, a Module 1, a Generic Module I application in accordance with the requirements detailed at 25 Pa. Code §265a.13(6 – 9) and renewal application Appendix B, or Form U must be submitted to the Department per the submittal methods in Part I, Section E, of this operating permit. If the Permittee can certify in their submittal that the waste stream(s) are not characteristically hazardous for pesticides and herbicides D012, D013, D014, D015, D016, D017, D020, D031, D037, D041 & D042), then the Module 1 will be reviewed in the following way:

   a. If the Module 1/Form U is not returned within fifteen (15) working days from the date of receipt. Then the waste may be accepted for storage.

   b. If at any time after fifteen (15) working day period, it is determined that the waste accepted is not consistent with this Permit, then the Permittee may be subject to applicable enforcement actions under the Act or Regulations.

   If the above-mentioned Permittee certification is not submitted with the Module 1 / Form U, then the submittal shall be reviewed within the standard one hundred twenty (120) day review time-frame for new Module 1s.

   Existing Approved Waste Streams. The Department is incorporating all existing approved waste streams (Module 1 / Form U) with the relevant conditions of approval into the permit except as superseded by the permit. If there are any changes in the generator's / fuel blender's manufacturing, operations, process, or raw material(s) which chemically alter make-up of their waste streams(s), a new Module 1 / Form U will have to be submitted to the Department per the submittal methods in Part I, Section E, of this operating permit. If the Permittee can certify in the submittal that the waste stream(s) are not characteristically hazardous for pesticides and herbicides (D012, D013, D014, D015, D016, D017, D020, D031, D037, D041 & D042), then the Module 1/Form U will be reviewed in the following way:

   c. If the Module 1/Form U is not returned within fifteen (15) working days from the date of receipt. Then the waste may be accepted for storage.

   d. If at any time after fifteen (15) working day period, it is determined that the waste accepted is not consistent with this Permit, then the Permittee may be subject to applicable enforcement actions under the Act or Regulations.

   If the above-mentioned Permittee certification is not submitted with the Module 1 / Form U, then the submittal shall be reviewed within the standard one hundred twenty (120) day review time-frame for new Module 1s.

3. Waste Consistency. All waste streams approved for acceptance through the Module 1/Form U process must remain consistent with the Module 1/ Form U process description, Module 1/Form U waste ranges, and requirements stated in this permit. If a waste changes and becomes inconsistent with these requirements, the Permittee must cease accepting the waste until the Module 1 / Form U is resubmitted for Department approval per Part II Section B.3 above. On the Anniversary date of issuance of this permit, the Permittee shall reevaluate each waste stream to verify that the waste remains physically and chemically consistent with their original Module 1 / Form U analysis (if a waste stream is approved for acceptance within a year of the anniversary date, however, no update is required for the year for that particular waste stream). The reevaluation procedure shall be as follows:

   a. If the waste is chemically or physically different from that described in the original Module 1 /Form U submittal because of a process change, the generator must resubmit a new Module 1 / Form U. A full pre-qualification Module 1 / Form U analysis shall be performed by the permittee any time the generator identifies that the waste stream and/or process generating the waste stream has significantly changed in chemical composition, or if the waste stream has changed in hazardous characterization or management methods of waste.

   b. If lieu of annually performing an analysis, an authorized representative of the generator of waste may sign a certification that the physical and chemical properties of the waste and the process by which the waste was generated has not changed from those set forth for the previous year. This certification shall include a copy of the original Module 1 / Form U.

   c. Notwithstanding the certification permitted in (b) above, a Module 1 / Form U chemical analysis shall be completed every five (5) years.

   d. This re-evaluation will identify any significant environmental and operational impacts that the wastes have had on the facility, and identify any special processing requirements for the waste streams.

   e. Documentation regarding this annual waste stream evaluation will be made available to the Department upon request.

   f. Each waste load's analytical results and waste acceptance / rejection procedure documents shall be compared with the approved Module 1 / Form U for consistency.

4. Herbicides & Pesticides. The Permittee shall implement the Pesticide and Herbicide Management Implementation Plan located in the renewal permit Appendix A and per other conditions of this permit.

5. Site Records. Copies of all Department approved Module 1 / Form U for waste fuels must be kept and maintained at the Keystone Cement Company plant office in East Allen Township.

C. SECURITY

The Permittee shall comply with the security provisions of 40 CFR §§264.14(b) and (c) as incorporated by reference at 25 Pa. Code §264a.1.

D. GENERAL INSPECTION REQUIREMENTS

The Permittee shall follow the inspection plan(s) as dictated by the inspection(s) included in renewal application Appendix D. The Permittee shall remedy any deterioration or malfunction discovered by an inspection as required by 40 CFR §264.15 as incorporated by reference at 25 Pa. Code §264a.1. Records of inspections including preventive maintenance inspections shall be kept as required by 40 CFR §264.15(d) as incorporated by reference at 25 Pa. Code §264a.1.

E. PERSONNEL TRAINING

The Permittee shall conduct personnel training as required by 40 CFR §264.16 as incorporated by reference at 25 Pa. Code §264a.1. This training program shall follow the attached outline, renewal application Appendix P. The Permittee shall maintain training documents and records as required by 40 CFR §264.16 (d) and (e) as incorporated by reference at 25 Pa. Code §264a.1.

F. PREPAREDNESS AND PREVENTION

1. Required Equipment: At a minimum, the Permittee shall equip the facility with the equipment set forth in the PPC plan, renewal application Appendix C, as required by 40 CFR §264.32 as incorporated by reference at 25 Pa. Code §264a.1.
2. Testing and Maintenance of Equipment: The Permittee shall test and maintain the equipment specified in the previous permit condition and in renewal application Appendix C, as necessary to assure its proper operation in time of emergency and as required by 40 CFR §264.33 as incorporated by reference at 25 Pa. Code §264a.1.
3. Access to Communications or Alarm System: The Permittee shall maintain access to the communications or alarm system as required by 40 CFR §264.34 as incorporated by reference at 25 Pa. Code §264a.1.
4. Required Aisle Space: At a minimum, the Permittee shall maintain aisle space as required by 25 Pa. Code §264a.173 and 40 CFR §264.35 as incorporated by reference at 25 Pa. Code §264a.1.
5. Arrangements with Local Authorities: The Permittee shall maintain arrangements with State and local authorities as required by 40 CFR §264.37 as incorporated by reference at 25 Pa. Code §264a.1. If State or local officials refuse to enter in or renew existing preparedness and prevention arrangements with the Permittee, the Permittee must document this refusal in the operating record.

G. PREPAREDNESS, PREVENTION AND CONTINGENCY (PPC) PLAN

1. Implementation of PPC Plan: The Permittee shall immediately carry out the provisions of the PPC plan, renewal application Appendix C and follow the emergency procedures described by 25 Pa. Code §264a.56 and 40 CFR §264.56 (a) – (i) as incorporated by reference at 25 Pa. Code §264a.1 whenever there is a fire, explosion, emission or discharge of hazardous waste or hazardous waste constituents which could threaten human health or the environment.
2. Copies of Plan: The Permittee shall comply with the requirements of 40 CFR §264.53 as incorporated by reference at 25 Pa. Code §264a.1.
3. Amendments to Plan: The Permittee shall review and immediately amend, if necessary, the PPC plan, as required by 40 CFR §264.54 as incorporated by reference at 25 Pa. Code §264a.1.
4. Emergency Coordinator: The Permittee shall comply with the requirements of 40 CFR §264.55 as incorporated by reference at 25 Pa. Code §264a.1.
5. Emergency Procedures: The Permittee shall comply with the requirements of 40 CFR §264.56(a-i) as incorporated by reference at 25 Pa. Code §264a.1.
6. Corrective Action at Solid Waste Management Units: In event of uncontrolled releases, the Permittee shall comply with all requirements of 40 CFR §264.101 as incorporated by reference at 25 Pa. Code §264a.1

H. RECORDKEEPING AND REPORTING

1. Operating Record: The Permittee shall maintain a written operating record at the facility in accordance with 40 CFR §264.73 as incorporated by reference at 25 Pa. Code §264a.1. The operating record shall contain information from a waste inventory and tracking system. The system must identify the waste description, quantity, generator, date received, transport manifest number, location stored, and any unusual conditions noted by the site personnel. The storage location and

quantity shall be cross-referenced with transport document numbers.

2. Biennial Report: The Permittee shall comply with all applicable biennial facility reporting requirements of 25 Pa Code §264a.75 and 40 CFR §264.75 as incorporated by reference at 25 Pa. Code §264a.1.

3. Required Reports: The Permittee shall comply with all applicable reporting requirements as described in 40 CFR §264.77 as incorporated by reference in 25 Pa. Code §264a.1, 40 CFR §270.30(l)(7,8) as incorporated by reference in 25 Pa. Code §270a.1; Part I Sections E, F, H.7, H.9, H.10, H.11, H.13, H.14, H.15, I, J; Part II, Sections B, G.2, L and M; Part IV Sections A.6.d, B.4.c, and E; Part V Section B; and Part VI Sections B, C, and E of this permit.

I. CLOSURE

1. Performance Standard: The Permittee shall close the facility as required by 40 CFR §264.111 as incorporated by reference at 25 Pa. Code §264a.1, 40 CFR §266.102(e)(11) as incorporated by reference at 25 Pa. Code §266a.20,and in accordance with the closure plan in renewal application Appendix E and conditions of this permit.

2. Amendment to Closure Plan: The Permittee shall amend the closure plan in accordance with 40 CFR §264.112(c) as incorporated by reference at 25 Pa. Code §264a.1 whenever necessary.

3. Notification of Closure: The Permittee shall notify the Department in writing at least forty-five (45) days prior to partial or final closure per 40 CFR §264.112(d) as incorporated by reference at 25 Pa. Code §264a.1.

4. Time Allowed for Closure: After receiving the final volume of hazardous waste, the Permittee shall remove from the site or dispose of on-site all hazardous and residual waste and shall complete closure activities in accordance with 40 CFR §264.113 as incorporated at 25 Pa. Code §264a.1 unless an alternative schedule is approved in writing by the Department.

5. Disposal or Decontamination of Equipment, Structures, and Soils: The Permittee shall decontaminate and/or dispose of all facility equipment, structures, and soils as required by 40 CFR §264.114 as incorporated by reference in 25 Pa. Code §264a.1 and the closure plan from renewal permit application Appendix E.

6. Analysis of Samples: The Permittee shall conduct analysis to verify that all decontaminated facility equipment and structures are adequately decontaminated as required by 40 CFR §264.114 as incorporated by reference in 25 Pa. Code 264a.1 and the closure plan from renewal permit application Appendix E.

7. Certification of Closure: The Permittee shall certify that the facility has been closed in accordance with the specifications in the closure plan as required by 25 Pa. Code §264a.115, §264a.166, and 40 CFR §264.115, as incorporated by reference at 25 Pa. Code §264a.1.The owner /operator certification must comply with the signature requirements of 40 CFR §270.11 as incorporated by reference at 25 Pa. Code §270a.1.

J. COST ESTIMATE FOR FACILITY CLOSURE

1. Annual Adjustment: The Permittee shall adjust the closure and post-closure cost estimate for inflation within thirty (30) days after each anniversary of the date on which the first cost estimate was made as required by 40 CFR §264a.153, 40 CFR §§264.142 and 264.144(b) as incorporated at 25 Pa. Code 264a.1. See Closure Plan from renewal application Appendix E.

2. Adjustment for Changed Conditions: The Permittee shall revise the cost estimate whenever there is a change in the facility's closure plan or in the measures necessary to prevent adverse effects upon the environment as required by 40 CFR §264.142 and §264.144(c) as incorporated by reference at 25 Pa. Code §264a.1.

3. Availability: The Permittee must keep at the facility the latest cost estimate as required by 40 CFR §264.112 as incorporated by reference at 25 Pa. Code §264a.1.

4. Incapacity of Permittee or Financial Institutions: The Permittee shall comply with 25 Pa. Code

§264a.148 and 40 CFR §264.148 as incorporated by reference at 25 Pa. Code §264a.1 whenever necessary.

K. BONDING REQUIREMENT

1. The Permittee shall maintain the collateral bond submitted to and approved by the Department as required by 40 CFR §264 Subpart H, as incorporated by reference at 25 Pa. Code §264a.1 and as modified by 25 Pa. Code §264a Subpart H. The Permittee shall comply with all applicable financial assurance requirements. See permit renewal application Appendix E.

2. The facility shall not exceed the bonded tank storage volume amount (220,000 gallons) when transitioning from closing the existing four (4) storage tanks (1A, 1B, 2, 3) to the installation of seven (7) new storage tanks (5,6,7,8,9,10,11).

3. The Permittee shall include an annual adjustment to the bond amount to account for inflation and provide the inflation calculations as part of the 4th quarter facility report.

4. The permittee shall have a Department approved bond for all previously approved and new construction.

L. LIABILITY INSURANCE

The Permittee shall comply with the liability insurance requirements of 25 Pa. Code §264a.147 and the documentation requirements of 40 CFR §264.147(e) as incorporated by reference at 25 Pa. Code §264a.1**.** These include the requirements to have and maintain liability coverage for sudden accidental occurrences in the amount of at least $1 million per occurrence with an annual aggregate of at least $2 million, exclusive of legal defense costs, and for non-sudden accidental occurrences in the amount of at least $3 million per occurrence with an annual aggregate of at least $6 million, exclusive of legal defense costs. If combined, the coverage levels for sudden and non-sudden occurrences shall be in the amount of at least $4 million per occurrence and $8 million annual aggregate pursuant to 40 CFR §264.147(a, b) as incorporated by reference in 25 Pa. Code §264a.1. The Permittee shall submit new certificates of liability insurance annually or sixty (60) days prior to the expiration of the current certificate.

M. REQUIRED NOTICES

1. Notice to Department: 40 CFR Part 262.84(b)(1) requires that the importer to provide notification in English to EPA of the proposed transboundary movement of hazardous waste at least sixty (60) days before the first shipment is expected to depart the country of export. Notice of subsequent shipments of the same waste from the same foreign source is not required. The notice shall demonstrate that the requirements of 25 Pa. Code §262a Subchapter H (Transfrontier Shipments of Hazardous Waste for Recovery within the Organization for Economic Cooperation and Development (OECD)) have been met.

2. Notice to Generator: When the Permittee plans to receive hazardous waste from an off-site source (except where the Permittee is also the generator), they must inform the generator in writing that they have the appropriate permits for, and will accept, the waste the generator is shipping (i.e. for storage (i.e., combusting for energy recovery) in the kiln)). The Permittee must keep a copy of this written notice as part of the operating record. (See Part II Section H.1).

3. Notice from Generator: Whenever the generator violates any environmental laws in the processing of waste at a permitted facility or violates any laws or regulations relating to the generation of a waste in an industrial process, the generator will report this to the Permittee. The Permittee shall then notify the Department per 40 CFR §264.12 Required Notices, as incorporated by reference at 25 Pa. Code §264a.1.

N. GENERAL REQUIREMENTS FOR IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTE

The Permittee shall comply with the requirements of 40 CFR §264.17 as incorporated by reference at 25 Pa. Code §264a.1. Reactive and /or incompatible wastes may not be accepted at this facility.

O. MANIFEST SYSTEM

1. Use of the Manifest System: The Permittee shall comply with the manifest requirements of 25 Pa. Code §264a.71 and 40 CFR §§264.70, 264.71, 264.72, 264.72(a) & 264.72(b), as incorporated by reference at 25 Pa. Code §264a.1.

2. Hazardous Waste Management Fees. The Permittee will comply with the requirements of 25 Pa. Code §§264a.78 – 264a.79, 264a.82 and 264a.83.

PART III - STORAGE IN TANKS

A. WASTE IDENTIFICATION

1. The Permittee may store and blend the hazardous and/or residual waste in the tanks listed below, subject to the terms of this permit:

Tanks No(s)	**Approved Hazardous Waste Code No(s) for listed tanks**
Aboveground Waste Solvent Storage Tanks Nos. 1A, 1B, 2, 3, 5, 6, 7, 8, 9, 10, 11 (when constructed)	D001, D018, D035, F001, F002, F003, F004, F005, F037, F038, K014, K015, K016, K017, K018, K019, K020, K022, K023, K025, K026, K028, K030, K035, K036, K048, K049, K050, K051, K052, K083, K085, K086 (solvent washings only), K087, K156, K169, K170, K171, K172, U001, U002, U004, U009, U012, U019, U031, U051, U052, U055, U056, U057, U072, U075, U078, U105, U112, U113, U115, U117, U127, U128, U131, U140, U153, U154, U159, U161, U169, U171, U188, U194, U220, U239 & approved residual wastes. See renewal application Appendix B. **Approved Secondary Waste Codes** Each primary hazardous waste code listed above may exhibit the following secondary hazardous waste characteristics D004, D005, D006, D007, D008, D009, D010, D011, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D036, D038, D039, D040, and D043.* *Herbicides & Pesticides – See Part IV Section B. The pesticide & herbicide secondary waste codes include D012, D013, D014, D015, D016, D017, D020, D031, D037, D041, and D042. Each primary waste code listed above may exhibit the following secondary waste codes for commercial chemical products, manufacturing chemical intermediates, or off-specification commercial products: U003, U037, U043, U044, U070, U077, U080, U118, U121, U122, U162, U165, U196, U210, U211, U213, U226, U227. U228, U359**. **These secondary waste codes may only be accepted at concentrations as approved for each individual waste stream via the Module 1 process, in addition to the general waste acceptance limit for chlorides. See Part IV Section B (Waste Acceptance Criteria) for additional restrictions on Incoming wastes. See renewal application Appendix B (Waste Analysis Plan) for a description of the waste codes.

2. The Permittee is allowed to store off-spec used oil in an above ground storage tank. Off-spec used oil

will be stored in the tank prior to being combusted in the kiln. The Tank that is holding the off spec RW oil should be identified and information should be submitted to the Department prior to tank installation.

B. DURATION OF STORAGE

The Permittee shall not store hazardous and/or residual waste at this facility in excess of one (1) year.

C. DESIGN AND CONSTRUCTION OF TANKS

1. The permittee shall construct, modify, and maintain all tanks in accordance with the approved plans and specifications. The permittee shall maintain the minimum shell thickness specified in the American Petroleum Institute (API) Standard 650, unless the Department authorizes an alternate standard, identified below, at all times, to ensure sufficient structural strength. The maximum tank capacities are provided in Part IV.D.

Tank No(s)	Minimum Shell Thickness (inches)	Construction Status (C.4)
Tank #1A	0.150 (nominal)	In-Service
Tank #1B	0.150 (nominal)	In-Service
Tank #2	0.1875 (nominal)	In-Service
Tank #3	0.1875 (nominal)	In-Service
Tank #5	0.1875 (nominal) to be determined at time of construction	Future
Tank #6	0.1875 (nominal) to be determined at time of construction	Future
Tank #7	0.1875 (nominal) to be determined at time of construction	Future
Tank #8	0.1875 (nominal) to be determined at time of construction	Future
Tank #9	0.1875 (nominal) to be determined at time of construction	Future
Tank #10	0.1875 (nominal) to be determined at time of construction	Future
Tank #11	0.1875 (nominal) to be determined at time of construction	Future

2. The permittee shall submit all related documentation for each phase of construction previously approved and as detailed in Appendix G of the permit renewal application.
3. The permittee shall have a licensed Professional Engineer conduct a yearly inspection of all existing tanks to ensure minimum shell thickness requirements are met. A copy of the engineer's yearly inspection report shall be submitted to the Department.
4. Status at the time of permit issuance.

D. PROTECTION FROM OVERFILLING

The permittee shall prevent overfilling of tanks by the methods specified in **r**enewal application Appendix A and summarized below.

Tank No(s).	Type of Control
Waste Solvent Tanks Nos. 1A, 1B, 2 and 3	High level Alarm
Waste Solvent Tanks Nos. 5,6,7,8,9,10, 11 (when constructed)	High level Alarm

E. SECONDARY CONTAINMENT

The Permittee shall maintain the existing containment structures and construct and/or maintain new containment structure(s) per 40 CFR §§264.193(b, c, d, e, f) & 264.194(b) and 264.195 as incorporated by reference at 25 Pa. Code §264a.1.

F. EMERGENCY REPAIRS; CONTINGENCY PLAN

1. TER Inspection Plan. The permittee shall inspect the tanks in accordance with the Tank Evaluation and Repair (TER) Plan whenever there is any indication of a possible failure as required by 40 CFR §§264.191(a), 264.192(g) & 264.196 as incorporated by reference at 25 Pa. Code §264a.1 and as modified by 25 Pa. Code §264a.191.

2. Removal from Service. Whenever there is evidence of tank failure, the permittee shall remove the tank from service as required by 40 CFR §264.196(a) as incorporated by reference at 25 Pa. Code §264a.1 and implement the procedures required by 40 CFR §264.196(b)-(e) as incorporated by reference by 25 Pa. Code §264a.1 and specified in the PPC Plan, renewal application Appendix C.

3. Return to Service. Prior to return to service, the permittee shall repair the tank and obtain a certification from a registered professional engineer that it meets the design specifications approved in this permit, as required by 40 CFR §§264.191(a), 264.192(g) & 264.196(f) as incorporated by reference at 25 Pa. Code §264a.1.

4. Closure of Tank. If a tank has been removed from service due to failure and is not being repaired, the permittee shall close it as required by 40 CFR §264.196(e) and 40 CFR §264.197 as incorporated by reference at 25 Pa. Code §264a.1 and submit a Form HW-B certifying closure.

G. ACCESS ROADS

The permittee shall construct and/or maintain access roads as needed to meet Chapter 102 (Erosion Control) requirements.

H. BUFFER ZONE

The Permittee shall establish and maintain a buffer zone of fifty (50) feet between the property line and the permitted facility within which no hazardous waste storage activities shall occur.

I. EQUIPMENT

1. Equipment Maintenance. The Permittee shall maintain tank operating equipment in operable condition and adequate in size and performance capability to assure that the facility operation will not be interrupted during normal working periods and that the facility operation is in accordance with this permit.

2. Standby Equipment. The Permittee shall maintain standby equipment on-site or readily available for use in the event of a major equipment breakdown.

J. PROTECTION FROM CORROSION

The permittee shall protect the tanks from accelerated corrosion, erosion, and abrasion as specified in 40 CFR §264.194(a) as incorporated by reference at 25 Pa. Code §264a.1, renewal application Appendix F and as summarized below:

Tank No(s)	Type of Protection
Waste Solvent Storage Tank Nos. 1A, 1B, 2, 3, 5,6,7,8,9,10 and 11 (when constructed)	Carbon steel construction plus biennial sonic Testing for corrosion and compatibility testing of incoming wastes.

K. SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTE

1. Special Requirements. The permittee shall not accept reactive waste. The permittee shall not place ignitable waste in a tank unless the procedures described in renewal application Appendix B are followed.

2. Documentation. The permittee shall document compliance with the above permit condition as required by 40 CFR §264.17(c) and place this documentation in the operating record (Part II Section H.1).

3. NFPA Requirements. The permittee shall comply with all applicable requirements for covered tanks listed in the National Fire Protection Association's "Flammable and Combustible Liquids Code, 1981", or latest revised edition.

L. SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES

1. Incompatible Wastes Precautions: The Permittee shall not accept incompatible wastes. The Permittee shall not place incompatible wastes in the same tank or place hazardous waste in an unwashed tank that previously held an incompatible waste or material unless the procedures specified in renewal application Appendix B are followed.

2. Documentation: The Permittee must document compliance with sections (1) and (2) of this condition as required by 40 CFR §264.17(c) and as incorporated by reference at 25 Pa. Code §264a.1 and place this documentation in the operating record (Part II Section H.1).

M. WASTE ANALYSIS

The Permittee shall conduct waste analyses, or shall obtain written, documented information as required by 40 CFR §264.13 as incorporated by reference at 25 Pa. Code §264a.1 and the Waste Analysis Plan, renewal application Appendix B, before storing a hazardous waste which is different from waste previously stored in a tank. The analyses, tests, and information shall be placed in the operating record (Part II Section H.1).

N. WEIGHING OR MEASURING FACILITIES

The Permittee shall provide, maintain, and operate weighing or measuring facilities that can accurately weigh the incoming waste volumes.

O. OPERATING HOURS

Facility Sign. The Permittee shall maintain at the entrance of the facility a sign displaying hours of operation for receipt of waste, the lettering shall have a minimum of four (4) inches in height and of a color contrasting with the background.

P. TANK CONSTRUCTION OR INSTALLATION

1. Inspections. The Permittee shall inspect the tank for uniformity, damage and imperfections during

construction or installation.

2. Construction Practices. The Permittee shall use best engineering construction practices during all phases of installation and construction.

3. Quality Control Measures. The Permittee shall use the approved quality control measures and tests specified in the relevant approval to ensure that installation and construction conform to the design materials and construction specifications approved in this permit.

4. Professional Engineer Certification. The Permittee shall obtain a written certification from a registered professional engineer for each phase of installation or construction as required by 40 CFR §264.192 as incorporated by reference at 25 Pa. Code §264a.1. Each certification shall be submitted to the Department in accordance with the Compliance Schedule (Part IV Section E.4.).

5. Construction Schedule. The Permittee shall construct or install the tank(s) or other structures in accordance with the schedule approved by the Department, in permit renewal application Appendix G.

Q. SURFACE WATER MANAGEMENT

1. Design Standards. The Permittee shall manage surface water on the site as required by 25 Pa. Code Chapter 102, the Clean Streams Law, the Approved Application, and the Regulations.

2. Run-Off. The Permittee shall manage surface water run-off as required by the Regulations and the Approved Application.

3. Run-On. The Permittee shall manage surface water run-on as required by the Regulations and the Approved Application.

R. WASTE TRACKING

The Permittee shall minimize or eliminate the tracking of waste within or outside the site as required by the Regulations.

S. TRUCK UNLOADING, PARKING AND STAGING AREAS

1. The Permittee shall maintain the Truck Unloading Area to permit vehicles to unload promptly. All vehicles being unloaded shall be parked on the unloading pad within the secondary containment.

2. Vehicles may be staged at the Truck Staging Area or parked in the Truck Parking Area but must either be unloaded at the Truck Unloading Area or rejected with the waste trucks departing the site. No storage of waste-containing trucks is allowed in the Truck Parking Area outside of normal working hours (overnight). No storage of waste-containing trucks is allowed in the Truck Staging Area beyond forty-eight (48) hours. See Part VI Section C.2 for additional requirements.

3. Truck sampling activities may only occur at the Truck Unloading Area within secondary containment and at the Truck Staging Area while portable secondary containment units (e.g., spill barrows) are in place as described in the applicable Standard Operating Procedures (permit renewal application Appendix A).

T. AIR EMISSION REQUIREMENTS

1. This permit does not authorize the discharge of air emissions unless the Department Air Quality Program has approved the discharge of these emissions.

2. The Permittee will comply with all requirements of 40 CFR § 264.200 and 40 CFR Part 264 Subparts BB and CC as incorporated by reference at 25 Pa. Code § 264a.1, except as superseded by 40 CFR Part

63 Subparts DD and EEE (40 CFR 266.100(b), 40 CFR 264.1064(m), 40 CFR 264.1080(b)(7)).

PART IV – CONDITIONS SPECIFIC TO KEYSTONE CEMENT COMPANY

A. SITE AREA AND AUTHORIZED ACTIVITIES

1. Site Area.

a. This permit authorizes the operation of a hazardous waste storage facility, at Keystone Cement Company, in East Allen Township, Northampton County, for acceptance of approved wastes that will be stored within the HW Storage Tank System prior to their beneficial energy recovery as alternative fuel within the on-site cement kiln. The site boundaries are labeled as Permit Area Plan of Operations, Figure 4 (RCRA Part B Permit Renewal Application). A separate CKD Contingency Area, for the storage of hazardous waste kiln residues (in roll-offs) for less than 90 days, is identified on the PPC Plan Figure 2B.

b. Hazardous Waste Management Units (HWMUs):

i. Active HWMUs:
The "active" hazardous waste management units of the Hazardous Waste Facility and site, located within the "site" boundaries, includes the existing Tanker Truck Parking Area, the existing Tanker Truck Staging Area, the existing Tanker Truck Unloading Area, the existing HW Storage Tank System including all ancillary systems, the existing cement kiln, and the contiguous area immediately impacted by the hazardous waste management activities at these units.

ii. Future HWMUs:
The currently "future" hazardous waste management units of the Facility include the unconstructed Railcar Area, unconstructed HW Storage Tanks (5 -11), unconstructed direct transfer system, and unconstructed HW fuel mixing system located within the existing Tanker Truck Unloading Area. Construction and operation of the Railcar Area and a portion of the new HW Storage Tanks are authorized to occur within the construction schedule as described in Appendix G of the renewal permit application. The Future HWMUs cannot be operated until the Part IV Section E (Compliance Section) and Part VI (Permitted Railcar and Truck Operations) requirements are satisfied. At that time, the Future HWMUs will become Active HWMUs.

c. New construction or activities within the hazardous waste storage site will require written Department approval.

2. Railcar Areas. Waste containing railcars may not be accepted onsite prior to written Department approval after construction of the combined HWMU. See Part IV Section E (Compliance Schedule) and Part VI (Additional Railcar/Truck Conditions) for additional requirements.

3. Hazardous Waste (HW) storage tanks. The permittee is authorized to install the HW storage tanks as described in the renewal permit application. Any approval contained in this permit for the unconstructed Tanks will terminate within five (5) years of the issuance of this permit. The permittee will be required to submit a Class 2 or 3 Hazardous Waste Permit Modification if the Permittee proposes to construct additional waste fuel tanks other than those proposed as part of the Combined HWMU.

   Processing Conditions. The blending, mixing, and/or treatment of waste streams to meet waste acceptance criteria is prohibited. Use of the existing tank agitators and/or shredders located inside the existing or modified HW Storage Tank System is defined as normal flow control intended to maintain consistent pumpability of waste streams previously meeting waste acceptance criteria upon initial receipt, not blending, mixing, treatment or processing to meet acceptance criteria. This permit does not authorize other processing of waste except for energy recovery by combustion of approved waste streams (with a heating value of ≥ 5000 Btu/lb).Once the waste is received and stored, permittee will blend a fuel to meet its energy recovery criteria.
4. Storage Tank Venting System.

   a. This permit authorizes the connection of the Hazardous Waste Storage Tank System's venting system to the unloading waste vehicles (i.e., vapor balancing system).

   b. The carbon canister system shall remain in place as a back-up system to the existing, certified vapor balancing system.

   c. The permittee is authorized to install and operate a new Hazardous Waste Fuel vapor vent line. This new vapor line will vent vapors (organic emissions) from the HW storage tanks to the first under grate fan of the existing clinker cooler and ultimately to the kiln for combustion.

5. Transfer Facility Operations. This permit does not authorize any transfer activities except for the following:

   a. Truck Unloading Area:

      i. Prompt unloading at the existing Truck Unloading Area(s), within secondary containment, for incorporation of incoming waste into the approved hazardous waste storage tank system. See Part III Sections S & Part IV Sections A, B, C, E for overnight storage provisions.

   b. Existing Truck Staging Area and New Railcar Staging Area:
      i. All hazardous and/or residual waste-containing trucks plus emptied but not decontaminated trucks or railcars previously used to contain wastes, are limited to staging within the approved active Railcar / Truck Unloading Area, Truck Parking Area, and Railcar / Truck Staging Area(s).
      ii. See Part III Section S (Truck Unloading, Parking, and Staging Areas), Part IV Section E (Compliance Schedule) and Part VI (Railcar Operations).
      iii. The Truck Staging Area shall be utilized for sampling activities in accordance with Standard Operating Procedures approved by the Department (SOP WF-60).
      iv. Railcars may be sampled on any rail track located on-site, including within the Railcar Unloading and Railcar Staging Area per the Railcar Management Plan (permit renewal Appendix L).

   6. Direct Transfer System: Direct discharge of waste from incoming vehicles into the cement kiln is authorized through the direct transfer system.

   8. Waste Re-Manifesting: Incoming rejected waste loads may be re-manifested for disposal off-site. The Permittee shall maintain in the operating record the following information related to re- manifested loads: the original generator, the waste description, the reasons for rejection, and the name of the facility to where the material was sent. The Permittee shall include all rejected loads in the Biennial reports and the region for each rejected load.

B. WASTE ACCEPTANCE CRITERIA:

No wastes may be accepted if the waste fails to meet the limits set forth below:

1. On-site Waste Screening Tests & Limits and Module 1/Form U Waste Tests & Limits.

   a. Waste Codes: No hazardous waste codes may be accepted other than those listed in Part III Section A above.

   b. On-site Waste Screening Tests and Limits: The on-site waste tests and waste screening limits are set forth in Table 1 below.

   c. Module 1/Form U Screening Tests and Limits:

      i. Module 1/Form U acceptance criteria limits incorporate all Table 1 On-site Waste Screening Tests and Limits except as noted otherwise.

      ii. See Part III Section A for the listing of primary and secondary waste codes.

      iii. See Part II Section B of this permit and the renewal application Appendix B, Waste Analysis Plan for additional Module 1/Form U analytical requirements.

      iv. Should a waste stream have multiple phases, the Keystone Cement Module1/Form U analysis will include the following:

         1. Determine the percent (by volume) of all phases of separation comprising the waste.
         2. Determine the percent water content of all phases that are equal or greater than 25% of the sample volume.
         3. For any phase identified in subsection “2” above and containing greater than or equal to 75% water by volume, analysis for the entire range of halogenated inorganic anions will be performed.
         4. The permittee shall retain the capability of analyzing incoming waste loads for the entire range of anions via onsite laboratory test method or by an offsite laboratory which is able to provide results within a reasonable timeframe.

TABLE 1
WASTE ACCEPTANCE CRITERIA
FOR ON-SITE WASTE TESTING

PARAMETER	TEST METHOD [1]	SOURCE	APPENDIX B TEST METHOD	LIMITS
%Cl (Chlorine)	9253 (MOD)	SW846	RL.7 detection	≤ 3.0%
PCBs Screening	3620B/8082	SW846	RL.18/RL.19/RL.20	25 ppm
BTU/lbs.	E711 (MOD)	ASTM	RL.6	≥ 5000 BTU/lb.
Peroxide	Manufacturer's Specification	EM QUANT	RL.12	Not Present (per Module 1 analytical data or certification that peroxides are not present with on-site screening at <10 PPM detection limits)[3]
pH	9045C	SW846	RL.14	>2.00 – <12.5
Phases[4]	Visual Inspection	N/A	N/A	Consistent with Mod 1 (Number of Phases)
Iodine[5]	Keystone SOP	KCC Method	S-1	<2%
Compatibility[7]	5058 (MOD)	ASTM	RL.9, RL.10, RL.11	Compatible as determined by the cited test methods

[1]Changes to analytical methods may be made via the Part IV Section F (SOP Modification) process. Updated methods will be incorporated consistent with the facility's laboratory accreditation.

[2]Keystone collects a sample every incoming shipment

[3]On site screening level

[4]The incoming shipment should not indicate a greater number of phases than indicated on the Mod 1 Form. In the event that there are a greater number of phases than indicated on the Mod 1 Form, the generator will be contacted to ensure that the additional phases do not represent a change in waste or process generating waste.

[5]Applies waste streams where there is discrepancy in the number of phases is identified during incoming shipment inspection procedures (i.e. – there are a greater number of phases than identified on the Module 1/Form U). Keystone will determine iodine content for any phase containing 25% or greater of the waste sample by volume and containing 75% or greater water content.

[7]Compatibility testing required from materials to be commingled in the facility tank farm is not required for direct transfer materials.

PERIOD CONFIRMATION TESTING
SUMMARY OF ANALYTICAL METHODS AND MODULE 1 LIMITS

PARAMETER	TEST METHOD	SOURCE	KEYSTONE TEST METHOD[2]	LIMITS[1]
As (Arsenic)	3051/6010B or 7061A	SW846	RL.15/RL.16	≤ 1120 PPM (combined)
Be (Beryllium)	3051/6010B or 7090	SW846	RL.15/RL.16	
Cr (Chromium)	3051/6010B or 7190	SW846	RL.15/RL.16	
Cd (Cadmium)	3051/6010B or 7130	SW846	RL.15/RL.16	≤ 3500 PPM (combined)
Pb (Lead)	3051/6010B or 7420	SW846	RL.15/RL.16	
Hg (Mercury)	3051/3051A/7470A/7471A	SW846	RL.15/RL.17	≤ 10 PPM

[1]Metals testing is only required to be performed on every tenth shipment of waste from each generator. The periodic testing will be used to confirm that the waste stream metals concentrations remain below the limits detailed above.
[2] Keystone Test Method References are included in Appendix A of permit renewal application.

KILN GENERATED WASTES-
SUMMARY OF ANALYTICAL METHODS

PARAMETER	REFERENCE METHODS [1]	SOURCE	RATIONALE	CRITERIA
TCLP Metals	1311(Mod.)/3051(Mod.)/6010B(Mod.), 7470(Mod.) or 7000 series	SW846	Regulatory	Note 2
TCLP Organics	1311(Mod)/8260/8270/8015/8260(Mod)/8270 (Mod.)	SW846	Regulatory	Note 2

[1]Changes to analytical methods may be made via the Part IV Section F (SOP Modification) process
[2]CKD generated waste will be sampled in accordance with the CKD Sampling and Analysis Plan and the results will be assessed in accordance with the criteria detailed at 40 CFR Part 266.112(b)(1) or (2). Refractory lining will be sampled and compared to the TCLP limits at 40 CFR 261.24.

2. Unacceptable Wastes. Materials contaminated with PCBs, peroxides, and dioxin/furans may not be accepted. Unacceptable materials also include certain listed herbicides and pesticides defined as tri-, tetra-, and pentachlorophenols (i.e., waste codes F027); wastes from the production of specific pesticides, such as chlorodane (i.e., waste code K032); and “P” and “U” wastes defined in 40 CFR §261.33(e) and (f). A generator certification, stating that these parameters are not present, must accompany each incoming load.

3. Incoming Waste Loads.

   a. Except for the acceptance and processing of heated material subject to the Heated Material and Direct Transfer SOP, the incoming waste loads cannot be heated after the load is generated in an industrial process for any purpose of facilitating shipping or unloading at this facility. The incoming wastes cannot be heated after blending at a permitted facility for any purpose of facilitating shipping or unloading at this facility.

   b. Incoming loads of sludges may be mixed in bulk tanker trucks using the Mixing System, prior to unloading the mixed sludges to the HW Storage Tanks subject to the Mixing System Operation SOP.

   c. Should a waste stream have multiple phases, the Permittee’s on-site analysis will include the following:

      i. Determine of the percent (by volume) of all phases of separation comprising the waste.
      ii. Determine of the percent of water content of all phases that are equal or greater than 25%

of the sample by volume.

iii. For any phase identified in subsection "ii" above and containing 75% or greater by water by volume, analysis for iodine and chloride will be performed.

d. Incoming waste loads shall be visually inspected for changes from the approved Module 1/Form U physical description including additional phases, color changes, and reduced pumpability and as otherwise set forth in the Waste Analysis Plan (WAP).

e. Until the existing HW Truck Unloading Area and existing HW Storage Tank System are closed and converted to the sole management of off-specification waste oil, all off-specification waste oil shall be managed as a residual waste under the terms and conditions of this permit. Upon certification of closure of the existing HW Truck Unloading Area and existing HW Storage Tank System, the Permittee may manage off-specification waste oil under the residual waste regulations. Upon approval, the waste oil may then be managed within the closed Storage Tank System under the residual waste oil regulations (as modified by permit conditions) until the waste oil enters the Cement Kiln HWMU.

4. Approved Waste Sources.

a. No waste from an unapproved source may be accepted onsite.

b. All conditions of this permit renewal **s**upersede the conditions of the previous permit modifications if discrepancies or inconsistencies between the documents become evident. See Appendix A (Attachment #1 to SOP WF-02) for a compilation of waste approvals.

c. Waste Management Municipal Contract (WMMC) Clients:

1. Prior to accepting a new waste stream (not listed in Attachment #1 to SOP WF-02 of Appendix A), from a WMMC Client under the WMMC Module 1/Form U, the Permittee must submit a Module 1/Form U for that waste stream to the Department. The submittal shall be per Part I, Section E, of this operating permit. If the Permittee can certify in their submittal that the waste stream(s) are not characteristically hazardous for pesticides and herbicides (D012, D013, D014, D015, D016, D017, D020, D031, D037, D041, & D042) then the Module 1 will be reviewed in the following way:

a. If the Module 1/Form U is not returned to the Permittee within (15) working days from the date of receipt by the Department then the waste may be accepted for storage.

b. If at any time after the fifteen (15) working day period, it is determined that the waste accepted is not consistent with this Permit, then the Permittee may be subject to applicable enforcement actions under the Act or Regulations.

If the above-mentioned Permittee certification is not submitted with the Module 1, then the submittal shall be reviewed within the standard one-hundred twenty (120) day review time frame for New Module 1s.

2. The Permittee may notify the Department in writing that emergency circumstances exist that require the receipt of a WMMC Client waste stream prior to the fifteen (15) day review period and request priority review. The Permittee must obtain written approval from the Department prior to receipt of the waste stream.

3. All analysis and Module 1 /Form U information must be kept onsite and reviewed by trained Permittee staff prior to waste acceptance. The Permittee shall notify the Department in writing or withdraw the submittal in the event that the Permittee determines that the submittal to the Department is deficient.

C. APPROVED APPLICATION

The approved permit application consists of the following:

Volume 1 of 4:

a. Letter request/application for RCRA Part B permit renewal from Keystone Cement Company, dated August 3, 2018. Responses to Technical Deficiencies dated June 9, 2020 and December 21, 2022.
b. Form HW-B – Professional Certification
c. Form GIF – General Information Form
d. RCRA Hazardous Waste Part A permit application
e. RCRA Hazardous Waste Part B permit application for Treatment, Storage, and Disposal
-Part B Checklist
f. Proof of Payment
g. Form HW-E – Contractual Consent of Landowner
h. Module 9 – Environmental Siting Criteria/Environmental Assessment Process Review Checklist for Hazardous Waste Management Facilities
i. HW-C - Compliance History
j. Narrative
k. Appendix A – Standard Operating Procedures
l. Appendix B – Waste Analysis Plan

Volume 2 of 4:

m. Appendix C - Preparedness, Prevention, and Contingency Plan
n. Appendix D - Inspection Forms
o. Appendix E - Closure Plan and Financial Requirements
p. Appendix F - Structural Evaluation of Storage Tanks
q. Appendix G - Schedule for Related Construction Activities

Volume 3 of 4:

r. Appendix H – Drawings

Volume 4 of 4:

s. Appendix I – Management of Waste Oil
t. Appendix J – Cement Kiln Dust Sampling and Analysis Plan
u. Appendix K - Report of Details Relative to the Construction of the New Tank Farm and Supporting Unloading Facilities
v. Appendix L - Railcar Management Plan
w. Appendix M –Report on Use of Tanks 1A and 1 B to Store Waste Oil
x. Appendix N – Air Permit Related Correspondence
y. Appendix O – Design Related Information
z. Appendix P - Personnel Training
aa. Appendix Q – Geologic Investigative Report
bb. Appendix R – Stormwater Management Correspondence

D. MAXIMUM STORAGE VOLUMES

1) The maximum approved liquid waste storage capacity of the approved, existing, and future HW Storage tanks are:

a.	Storage Tank #1A:	15,000 gallons
b.	Storage Tank #1B:	15,000 gallons
c.	Storage Tank #2:	31,500 gallons

d.	Storage Tank #3	31,500 gallons
e.	Storage Tank #5	32,000 gallons
f.	Storage Tank #6	32,000 gallons
g.	Storage Tank #7	32,000 gallons
h.	Storage Tank #8	32,000 gallons
i.	Storage Tank #9	32,000 gallons
j.	Storage Tank #10	32,000 gallons
k.	Storage Tank #11	28,000 gallons

2) The maximum approved in-service liquid waste storage capacity for the facility is 220,000 gallons. This includes any combination of existing and future HW Fuel Storage Tanks.

3) The maximum approved facility liquid waste storage capacity shall not be exceeded any time during new HW Fuel Storage Tank construction or repurposing of existing tanks in combination with new constructed tanks.

E. COMPLIANCE SCHEDULE

1. New Construction and Construction Certification Requirements.

   a. The submitted construction certification will contain any impacted or new Standard Operating Procedures (SOPs) with documentation addressing requirements set forth in Part IV Section F.2 below. These SOPs will be reviewed as part of the construction certification and may not be implemented until the Department approves the submitted construction certification in writing.

2. Combined HWMU-specific Requirements:

   a. General: No Combined HWMU operations (including railcar/tanks/truck acceptance or staging) can begin prior to written Department approval of the construction certification for those systems to be constructed according to general design plans and Construction Schedule of Appendix G of the permit renewal application.

   b. Construction Certification: At least ninety (90) days prior to acceptance of hazardous or residual waste at the Combined HWMU, the Permittee shall submit a construction certification, signed and sealed by a Pennsylvania Professional Engineer with identified expertise in fire safety and the field of industrial hygiene, including the following:

   i. Professional certification that the Combined HWMU (the HW Storage Tank System including ancillary systems, the Railcar Unloading Area, the Truck Unloading Area, the Railcar Staging Area, Truck Staging Area, secondary containment, spill & leak controls, and structure) has been designed and constructed to minimize the possibility of a fire, explosion, or any unplanned release of hazardous waste or hazardous waste constituents to the air, soil or surface water which could threaten human health or the environment (40 CFR§264.31). This certification will include:

   (a) A hazard analysis completed in accordance with the 2008 Edition (or most recent edition) NFPA 30 Chapter 6 (Fire Prevention and Fire Risk Control) based upon an engineering evaluation of the operation and application of sound fire protection and process engineering principles by a Pennsylvania Professional Engineer with identified expertise in the fields of fire safety engineering and industrial hygiene. This hazard analysis shall also address all aspects of the waste-containing railcar operations onsite.

   (b) Design calculations, design specifications, and certification that the ancillary systems (nitrogen blanketing system, vapor balancing system, solvent piping/pumping system, carbon canister system, foam system) and related fire hydrant/water supplies have been properly sized and constructed per identified NFPA or other nationally recognized design/safety code.

(c) Certification that the installed tanks meet the most recent edition of API 650 Industry Standard unless the Department approves an alternate API 620 standard in writing.

(d) Certification by a Pennsylvania Professional (Geotechnical) Engineer that the Combined HWMU foundations have been engineered against any potential subsidence or sinkhole formation, with an annual inspection plan to detect any signs of potential sinkhole formation or subsidence. The certification shall include a copy of an inspection plan and contingency plan to be followed in event of signs of potential subsidence or sinkhole formation.

(e) Written Pennsylvania Department of Labor & Industry (PA DL&I) approval for the Combined HWMU's design and construction in terms of the Title 37 Flammable & Combustible Liquid regulations and any other applicable PADL&I occupational safety regulations.

(f) Written approval from East Allen Township in regard to compliance with the applicable building codes (Uniform Construction Codes including International Fire Codes).

ii. Documents to be kept on-site include as-built engineering drawing(s), signed and sealed by a Pennsylvania Professional Engineer, showing & identifying the constructed Combined HWMU, access points/routes for sampling and personnel access (including catwalks), and all associated fire control equipment including fire hydrants, connections to water supplies, spill & leak controls, surface water controls, surface water flow directions, and ultimate destination for any release outside of secondary containment. These drawings will be correlated to:

(a) A table identifying any specific industry or safety code (API, NFPA 30, etc.) that the constructed Combined HWMU components, equipment, instruments, and structures meet.

(b) An inspection plan including a written schedule for the inspection of individually identified monitoring equipment (with identifier number); safety and emergency equipment (with identifier number); security devices (with identifier number); and operating and structural equipment (with identifier number) that are important to preventing, detecting or responding to environmental or human hazards. The Plan shall include a table identifying the type of malfunction or deterioration to be inspected for, and the frequency for the required inspections (40 CFR §264.15). Examples of equipment include pumps, valves, pipes, ancillary system equipment that contact waste or waste constituents.

(c) Security systems including fencing, lighting, locks, alarms, 24 hour-per-day/7-days-per-week video surveillance system location & specifying which areas are being visually monitored by whom, and any form of access control or barrier.

(d) The Railcar traffic pattern (showing how railcars will be maneuvered onsite), railcar storage/staging aisle space, traffic controls including traffic signals, load-bearing capacity, truck access road & turn/stacking lanes for intersections.

c. <u>Air Emissions Requirements:</u> 40 CFR Part 63 Subpart DD documentation and PADEP AQP correspondence demonstrating that the Combined HWMU equipment air emissions have been addressed via the PADEP AQP Title V Permit and Plan Approval.

d. PPC Plan Requirements: An updated "stand alone" PPC Plan.

e. Standard Operating Procedures: At least ninety (90) days prior to the proposed acceptance of railcar waste shipments, the Permittee shall submit updated Standard Operating Procedures to address changes due to railcar operations with SOP WF-06 (Process Change) documentation.

i. New SOP for Railcar Unloading addressing requirements of 40 CFR §270.14(b) (8, 9).

ii. New SOP for Railcar Loading Procedure.

iii. New SOP for the management of rejected waste-containing railcars.

iv. New SOP for Railcar Staging Area Procedure.

v. New SOP for operational maneuvering & movement of railcars including traffic control signals or other approved traffic control plan to minimize and prevent potential vehicular accidents. This SOP shall include figures showing all traffic controls, railcar staging areas, railcar storage areas, and rail spurs used to maneuver railcars. This SOP shall address how the Permittee will manage a leaking railcar and if needed to move it to the Railcar Unloading Area in event that the Railcar Unloading Area is filled or if there are additional railcars between the leaking railcar and Unloading Area.

vi. Updated SOP WF-01, WF-02, WF-05, WF-07, WF-08, WF-09; WF-10; WF-11; WF-13; WF-26; SOP WF-28; SOP WF-30; SOP WF-34; SOP WF-35; SOP WF-36, WF-50, WF-59, as necessary .

F. STANDARD OPERATING PROCEDURES (SOPs)

1. Approved Site SOPs

   a. Appendix A of the permit renewal application contains the Site SOPs.

2. SOP Modification Procedure.

   a. Any proposed change to Approved Site SOPs shall be submitted in writing to the Department at least fifteen (15) days prior to initiation of changes to site operations except if submitted as part of a construction certification or application for permit or permit modification.

   b. The new or revised SOP submittal (for each SOP) shall include the following:

      1. The new or revised SOP;
      2. The original SOP being revised (if any);
      3. A cover letter identifying the change (if any);
      4. The completed WF-06 Process Change form;
      5. Certification that the proposed SOP will meet relevant OSHA, MSHA, NFPA or other industry standard, with identification of standard, if applicable; and,
      6. Any other documentation needed to show that the change does not affect the safety, health and environment of site personnel and the public or otherwise violate the conditions of this permit.

   c. If the Department does not respond within fifteen (15) working days, the Permittee may implement the new or revised SOP if the SOP does not require changes to site construction or otherwise conflict with conditions of this permit and if the SOP is not part of an application for permit or permit modification or construction certification.

   d. Any SOP change requiring or associated with changes to site construction will require an application for permit modification or submitted construction certification, and shall be approved, rejected or approved with conditions as part of the permit modification application or construction certification.

   e. A complete set of approved SOPs will be maintained onsite. Copies of SOPs shall be provided to the Department upon request.

PART V - INDUSTRIAL FURNACE/CEMENT KILN RELATED REQUIREMENTS

A. SCOPE OF COVERED ACTIVITIES:

1. Combusting for Energy Recovery: This permit authorizes the combustion for energy recovery of approved liquid (pumpable at ambient temperatures and pressures except for the acceptance and processing of heated material subject to Heated Material and Direct Transfer SOP and the mixing of sludges subject to the Mixing System Operation SOP) hazardous and residual wastes, with a minimum fuel value greater than or equal to 5,000 BTU/pound, within the approved cement kiln industrial furnace identified in the permit application per 25 Pa. Code Chapter 266a, 40 CFR Part 266 Subpart H (Hazardous Waste Burned in Boilers and Industrial Furnaces), the terms and conditions of this permit and the terms and conditions of the PADEP AQP Title V Permit (including kiln operating ranges which allow for hazardous waste combustion). In this Part, the term "burn" or “combust” means combusting for energy recovery in the Approved Cement Kiln.

2. Kiln Residue Management: This permit authorizes the management of kiln-generated residues produced during the combusting of wastes within the cement kiln. Kiln residues include cement kiln dust, kiln refractory brick, and other "non-cement product”, materials that have been in contact with hazardous wastes or their products of combustion in the kilns (including pipes, ducts, fans, etc.).

a. Residues generated during the treatment of hazardous waste shall be managed as hazardous waste unless the Permittee has promptly determined that the residue is non- hazardous as set forth in 25 Pa. Code §261a.3(b) and 40 CFR §266.112 as incorporated by reference at 25 Pa. Code §266a.20. The following criteria must be met to qualify for this exemption:

i. A minimum of fifty (50) percent by weight of the normal cement- production raw materials must be processed in the cement kiln during the generation of the waste;

ii. The concentration of each constituent of concern, determined by following the CKD Sampling & Analysis Plan, in the hazardous waste-derived CKD or residue must not exceed the limits provided in 40 CFR§266.112(b)(1) or 40 CFR§266.112(b)(2), whichever is higher for the nonmetal constituents; and,

iii. Records sufficient to document with the above requirements are retained until closure of the cement kiln.

b. Non-hazardous kiln residues, kept segregated from hazardous wastes or potentially hazardous wastes, may be managed as residual waste after removal from the Kiln HWMU.

c. Properly decontaminated instruments, equipment, components, and structures may be re-used, sold for scrap, or otherwise disposed.

d. In event that cement kiln dust or other kiln residues are generated by kilns combusting less than 50% by weight normal cement-production raw materials, the kiln residues shall be managed as hazardous waste.

e. The Department may authorize a reduction in cement kiln dust sampling and analytical requirements in writing. No reduction in current sampling & analysis requirements has been authorized as of the effective date of this renewal permit.

3. Contaminated Stormwater Management: This permit authorizes the use or re-use of contaminated stormwater collected from the HW secondary containment system as an ingredient (water) to the cement kiln as part of the cement- making process (40 CFR §261.1(b) as incorporated by reference at 25 Pa. Code §261a.1).

a. This permit does not authorize any alternate use of contaminated stormwater.

b. Collected hazardous waste, spills, leaks, clean up residues, and contaminated stormwater from secondary containment or surface water controls shall be removed promptly after the spillage/rainfall event.

c. Stormwater, collected from the HW secondary containment systems, shall be managed as hazardous waste unless the Department approves an alternate disposition or Standard Operating Procedure for determining the regulatory status of the collected stormwater and specific end-uses for this fluid/wastewater. If stored in containers, the containers shall comply with 40 CFR Part 264 Subpart CC (Container) requirements.

d. Hazardous waste released into the secondary containment system may be returned to the HW Storage Tank System if meeting applicable waste acceptance permit requirements including fuel value as combusted.

B. ENGINEERING DESIGN PLANS AND SPECIFICATION:

1. The Cement Kiln HWMU (including associated ancillary systems, instruments, equipment, and structures) will be constructed in accordance with the general design plans.

2. No substantive design or construction modifications may be made without prior Department written concurrence or permit modification as required in Part I Section H.10. Routine replacement of functionally equivalent parts during preventive maintenance will not require pre-approval.

C. GENERAL OPERATING REQUIREMENTS:

1. At all times, the Permittee shall operate and maintain the Cement Kiln HWMU to minimize the possibility of a fire, explosion, or any unplanned release hazardous waste or hazardous waste constituents to air, soil, or waters of the Commonwealth that might threaten human health or the environment.
2. The Permittee shall operate the Cement Kiln HWMU in accordance with this permit and the PADEP AQP Title V Permit.
3. Prohibited Wastes. Combusting of the following wastes is prohibited at all times:
   a. Dioxin and furan-containing waste streams, including HW waste codes F020, F021, F022, F023, F026 (40 CFR §261.31).

   b. Polychlorinated biphenyl (PCB) waste as defined in 40 CFR §761.3.
   c. Radioactive source, special nuclear or byproduct material (as defined by the United States Nuclear Regulatory Commission), except byproduct materials that meet the criteria for exempt concentrations set forth in 10 CFR §30.71 at the point of generation.
   d. Explosive material, as defined by the US Department of Transportation under 49 CFR Part 173.
   e. Reactive wastes, as defined by 40 CFR §261.23.
   f. Containerized gas
   g. Municipal waste as defined in 25 Pa. Code §271.1
   h. Infectious or chemotherapeutic waste as defined by 25 Pa Code §271.1.
   i. Prohibited inorganic metal-bearing hazardous wastes (listed in 40 CFR Part 268 Appendix XI- Metal Bearing Wastes Prohibited from Dilution in a Combustion Unit), unless the hazardous waste can be demonstrated to comply with one or more criteria specified in 40 CFR §268.3(c) to prepare fuel for the kiln.
   j. Wastes which are not pumpable at standard conditions (defined in 25 Pa. Code 121.1 (air quality regulations) as 70 degrees Fahrenheit and 14.7 pounds per square inch absolute pressure i.e. 1 atmosphere) except for the acceptance and processing of heated material subject to the Heated Material and Direct Transfer SOP and the mixing of sludges subject to the Mixing System Operation SOP.

   k. Wastes with a heating value of less than 5000 BTU per pound. Blending is prohibited as a means of augmenting the heating value to meet the facility acceptance criteria defined in this permit (40 CFR §268.3).

4. Direct Transfer fuel lines to allow transfer of heated waste fuel from the truck unloading area to the kiln without using a storage unit are permitted.

5. Mixing System allows the mixing of sludges in bulk tanker trucks prior to unloading the mixed sludges into one of the HW storage tanks.

6. Only those waste types approved per this permit's Part II Section B, Part III Section A, and Part IV Section B may be combusted as fuel in the cement kiln. On-specification waste oil shall be managed as a commercial

fuel product as set forth in the Pennsylvania Residual Waste regulations.

D. INSPECTION REQUIREMENTS:

1. The Cement Kiln HWMU, including associated equipment (pumps, valves, pipes, and other ancillary equipment) shall be visually inspected at least daily when they contain or potentially contain hazardous waste or waste constituents. The equipment shall be inspected for leaks, spills, discharges, other releases, fugitive emissions, and signs of tampering.

2. Documentation of each inspection shall be maintained in the operating record for a minimum of five (5) years. At a minimum, the record shall include the following:

a. Date of the inspection,
b. Identification of each device (e.g., hazardous waste feed pump #1) or operating system (e.g., burner injection system component) inspected, including part number or other descriptive identifier,
c. Name of the person(s) conducting the inspection,
d. Description of any leaks, spills, other discharges, fugitive emissions observed,
e. Description of any corrective measures taken as a result of the inspection,
f. Any other information associated with the inspection.
g. The automatic waste feed cut-off system (AWFCO) and associated alarms must be tested at least once every thirty (30) days when hazardous waste is combusted to verify operability unless the Department authorizes a different schedule in writing.

3. The Kiln Residue Management areas shall be inspected daily for dust and any potential releases to the environment.

E. MAINTENANCE:

1. The Permittee shall maintain the Cement Kiln HWMU (including the cement kiln, ancillary equipment including air pollution control equipment and instrumentation) per a written preventive maintenance schedule that is consistent with the conditions of this permit.

2. The Permittee shall maintain a written record of all preventive maintenance and repairs performed on the Cement Kiln HWMU (including cement kiln, the ancillary equipment, and instrumentation). At a minimum, the record shall include the following information:

a. The date the problem was discovered, if not routine maintenance,
b. The piece of equipment or instrumentation repaired or maintained including part number or other appropriate descriptive identifier,
c. The type of maintenance or repair,
d. The date maintenance or repair,
e. The name of the person(s) conducting the maintenance,
f. Any data associated with any calibration and testing; and,
g. The date the unit was placed back into service.

F. CLOSURE

The Cement Kiln HWMU shall close in accordance with 40 CFR §266.102(e)(11) as incorporated at 25 Pa. Code §266a.20, 40 CFR §264.178 as incorporated by reference at 25 Pa. Code §264a.1, Part II Section I of this permit, and renewal application Appendix E of this permit, as modified by the terms and conditions of this

permit including Part IV Section E.

PART VI - ADDITIONAL RAILCAR/TRUCK REQUIREMENTS

A. SCOPE OF AUTHORIZED OPERATIONS:

1. This Part pertains to the management of waste-containing railcars and trucks onsite:
   a. Railcar Acceptance & Management:
      i. The Permittee accepts the railcar and all applicable regulatory and statutory responsibilities for proper management of the waste-containing railcar after the railcar crosses the railcar acceptance point depicted on Permit Area Plan of Operations, RCRA Part B renewal application, Figure 4.
      ii. The railroad transporter retains any (DOT and Department) transporter regulatory responsibilities and obligations until the manifest is signed by the Permittee or in event that the waste-containing railcar is rejected by the Permittee and departs from the site with the delivering train locomotive.
      iii. Railcars shall be managed per the updated Railcar Management Plan in Appendix L submitted with the permit renewal application.

   b. Truck Acceptance & Management:

      i. The Permittee accepts waste-containing trucks and all applicable regulatory and statutory responsibilities after the manifest is signed or the truck driver/tractor leaves the site (whichever is first).

   c. Storage: No waste-containing railcar or truck may be staged or stored outside of the approved HWMUs.

   d. Related Requirements: See Part III Section S (Truck Unloading, Parking, and Staging Areas) and Part IV for related requirements. Part III Sections G (Access Road), H (Buffer Zone), N (Weighing or Measuring Facilities), Q (Surface Water Management), R (Waste Tracking), T (Air Emissions Requirements) are incorporated by reference into this Part.

B. LOADING OF OUTGOING WASTES VIA RAILCAR:

1. Shipment Offsite: Offsite shipments of waste are authorized for rejected loads, emergency removal of unapproved wastes accidentally received and stored in the approved active HW Storage Tanks, or when Keystone's kiln is not combusting waste. Transfer from storage tanks to railcars is performed in accordance with the Railcar Management Plan in Appendix L submitted with the permit renewal application.

2. Shipment Time-frame: The Permittee shall contact the railroad company and a pickup must be scheduled upon completion of loading one or more railcars per the Railcar Management Plan in Appendix L. Shipment occurs when:
   a. The transporter signs the manifest acknowledging acceptance of the railcar, and returns it to the Permittee; and,
   b. The railcar crosses the Railcar Acceptance Point (RCRA Part B, renewal application, Figure 4) in departing the site.

3. Additional Recordkeeping: The Permittee must maintain a log of the date and time of each waste-containing or emptied railcar's arrival and departure from the facility. The Permittee must maintain a copy of the Railcar Checklist to verify that the railcar has been inspected for safe shipment off-site.

4. Additional Inspection Requirement: The Permittee will inspect outgoing railcars to verify that the railcar has been inspected for safe shipment off-site.

5. Other Regulatory Obligations: The Permittee shall comply with all applicable requirements of the US Department of Transportation (DOT) including 49 CFR Parts 172, 173, 179 and the Federal Railroad Administration (FRA)requirements of the PA Department of Transportation (DOT) including PA Title 67: and of the US Department of Homeland Security including the Transportation Security Administration.

C. DURATION OF STORAGE

1. Railcar Storage: No incoming waste-containing railcar can remain onsite for more than twenty (20) days total prior to unloading, except for outgoing waste-containing railcars. Upon arrival on-site, the railcar will be moved onto the Keystone rail siding and tracks. Within 10 days, movement into the railcar staging and unloading area will occur. Once inside the railcar facility, the Permittee will unload the waste derived fuel within 10 days. If necessary, a railcar will be rejected and scheduled with the rail company to be returned to the generator or re-manifested to another facility as soon as practicable.

   If Permittee is unable to move the railcar into the railcar staging and unloading area, or unload a railcar within 10 days of being placed in the railcar staging and unloading area, then Permittee will notify the Department. Within three (3) days of either of these instances, Permittee will provide a notification to the Department stating why the movement or unloading is delayed beyond 10 days and the date by which it will be moved or unloaded.

2. Truck Storage: The Permittee shall notify the Department immediately if any waste- containing truck is stored for more than forty-eight (48) hours onsite and provide written explanation within twenty-four (24) hours.

D. CONDITION OF CONTAINERS

If a waste-containing truck or railcar container holding hazardous or residual waste is not in good condition (e.g., severe rusting, apparent structural defects) or if it begins to leak, the Permittee shall ensure that the truck/railcar is within secondary containment and transfer the waste from such container to a container that is in good condition or otherwise manage the waste in compliance with the conditions of this permit.

E. MANAGEMENT OF TRUCK/RAILCAR CONTAINERS

The Permittee shall manage waste-containing truck and railcar containers as required by 25 Pa. Code §264a.173 and 40 CFR §264.173 as incorporated by reference at 25 Pa.

Code §264a.1. In addition:

1. The Permittee shall store all hazardous and residual waste-containing truck/railcar containers in accordance with the following volume, content, and location requirements:

   a. Any waste-containing railcar/truck parking or staging area must be monitored 24-hours per day if outside of secondary containment and/or fencing.

   b. The Permittee shall store waste-containing and emptied railcars and truck containers of hazardous or residual waste as required by 40 CFR §264.173 as incorporated by reference at 25 Pa. Code §264a.1 and 25 Pa. Code §264a.173. The Staging, Storage and Parking Areas shall comply with NFPA 30 aisle space requirements in order to allow for safe management of waste and the unobstructed movement of personnel, fire protection equipment, spill control equipment, decontamination equipment and emergency vehicles to any area of the facility operation in event of an emergency plus inspection, containment and remedial action.

   c. Unless the Department authorizes additional storage in writing:

      i. No more than four (4) waste-containing railcars may be located in the fenced railcar staging and unloading area at any one time.

   d. The Permittee shall maintain onsite and immediately available when waste-containing trucks and/or railcars are onsite, means of moving waste-containing trucks and railcars as needed to allow for access and to move the containers in event of fire, explosion, release or other incident triggering the site PPC Plan. If this capability is not available, no staging outside of the approved Truck/Railcar Unloading Areas is authorized.

   e. The Permittee shall ensure that any equipment or vehicles which come into contact with waste in the loading/unloading areas, storage, staging, and parking areas have been decontaminated prior to their movement outside of the permit- defined loading/unloading, storage, parking and staging areas. Decontamination can include washing of contaminated equipment and the washing of undercarriages & wheels to remove all waste residues and to prevent spreading of contamination. All wash water shall be collected and disposed.

F. COMPATIBILITY OF WASTES WITH CONTAINERS

If shipping waste offsite, the Permittee shall assure that the ability of the truck or railcar to contain the waste is not impaired as required by 40 CFR §264.172 as incorporated by reference at 25 Pa. Code §264a.1.

G. CONTAINMENT

The Permittee shall construct and/or maintain the containment system as required by 40 CFR §264.175 as incorporated by reference at 25 Pa. Code §264a. 1. All secondary containment area floors shall be uniform and free from cracks or holes.

H. SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTES

The Permittee shall not locate trucks, railcars or other containers holding ignitable or reactive wastes within fifteen (15) meters (50 feet) of the facility's property line.

I. SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES

1. Placement of Incompatible Wastes: Incompatible wastes and/or materials will not be placed in the same container. Further, waste shall be separated from any nearby incompatible material.
2. Incompatible Wastes in Unwashed Containers: The Permittee shall not place hazardous or residual waste in an unwashed container that previously held an incompatible waste or material.
3. Storage of Incompatible Wastes: The Permittee shall not accept incompatible waste. If wastes are determined to be incompatible while onsite, the containers of incompatible wastes shall be stored as required by 40 CFR §264.177(c) as incorporated by reference at 25 Pa. Code §264a.1.
4. Documentation: In the event of incompatible wastes, the Permittee must document compliance with sections (1) and (2) of this condition as required by 40 CFR §264.17(c) as incorporated by reference at 25 Pa. Code §264a.1 and place this documentation in the operating record (Part II Section H.1).

J. RCRA ORGANIC AIR EMISSIONS

The Permittee shall comply with all applicable requirements of 40 CFR §264 Subpart CC - Air Emission Standards for Containers as incorporated by reference at 25 Pa. Code §264a.1 except as superseded by 40 CFR Part 63 Subparts DD and EEE.

K. CONTAINER RESIDUES

Residues of hazardous waste in empty containers shall be managed per 25 Pa. Code §261a.7 and 40 CFR §261.7 as incorporated by reference at 25 Pa. Code §261a.1.

L. CLOSURE

Closure must be implemented in accordance with 25 Pa. Code §264a.115, Part II Section I the Closure Plan in renewal application Appendix E and 40 CFR §264.178 as incorporated by reference at 25 Pa. Code §264a.l.

Comment-Response Document

Keystone Cement Company
Hazardous Waste Permit Renewal Application
Permit No. PAD002389559
East Allen Township, Northampton County

Prepared by:
Pa. Department of Environmental Protection
Northeast Regional Office
Waste Management – Facilities Section

April 2025

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PROJECT DESCRIPTION

Keystone Cement Company (KCC, Keystone Cement, or Keystone) is an existing permitted hazardous waste storage facility that specializes in the storage of approved liquid wastes prior to the beneficial use of the liquid waste as a fuel in the site cement kiln. The facility's initial hazardous waste management permit for the treatment, storage and disposal of hazardous waste was issued on December 27, 1991.

A renewal permit was issued on December 26, 2001. A permit modification adding treatment requirements related to burning waste in the kiln to the original storage permit was approved on July 9, 2009. The permit was renewed for 10 years as part of this permit action. The renewal permit expired on July 9, 2019. The facility has since operated under a Permit Shield pending approval and issuance of the renewal operating permit.

The facility was issued a Class 2 Permit Modification for the Waste Analysis Plan and Waste Fuel Acceptance Standard Operating Procedures on 5/7/2014.

The facility was issued a Minor Permit Modification on 3/5/2015 to revise the Minimum shell thickness requirements for Hazardous Waste Storage Tanks 1A and 1B.

The facility was issued a Class 2 Permit Modification for the RCRA Part B Permit on 10/29/2015 for a previously permitted new tank farm, railcar unloading area, and direct fuel transfer system.

The facility was issued a Class 1 Permit Modification on 6/14/2018 to install and operate a new Hazardous Waste fuel vapor vent line.

The renewal permit will include a Hazardous Waste fuel mixing system that will be used with the tank farm, rail car unloading and direct fuel transfer system. When issued, the renewal permit will allow the Facility to continue operations for the next ten (10) years.

A permit renewal application was received by the Department on August 3, 2018 (as subsequently revised on June 9, 2020, and December 21, 2022, respectively).

The Department issued a draft permit on June 7, 2024. The draft permit sets forth, in one document, all the requirements with which the permittee must comply during the ten (10) year duration of the permit. Pa Code Section 270a.80 (b) and (c) require that the public be given the opportunity to make comments on a draft permit. When making a final decision regarding this proposed permit action, the Department considers all written comments received during the public comment period. The Keystone Cement Company draft permit was issued for public comment on June 22, 2024. The forty-five (45) day public comment period ended on August 6, 2024. During the comment period, the Department received multiple requests for a public hearing. In response to these requests, a combination public meeting and public hearing was held

on October 28, 2024, at the Nitschmann Middle School located at 1002 W Union Blvd, Bethlehem, PA. The Department also extended the comment period until November 15, 2024.

The Hazardous Waste regulations require DEP to prepare a summary of the comments submitted during the public comment period and provide responses to the comments. This Comment-Response Document summarizes public comments received by DEP during the comment period and at the public hearing and provides the Department's responses to those comments. All commenters are individually listed in this document.

LIST OF COMMENTATORS

1. Bob Swigart
   Citizen

2. Ellen Bearn
   Citizen

3. Allen Haines
   Citizen

4. Brian Grzelkowski
   Citizen

5. Valerie Noonan
   Citizen

6. Bryan Smith
   Citizen

7. James D. Bloom
   Citizen and Professor at Muhlenberg College

8. Robin Beaty
   Citizen and member of the Monocacy Creek Watershed Association

9. Patrick Henry
   Citizen

10. Lynne Simoncic
    Citizen

11. Thomas Fritz
    Citizen

12. Charissa West
    Citizen

13. George M. Beris
    Citizen

14. Adriana Maria Milutin
    Citizen

15. Dan Brady
    Citizen

16. Theresa Mass
    Citizen

17. Barbara K. Fraust
    Citizen

18. Diederik Terlaak Poot
    Citizen

19. JoAnn M. Yurconic
    Citizen

20. Aimee and Richard Mack
    Citizens

21. Debra Brady
    Citizen

22. Margie Chafin
    Citizen

23. Dennis Chafin
    Citizen

24. Jane Cook
    Citizen

25. Sean and Debra Tallarico
    Citizen

26. Susan Derr Kirk
    Citizen

27. John and Elisa Schooner
    Citizens

28. Michael Harrington
    President, Monocacy Creek Watershed Association

29. Breena Holland
    Citizen

30. Steve Vanya
    Citizen

31. Cynthia and Stephen Simmons
    Citizens

32. George M. Beris
    Citizen

33. Jeff Fagan
    Citizen

34. Mrs. Lombardo
    Citizen

35. Jason Savenelli
    Citizen

36. Mrs. Ricci
    Citizen

37. Sharon Weiner
    Citizen

38. Leo Kurtz
    Citizen

39. Leonard Zelasko
    Citizen

40. Joan D. Fekula
    Citizen

41. Rosemary Dailey
    Citizen

42. Carl W. Coleman
    Citizen

43. Debby Yerger
    Citizen

44. Kaitlyn Acierno
    Citizen

45. Linda M. Smith
    Citizen

46. Bhavana Singh
    Citizen

47. Edvige Kromayer Barrie
    Citizen

48. Joanne Sigafoos
    Citizen

49. Nathan Holland
    Citizen

50. Melissa Eddy
    Citizen

51. John Marquette
    Citizen

52. Terry Ziemba
    Citizen

53. Abhay Singh
    Citizen

54. Cara Eyer
    Citizen

55. Susan A. Lawless
    Citizen

56. Robert Epinger
    Citizen

57. Tammi Babiasz
    Citizen

58. Tim Sheehan
    Citizen

59. Mary Arenas
    Citizen

60. Stephen Gross
    Citizen

61. John S. Kintzer
    Citizen

62. Anonymous commentator

63. Ellen F. Johnson
    Citizen

64. Dr. Elizabeth Babbin
    Citizen

65. Ann Henderson Shankar
    Citizen

66. Paul Salerni
    Citizen

67. Laura Johnson
    Citizen

68. Cody Suranofsky
    Citizen

69. Stephen Davies, Esq.
    Citizen

70. Jeannette and Stephen Killea
    Citizens

71. Jose DeJesus
    Citizen

72. Albert Luten
    Citizen

73. Peg Church
    Citizen

74. Jane Biggs
    Citizen

75. Bud Hackett
    Citizen

76. Mr. Bearn
    Citizen

COMMENTS AND RESPONSES

Public Hearing

1. **Comment:** Several commentators requested the Department hold a public hearing.

   Response: A public meeting and hearing was held on October 28, 2024, at the Nitschmann Middle School located at 1002 W Union Blvd, Bethlehem, PA.

Rail Transport

2. **Comment:** 100,000 to 120,000 gallons of hazardous wastes in one spot on wheels four different times per week is a huge hazard risk to thrust upon the residents of the City of Bethlehem.

   Response: The Keystone Cement Company (KCC) Site is limited to 220,000 gallons for the storage tank farm at any given time. Volumes and delivery schedules by railcar would be determined by KCC based on delivery schedule, amounts delivered, and railcar volume.

3. **Comment:** The potential rail transport of hazardous wastes (as DOT flammable liquids and DOT environmental toxins) to the Keystone TSDF, using the Cement Secondary rail line, represents a serious new risk of pollution for the Monocacy Creek. It is also a catastrophic threat to the community.

   Response:
   Public concerns over use of railcars to deliver hazardous waste derived fuel (HWDF) to Keystone Cement Company were addressed by the company in the public meeting / hearing held on October 28, 2024, and included the following statements:

   a.) Rail line meets and exceeds Federal Railroad Administration (FRA) standard and travel speed is low in order to be safe and protective of the environment, people, and communities.

   b.) The rail line is regulated by the FRA as a Class 2 branch line. However, the branch line meets FRA Class 1 branch line safety standards which are more stringent and protective of safety and the environment.

   c.) All types of goods and materials are authorized to safely travel on the line (including hazardous and non-hazardous).

   d.) KCC will only receive DOT approved railcars that are 30,000 gallons or less.

e.) The railcars on-site will be unloaded over secondary containment that is large enough to wholly contain a potential release, rainwater, and firefighting water.

f.) The PPC Plan is a comprehensive set of procedures to govern how the facility will respond to any incidents on-site and requires coordination agreements and communication with emergency response organizations.

The Department's position on the renewal of the Hazardous Waste RCRA permit using the railcar delivery method is that there is no compliance, or other legitimate reason to disallow rail transport. The regulatory requirements of the RCRA permit are limited to the Keystone Cement Company (KCC) permit area and do not extend to the NS rail lines. That said, the proposed changes being approved improve safety of the receipt of these materials by reducing tanker truck deliveries and add an additional protective layer of regulatory monitoring through the FRA. Based on discussion between DEP and the FRA, if/when rail shipments of hazardous materials start to flow to KCC, FRA's Hazardous Materials Division (HMD) will become directly engaged with the facility and add it to their inspection plan to ensure compliance with the Federal Hazardous Material Regulations (HMR) requirements. Also, due to the classification of the HWDF, as per 49 CFR § 172.101 Hazardous Materials Table a "Special Provision" will be evaluated for applicability before a railcar is received. Lastly, a detailed route analysis plan may need to be submitted to and reviewed by the FRA.
Also, the protective safety and operational measures KCC has in place along with the Norfolk Southern (NS) Railroad operation practices and standards should provide a multilayered level of reasonable assurance that the railcar delivery system will operate as safely as possible considering the health, safety, welfare, and environmental concerns of the public. The Department will encourage KCC to work with NS and the FRA and to collaborate with local municipalities and local emergency management agencies to resolve any public issues and concerns.

It should be noted that KCC has been previously approved by the Department since 1991 to accept HWDF by railcar and has met the Department's regulatory requirements.

4. **Comment:** Hazardous waste transport by rail could potentially impact waterways including Monocacy Creek.

   Response: By way of reference see response to comment #3.

5. **Comment:** What is the route the hazardous waste railcars will take? Will the railcars travel from Bethlehem to Bath along the Monocacy Creek, through residential neighborhoods, through the Gertrude Fox Conservation Area, and through the Archibald Johnston Conservation Area?

Response: The railcars will travel on the existing Norfolk Southern owned rail lines to the Keystone Cement Company facility.

6. **Comment:** Train derailments have been in the national news recently, and even locally there was a very recent train derailment along the Lehigh River. Are local emergency management organizations prepared for flammable hazardous waste railcars travelling through their jurisdictions?

   Response: According to Data from the Federal Railroad Administration (FRA)hauling Hazardous Materials by rail is 50 times safer than by truck. Norfolk Southern (NS) standards for railcars are built, maintained inspected according to FRA standards. NS provides training to first responders through its Operational Awareness & Response (OAR) program. NS provides community safety information along with contact phone numbers and a citizen reporting program for suspicious activity called "Protect the Line" on the NS website: https://www.norfolksouthern.com/en/commitments/safety/safety-in-your-community

   By way of further response, see response to comment #3.

7. **Comment:** To what extent will additional hazardous waste railcars be parked along the creek outside of any security fence? A statement on page 8 of the Keystone December 2022 Railcar Management Plan says, "Within ten days of arrival, cars are to be moved into staging." So multiple cars will sit unfenced along the Monocacy Creek for up to 10 days? This is extended by another ten days once a railcar enters the staging area. So, 20 days or less is the target for a railcar to arrive at Keystone and be unloaded?

   Response: Pursuant to excerpts from the most recent version of KCC's Railcar Management Plan:

   Keystone will move full railcars into the fenced railcar unloading and staging area within 10 days from their arrival on-site.

   It is expected that the frequency of railcar eliveries would be limited to every few days from Monday to Friday, with a maximum of three (3) railcars per delivery.

   Railcar deliveries to the facility will arrive on a siding from the tracks that are parallel to Route 512 at the plant entrance as shown on Figure 9 of the Application. The track is currently used for bulk materials deliveries and product (i.e., cement) transfer. The maximum number of railcars that can be accommodated at the new railcar unloading and staging facility is four (4) railcars. Railcars may also be staged on existing rail tracks on-site.

8. **Comment:** Why not extend the railroad spurs to get the hazardous waste railcars deeper into the Keystone site and away from the creek?

   Response: Portions of the existing Norfolk Southern (NS) railroad line (estimated to be running North to South per the facility site plan) that runs adjacent to the Monocacy Creek also runs through and near the perimeter of the facility permitted boundary. An existing rail spur diverts (South to West) off the existing NS railroad line and extends further into the permitted boundary of the site. Railcars can be staged on the existing rail spur within Keystone Cement Company permitted boundary. The approved Railcar Management Plan allows for up to four (4) railcars within the previously permitted new railcar unloading and staging facility.

9. **Comment:** Limit the number and duration of stay for cars outside the security fence protecting the staging and offloading areas. Just how many hazardous waste railcars can be situated along the creek at once? This should be kept to a minimum.

   Response: According to the Railcar Management Plan, upon arrival on site railcars will be moved onto Keystone Cement Company rail siding and tracks. The site drawing includes 4 railcars within the security fence which is within the permitted facility boundary. The facility can also stage railcars on the rail tracks within the permitted boundary outside of the unloading/staging area. The facility will accept railcar deliveries mostly Monday - Friday at a frequency of every few days with a maximum of three (3) railcars per delivery.

10. **Comment:** Only the one railcar targeted for offloading will be protected with secondary containment. Why not extend the secondary containment area to include the three-car staging area?

    Response: The size of the unload and staging area and secondary containment were determined by Keystone Cement Company and are within the permitted boundary. All railcars will meet current safety design standards to minimize any spillage concerns which will also be addressed per the facility's Preparedness, Prevention, and Contingency (PPC) Plan.

11. **Comment:** A roof over the offloading car is listed as optional. A roof over the offloading car should be made mandatory.

    Response: Pursuant to the most recent version of the Railcar Management Plan: *The unloading/loading area will be sheltered by a roof and contains a secondary containment system to collect discharge that may occur during the unloading and loading of PADEP-approved materials from the railcars.*

12. **Comment:** Consider extending the roof over the staging area.

Response: The railcar unloading/loading area and the adjoining staging area are enclosed by a security fence. The railcar unloading/loading area is sheltered by a roof. There is also secondary containment in this area since this where any actual fuel transfer takes place. The adjacent railcar staging area is not sheltered by a roof since no actual fuel transfer takes place here.

By way of further response see response to comment #11.

13. **Comment:** Allowing rail transport would result in the frequent and routine transport of large quantities of hazardous wastes along Monocacy Creek and through the following important public places: Historic Downtown Bethlehem, Monocacy Way Trail, Illick's Mill Park, Monocacy Park, Main Street Extension Neighborhood, Biery's Bridge Road Neighborhood, Gertrude B. Fox Conservation Area, Archibald Johnston Conservation Area, Janet Johnston Housenick/William D. Housenick Memorial Park, and Monocacy Meadows Park.

Response: Railcar transport routes are managed by Norfolk Southern (NS). Keystone Cement Company (KCC) most recent version of its Railcar Management Plan was revised to include frequency of railcar deliveries. Response #7 includes this information.

By way of further response see response to comment #6.

14. **Comment:** If DEP allows the Keystone Cement hazardous wastes to travel by rail along the Monocacy Creek, you should at the very least prohibit chlorinated solvents, all DNAPLs, and any other wastes with a density greater than water to be transported this way because of the severe environmental risks they pose.

Response: The facility has a PPC Plan and is regulated for any HWDF materials brought onsite. NS is responsible for transport of these materials outside of the permitted boundary.

15. **Comment:** Given the environmentally sensitive nature of the high-quality cold water Monocacy Creek and its native, self-reproducing population of brown trout, the historic and conservation-oriented parks along the creek's path, Keystone Cement's weak past permit compliance record, and the dangerous environmental implications posed by these liquid hazardous wastes, I recommend the DEP considers denying Keystone Cement the ability to receive their hazardous wastes in railcars because it would result in new and serious hazards to the Monocacy Creek along its entire length from Bethlehem to Bath.

Response: By way of reference see response to comment #3.

16. **Comment:** I strenuously object to allowing the transportation of hazardous DNAPL material via the Bethlehem-Bath Norfolk Southern railway. This stretch of railroad

passes directly behind homes, and along parks, fishing sites, and homes of various protected wildlife.

Response: By way of reference see response to comment #3.

17. **Comment:** Monocacy Creek is a rare natural and urban wonder, a Class A Trout stream in the midst of a city. It and the surrounding residents and communities, need to be protected. The East Palestine disaster in western PA/Ohio serves as the perfect example of the risks and potential costs of such a proposal to transport hazardous waste by rail. Please support the rejection of this dangerous proposal.

Response: By way of reference see response to comment #3.

18. **Comment:** I firmly believe that it would be a serious mistake to allow Keystone Cement to change their transportation of hazardous wastes from truck tankers on the roads to railcar tankers on rails. Please reconsider this action or consider modifying the draft permit to reduce the amount of waste that Keystone can receive by rail over a given time period, such as per day or week.

Response: Keystone Cement Company monitors and reports the amount of HWDF received on site. According to the Railcar Management Plan, upon arrival on site, railcars will be moved onto KCC rail siding and tracks. Within 10 days, movement into the railcar staging and unloading area will occur. The staging and unloading area is designed to hold a maximum of 4 railcars. KCC's most recent version of its Railcar Management Plan was revised to include frequency of delivery and maximum number of railcars expected to be delivered per week.

19. **Comment:** What is more hazardous? 6,000 gallons of Class 3 Flammable wastes, 30,000 gallons, or 120,000 gallons? One 30,000-gallon railcar represents five tanker trucks. Four railcars is the same as a convoy of 20 trucks! To me, one railcar is five times more hazardous than one tanker truck. The risk is not about how often one accident happens. It is about how catastrophic one accident is.

Response: By way of reference see response to comment #3.

20. **Comment:** I believe a risk assessment is warranted for the catastrophic failure of 1-, 2-, 3-, and 4-railcars of hazardous waste scenarios within the City of Bethlehem. It would be a way to measure the risks we are exposing the residents to.

Response: Pursuant to the PPC plan submitted with the facility permit application, page 43, IE.1, Arrangements with local response agencies, a copy of the PPC plan for the facility was supplied to DEP, Northampton County Emergency Management Agency, East Allen Township Fire Department, Pennsylvania State Police (Bethlehem), Borough of Bath, and emergency response contractors.

KCC is also subject to Spill Prevention Response (SPR) provisions of the Pennsylvania Storage Tank and Spill Prevention Act. KCC is required to prepare a notification list to include surface water intakes, municipalities and counties, within 20 miles downstream of the facility. This list includes the City of Bethlehem**.**

21. **Comment:** Replacing 6,000-gallon truck tankers with 30,000-gallon railcars and up to four railcars per train (for a total of 120,000 gallons), is a huge concern in case of a derailment or other accident.

    Response: By way of reference see response to comment #3.

22. **Comment:** Recent Norfolk Southern derailments and now well-established flaws in the company's Precision Railroad Scheduling make it imperative that DEP deny Keystone's application.

    Response: DEP has determined that KCC meets requirements and regulations for permit renewal for facility operations within the permitted boundary.

    By way of further response see response to comment #3.

23. **Comment:** I strongly believe that it would be a serious environmental mistake to allow Keystone Cement to ship large quantities of hazardous chemicals along a Norfolk Southern track that follows a pristine waterway for most of its route.

    Response: By way of reference see response to comment #3.

24. **Comment:** Accidents can and will happen, but the scale of the environmental impact of a single spill of these particular hazardous chemicals into a waterway would be immeasurably more severe than a tanker truck spill on a highway.

    Response: By way of reference see response to comment #3.

25. **Comment:** One of my primary concerns is the transportation of hazardous chemicals, including trichloroethylene, through Bethlehem via Norfolk Southern rail. The rail line runs along the Monocacy Creek and through residential areas, posing a significant threat to both the creek and the residents.

    Response: Trichloroethylene (Waste code D040) is not one of the approved primary waste codes for HWDF stored in waste solvent storage tanks at the permitted facility, however it is an approved secondary waste code. Each primary waste code in the permit may exhibit a secondary waste code for commercial chemical products, manufacturing chemical intermediates, or off-specification commercial products. Secondary waste codes may only be accepted at concentrations as approved by the DEP for each individual waste stream via the Module 1 process, in addition to the general waste acceptance limit for chlorides.

By way of further response see response to comment #3.

26. **Comment:** The permit process, as it stands, does not address the transportation of chemicals, focusing solely on the Keystone site. This oversight leaves a critical gap in ensuring the safety and well-being of our community.

    Response: By way of reference see response to comment #3.

27. **Comment:** The Monocacy Creek is right next to the rail line and is a high-quality trout stream. Besides the obvious danger to the creek from an accidental spill/leak, a derailment could be catastrophic to the creek and the neighborhoods this rail line runs through.

    Response: By way of reference see response to comment #3.

28. **Comment:** The rail line leaves the mainline under the Hill to Hill bridge and follows the creek into Bath. The line runs several hundred yards behind Main Street and passes through the Industrial Quarter. Any derailment in this area would pose a huge evacuation effort, many businesses on main street, including Hotel Bethlehem would need to be evacuated. Slightly north this line runs next to four senior citizen high rise buildings. As the line continues north, it runs next to Monacacy Park, still following the creek. The line then follows through residential neighborhoods, following Main Street Extension, then Bierys Bridge Road. Any incident in this area would be a nightmare for first responders, as Main Street Extension and Bierys Bridge are very narrow, getting large trucks into this area and setting up firefighting operations and Hazmat response vehicles would be very difficult. Even a response from Norfolk Southern and their equipment would be almost impossible.

    Response: By way of reference see response to comment #3.

29. **Comment:** The rail line runs along the Monocacy Creek and through the residential areas of Bethlehem. The permit process does not cover transport, only the Keystone site. It is a genuine health and environmental protection issue since the chemicals in question are a threat to the creek and the residents of Bethlehem. Please do not approve this permit.

    Response: By way of reference see response to comment #3.

30. **Comment:** In a recent news article, an official at the Keystone TSDF stated that their change to rail transport will, “remove approximately four tanker trucks from the roads for every one railcar, reducing road traffic and associated risks.” However, as I see it, the tradeoff will now be the significant increase in the volume of DOT hazardous

materials transported on the Cement Secondary rail line. Accordingly, those "associated risks" will now be transferred as threats to Monocacy Creek, and the neighborhoods along the track.

Response: By way of reference see response to comment #3.

31. **Comment:** Keystone Cement stated that, "Rail transport is statistically safer than road transport by a significant margin." Given there have recent local train wrecks, specifically on March 2, 2024, and July 5, 2024, I'd conclude that the margin has significantly narrowed. In March 2024 an extensive derailment occurred involving 3 trains on the Norfolk Southern Lehigh Line in nearby Lower Saucon Township. That train wreck resulted in rail cars being scattered along the bank of the Lehigh River, including 2 locomotive engines with diesel fuel spilling into the water. Polypropylene plastic pellets also spilled into the river. This event was clearly a catastrophic near-miss incident, in that 3 of the derailed cars were carrying residues of ethanol and butane (both DOT hazardous materials) and thankfully did not leak. On 5 July 2024, a train derailment again occurred on the NS Lehigh Line, this time beneath the Hill-to-Hill Bridge in Bethlehem. The wreck was located on the southern side of the trestle crossing the river. While the 4 cars that derailed were empty, this was another catastrophic near-miss, as 2 cars on the 125-car train contained DOT hazardous materials. Fortunately, they were not in the vicinity of the derailed cars, thus no release of those materials. A NS representative determined the cause of that wreck to be "train handling". A spokesman with the Federal Railroad Administration better characterized it as being caused by "human error".

    Response: By way of reference see response to comment #3.

32. **Comment:** Almost daily shipments of tanker railcars containing 60,000 gallons to 120,000 gallons of DOT hazardous materials (mostly flammable materials) along the rail line represents an incredible risk of catastrophe to residents in densely populated Bethlehem, as well as those living adjacent to the tracks in the suburban areas of Bethlehem Township, Lower Nazareth Township, East Allen Township, and the Borough of Bath.

    Response: By way of reference see response to comment #3.

33. **Comment:** A comparison to the 3 February 2023 incident in East Palestine OH is not far-fetched. The National Transportation Safety Board (NTSB) found that a rail car's defective wheel bearing caused the derailment and subsequent hazardous material release. The derailment occurred when a bearing on a hopper car failed and overheated, leading to the conflagration in the center of that small Ohio town. NTSB also noted that overheated wheel bearings are a common cause of rail accidents. Along major railways, trackside hot bearing detectors are part of a system intended to warn crews to stop the train before the hot bearing can cause a derailment, I seriously

doubt that any such wayside monitoring systems now exist on the Cement Secondary rail line.

Response: By way of reference see response to comment #3.

34. **Comment:** The NTSB concluded that use of DOT-111 tank cars to transport flammable liquids and other hazardous materials contributed to the severity of the hazardous materials release in East Palestine. Three DOT-111 cars mechanically breached, releasing flammable and combustible liquids that ignited. The NTSB has said that the DOT-111 tank car is being phased out of flammable liquids service because of its "long record of inadequate mechanical and thermal crashworthiness and propensity to release materials in a derailment". Please realize that it would be reassuring to the local community if the PADEP could specify in the Keystone TSDF permit that DOT-111 tankers cannot be used to transport flammable liquids and other hazardous materials into the TSDF.

    Response: The most recent version of the Railcar Management Plan provides:
    Keystone will only accept railcars that are USDOT-approved railcars. As newer, safer USDOT-approved railcars are available to generators, Keystone will encourage its generators to utilize these USDOT-approved railcars (e.g., USDOT-117s are preferred over USDOT-111s).
    The USDOT establishes regulations for the specifications of railcars intended for the movement of hazardous materials. All railcars that carry hazardous materials must be equipped with double shelf couplers, which prevent separation of cars and possible punctures by a coupler in the event of an accident or derailment. The Federal Railroad Administration (FRA) regulates the rail tracks, safety, inspection frequency, and regulatory requirements for the railroad companies.

35. **Comment:** I am aware of the potential hazardous materials making their way through Bethlehem and I wanted to raise concerns regarding this action. I do not want any harm to be caused to the residents or water system in Bethlehem.

    Response: By way of reference see response to comment #3.

36. **Comment:** In light of recent derailments in the area I find the possible exposure of a significant population and a natural treasure to hazardous wastes, trichloroethylene among them, to be ill advised.

    Response: By way of reference see response to comment #3 and comment #25.

37. **Comment:** It is concerning that hazardous chemicals (trichloroethylene among them) will be transported through my neighborhood in Bethlehem via Norfolk Southern rail. The line runs along the Monocacy creek and through the residential areas of Bethlehem.

Response: By way of reference see response to comment #3 and comment #25.

38. **Comment:** The intended route poses considerable risk: to the Monocacy Creek, a pristine brown trout stream that borders the tracks into and through Bethlehem up to the Keystone facility; the newly designated World Heritage Site located along the creek and tracks in the heart of historic Bethlehem would be at risk in an accidental spill situation; to the residential areas that border the creek, some within 60 ft of the tracks, that are actively and densely populated; the increased runoff from development from both housing and warehouse construction causes the creek to rise and cross the tracks in multiple locations; the nature of the topography in creek bordering areas is such that hazmat containment, equipment, and operations would be exceptionally difficult to execute; the nature of the waste has an evaporative quality making evacuation planning and execution extremely difficult resulting in a severe public health risk of extraordinary proportions; a spill of this significant volume would destroy the creek, and possibly the Lehigh River. The public safety record of the Railroad is less than stellar, with two significant derailments in the recent past.

    Response: By way of reference see response to comment #3.

39. **Comment:** Regardless of the safety measures Keystone currently employs, they are insufficient as they do not cover outside their operating location.

    Response: By way of reference see response to comment #3.

40. **Comment:** Currently, there are 6 or 7 15+ ft dead trees within sight of my property between the tracks and the creek. The condition of the rising creek will continue to cause erosion, and subsequent destruction of plant life, and the subsequent root decay will undermine the rail bed. Along much of Biery's Bridge road there is a scant 6 ft between the tracks and the creek.

    Response: By way of reference see response to comment #3.

41. **Comment:** I'm emailing to express my concern regarding Keystone Cement's proposal to transport liquid fuel via train tank cars. As you know, train tracks often run along streams and rivers to take advantage of the level geography. The Lehigh Valley has experienced two train derailments, in March and also early July of this year. It's perturbing considering a 30,000 gallon, per tank car, derailment along the Lehigh River or the Monocacy Creek.

    Response: By way of reference see response to comment #3.

    Comment: I am concerned about the rail transit permit being applied for. The hazmat dangers in rail transit have the potential to threaten the Monocacy Creek and many

surrounding homes. Palestine Ohio was a devastating ordeal, and it should be a wakeup call to the PADEP so that history does not repeat itself.

Response: By way of reference see response to comment #3.

42. **Comment:** Two serious local train derailments in Bethlehem in the past few months make me very concerned about the extremely hazardous waste traveling along these tracks. We believe that the risk these hazardous wastes pose to the environment and the public is too great a risk to be permitted.

    Response: By way of reference see response to comment #3.

    Comment: There are many communities and creeks along the route Norfolk Southern Rail would utilize to transport these wastes to Keystone Cement. Approval of the permit will put our communities and natural resources, in particular, the Monocacy Creek, in jeopardy in the event of a derailment or spill.

    Response: By way of reference see response to comment #3.

43. **Comment:** It is my understanding that this proposal would allow Keystone to transport as much as 120,000 gallons of hazardous waste materials (via 4 railcars each containing 30,000 gallons) on a small train that would travel along the Monocacy, through the city of Bethlehem on its way to Bath. The rail line passes through a highly populated area and any accident would endanger the lives of people, wildlife, and the fish and other aquatic creatures that reside in this area.

    Response: By way of reference see response to comment #9.

44. **Comment:** I want to express opposition to Keystone Cement's request for a permit to transport hazardous material in rail tank cars. This would include extensive travel and storage of these hazardous chemicals along Monocacy creek near Bath, Pa.

    Response: By way of reference see response to comment #3.

45. **Comment:** Statistically speaking, train car deliveries are less prone to accidents than truck deliveries are. But as we have seen in just the past four months, trains do derail and can send shipments into the nearby waterway, in those two separate cases into the Lehigh River. When the cause is human error, the result is no more or less potentially devastating than if the cause is mechanical, weather-related, or some other reason. Train deliveries may be more reliable, but only until they are not. I cannot believe that the Monocacy Creek and other waterways should be exposed to such a real risk.

    Response: By way of reference see response to comment #3.

46. **Comment:** We are concerned about hazardous waste traveling on the rail line between Bethlehem and Bath. It is inconceivable to us to even entertain the idea to permit hazardous materials into a pristine area such as the Monocacy Creek, which is classified by the PA DEP, as a "High Quality Coldwater Fishery", and into the densely populated industrial quarter that has just been placed on the UNESCO World Heritage Site. Bethlehem draws visitors from all over the world and is considered the Christmas City as well as host to Musikfest and the Celtic Classic both of which host events in the area that would be affected by any accident of such a hazardous nature. Since the Norfolk Southern does not have a great track record when it comes to Safety concerns and there has been no public notice of Norfolk Southern's safety protocols to protect this area, we believe the intended travel of hazardous wastes over this rail line represents a serious risk of pollution to the creek, river, and population of Bethlehem.

    Response: By way of reference see response to comment #3.

47. **Comment:** I was not happy to read that Keystone Cement has applied for a permit to run hazardous materials (fuel) by rail along the Monocacy Creek. The stream is 28 miles long, starting in Chapman Borough, winding its way to and through Bethlehem, to the Lehigh River. The stream has always been an important waterway, protected even though it flowed through an industrialized city. The 50 square mile watershed is classified a High Quality Coldwater Fishery, a treasure of Pennsylvania. Just this year, 2024, there have been two local derailments: March in Lower Saucon along, and partially in, the Lehigh River ($2.5 million clean-up) and July under the Hill to Hill Bridge in Bethlehem also along the Lehigh River. Both of these derailments were on the main rail line, where maintenance is frequent. Fortunately, hazardous materials were not being transported (but there were traces of hazardous materials in two cars). The railways for the Keystone proposal are not main line, so the conditions and maintenance may very well be suspect.

    Response: By way of reference see response to comment #3.

48. **Comment:** The Monocacy Creek Watershed Association believes that moving flammable material (hazardous waste) in railcar tankers over this portion of the Cement Secondary rail line represents a serious new risk of pollution for the creek. It also represents the possibility of catastrophic incidents in the Historic Bethlehem area, as well as risks to residents living in the immediate area of the track.

    Response: By way of reference see response to comment #3.

49. **Comment:** It is my understanding that a renewal of Keystone Cement's permit would allow delivery of hazardous waste to its site by railcar rather than only by tanker-truck. While I believe both forms of transport pose a risk, I am particularly concerned about this change in the mode of transportation, since the waste would have to get to Keystone Cement via a Norfolk Southern rail line that runs through the city of Bethlehem and along one of our special protection waterways, known as "Monocacy

Creek." Putting hazardous waste in the railcars that run through our city and along that creek is an exceptionally bad idea. It poses new environmental threats and will deter residents who recreate in the area from taking advantage of this unique opportunity to access nature in the middle of our city.

Response: By way of reference see response to comment #3.

50. **Comment:** Areas such as the Monocacy Way Trail, Gertrude Fox Conservation Area, Archibald Johnson Conservation Area and others cannot be easily accessed in the event of a derailment of hazardous materials. Derailment in these areas would greatly reduce intervention and remediation time.

    Response: By way of reference see response to comment #3.

51. **Comment:** There are many reasons why switching from semi-trailer trucks to rail cars is a bad idea. Not only could there be as much as four times the amount of waste being transported in one load, but if there were to be an accident, it would be much more difficult to contain the damage. If a truck were to be involved in an accident, emergency vehicles could quickly reach the scene. But imagine a derailment in the Archibald Johnson nature area, or in my own neighborhood of Monocacy Hills where the creek winds around the base of a hill. It would be almost impossible to get fire trucks to the site in these locations.

    Response: By way of reference see response to comment #3 and comment #20.

52. **Comment:** Many of the roads this rail line crosses do not have crossing gates, so the train needs to blast its whistle at each crossing. Not only does the lack of crossing gates raise the risk of an accident, but there is also an issue with noise.

    Response: Crossing gate safety and noise from rail traffic outside the Keystone Cement Company permit boundary are not regulated by the RCRA Permit.

    By way of further response see response to comment #6.

53. **Comment:** Recently, the historic Moravian sites in Bethlehem were named to the list of World Heritage Sites. And yet now there is the possibility of hazardous waste being transported right next to the 18th Century historic district. If an accident were to occur, we would lose a vital part of the city's heritage and of our economy since it is the charm of historic Bethlehem that draws people to our downtown area.

    Response: By way of reference see response to comment #3.

54. **Comment:** Once the hazardous waste rail tankers arrive at Keystone along the creek, they have 10 days to move them into the fenced staging and unloading area. Once they are in there, they have 10 days to unload them. So, each loaded rail tanker delivered is

on a 20-day clock to be unloaded. Only four will be fenced and only the one car to be offloaded will have secondary containment. Tankers will be unprotected and without secondary containment protection along the creek. And that 20-day clock will be difficult to keep track of. Could you please add a requirement in the final permit for the permittee to keep a written log of rail tankers to ensure compliance with the 10- and 20-day requirements?

Response: KCC monitors and reports the amount of HWDF received on site. According to the Railcar Management Plan, upon arrival on site railcars will be moved onto KCC rail siding and tracks inside the permitted facility boundary. Within 10 days, movement into the railcar staging and unloading will occur. Once inside the staging/unloading area the tank will be unloaded within 10 days. The unload area is designed to hold a maximum of 4 railcars. The Railcar Management Plan requires Keystone to maintain an activity log to demonstrate compliance with the 10- and 20-day deadlines as the site already does with truck shipments. The most recent version of the Railcar Management Plan becomes part of the permit and is a regulatory requirement.

55. **Comment:** I can't help but feel that the rail tanker change is a way for Keystone to, in effect, more than double their RCRA storage limit without triggering an official change to their permit storage volume. This would all come at the expense of environmental risk to the adjacent Monocacy Creek. Controls are needed in the final permit to ensure that, between Keystone and Norfolk Southern, we do not end up with 12 or more hazardous waste tankers situated near the Monocacy. I would hope that there would be no delay between Norfolk Southern arriving with a tanker and Keystone's 20-day clock starting.

Response: The railcar staging and unloading area is designed to hold a maximum of 4 railcars. The most recent version of the Railcar Management Plan becomes part of the permit and is a regulatory requirement. KCC monitors and reports the amount of HWDF received on site. According to the Railcar Management Plan, upon arrival on site railcars will be moved onto KCC rail siding and tracks inside the permitted facility boundary. Within 10 days, movement into the railcar staging and loading/unloading will occur. Once inside the railcar staging and unloading area the tank will be unloaded within 10 days. Therefore, this process potentially can take up to 20 days. Pursuant to language in the Railcar Management Plan:

Upon arrival on-site, the railcar will be moved onto the Keystone rail siding and tracks. Within 10 days, movement into the railcar staging and unloading area will occur. Once inside the railcar facility, Keystone will unload the waste derived fuel within 10 days.

Movement and staging of rail cars outside the KCC permit boundary is not covered by the RCRA permit.

By way of further response see response to comment #54.

56. **Comment:** Keystone proposes to begin rail delivery in 2026, using either standard tanker cars or the newer cars with stronger double wall construction while the latter are being "phased in." It was suggested that the switch to using the safer tankers would be complete by 2029, but this timetable is by no means certain. Even if the goal is met, that leaves 3 years of heightened daily risk of transport by single-walled tanker cars. I urge you to stipulate, as a condition of the permit renewal, that all rail shipments of hazardous chemicals arrive at Keystone Cement (and be stored, while awaiting unloading,) in the newer reinforced tanker cars.

    Response: By way of reference see response to comment #34.

57. **Comment:** Keystone Cement stated that use of the rail line is expected to remove four trucks from the roads for every one rail car received at their site. It's also my understanding that during the Q&A period, a Keystone representative stated that there will be 3 rail cars as part of each train traveling to their site. By my estimates, that would be approximately 90,000 gals of ignitable and environmental toxic liquid waste moving along the rail line. This would occur as part of Norfolk-Southern's routine Monday-Saturday train deliveries to customers along their Cement Secondary Railroad. This transport represents an astounding increase in the volume of DOT hazardous material currently moving through the communities of Bethlehem, Bethlehem Township, Lower Nazareth Township, East Allen Township, and the Borough of Bath. In the city of Bethlehem, the railroad track runs parallel to the Monocacy Creek (a rare, high-quality waterway) and passes through the Historic Bethlehem area (a World Heritage site), Illicks Mill Park, the neighborhoods of Main Street Extension and Biery's Bridge Road, plus the Gertrude Fox and Archibald Johnson conservation areas, both having a variety of abundant wildlife.

    Response: By way of reference see response to comment #3 and comment #7.

58. **Comment:** An effective response to a leaking 6,000 gallon tanker truck on a public highway is much more efficient than a response to a release event from a 30,000 gallon rail tanker along the often isolated 10 miles of the rail line, from its origin in downtown Bethlehem to the Keystone Site in the borough of Bath.

    Response: By way of reference see response to comment #3.

59. **Comment:** Keystone Cement said that they will know how to manage the railcar system safely, with containment, and spill response, also adding that they plan to have the local fire department at the site to perform a table drill before starting the project. While that might bring comfort to those concerned about operations within the legal boundaries of the Keystone facility, it does nothing for the many residents and business located along the 10 miles of track. And while Keystone may harbor an attitude of not being responsible for the safety of the rail line outside of their facility, I remind DEP that you cannot have a "*rail car unloading system*" without a railroad to

transport the cars into the facility. I strongly believe that it is irresponsible for DEP to not consider the railroad itself as a necessary function of the total system.

Response: The railroad is regulated by the FRA. DEP will encourage KCC and NS to collaborate with the community on environmental, health and safety issues.

By way of further response see response to comment #3 and comment #6.

60. **Comment:** At the hearing, company representatives stated that the rail cars will be travelling at very low speeds, with an average of 12 mph and a limit of 22 mph. They apparently believe that this would allay any fears of derailment for the residents and businesses having homes and facilities immediately adjacent to the track. In 2022 the Association of American Railroads revealed that, "the vast majority of train derailments happen in rail yards where the average train speed is about five MPH — not on mainline track running across the country." In fact, the train that derailed on the trestle beneath the Bethlehem Hill-to-Hill Bridge on 5 July 2024 was moving at a low speed. A Norfolk-Southern representative determined the cause of that wreck to be "train handling". A spokesman with the Federal Railroad Administration better characterized it as being caused by "human error". Another derailment on the same trestle occurred on 28 September 2022. Please recall that there are at least 10 trestles that cross the Monocacy Creek between Bethlehem and Bath.

Response: The railroad is regulated by the Federal Railroad Administration. DEP will encourage Keystone Cement Company and Norfolk Southern to collaborate with the community on environmental, health and safety issues.

By way of further response see response to comment #6.

61. **Comment:** DEP should include language in the permit that requires Keystone Cement to ensure that the liquid hazardous waste that they have contracted to receive at their facility can confidently arrive there without concern about spill or release into the Monocacy Creek. At a minimum this can be ensured by including permit language that would require Keystone to: ensure that transport will occur only via the use of the more robust Class DOT-117 tank cars, actively cooperate with both Norfolk-Southern and the Northampton County LEPC to develop spill response plans for all isolated locations along the track, routinely review with Norfolk-Southern their maintenance and repair plans and records for the track, provide funding to the designated first response teams for the purchase of necessary equipment to expedite an adequate response, and work with the responders to conduct periodic training at a variety of locations along the creek.

Response: By way of reference see responses to comment #20 and comment #34.

62. **Comment:** I believe that the residents and business owners adjacent to the rail line need to have adequate assurance that both Keystone and Norfolk-Southern are

working together for common safety and environmental protection along the entire transportation route. This can be afforded by DEP by putting aside the traditional mindset of regulatory territories and assigning common responsibilities for monitoring and review in the Keystone permit.

Response: The railroad is regulated by the Federal Railroad Administration. DEP will encourage Keystone Cement Company and Norfolk Southern to collaborate with the community on environmental, health and safety issues.

By way of further response see response to comment #6.

63. **Comment:** Please do not allow chemicals to come through the Lehigh Valley on trains. Don't want it close to my home should there be an accident like the one in Ohio.

    Response: By way of reference see response to comment #3.

64. **Comment:** I do not wish toxic chemicals to be transported through my community.

    Response: By way of reference see response to comment #3.

65. **Comment:** The route in question passes alarmingly close to residential areas, including my home on Spring Street in Bethlehem, placing my family and many others in jeopardy. The potential for train derailments, which have historically led to environmental disasters, cannot be ignored. Such incidents could result in the release of toxic substances into these critical water bodies, with devastating consequences for public health and the environment. The Lehigh River, Monocacy Creek, and Delaware River are not only vital sources of water but also treasured natural resources that support diverse ecosystems and recreational activities. Contaminating these waterways with hazardous chemicals would have long-term, detrimental effects on our community's health and quality of life. I urge you to reconsider this plan and explore safer alternatives that do not threaten our homes, health, and environment. The safety of our community should be the top priority, and it is imperative to address our concerns seriously and promptly.

    Response: By way of reference see response to comment #3.

66. **Comment:** Since huge quantities of liquid toxic hazardous waste could in the future spill into Monocracy Creek, Lehigh River, or The Delaware River, the Keystone applications must be rejected. The PA DEP serves all the citizens of PA best interest. Not big business. The Keystone Cement application is nothing less than an act of premeditated reckless endangerment with no thought or care about possible damage they could cause to the environment and the people who live in it.

    Response: By way of reference see response to comment #3.

67. **Comment:** We don't want the trains hauling waste near our waterways.

    Response: By way of reference see response to comment #3.

68. **Comment:** The people of Bethlehem, PA are against having Norfolk Southern Railroad transport toxic liquid hazardous waste to Keystone Cement. Against Keystone cement building a transport area for the railroad. There have been too many derailments across the country to allow this in our area. We just had one in Lower Saucon Township, right outside if Bethlehem proper, and waste did enter the river and required clean up. The Monocacy Creek runs along parts of the railroad also and is a recreational and fishing venue for many in the area. Please consider our request to void the application.

    Response: By way of reference see response to comment #3.

69. **Comment:** I am against Norfolk Southern Railroad transporting 30,000, 60,000, 90,000 gallons of toxic liquid hazardous waste frequently next to Monocacy Creek, Lehigh River and The Delaware.

    Response: By way of reference see response to comment #3.

70. **Comment:** I would like to voice my objection and true concerns about allowing this hazardous waste being transported by rail. We just had a derailment in March of this year by Norfolk Southern. Please don't allow this to be done.

    Response: By way of reference see response to comment #3.

71. **Comment:** I'm against this approval because of the possibility of just one derailment causing irreparable damage to our people, land, and wildlife.

    Response: By way of reference see response to comment #3.

72. **Comment:** The manner in which Norfolk Southern handled (is handling) the East Palestine, OH, derailment is a disaster. Almost two years later, the ruination exists. As a result of its East Palestine investigation, in its June 25, 2024, News Release, the National Transportation Safety Board (NTSB) issued new safety recommendations to the Secretary of Transportation about the following safety issues:

- Failure of wayside monitoring systems to diagnose a hot (why did the crew not receive a hot bearing warning until ... East Palestine… when axle about to fail).
- Inadequate emergency response training for volunteer first responders (at the meeting some people in audience stated that first responders of any magnitude would not be able to get to a mishap at certain places along the tracks).
- Hazardous materials placards that burned away, preventing emergency responders from immediately identifying hazards.

- A lack of accurate, timely and comprehensive information passed to local incident commanders and state officials.
- The continued use of DOT-111 tank cars in hazmat service.
  Before any movement continues in this process, with all due respect, I'd like to know the cost including a mishap-revenue analysis, and I expect answers by Norfolk Southern about the specific corrections made by it to safely transport toxic waste to Keystone via railway.

  Response: By way of reference see response to comment #3 and comment #6.

73. **Comment:** I had been at the hearing at Nitschmann Middle School in Bethlehem, PA, and was astonished that Norfolk Southern, a main party to this endeavor, was not present.

    Response: The meeting/hearing being referred to was a DEP Waste Program meeting specific to the Hazardous Waste Permit renewal application. Norfolk Southern was not specifically requested to participate in this meeting. That said, DEP did not require all attendees sign in and therefore DEP cannot confirm if anyone from Norfolk Southern was present at the meeting.

    By way of further response see response to comment #3.

74. **Comment:** I am very opposed to possible approval of the Keystone Cement permit to send hazardous wastes on trains from Bethlehem to Bath. Any spill of these very hazardous materials, especially along the Monocacy Creek, would cause major poisoning of the area. We are already aware of the railroads very superficial safety checks. A disaster like the recent catastrophic East Palestine, Ohio spill would be very possible. My 96-yr-old father lives within yards of the tracks. He is not mobile. He would be severely endangered by a spill. I hope you will consider the lives and health of Bethlehem residents by denying this permit.

    Response: By way of reference see response to comment #3.

75. **Comment:** I ask you to please step up to protect our community and the environment by not allowing Keystone to use the railroad for delivery and storage of their hazardous materials.

    Response: By way of reference see response to comment #3.

76. **Comment:** I would like to point out the potential hazards of Keystone Cement transporting hazardous waste along the Monocacy Creek. Given their track record of the spill in East Palestine, Ohio, the potential of that happening in this area is worrisome.

    Response: By way of reference see response to comment #3.

77. **Comment:** No to trains carrying toxic waste.

    Response: By way of reference see response to comment #3.

78. **Comment:** We do not want trainloads of hazardous waste transported near our waterways. It is irreversible if there is an accident.

    Response: By way of reference see response to comment #3.

79. **Comment:** I do not want Norfolk to transport any toxic chemicals in my area. I am appalled that the city council would not stop this before it came to a vote. Have we learned nothing from the incident in East Palestine?

    Response: By way of reference see response to comment #3.

80. **Comment:** I do not endorse the transport of hazardous wastes along the waterways here in Saucon Valley.

    Response: By way of reference see response to comment #3.

81. **Comment:** I was at the recent meeting on October 28th which several issues were brought up regarding Norfolk Southern's safety record and the inaccessibility of this route. There is significant danger to human life, property and the environmental. At the very least extensive measures should be incorporated such as:

- Strenuous track inspection and maintenance procedures
- Increased road crossing protection
- Dedicated vehicles on standby capable of using railroad tracks with spill abatement equipment
- Intensive rail car maintenance

The best protection of the people who live along the route as well as the environment would be to deny the permit. I urge you to not approve this permit.

Response: By way of reference see response to comment #3.

82. **Comment:** I would like to voice my opposition to the permit for Norfolk Southern Railroad to transport hazardous waste through Bethlehem and near Monocacy Creek and the Lehigh and Delaware rivers. The Delaware River provides drinking water for Philadelphia and the surrounding areas. The Lehigh River and its tributaries feed into watersheds that provide drinking water for millions. Transportation through our city via rail creates more risks than rewards for the people of eastern and southeastern Pennsylvania. Norfolk Southern has had two derailments in recent months, one of which nearly ended up in the Lehigh River. Should the train have been carrying toxic waste rather than garbage the repercussions would have been devastating. It is for these reasons I ask that the permit not be granted.

Response: By way of reference see response to comment #3.

83. **Comment:** I have significant concern about the proposal to transport hazardous waste by train through my town of Bethlehem. There does not appear to be adequate safety provisions to prevent potential disaster, which would compromise the health of our environment, especially as the train travels next to the beloved Monocacy Creek area.

    Response: By way of reference see response to comment #3.

84. **Comment:** We do not want hazardous waste transported via train near waterways in the Lehigh Valley.

    Response: By way of reference see response to comment #3.

85. **Comment:** I lived over that stretch of railroad track for 13 years. For 12 of those years, the track was in terrible shape. My home would shake every time a locomotive and trailing rail cars would pass under my windows. Last year Norfolk Southern replaced the existing old rails and ballast with welded rail, which helped the vibration, but that stretch of the creek is being washed out from below. It's also subject to sinkholes. The history of this line has been carrying lumber and (earlier) coal with a few tankers to and from the end of the line. The Monocacy is fragile. It feeds the Lehigh, which in turn enters the Delaware. The drinking water of literally millions downstream is being endangered by this proposal for toxic trains along scary tracks. Some of my concerns include track work, sporadic flooding, littoral bank erosion, and tree cutting.

    Response: By way of reference see response to comment #3.

86. **Comment:** As a resident of Bethlehem that lives very close to Monocacy Creek, I am concerned about safety along the rails when the trains are carrying hazardous waste. I am writing to convey my disapproval of the permit only because they are shipping on the rails. I think it makes more sense to continue trucking the waste because then if there were an accident, the equipment to clean up the spill could get to the site (on the road), and this would not be the case along the rails as there are very few access points.

    Response: By way of reference see response to comment #3.

87. **Comment:** Given the proximity of the rail line to the Monocacy Creek, a treasured natural resource within my community, I write to ask the DEP to exercise any and all authority that it has to ensure that the rail line that Keystone intends to use is properly and regularly maintained to the highest federal standards - if transportation by rail is approved.

Response: By way of reference see response to comment #6.

88. **Comment:** The rail line provider, as you must know, has had a number of derailments recently. While we have been lucky thus far that the derailments have not involved the spilling of toxic or dangerous materials, should that happen in proximity to the creek, the results would be disastrous and irreversible for the duration of most of our lifetimes. And such derailments are a concern for other reasons. Much of the line is located in fairly inaccessible locations. Should a dreaded derailment occur with the spilling of these toxic waste materials, the damage to the creek would be immediate and difficult to address quickly. The damage to vital groundwater, and thus the entire surrounding community would be catastrophic.

    Response: By way of reference see response to comment #3.

89. **Comment:** The most important task of the government, at all levels, is to protect the health and safety of the citizens of this great community and country. I write to ask that your department, perhaps in conjunction with other arms of the state, put in place the requirements and inspections necessary to ensure, as much as humanly possible, that rail, transportation is the safest it can be for transportation of materials of this nature.

    Response: By way of reference see response to comment #3.

90. **Comment:** I am writing to express my strong objection to the proposed plan for Norfolk Southern trains to transport hazardous chemicals along the route adjacent to the Lehigh River, Monocacy Creek, and Delaware River. This plan directly affects my community and poses significant risks to our safety and well-being. The route in question passes alarmingly close to residential areas, placing many families in jeopardy. The potential for train derailments, which have historically led to environmental disasters, cannot be ignored. Such incidents could result in the release of toxic substances into these critical water bodies, with devastating consequences for public health and the environment. The Lehigh River, Monocacy Creek, and Delaware River are not only vital sources of water but also treasured natural resources that support diverse ecosystems and recreational activities. Contaminating these waterways with hazardous chemicals would have long-term, detrimental effects on our community's health and quality of life. I urge you to reconsider this plan and explore safer alternatives that do not threaten our homes, health, and environment. The safety of our community should be the top priority, and it is imperative to address our concerns seriously and promptly.

    Response: By way of reference see response to comment #3.

91. **Comment:** Please advocate for the safety of our communities by not allowing toxic materials to travel near water ways.

Response: By way of reference see response to comment #3.

92. **Comment:** I am writing as a concerned citizen regarding the proposed plan by DEP Keystone Cement to transport materials by train through our community, a plan that I believe risks severe environmental and community harm. The Monocacy Creek, a delicate and vital ecosystem, runs near the proposed transport route. Known for its scenic beauty, biodiversity, and significance to our local ecosystem, the Monocacy is home to fragile fish populations and is an essential water source for our area. Any increase in industrial activity near this area raises the likelihood of environmental degradation, including runoff and sedimentation, which could devastate this sensitive ecosystem.

    Furthermore, the nearby Delaware River is a crucial waterway not only for our community but for many along its course. It supplies drinking water to millions and sustains various natural habitats. Introducing train transport of industrial materials so close to this watershed poses a considerable risk. A single spill or accident could lead to irreversible contamination, endangering drinking water and affecting the wildlife and people who rely on the river. It is imperative that we prioritize preserving these precious waterways over the proposed transportation plans. I urge you to listen to the concerns of our community and to reconsider this project, placing the safety of our natural resources and the health of our environment at the forefront of future development.

    Response: By way of reference see response to comment #3.

93. **Comment:** Bethlehem is a very special city, enjoying a rich history and natural beauty as well as a sense of community. Gambling on transporting hazardous material through the heart of the city is a dangerous bet. These materials should be processed at a more isolated location. If an accident occurs, things would never be the same.

    Response: By way of reference see response to comment #3.

94. **Comment:** I urge the Department of Environmental Protection to not approve the change of delivery of hazardous wastes to Keystone Cement along the Norfolk Southern rail line from Bethlehem to Bath nor the placement of these wastes in railcars on the Keystone site. The track passes through numerous parks and conservation areas as well as downtown Bethlehem and through what was just recognized as a UNESCO World Heritage site. Any emergencies, such as the train derailment in Lower Saucon earlier this year, would be catastrophic to the Monocacy and many of these areas. The risks greatly outweigh any benefits.

    Response: By way of reference see response to comment #6.

95. **Comment:** I am concerned about the recent proposal to transport 30,000 gal of waste to The Keystone Cement Plant. It travels through residential areas and along the

Monocacy Creek which is a natural environmental resource in our community. We are concerned about accidents and spillage.

Response: By way of reference see response to comment #3.

96. **Comment:** I am writing to express my dire concern and fear for the proposed plan to move hazardous wastes along the Norfolk Southern rail line, through Bethlehem, Pa to the Keystone Cement site in Bath, Pa. Further, I am expressly requesting that the PA DEP not approve the proposal to move these hazardous wastes through Bethlehem, Pa. This plan must be terminated immediately for the sake of our community's health and safety.

    Response: By way of reference see response to comment #3.

97. **Comment:** I do not want train loads of toxic hazardous waste to travel near PA waterways.

    Response: By way of reference see response to comment #3.

98. **Comment:** Please imagine what would happen if a Norfolk Southern train carrying hazardous waste derailed while traveling through downtown Bethlehem, the Moravian historic buildings in the colonial industrial quarter, following the Monocacy Creek to Burnside Plantation, past the walking trails from downtown to Illicks Mill, through the heavily used Illicks Mill municipal park, following the Monocacy Creek north through a pristine landscape -- the Creek which is a superior trout fishing stream and a source of drinking water for wildlife -- the Creek which flows close to many homes. We have seen such a catastrophe in East Palestine, Ohio, and perhaps escaped such a catastrophe in Bethlehem twice in the past year only because those trains were not carrying cargo as hazardous as the train in East Palestine -- or the cargo planned by Norfolk Southern. I believe, based on the potential consequences, the risk is too high.

    Response: By way of reference see response to comment #3.

99. **Comment:** This plan puts the Monocacy Creek and surrounding residential, commercial, and agricultural areas at significant risk. The limited access along much of the track makes it nearly impossible to address the consequences of a derailment or other accident involving toxic materials. Monocacy Creek is a vital, spring-fed trout stream that is already threatened by nearby development. A single accident could irreparably harm the creek. In addition, the nearby properties are also vulnerable to the risks posed by transporting hazardous materials. To ensure public safety and protect the environment, I urge you to reject this proposal to transport and store hazardous waste along these tracks.

    Response: By way of reference see response to comment #3.

100. **Comment:** In light of the recent East Palestine, Ohio catastrophic derailment and climate change staring us in the face, with extensive fires in the West, tornadoes with greater destruction, and more frequent and powerful winds hurricanes, we should be planning on 3-4 x the power of these forces. In many places along the rails behind our house there many places where homes are a stone's throw from the tracks, and five feet of chunky gravel between the creek and the rails. Another recent development was the change to more modern tracks that allow the trains to go faster and allow one engine instead of the usual two engines. Please come and walk the tracks and see for yourself. Also ride in the engine and see the process of transferring hazardous liquids from one car to another for transfer to Bath. Please deny the permit to Keystone to protect the safety of the people and environment surrounding Easton, Bethlehem, and Bath. One resident had an excellent suggestion of decontamination of hazardous waste on site of Keystone Cement thus eliminating this problem.

Response: By way of reference see response to comment #3.

101. **Comment:** This comment is to express my serious concerns about Keystone Cement's proposal to transport hazardous wastes on the Norfolk Southern tracks from Bethlehem to Bath Borough and to allow storage of these hazardous wastes in railcars on the Keystone site. This would put the Monocacy Creek and all the residential, commercial, and agricultural areas that are adjacent to and near to the Norfolk Southern tracks at risk of serious harm. Given that the access to most of this track is severely limited along so much of the route, if a disaster would occur, it would be almost impossible to mitigate the consequences of a derailment, accident, or some other event that would compromise the highly toxic contents of the railcars. Monocacy Creek is a high-quality trout stream that already suffers from the increasing development along its banks and throughout the 50+ square miles of its watershed. It must be protected in order to preserve its unique status as a spring-fed waterway through an urban area. Exposing the creek to such a risk should not be approved. All it would take is a single catastrophe, and the creek would be seriously comprised, possibly irreparably so. The residential and commercial properties near to the tracks are also susceptible to any derailment or accident that would compromise the train cars carrying toxic chemicals. That risk should also not be considered as acceptable. The only way to guarantee that these disasters will not occur is to not allow the transport of hazardous wastes along the Norfolk Southern tracks from Bethlehem to Bath and to not allow the storage of these same railcars on the Keystone property that is so close to the Monocacy Creek. I strongly urge you to not approve this change to the way that Keystone Cement can receive the hazardous waste that is incinerated in the Keystone kilns.

Response: By way of reference see response to comment #3.

102. **Comment:** I am concerned to have learned of Keystone Cement's plans to transport toxic hazardous waste by rail along the banks of Monocacy Creek. The numerous

risks this could cause to the creek's fragile ecosystem, to the City of Bethlehem and other populated residential areas along the creek, and to agricultural and commercial enterprises in this area are alarming. My home abuts the easement of the Norfolk Southern track in Bethlehem at the point where the track makes a severe curve. For most of the time that I have lived along the Monocacy Creek and the Northern Suffolk track, Northern Suffolk has been a good neighbor. However, recently we have seen the harm done by Norfolk Southern derailments: East Palestine OH in 2023 for example, and two locally that sent railcars into the Lehigh River. In the case of an accident, derailment, or leaking tank, long stretches of the track would be inaccessible to emergency equipment and first responders. Along Monocacy's ten mile stretch from Bethlehem to Bath are two important Conservation Areas, at least two parks, and the recently designated UNESCO World Heritage site in downtown Bethlehem, that could be at risk for irreparable harm. This includes not only Bethlehem City, but the Borough of Bath and the Townships of Bethlehem and Hanover. There is no room for error here as so many properties like mine adjoin the easement directly. A disaster could turn Monocacy Creek into another Superfund site. Please do not permit this change of transport and delivery as you consider Keystone's hazardous waste storage application renewal.

Response: By way of reference see response to comment #3, comment #20, and comment #34.

103. **Comment:** I am concerned to learn of Keystone Cement's plans to transport toxic hazardous waste by rail along the banks of Monocacy Creek. The numerous risks this could cause to the creek's fragile ecosystem, to the City of Bethlehem and other populated residential areas along the creek, and to agricultural and commercial enterprises in this area are alarming. We have seen the grave harm done by other Norfolk Southern derailments: East Palestine OH in 2023 for example, and two locally that sent railcars into the Lehigh River. In the case of an accident, derailment, or leaking tank, long stretches of the track would be inaccessible to emergency equipment and first responders. I know this first hand as my residential property abuts the easement of the Norfolk Southern track in Bethlehem, at the point where there is a nearly 360 degree curve around our quiet neighborhood. So, I am familiar with the creek and appreciate it as an invaluable natural asset to our area. Along Monocacy's ten mile stretch from Bethlehem to Bath are two important Conservation Areas, at least two parks, and the recently designated UNESCO World Heritage site in downtown Bethlehem, that could be at risk for irreparable harm. This includes not only Bethlehem City, but the Borough of Bath and the Townships of Bethlehem and Hanover. I have more than once witnessed trains taking that curve at a dangerous clip. There is no room for error here as so many properties adjoin the easement directly. A disaster could turn Monocacy Creek into another Superfund site. Please do not permit this change of transport and delivery as you consider Keystone's hazardous waste storage application renewal.

Response: By way of reference see response to comment #3, comment #20, and

comment #34.

104. **Comment:** I believe that rail traffic is ultimately the most efficient way of transportation for the Keystone Cement Company in East Allen Township, Pennsylvania. I personally believe that it would save our roads from being flooded with dusty tractor trailers in an area inundated with warehouses and traffic that our infrastructure can already barely accommodate. The risk of a spill on the line is less than a tractor trailer on a highway. I honestly believe that more warehouses and businesses should make the switch to rail. Especially ones that use so many trucks. As a diesel locomotive has lower emissions per ton-mile. Which some studies indicate that one locomotive can be as low as 75% of the emissions of a tractor trailer with the same tonnage of cargo. As such, it would significantly reduce the amount of air pollution in the valley.

Response: The Department acknowledges the comment.

105. **Comment:** Our area has only started to recover from the decades of serious environmental pollution that drove out homeowners and spread cancer and other diseases to our families. Recent events have shown that we will have spills from railroads, and the nature of the valley means such transport will of necessity be mere feet from vital water ecosystems. To allow this greater traffic would be hubris. It is not our problem they are massive toxic polluters and it more expensive to take it by road. Do not sacrifice our growth, our economy, our natural beauty, and our children. If they can't afford to move their waste maybe they shouldn't work with it.

Response: By way of reference see response to comment #3.

106. **Comment:** This further rail traffic will doubtless hamper the continuing efforts to bring passenger rail to the area. The Lehigh Valley is growing in population in great part due to its easy access to nature. Not only will this ultimately poison us, it will crush our growing economy.

Response: By way of reference see response to comment #3.

107. **Comment:** The transportation of this hazardous material by train, seems like it would be potentially safer than by truck for the following reasons: The Lehigh Valley has unfortunately become one of the biggest logistics hubs in the country over the past 10 years. Huge warehouses cover much of what prior was farmland, and there has also been a housing construction boom. As a result, the truck and car traffic around the valley has increased exponentially. There are more accidents, more emissions, and the same old roadways that have not been updated to reflect this massive increase of traffic. If the use of train cars can reduce the amount of trucks carrying hazardous waste through our neighborhoods, we think that could potentially be a safer option, provided the DEP and State and local authorities can enforce and ensure that Keystone and the rail lines implement proper protocols and emergency procedures to ensure the

safety of the many surrounding residents, neighborhoods, and the environment, especially as it relates to the Monocacy watershed.

Response: By way of reference see response to comment #3.

108. **Comment:** For 25 years I have enjoyed, explored, and appreciated the Monocacy Creek. While so much green space in this area has disappeared, the Creek has remained a protected resource for sports fishermen, hikers, strollers, dog walkers, and wildlife. It's hard to believe that this treasured natural resource is now being threatened by Portland Cement's plan to route hazardous waste along the Monocacy to Bath. This proposal is alarming. No one can say accidents don't happen, won't happen. Norfolk Southern has had two derailments in the Bethlehem area in the last two months. No one can say there won't be another on a train carrying toxic waste. Need I mention East Palestine, Ohio? Please, let's protect the Monocacy Creek and the human and wildlife populations that live near it. Portland Cement has other options. The Monocacy does not.

Response: By way of reference see response to comment #3.

109. **Comment:** Has there been a comprehensive impact study from the point of origin where these railroad tankers will be loaded to point of destination, which is the Keystone Cement Plant? I did a preliminary impact study myself and came to the conclusion that if there is a substantial amount of hazardous waste, if it enters Monacacy Creek, it's only going to take a day and a half for that hazardous waste to flow to North Philadelphia. Now, that is the furthest point. If there's a hazardous waste incident into the Delaware River, that is going to arrive in Philadelphia much sooner. What impact study and action plan could possibly be successful when there's only going to be a day of a half or less before it affects the drinking water of 15 million people in the metropolitan Philadelphia area?

Response: By way of Reference see response to comment #3, comment #20, and comment #34.

110. **Comment:** Norfolk - the railroad has a great influence on our economy. The railroad operates in 20 states in this country. They have a total of 38,000 miles of roadway. They are huge. This company does have a powerful political influence in Harrisburg. They have influence in Washington D.C. This company wants this application approved. They need the revenue. The last few years they have lost revenue and most certainly, the last accident - incident that occurred in East Palestine, Ohio has cost them over a billion dollars and they're way underinsured. They are highly motivated to make money. And that's really what we're talking about. Keystone Cement wants to improve their operations for profit. So does the railroad. So, the question today is going to be who is the DEP going to protect? Who are they going to guard? Who are they going to serve? Whether the situation could involve 15 million people or greater,

I would like to know how that's going to work. Therefore, I strongly encourage the DEP to reject this application.

Response: By way of reference see response to comment #3.

111. **Comment:** The worry is that if there is a spill on Monacacy Creek between the Lehigh River and the Keystone Plant, for much of the length of that, including in areas of highly populated, highly valuable residential property in Bethlehem, there is no access to the creek by road. So, if there is a spill of 30,000 gallons into that creek, that's the death of the creek immediately. There's no way to mitigate that spill because you can't get to it with any kind of equipment. The tracks run in areas that are not paralleled by road and those areas include the newly designated World Heritage Site downtown. It puts that in jeopardy as well as the creek. So, the residents stand to lose their property, the value of their property, and we stand to lose a very valuable creek if there is an incident.

Response: By way of reference see response to comment #3.

112. **Comment:** Several areas of the railroad tracks are in poor repair, questionable maintenance. And a lot of that is from erosion from the creek. Norfolk Southern makes half-hearted attempts to mitigate that by dumping ballast, which ends up in the creek. But in many cases, these areas are within - the tracks run within 10 feet of the creek in some of these locations. And are continually being undermined when there's a storm event in the creek. These storm events, as you've heard here, they're - they're larger than wherever anticipated recently and there's more of them. And so, these concerns are real.

Response: By way of reference see response to comment #6.

113. **Comment:** I know many people do not have a good feeling about Norfolk Southern because of their recent track record, in East Palatine and the two derailments that occurred along the Lehigh River within the last year and a half here in the Bethlehem area within the City of Bethlehem, actually, where they dumped rail cars into the Lehigh River and derailed them on the bridge crossing to your trunk line from the main lines on the south side of the river. So, it happens. It's going to happen. And the fact that there is no good way for the municipalities here with their emergency personnel and emergency crews, there's no way for them to access these areas of the stream. That's a real concern. And those areas of the stream happen to be highly residential, highly valuable property. So, I urge the DEP to reconsider this application. It poses a danger to the community.

Response: By way of reference see response to comment #3.

114. **Comment:** The planned approval for Keystone Cement to receive hazardous waste by railcar as a decision that would create too much risk for people, property, and the

environment. The rail line runs from Bethlehem to Bath through the city's historic area, residential neighborhoods, parks, conservation areas, and all along the Monacacy Creek. It literally runs within feet of an apartment building on Conestoga Street in Bethlehem and right through many backyards. But this also affects residents and businesses that are adjacent to the rail line in the townships of Bethlehem, Lower Nazareth, East Allen, and the borough of Bath. Keystone will be putting people's lives at risk beyond the current risks for the sake of increased profits.

Response: By way of reference see response to comment #3.

115. **Comment:** The community is apprehensive about Norfolk Southern's safety record given their recent March 2nd and July 5th train derailments. Keystone themselves had a real crash and injury in 2019. To me, a 30,000 gallon railroad tanker of Benzene hazardous waste is five times more risky than delivery by a 6,000 pound truck. The likely presence of several rail tankers in each delivery train greatly magnifies the risk.

Response: Benzene (Waste codes D018, F005) are approved primary waste codes at the permitted facility and could be one of the constituents of HW fuel stored in waste solvent storage tanks.

By way of further response see response to comment #3.

116. **Comment:** The dangers of hazardous waste are not currently present on this rail line to my knowledge. It appears to mainly to move lumber and cement. Hazardous waste is a regulatory defined term as are hazardous substance and hazardous materials. The majority of the 70 hazardous wastes that Keystone has approved to receive can be characterized as flammable liquids and toxic liquids. But there are added complexities to hazardous waste. Through use, they can acquire secondary and tertiary hazard characteristics such as the presence of heavy metals and other contaminants. This adds difficulty to emergency response. It also complicates hazard exposures during releases. The Local Emergency Planning Committee and emergency response personnel may find they need additional training. They may also find they need additional equipment to access some of the remote sections of this rail line when a release occurs.

Response: Each primary waste code in the permit may exhibit a secondary waste code for commercial chemical products, manufacturing chemical intermediates, or off-specification commercial products.
Secondary waste codes may only be accepted at concentrations as approved for each individual waste stream via the Module 1 process, in addition to the general waste acceptance limit for chlorides.
The railroad is regulated by the Federal Railroad Administration. DEP will encourage Keystone Cement Company and Norfolk Southern to collaborate with the community on environmental, health, and safety issues.

117. **Comment:** The Norfolk Southern trains that will deliver the hazardous waste run on an easement through my backyard, northbound once a day and the thought of there being highly toxic and flammable content in several of the train cars as the train passes by is definitely not a good thing. Statistically speaking, the risk of a derailment or an explosion or leakage of these hazardous wastes is relatively slim. But with two derailments, for instance on Norfolk Southern tracks along the Lehigh River in the past few months, we need to be realistic. Statistics don't predict what will happen. They only can record past events. To allow hazardous and toxic waste on these tracks guarantees that, in fact, a disaster could certainly happen. The only way to prevent this tragedy is to not allow the toxic waste to be carried on these trains through our neighborhood or through the commercial properties or through the rural areas between Bethlehem and Bath Borough. This route includes historic Bethlehem, recently added in the exclusive list of UNESCO World Heritage Sites. It also includes downtown Bethlehem and Monacacy Park, all of which are in Bethlehem. The train route passes very near the Gertrude Fox conservation area in Hanover Township and Monacacy Meadows Park and Archibald Johnston conservation area, both of which are in Bethlehem Township. Many residences and commercial properties share their properties with the railroad through easements and rural properties are immediately adjacent to these tracks too. To expose myself and my family and our neighbors to these dangers and to expose the Monacacy Creek to any such risk is not reasonable.

    Response: By way of reference see response to comment #3.

118. **Comment:** I request the Keystone permit application to receive and store hazardous waste that would arrive at the Keystone site via railroad transport not be approved. The inherent risks to the creek's fragile ecosystem are far too far great. To expose the adjacent residential, commercial, and agricultural properties to such risks is definitely not reasonable, nor is it warranted.

    Response: By way of reference see response to comment #3.

119. **Comment:** Norfolk Southern I consider to be rather overbearing with hubris, arrogance, and lack of respect that they showed for Pennsylvania and the East Palestine situation is really appalling. Also, when it comes to the city of Bethlehem, I've lived where I lived over 50 years and there have been several incidences of there being trains derailing right again where I can throw a rock at. Did the City of the Bethlehem ever alert me to any of the multiple incidences over 50 years? No. Did Norfolk South ever do anything? No.

    Response: By way of reference see response to comment #3.

120. **Comment:** A year and a half ago, I approached and spoke to City Council and there have been hundreds of people that have written something about the quiet zone for Norfolk Southern in that area. And the city of Bethlehem has been unable to make any contact with them to just discuss it.

Response: DEP cannot speak to attempted communications between Norfolk Southern and the City of Bethlehem.

By way of reference see response to comment #6.

121. **Comment:** Many of the rail crossings do not have any crossing guards or rails. And I see plenty of people running red lights on Center Street all the time. And the idea of a careless driver hitting a train car because they're just too impatient to wait makes me very nervous.

Response: By way of reference see response to comment #6.

122. **Comment:** The rail line goes right through the World Heritage Site. And if there were to be an accident down there, you can't reconstruct history. History is those buildings that are around and they're precious.

Response: By way of reference see response to comment #6.

123. **Comment:** What work can be done about railroad crossings that have no lights or no rail that comes down?

Response: By way of reference see response to comment #6.

124. **Comment:** I am deeply concerned that you acknowledge the fact that the railroad is not at the meeting but have not given us any idea of how to bridge that gap. You have not given us the information or avenue to solve the problems that we are bringing up. I think we need another meeting with the railroad and the city here, as well as the first responder hazmat, because it is currently impossible to get the hazmat safety equipment into multiple areas of the railroad.

Response: The meeting/hearing being referred to was a DEP Waste Program meeting specific to the Hazardous Waste Permit renewal application. Norfolk Southern was not specifically requested to participate in this meeting. That said, DEP did not require all attendees sign in and therefore DEP cannot confirm if anyone from Norfolk Southern was present at the meeting. Concerns about the railroad and first responder access in the City of Bethlehem should be brought to the to the city as this is outside of the scope of the RCRA permit.

By way of further response see response to comment #3 and comment #6.

125. **Comment:** I am in support of the company's proposal to use rail instead of trucks. I don't want to see any more trucks through our community to support their manufacturing operations.

Response: The Department acknowledges the comment.

Stormwater

126. **Comment:** The current planned location of the new hazardous waste handling area suggests that a site stormwater permit change may be necessary regarding the parameters to monitor for at outfalls 003 and 004 to account for the railcars.

Response: The Hazardous Waste RCRA Permit does not regulate stormwater outfall locations or monitoring requirements. Outfalls are regulated under the Pa DEP Bureau of Clean Water Program through a National Pollution Discharge Elimination System (NPDES) permit. KCC has an NPDES permit and is required to operate in accordance and in compliance with its NPDES Permit. The Waste Management Program consulted with the regional Clean Water Program prior to issuance of the permit renewal. There were no concerns identified.

127. **Comment:** Outfall 004 serves the discharge from the site stormwater sedimentation basin. Based on a Keystone plan/drawing, this basin is a depression in the ground adjacent to the underground septic drain field serving the packhouse sanitary needs. This is likely not a good arrangement and B.O.D. and E. coli testing at 004 would be prudent to monitor the subsurface drain field failure.

Response: By way of reference see response to comment #126.

Draft Permit Language

128. **Comment:** On permit page 30, under B. Accepted Waste Criteria, 4. Approved Waste Sources, please consider adding the word “be” prior to “accepted onsite” in the 4.a. sentence “No waste from an unapproved source may “be” accepted onsite.

Response: The word “be” was added.

129. **Comment:** On page 41, under E. Management of Truck/Railcar Containers, 1. a.“Any waste-containing railcar/truck ??? parking or staging area must be monitored” seems to be missing some words at the ???.

Response: The permit is correct as written. There are no missing words.

Compliance History

130. **Comment:** Keystone Cement has an all-around weak environmental permit compliance record. This is documented in their ten-year compliance record assembled in their RCRA permit application. This is dominated by air permit issues, but it extends into wastewater and stormwater permit issues. Enforcement actions and fines have not only been levied but they are common.

Response: The Department conducted a thorough evaluation of Keystone Cement Company's compliance history as well as a review of Keystone Cement Company's related entities' compliance histories. This evaluation concluded that Keystone Cement and its related parties have not shown a lack of intent or ability to comply with Department regulations. DEP determined that Keystone Cement and/or its related parties did not hold a history of compliance failure such that the applicant demonstrated a "lack or ability or intent to comply" pursuant to Section 503 of the Solid Waste Management Act, 35 P.S. § 6018.503. DEP's consideration of compliance history includes DEP's familiarity with Keystone Cement and its operations. Inspectors employed by DEP in multiple programs routinely conduct both announced and unannounced inspections of the facility. While Keystone Cement has had occasions of non-compliance, it is DEP's position that Keystone Cement's operations are, as a general rule, well-managed and compliant, and provide a basis to support issuance of the permit renewal.

131. **Comment:** In 2023, the PennEnvironment Research & Policy Center identified Keystone Cement as the number one polluter in the Lehigh Valley area. Keystone Cement was fined $197,000 by the PA DEP in 2015. They were also investigated for pollution from their East Allen Township plant in 2023, although no follow-up was publicized. There are legitimate concerns about this company's ability to control potential pollutants.

Response: By way of reference see response to comment #130.

132. **Comment:** We live very close to the Keystone plant for over 30 years. In that time, we have unfortunately experienced some issues that we had to contact the DEP about regarding Keystone Cement. In one instance we contacted the DEP, and their subsequent report latter confirmed, that Keystone had exceeded the legal limit in blasting as monitored on our property. Since then, there has been much less monitoring of blasting from our property despite outreach to us from Keystone in trying to assuage our concerns. The very marked lessening of monitoring from our property, despite their own admission that much of the current blasting is occurring much closer to our property than it used to be, raises our concerns about this company's sincerity in complying with the legal limits required by their existing permits. Though we understand that these particular concerns are unrelated to the current permit being sought, we feel it raises legitimate concerns about how good a neighbor Keystone cement is in considering the impact of their actions on the surrounding neighborhood and environment. These prior actions by Keystone raise concerns about the level of oversight from the DEP and other agencies that we can expect, in insuring that Keystone will implement and comply with safety protocols regarding the current permit they are seeking.

Response: By way of reference see response to comment #130.

133. **Comment:** Keystone Cement reportedly does not have a stellar environmental permit compliance record. That combined with Norfolk Southern's strong focus on its DEI initiative, demanding workloads and inspection issues could be a recipe for disaster.

Response: By way of reference see response to comment #130.

134. **Comment:** You think the DEP can enforce Commonwealth laws a little faster than handing out fines after years of law breaking violations? Fines that discourage bad behavior. Not a slap on the wrist. It's cheaper to pay the fine again and again than spend the money to correct the problem.

Response: By way of reference see response to comment #130.

135. **Comment:** Given Keystone's documented history of their permit violations and deficient safety issues, they have not earned my trust to safely manage 30,000 gallon rail cars of hazardous waste.

Response: By way of reference see response to comment #130.

136. **Comment:** With the many violations that Keystone Cement has had, I'm very concerned about their track record. Anecdotally, I'm aware of Keystone's nearby residents and businesses having problems with airborne emissions from the site that may not be officially acknowledged.

Response: By way of reference see responses to comment #130, comment #165, comment #166, and comment #167.

Potential Environmental Impacts

137. **Comment:** The hazardous wastes are all liquids that, when released to the environment, will quickly move to permeate soil, groundwater, and surface waters. Many are flammable. These are exactly the kind of chemicals we would not want to transport along the Monocacy Creek.

Response: By way of reference see responses to comment #20 and comment #34.

138. **Comment:** Dense, nonaqueous phase liquids (DNAPLs) released in a fractured limestone geology, like what we have, are a particular concern. Their high density allows them to sink in water and groundwater making them almost impossible to remediate completely and very expensive to track their migration and capture or remediate in place. They are very long-lasting once released into the environment. And the Monocacy Creek has a particularly valuable characteristic of being spring fed. This is the source of the cold clean water that allows the native brown trout population to exist. If DNAPLs were to be released to the environment in the spring-fed creek

stretch, it would be a disastrous and long-lasting effect on the native trout. It could very well end their presence there.

Response: In the event of a spill, proven remediation treatment technologies exist for DNAPLS. In situ technologies considered for their potential to eliminate or reduce DNAPL source zones include steam-enhanced extraction, dynamic underground stripping, electrical resistance heating, thermal conduction, chemical flushing, chemical oxidation, enhanced desorption, emulsified zero (water pollution) and bioremediation. EPA has published documents citing remediation of DNAPLS projects where regulatory closure goals have been achieved.

139. **Comment:** The Monocacy Creek is a beloved local waterway and shelters several local green spaces, including Illick's Mill Park. The spent solvents that would be transported along this line are a major pollution hazard. The DNAPLs that would be transported, since they are not water-based, in the event of a spill would seep into the water table and stay there, requiring expensive remediation. This is especially so in a fractured limestone geology such as is present in our area.

Response: By way of reference see response to comment #138.

140. **Comment:** Approval of this application will not only pose a direct pollution threat to Monocacy Creek's water quality. Shipping flammable solvents alongside the creek will endanger the health and safety of thousands of Northampton County and Lehigh County residents and threaten further degradation of the entire watershed.

Response: By way of reference see response to comment #3.

141. **Comment:** I am concerned about the physical properties and hazards of the industrial waste which may contribute to the risk and potential demise of Bethlehem, Pa and the Monocacy Creek.

Response: By way of reference see response to comment #3.

142. **Comment:** I am deeply troubled by the potential health and environmental risks associated with this permit. The hazardous chemicals in question present a genuine risk to our environment and public health. Any accidental spillage or leakage during transport could have devastating consequences for the Monocacy Creek, a vital waterway for our ecosystem, and for the residents living along the rail line.

Response: By way of reference see response to comment #3.

143. **Comment:** The chlorinated chemicals found on the application’s long list of liquid hazardous wastes that can be received at the Keystone TSDF are particularly troublesome. Any release of these materials into the creek would mean certain death to the variety of aquatic organisms in it. More importantly, any release of these dense

solvents to soil would immediately sink deep into the groundwater aquifer. These materials are long-lasting, thus could forever contaminate the springs feeding the creek.

Response: By way of reference see response to comment #3 and comment #25.

144. **Comment:** The nature of the chemicals included in the permit would destroy the creek and possibly contaminate the Lehigh River at its confluence with the creek. Tetrachloroethylene and trichloroethylene are two nonaqueous substances that would result in devastating damage to waterways.

Response: Halogenated solvents (F001, F002) are approved primary waste codes at the permitted facility and could be one of the constituents of HW fuel stored in waste solvent storage tanks. Waste codes for tetrachloroethylene D039, trichloroethylene D040, are approved as secondary waste codes that may be found in approved primary waste codes (F001 and F002).

Each primary waste code in the permit may exhibit a secondary waste code for commercial chemical products, manufacturing chemical intermediates, or off-specification commercial products. Secondary waste codes may only be accepted at concentrations as approved by the DEP for each individual waste stream via the Module 1 process, in addition to the general waste acceptance limit for chlorides.

By way of further response see response to comment #3

145. **Comment:** The watershed and the many neighborhoods along the route of the hazardous waste being transported, could potentially be threatened not only by the proposed train travel, but also by the existing truck traffic bringing these hazardous materials into and out of the plant.

Response: By way of reference see response to comment #3.

146. **Comment:** Monocacy creek is a wonderful resource that flows near several residential areas south of Bath. It is used by fishermen, hikers, and walkers, including dog walkers for several miles. Children also use the creek as an old fashioned swimming hole. Please don't allow this precious natural resource to be exposed to any further risk of destruction.

Response: By way of reference see response to comment #3.

147. **Comment:** Changing from 6,000-gallon trucks to 30,000-gallon train cars on the Norfolk Southern tracks creates a tremendous increase in volume of hazardous materials that will be brought in, stored, probably transferred, and then burned at the Keystone site. This opens up a real possibility of a catastrophe that the Monocacy Creek should not be exposed to.

Response: By way of reference see response to comment #3 and comment #9.

148. **Comment:** An inflow of hazardous materials into the creek from the Bath site where these toxic materials could be stored will directly impact all of the downstream properties, wildlife habitats, and water that flows into the Lehigh and Delaware Rivers, compromising everything from Bath down through Philadelphia.

Response: By way of reference see response to comment #3.

149. **Comment:** The City of Bethlehem, County of Northampton, and Department of Environmental Protection must be involved in the planning, risk assessment and reduction, and a concrete emergency response plan put in place. The PA Clean Water Act and frequent monitoring and maintenance of the railways must be followed. There are many people living and recreating along the Monocacy in several municipalities.

Response: By way of reference see response to comment #3.

150. **Comment:** While the likelihood of a chemical spill may be small, the risk is potentially catastrophic. We don't understand how any company or governing body can think it is acceptable to allow transportation and storage of such toxic materials where the health and safety of residents, wildlife and waterways is at risk.

Response: By way of reference see response to comment #3.

151. **Comment:** The Monocacy Creek Watershed Association is concerned about the catastrophic effect that any outflow from the storage facility at Keystone or along the train track route would have on the creek and its wildlife, in addition to the adjoining properties that would be impacted if a derailment or other accident would occur.

Response: By way of reference see response to comment #3.

152. **Comment:** Hazardous material transport via Norfolk Southern to and from Keystone Cement as well on site loading, unloading and storage at Keystone is of great concern. We were extremely lucky on March 2nd and July 5th of this year that those derailments did not result in hazardous material disasters. Both I believe were related to human error, “train handling”. Proposed routine transport of such hazardous materials bring great risk to the city of Bethlehem, the town of Bath and surrounding municipalities. The Lehigh River and the Monocacy Creek, a HQ Class A wild brown trout stream could experience irreparable damage. The magnitude of economic loss suffered by the community, damages to public and private holdings and remediation services could be devastating and long lasting i.e. East Palestine derailment.

Response: By way of reference see response to comment #3.

153. **Comment:** A spill of liquid hazardous waste into Monocacy Creek would result in immediate death to that DEP-designated high quality full water fishery. Mitigation of the spill would be very difficult because response equipment would likely not be able to conveniently access the area. In addition, the pathway of the creek would carry those ignitable and toxic materials downstream to the Lehigh River. A potential conflagration could be horrendous to all life and property adjacent to the waterway.

    Response: By way of reference see response to comment #3.

154. **Comment:** Please say no, we need to protect our wildlife.

    Response: By way of reference see response to comment #3.

155. **Comment:** We want to talk about the chemicals proposed, to be sent to mid- Eastern PA, as we feel they could be very dangerous. As a fire investigator, I'm very concerned about the environment should there be a spill.

    Response: By way of reference see response to comment #3.

156. **Comment:** We do not want toxic waste anywhere near our children or the lakes and rivers we enjoy! It's wrong.

    Response: By way of reference see response to comment #3.

157. **Comment:** My family regularly visits Illicks Mill and the Monocacy Creek. This is a very fragile ecosystem and even a minor spill can result in disastrous downstream effects. This has implications for ample wildlife as well as the resident that enjoy this area. I urge you to strongly reconsider, allowing for the transport of hazardous was in this area.

    Response: By way of reference see response to comment #3.

158. **Comment:** What could be more important than protecting water from pollution?

    Response: By way of reference see response to comment #3.

159. **Comment:** The planned changes to the Keystone site are insufficient to protect the Monacacy Creek. The switch to rail tankers targets the creek area for all the parking, moving, staging, and unloading of the tankers. Only four tankers will be provided with a security fence and only one tanker is planned to have secondary containment. This leaves the Monacacy Creek woefully unprotected from very large quantities of hazardous wastes managed by both Norfolk Southern and Keystone Cement.

    Response: Keystone Cement Company monitors and reports the amount of HWDF received on site. According to the Railcar Management Plan, upon arrival on site

railcars will be moved onto KCC rail siding and tracks inside the permitted facility boundary. Within 10 days, movement into the railcar staging and unloading will occur. Once inside the staging/unloading area the tank will be unloaded within 10 days. The unload area is designed to hold a maximum of 4 railcars. The most recent version of the Railcar Management Plan becomes part of the permit and is a regulatory requirement.

160. **Comment:** I have great concerns about the chlorinated solvents planned for transport along the Monacacy Creek. The United States Hazardous Materials Instructions for Rails includes a table of environmentally sensitive chemicals. Keystone receives at least eight of these wastes such as methylene chloride. All of these chlorinated solvents are toxic to the biodiversity of Monacacy Creek. I request the DEP amend the Keystone draft permit to prohibit the transport of these chlorinated solvents along the Monacacy Creek.

Response: The facility has an approved PPC plan as part of the renewal permit application. The facility has a listing of approved hazardous waste codes and related acceptance limits as part of the permit and permit operating requirements. It also has an Air Quality Risk Management Plan that must be resubmitted every five (5) years. Methylene Chloride and other chlorinated solvents are included in this plan.

By way of further response see response to comment #3.

161. **Comment:** Keystone Cement has been burning hazardous waste for a number of decades, I believe. And what I guess I'm wondering about is how much longer do we continue to do that? Isn't there something that DEP wants to do to prevent both the continued production of hazardous waste and this sort of magic button burner to make it go away kind of thing that this seems to continue to represent? None of this makes much sense in an age of climate change and continuing to foster combustion and then to come up with like a sort of Rube Goldberg path to get stuff we don't know what else to do with and we should have never made in the first place, and we'll throw it in the cement kiln and, quote, get rid of it.

Response: All wastes that are accepted per operating permit requirements must meet stringent waste acceptance criteria, including a minimum BTU heat content. All hazardous wastes that meet operating permit waste acceptance criteria are used as kiln fuel. Kiln gas temperatures of approximately 3,000 degrees F assure destruction of organic components in the waste derived fuel at a destruction and removal efficiency of at least 99.99 percent.

By way of reference see response to comment #3.

162. **Comment:** A technical approach to the approval of this proposal would leave out many things that you might have thought would be relevant to the Department of the

Environment. And so, the Department of the Environment should take its responsibility as broadly as possible rather than as narrowly as possible.

Response: By way of reference see response to comment #3.

Security Risks

163. **Comment:** It is a regional security risk to accumulate this large volume of mobile wastes in one spot. It could become a very dangerous target for the wrong people. This all creates terrible risks beyond what Bethlehem has now. Given the above, these risks should be greatly reduced by limiting the shipments to one railcar tanker per train and three such trains per week.

Response: Pursuant to the revised and approve Railcar Management Plan:

The railcar facility will be fenced for security purposes and monitored via a video surveillance system.

Currently, an average of 30,000 to 40,000 gallons of waste derived fuel is delivered to the facility on a normal weekday. It is expected that the frequency of railcar deliveries would be limited to every few days from Monday to Friday, with a maximum of three (3) railcars per delivery.

The most recent version of the Railcar Management Plan becomes part of the permit and is a regulatory requirement.

The renewal RCRA permit does not increase the currently permitted volume of hazardous waste fuel Keystone Cement Company is allowed to receive, store, and use.

Waste Types

164. **Comment:** Keystone Cement receives wastes that are non-flammable, like chlorinated solvents such as trichloroethylene. And yet these wastes are listed in tables labeled "Approved Hazardous Wastes for Kiln Fuel." The wastes that are destroyed by the kiln's high temperatures, rather than serving as fuel, should be listed separately so we know what is fuel and what is not. I would like to know which wastes are not fuels and how much of these non-flammable wastes are destroyed onsite.

Response: All wastes that are accepted per operating permit requirements must meet stringent waste acceptance criteria, including a minimum BTU heat content. All hazardous wastes that meet operating permit waste acceptance criteria are used as kiln fuel. Kiln gas temperatures of approximately 3,000 degrees F assure destruction of organic components in the waste derived fuel at a destruction and removal efficiency of at least 99.99 percent.

Air Quality

165. **Comment:** I am concerned about the impact to the air quality for the neighboring communities when these hazardous wastes, specifically, trichloroethylene, are processed.

Response: KCC is subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Hazardous Waste Combustors (HWC MACT) found in 40 CFR Subpart 63, Subpart EEE. They must meet emission standards for certain Hazardous Air Pollutants (HAPs), establish limits on certain process and control device parameters, demonstrate ongoing compliance with the standards and perform regular comprehensive performance tests ('CPT') to demonstrate compliance with emission standards. The testing is done for several pollutants and destruction and removal efficiencies every five years with a confirmatory test for specific pollutants at 2.5 year intervals. The last CPT was conducted in May of 2023 with the report currently under PADEP review. The test evaluates particulate matter, Hydrogen Chloride and Chlorine, semi volatile metals (lead, cadmium), low volatile metals (arsenic, beryllium and chromium), Dioxin and Furans as well as other HAPs. Preliminary results show compliance with applicable standards. In conclusion, regulations that Keystone Cement are subject to protect the public by setting strict emission standards for HAPs released from cement kilns that burn hazardous waste, essentially limiting the amount of potentially harmful pollutants that can be released into the atmosphere, thereby safeguarding public health and the environment.

By way of further response see response to comment #25.

166. **Comment:** The air quality is a very important issue, as the burning of this hazardous waste greatly concerns us. If allowing the proposed train transport will lead to an increase of the use and burning of these hazardous materials, then we are very much against it. Is the permit asking for permission to burn more hazardous waste? Does Keystone want to add train transport of this material to increase its use in the plant, or are they proposing to replace the trucks carrying hazardous waste by train transportation instead?

Response: The permit does not increase the permitted amount of hazardous waste to be combusted. Keystone Cement anticipates it will replace some, but not all, of the trucks with railcars.

167. **Comment:** I witnessed a concrete truck leaving Keystone Cement totally covered in concrete dust. When the truck pulled out into the highway dust started blowing off the truck. The driver did not stop. The dust cloud was so bad I had to keep 50 yards behind the truck just so I could see. After a mile or so I was able to pass the truck and proceed safely. How many years has this situation with Keystone Cement been going

on? Their creating major air pollution and motor vehicle hazardous driving conditions outside their facility property.

Response: Any public concerns such as those mentioned in the comment can be reported through its complaint hotline 570.826.2511 or online (Report Incidents and Complaints | Department of Environmental Protection | Commonwealth of Pennsylvania) for Department investigation. Keystone operates under Air Quality Permit 48-00003. As such, Keystone is required to address fugitive emissions from material handling operations including the use of vehicles used to transport cement. Those actions include, but are not limited to, maintaining vehicle bodies in a condition that prevents any leaks and a vacuum system for cleaning truck roofs. The Department regularly inspects Keystone in order to verify compliance with permit conditions. If any compliance issues are identified, the Department requires Keystone to correct that issue in a timely manner.

Health Effects

168. **Comment:** The rail and steel industries already should be funding free health care in Eastern Pennsylvania much as the 911 commission does in NYC. The environmental explosion and cancer deaths they have created are exponentially higher than terrorist could dream.

Response: By way of reference see response to comment #3.

169. **Comment:** Whatever they're burning and whatever goes in there, which is already called hazardous waste, maybe a lot of it's destroyed, I'm not a good enough chemist for all of it. But I know where I live and I'm pretty sure I live downwind and downstream from all of this operation. We're in the age of climate change. Combustion itself is quite questionable for almost all we do. We have real possibilities for some of these materials to be replaced by something that doesn't necessarily have to be part of another set of pollutants and another set of CO2 and also pollutants that all come down onto us. Bethlehem Steel executives, we know quite well from where their houses were located, were neither downstream nor downwind from the steel mill. They were built upstream and upwind. And they were making the decisions, and the workers were paying the price. But right now, we have the whole planet paying the price with all of our combustion.

Response: By way of reference see responses to comment #3, comment #130, comment #165, comment #166, and comment #167

Application Process

170. **Comment:** Why can’t the DEP automatically disapprove these types of applications instead of dragging out the process? Time and taxpayer money wasted. Unnecessary

stress to citizens awaiting DEP decisions. The DEP needs to have automatic application disqualifying criteria based on common sense and scientific data.

Response: The Department must follow the permit application review process outlined in both the regulations and DEP's Permit Review Process Policy.

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APPENDIX A
STANDARD OPERATING PROCEDURES

WF-01
SAMPLING BULK CONTAINERS

I. PURPOSE

To ensure inbound waste streams are sampled consistently and properly. This procedure covers the sampling of a liquid or sludge bulk containers to obtain a sample for quality control testing. This SOP is intended to reduce the fire hazard from static electricity by requiring methods for dissipate potential static charge.

II. RESPONSIBILITY

It is the responsibility of the Resource Recovery personnel or trained assignee to ensure compliance with this procedure at all times.

III. EQUIPMENT

A. Static dissipating boots
B. Protective gloves
C. Protective clothing
D. Respiratory Protection
E. Sample bottle
F. Sample label
G. Sampler (coliwasa, scoop and shovel, auger, or trier)
H. Ground clamp
I. Safety harness
J. Cloth

IV. PROCEDURE

This procedure is to be used when sampling a bulk container including a waste vehicle.

A. Grounding
   1. Instruct driver to the proper parking position.
   2. If necessary, turn off power unit (truck). If power unit cannot be turned off, adequately chock wheels to prevent movement.

3. Connect the clamp end of the grounding verification system to the tank trailer. Confirm the verification system is grounded by viewing display lighting. Red indicates no grounding achieved; green indicates grounding has been achieved. If green light is not on, move clamp to another location until a green light is displayed.
4. Leave the ground clamp on for at least one minute before opening the manway of the tanker. This time will allow for any static buildup to dissipate to ground.
5. Using the clamp connected to a sampling rod, band the sampling rod to the tank truck.

B. Sampling

1. Sampling requires the following equipment to be worn: static dissipating boots, protective gloves, protective clothing, and respiratory protection.
2. Using the tanker's bleed-off valve (if present), depressurize tanker.
3. Some tankers are equipped with mixers. For these types of tankers, verify that the mixer is off before Step B.4.
4. If applicable, unbolt the dome lid, loosening the bolts opposite the hinge last. Multiple manways may be present, only one should be unlatched at a time. Do not stand directly over the manway when unbolting.
5. When using a coliwasa for liquidssludge; slowly (more than five seconds) insert the sampling device until the bottom is reached.
6. Once the bottom has been reached, close the valve on the sampling rod by pulling the attached cable.
7. Pull sampling rod out of the tanker. Wipe the rod with the cloth or rag as you are pulling the rod out of the tanker.
8. A decontaminated shovel may be used to collect the sample if the material cannot be collected with the coliwasa.
9. An auger or trier sampler may also be utilized in lieu of a shovel. The auger or trier type sampler is required if historical sampling indicates that the shipment is not uniform and contains stratified layers. In this instance the entire contents of the sample are required to be emptied into the sampling container to be valid.
10. Empty contents of sampler into a sampling bottle. The sample transfer shall be performed on the ground surface. The man way must be closed and secured.
11. Contain sampling equipment in a 5-gallon bucket or other appropriate containment.
12. If applicable, repeat sampling process for each compartment of the tanker to generate a composite sample consisting of equal sample volumes from each compartment.
13. If the tanker is to be moved before unloading, tighten all wing nuts evenly and close the bleed-off valve.
14. Wipe off the exterior of the sample rod with a rag. Return the sampling

materials to the storage area and clean prior to next use. Make sure the valve on the rod is in the 'open' position. This allows the contents of the rod to drain to the storage area.

15. If the wipe rag is no longer usable, place the rag in a hazardous waste accumulation container.
16. Label bottle.
17. Complete Release Form.
18. Deliver sample to laboratory. Sign sample in by completing 'Solvent Truck Sample Log-in Form'.

WF-02
WASTE ACCEPTANCE/REJECTION PROCEDURE

I. PURPOSE

To ensure compliance with federal and state waste acceptance limits and guidelines.

II. PROCEDURE

Prior to accepting and off-loading of waste, each delivery must meet acceptance guidelines as identified below.

Summary Table

Parameter	Acceptance Guideline
Manifest	properly completed/acceptable
Generation Certification	properly completed/acceptable
Analytical parameters	meets permit and regulatory limits and after comparison to Mod 1 Forms, does not indicate a change in hazardous waste characteristics or require revised management procedures (See Section B below)
Transporter	State permitted
Module 1	State approval
Form U	State approval

A. Manifest Checking Procedure

This is the responsibility of the Environmental Technicians or trained assignees.

Keystone Cement Company cannot accept hazardous waste from off-site sources unless the shipment is accompanied by a Department-approved manifest. Review each manifest in its entirety using the following review outline as your guideline. Note any discrepancies with the manifest on each copy of the manifest. Initial any changes you make. Once all acceptance items have been reviewed and approved and truck has been unloaded, print and sign your name, and date each copy of the manifest.

1. Manifest

Box 1. Generator ID Number - This number must be the ID number of the generator in Box 5. See attachment #1 for generator's ID number.

Box 2. Page 1 - A numeric '1' should be entered into this box. If continuation sheets are used, this number should indicate the total.

Box 3. Emergency Response Phone – Telephone number must be listed here.

Box 4. Manifest Tracking Number – This should be a preprinted 12-digit entry.

Box 5. Generator's Name and Mailing Address and Generator's Phone – Generator's name and mailing address and telephone number.

Box 5. Generator's Site Address – Generator's site address if different from mailing address.

Box 6. Transporter 1 Company Name and U.S. EPA ID Number – Transporter's name and EPA number.

Box 7. Transporter 2 Company Name and U.S. EPA ID Number – Name and EPA number of second transporter, if applicable.

Box 8. Designated Facility Name and Site Address, U.S. EPA ID Number and Facility Phone - Keystone's name and site address must be located in this section along with EPA number and telephone number.

Box 9a. HM – This should be checked if the material is considered hazardous. In most cases, it will be.

Box 9b. U.S. DOT Description - There are 5 items you must look for in the US DOT description:

- Proper shipping name
- Hazard class - look for a number. In all cases of fuels delivered to Keystone, it will be '3'.
- ID number - for example UN1993
- Packing group - either PGI, PGII, or PGIII.
- Reportable quantity - look for "RQ" at the beginning or the end of the description. In addition, either a hazardous waste code or specific chemical name must be in parentheses (example: toluene, xylene). Contact Supervisor if RQ is not listed.

Box 10. Containers - Quantity will most likely be '1'. Type will be

'TT' or 'TP'.

Box 11. Total Quantity - A quantity of waste must be in this box.

Box 12. Unit WL/Vol. - A unit of volume must be in this box. See attachment #3 for units of measure.

Box 13. Waste Codes – Up to six primary waste codes will be entered. Additional codes may be found in the DOT Description, Box 14, and/ or the Land Ban form. Codes must match those approved for each generator.

Box 14. Special Handling Instructions – Any miscellaneous information about the waste will be entered here. Review and determine if any action is necessary.

Box 15. Generator's/Offeror's Certification - A printed or typed name, signature, and date must be included in this box.

Box 16. International Shipments – If the waste comes from Canada, 'Import to US' box shall be checked and a 'Port of Entry' must be entered.

Box 17. Transporter Acknowledgment – Transporter 1 - A printed or typed name, signature, and date must be included in this box. This will be the transporter who delivered the material (entered in Box 6). Transporter 2 - This box will have a printed or typed name, signature, and date if a second transporter is used.

Box 18a. Discrepancy Indication Space – In this box record actual gallons received. Put a check mark in 'Quantity' box. If more than .3% of the tanker volume remains in the truck, put a check mark in the 'Residue' box and prepare a new manifest for the transporter. List new manifest number in this space, as well.
If entire tank is rejected, check 'Full Rejection'. Sign and enter date in Box 20 and distribute copies as indicated on manifest.

You can utilize one of three methods to determine gallons offloaded.

- Subtract scale-in and scale-out weights. Divide net pounds by the pounds per gallon (determined in the laboratory) to arrive at offloaded volume.
- Manually measure tank volume offloaded. Prior to offloading determine inches of material in the vehicle. After offloading, measure inches of material remaining. Determine net inches offloaded and convert to gallons using the chart associated with the tanker.
- Use manifest quantity, subtracting any remaining heel to

determine gallons offloaded

Box 18b. Alternate Facility (or generator) – If the generator chooses to send Residue or Full Rejection to an alternate facility, record that facility information in this box including the facility's EPA ID number.

Box 18c. Signature of Alternate Facility – Do not complete.

Box 19. Hazardous Waste Report Management Method Codes – Write the code 'H050' in first box if the load is accepted at Keystone. Enter the code 'H141' if material is being accepted and re-manifested to another site.

Box 20. Designated Facility Owner or Operator - A printed or typed name, signature, and date must be entered in this box.

a. Make sure signatures and other writings on the manifest were recorded on each copy.
b. Give the transporter a copy of the manifest.
c. Within 30 days after the date of delivery of the manifest, send a copy to the generator. See attachment #1.
d. If the generator is located in Commonwealth of PA, send copy 1 to the Department.
e. If the generator is located outside of the Commonwealth of PA, send copy 1 of the manifest to the PADEP and copy 2 to the generator's state, if required. See attachment #1.
f. File a copy of the manifest, Land Disposal Restriction form, Transporter's Affirmation, and the weight ticket in the storage facility office.

2. Generator Certification Form

a. Obtain completed Generator Certification Form from transporter (should be attached to manifest). Contact Supervisor if form is not available or not completed.
b. The manifest document number must be on the Generator Certification Form.
c. Attach the Generator Certification Form to the manifest copy and retain at Keystone.
d. If it is determined that the Generator Certification Form is false or out of date, a revised Form will be obtained prior to acceptance.

3. Land Disposal Restriction Form

a. If a Land Disposal Restriction one-time notification is not in Keystone's files for the generator per 40 CFR Part 268, obtain a

Land Disposal Restriction form from the transporter (should be attached to manifest). Contact Supervisor if the form is not available.

b. Hazardous waste codes listed on the manifest must be included on the Land Disposal Restriction form.
c. The manifest document number must be on the Land Disposal Restriction form.
d. Attach Land Disposal Restriction form to copy 6 of the manifest and retain at Keystone.

If items are not filled out correctly, contact the generator and correct any discrepancies by crossing out problem areas and replacing with the correct information and initial. If discrepancy cannot be corrected, notify Supervisor; the load must be rejected. Follow procedures in D. Waste Rejection.

4. Module 1 Comparison

When an incoming waste load is received at Keystone, the administrative data accompanying the load (generator name, generator address, MN number, EPA identification number, and waste codes) are compared to the approved Module 1 application or Generic Module 1 application for that generator. Also, the waste load is sampled and analyzed for the parameters specified in Keystone's RCRA Part B Permit, and rejected or accepted based on the acceptance criteria for these parameters. Annually the Module 1 applications are re-certified by the generators that their waste streams have not significantly changed.

B. Analytical Parameters

It is the responsibility of the Laboratory Technician or his/her trained assignee to analyze and review the results of each sample.

Each waste load must be sampled and analyzed according to all applicable regulations, permits, and internal standard operating procedures. The composition of each load must meet certain quantitative limits prior to off-loading. The limits are defined in Attachment 5 titled "Waste Acceptance Criteria Summary of Analytical Methods and Screening Limits." Should the results of the analysis indicate that a screening parameter limit has been exceeded, the result is subject to acceptance limit discrepancy resolution. In addition, each load should be compared to any waste stream specific limitations that may be applied to the waste during the pre-qualification process.

In addition, for all waste streams whose Mod 1 form was approved after the effective date of the June 2006 Class 3 permit modification request, the incoming shipment analytical data will also be compared to the Module 1

Form to determine if the analytical data reveals a change in the hazardous characterization of the waste (i.e. – requires additional waste codes), or requires revised management procedures. In the event that the analytical data indicates that a change in hazardous characterization is required, the results will be subject to Module 1/Form U discrepancy resolution. Module 1 information is accessed either through the use of a computerized acceptance program or by using hard-copies of the approved Module 1/Form Us.

Finally, for all waste streams, the number of phases in the incoming shipment sample will be compared to the number of phases detailed on the Mod 1 Form. In the event that the incoming sample contains a greater number of phases than detailed on the Mod 1 Form, the generator will be contacted to determine if there has been a change in the waste or change in the process generating the waste that would result in a change in the hazardous characterization of the waste or require revised management procedures.

1. Acceptance Limit Discrepancy Resolution

   It is the responsibility of the Laboratory Technicians and the Environmental Technicians or trained assignees to perform the Acceptance Limit Discrepancy Resolution Procedures.

   It is assumed that suppliers send material that meets Keystone's specifications. If a load should exceed an acceptance parameter(s) upon arrival at Keystone, there are four possibilities for the discrepancy. Possibilities one and two relate to laboratory error by either the Generator or Keystone in performing the testing. Possibility three is that correct representative sampling was not done. Last is that the waste stream fails to meet the acceptance parameters. Following the procedures outlined below will allow determination of which of these possibilities may have occurred.

   a. Sampling/testing/acceptance (See Attachment #6)
      1) Original sample passes all acceptance parameters
         a) Action: Keystone accepts load. No further investigation is needed.

      2) Original sample fails an acceptance parameter
         a) Action: Lab reruns the failed parameter one time on the original sample to confirm the result. Go to Steps 3 and 4.

      3) Original sample fails an acceptance parameter(s) for the first run and rerun
         a) Action: One load resample is taken and analyzed to validate the sampling technique. Go to Steps 7 and 8.

      4) Original sample fails an acceptance parameter(s) for the first

run, but passes the acceptance parameter(s) on the rerun
a) Action: Lab reruns the failed parameter a third time on the original sample to confirm the second result.

5) Original sample fails an acceptance parameter(s), but passes the acceptance parameter(s) on the first and second reruns indicating that the original result was erroneous
   a) Action: Keystone accepts the load.

6) Original sample fails an acceptance parameter(s), passes the acceptance parameter(s) on the first rerun, but fails the acceptance parameter(s) on the second rerun
   a) Action: One load resample is taken and analyzed to validate the sampling technique. Go to Steps 7 through 8.

7) First load resample fails the acceptance parameter(s)
   a) Action: Keystone rejects the load.

8) First load resample passes acceptance parameter(s)
   a) Action: A second load resample is taken. Go to Steps 9 and 10.

9) Second resample fails acceptance parameter
   a) Action: Keystone rejects the load.

10) First and second resamples pass acceptance parameter indicating error in sampling technique on first sample
    a) Action: Choose the resample with the retest value closest to the permit limit and run it through the entire testing series except for the failing parameters that have already been run. Go to Steps 11 and 12.

11) Chosen resample passes all acceptance parameters
    a) Action: Keystone accepts load.

12) Chosen resample fails an acceptance parameter
    a) Action: Keystone rejects load.

b. Data handling
   1) Original sample passes all acceptance parameters
      a) Action: Enter all of the original data in the computer.

   2) Original sample passes the acceptance parameter(s) on first and second reruns, indicating that the original result was erroneous
      a) Action: Enter the results from the original run for non-questioned parameters. Enter the average of the two rerun values from the two reruns for the parameter(s) in question.

3) Original sample fails an acceptance parameter(s) and resample fails the acceptance parameter(s)
   a) Action: Load will be rejected. Enter all of the original data in the computer.

4) Original sample fails an acceptance parameter(s), resample passes the acceptance parameter(s), and second resample fails the acceptance parameter(s)
   a) Action: Load will be rejected. Enter all of the original data in the computer.

5) Original sample fails an acceptance parameter(s), resample passes the acceptance parameter(s), and second resample passes the acceptance parameter(s)
   a) Action: Data will be taken from one of the two resamples. See sampling section for details (B.1a.10).

6) Resample run through entire testing series passes all acceptance parameters
   a) Action: Enter data from the resample in the computer.

7) Resample run through entire testing series fails an acceptance parameter
   a) Action: Load is rejected. Enter the original data in the computer.

c. Truck sample identification
   1) Keystone
      a) Original sample will be labeled with supplier name, load number, (#1, #2, etc.), manifest number, and gallons.

      b) First resample will be labeled with all previously mentioned information, and additionally, "Resample A."

      c) Second resample will be labeled with all previously mentioned information, and additionally, "Resample B."

   2) Solvent laboratory
      a) Original sample will be labeled with laboratory ID number.

      b) First resample will be labeled with laboratory ID number followed by an "A".

      c) Second resample will be labeled with laboratory ID number followed by a "B".

2. Module 1/Form U Discrepancy Resolution

It is the responsibility of the laboratory technician or his/her trained assignee to perform the Mod 1/Form U Discrepancy Resolution Procedures.

For all waste streams meeting the criteria detailed Attachment 5, and whose Mod 1/Form U form was approved after the effective date of the June 2006 Class 3 permit modification request, an additional review of the incoming shipment visual inspection and acceptance testing is performed as follows:

For all non-TSDF generators, the results of the visual inspection and analyses for the parameters detailed in Attachment 5 are compared to Module 1/Form U to determine if there is a discrepancy in the nature of the waste. The criteria for identifying a discrepancy in nature of the waste are also listed in the WAP Table 5.

When the results of the incoming waste inspection, testing, and evaluation indicate there is a discrepancy between the incoming waste shipment and the corresponding waste identified on the generator's Module 1/Form U (discrepancies detailed in Table 5 of the WAP), the Permittee will contact the generator to determine if there has been a substantive change in the waste material or the process generating the waste. Substantive changes in the waste material or the process generating the waste include any changes in the waste stream that would result in a change in the hazardous characterization (i.e.- new waste codes, etc.) or management practices at Keystone. Any discrepancies are resolved with the generator or the waste is not accepted.

If, after contacting the generator, it is determined that the discrepancy is not a result of a substantive change in the waste or process generating the waste, the permittee will document the discrepancy and may accept the waste material provided that the material complies with the facility's acceptance criteria in Attachment 5. Documentation of discussions and/or correspondence between the Permittee and the waste generator to resolve the discrepancy shall be included in the operating record. An example discrepancy resolution form is provided as Figure 2 of the WAP. In the event that discrepancies are experienced for the same parameter for any single generator either 1) more than three times in a six month period for generators shipping 12 shipments or less in that period or 2) for more than 25% of the shipments in a six month period for generators shipping more than 12 shipments in the six month period, the permittee will require that the Module 1/Form U be revised by the generator. The Module 1/Form U will then be submitted to the DEP for inclusion in their files.

In the event that the discrepancy reveals that there has been a substantive change in the waste or the process generating the waste, the permittee will contact the DEP prior to acceptance of the waste stream. Again, all discrepancies will be documented on the form provided as Figure 2 of the WAP. Changes to the Mod 1/Form U to resolve discrepancies as a result of a change in the waste or process generating the waste may only be made with approval of the DEP.

If discovered inconsistencies in the waste characterization cannot be resolved, the waste will not be accepted for management at the facility until the discrepancy is resolved and/or until the waste undergoes full waste characterization in accordance with Module 1/Form U process. This determination will be made within 72 hours of arrival of the shipment at the facility.

The comparison of the incoming shipment acceptance testing results to the Module 1/Form U may be performed using either a computer system where the incoming analysis results are entered into an acceptance program and compared to the Module 1/Form U or may be performed by manually comparing the results to a hard-copy of the Module 1/Form U.

3. Phase Testing:

   For all waste streams, the incoming shipment inspection procedures will include the determination of the number of phases in each waste stream. In the event that the number of phases in the waste stream is greater than the number of phases detailed on the Module 1, the facility will implement the discrepancy resolution procedures detailed in Section II.B.2 above, as well as the following additional analyses:

   i. Determine the percent (by volume) of all phases of separation comprising the waste;
   ii. Determine the percent of water content of all phases that are equal to or greater than 25% of the sample by volume;
   iii. For any phase determined in "ii" above and containing 75% or greater water by volume, an analysis for iodine and chloride will be performed.

   In the event that the incoming shipment phase inspection is consistent with the Module 1 (less than or equal to the number of phases included on the Module 1), the facility shall note this consistency in the operating record as the reason for not performing the additional analyses detailed above.

4. Permit Condition IV.B.3.c:

The following procedures will be implemented to comply with Permit Condition IV.B.3.c:

i. Color:

Part of the incoming shipment inspection procedures will include the notation of color changes. However, it is recognized that TSDF's that blend multiple waste streams and other direct generators such as, but not limited to, waste paint generators, pigment dispersers and batch processes, by their very operations will inevitably have color changes from load to load and therefore these situations are not deemed to be a discrepancy.

ii. Reduced Pumpability:

The operator will document, as part of the unloading log, any reduced pumpability issues when the load is attempted to be off-loaded. No analyses for pumpability are required.

5. Pesticide and Herbicide Analysis

Certain waste loads must be sampled and analyzed according to Keystone's Pesticide and Herbicide Management Implementation Plan found in the RCRA Part B Permit. Follow-up with generators and submittal of information to the Department shall also be in accordance with the Pesticide and Herbicide Management Implementation Plan.

6. Periodic Metals Confirmation Testing:

To confirm that each generator's waste does not vary from the initial Module 1 testing limits (See Attachment 5.1), Keystone will perform metals testing on a sample from every tenth shipment of waste for each generator, unless a generator ships greater than ten shipments in a seven day period, at which point the generator's waste will be tested once every seven days. The metals analyses will be grouped based on volatility[1] and compared to the metals concentrations detailed in Attachment 5.1. Keystone may accept materials into the tank farm and test the shipment samples for metal content after unloading.

In the event that the metals content exceeds the Module 1 testing limits in Attachment 5.1, Keystone will contact the generator to determine if there has been a substantive change in the waste material or the process generating the waste. In addition, subsequent shipments of

[1] Combined Semi-volatile Metals (SVMs – cadmium and lead)
Combined Low-volatile Metals (LVMs – arsenic, beryllium, chromium)

waste from that generator will be analyzed for acceptance until it is confirmed from the generator that there has been no substantive change in the waste or process generating the waste and the subsequent shipment analyses confirm that the metals concentrations are once again below those detailed in Attachment 5.1. Once the shipment review procedures have been completed and Keystone has determined through subsequent testing that the metals concentrations are once again below the Module 1 testing limits, Keystone may resume metals confirmation testing on a once per ten shipment (or once every 7 days as specified above), basis.

7. FAP Testing Discrepancies:

   In addition to the periodic confirmatory metals testing, Keystone also analyzes its waste fuel for metals content to demonstrate compliance with the National Emissions Standards for Hazardous Air Pollutants for Hazardous Waste Combustors at 40 CFR Part 63, Subpart EEE (HWC MACT Regulations). In accordance with its HWC MACT Feedstream Analysis Plan (FAP), Keystone may sample and analyze either a blended waste fuel "burn tank" or individual shipment samples for metals content to demonstrate compliance with its kiln metal feed rate limitations under the MACT regulations.

   As an additional metals content confirmation, Keystone will compare any burn tank or shipment metals analyses performed under its FAP (again, grouped based on volatility as detailed above) and compare the metals results to the Module 1 testing limits detailed in Attachment 5.1. In the event that the metals content of a shipment sample exceeds the Module 1 testing limits in Attachment 5.1, Keystone will contact the generator to determine if there has been a substantive change in the waste material or the process generating the waste and implement the individual shipment metals testing and acceptance procedures as detailed in Section II.B.6 above.

   In the event that the metals content of a burn tank sample exceeds the Module 1 testing limits in Attachment 5.1, Keystone will analyze the retain samples for the individual shipments that make up that burn tank to determine which generator's waste stream may have caused the exceedance. Once it is determined which shipment (generator) may have resulted in the exceedance, Keystone will contact the generator to determine if there has been a substantive change in the waste material or the process generating the waste and implement the individual shipment metals testing and acceptance procedures as detailed in Section II.B.6 above.

C. Transporter

Each transporter delivering waste material must be fully permitted to handle the waste being transported. The Environmental Technician or trained assignee will review the following information prior to off-loading:

- Was the load weighed upon arrival at Keystone?
- Is the transporter permitted to haul hazardous wastes in PA (Green card)?
- Is the transporter permitted to haul wastes being shipped (hazardous codes)?

Additionally, each transporter must sign the transporter's affirmation (Attachment #7) certifying he has been properly trained and will abide by all rules and regulations set forth by Keystone.

A waste acceptance checklist (Attachment #8) has been developed. This checklist shall be completed for each waste delivery. This list incorporates the items covered in this standard operating procedure.

D. Waste Rejection

Wastes may be rejected as either full loads, or as partial load rejections under 40 CFR Part §264.72(e) and (f). It is the responsibility of the Environmental Technician or trained assignee to follow the following directions for full and partial load rejections (Example manifests are provided in Attachment # 9):

1. Rejection of waste back to generator:
   a. Full Load Rejections While Transporter Remains On-site:
      1) After material has been determined to be unacceptable, you must reject the load.
      2) Contact the generator of the waste. Telephone numbers are located in the Storage Facility office.
      3) Indicate "full rejection" in line item 18a of the manifest and write the generators name, address, EPA ID No., and phone number in line item 18b.
      4) Inform truck driver of rejected load.
      5) Sign and date box 20 of the PA manifest.
      6) Give the transporter a copy of the manifest.
      7) Distribute remaining copies to designated agency or company.

      (note that as an alternative to the procedures detailed in II.D.1.a above, a new manifest may be prepared in accordance with the procedures in II.D.1.b below)

   b. For Residues and Full Rejections Where Transporter has not Remained On-site:
      1) After material has been determined to be unacceptable, you must reject the load.

2) Contact the generator of the waste. Telephone numbers are located in the Storage Facility office.
3) Prepare a new manifest in accordance with 40 CFR §262.20(a) and the following instructions:

(i) Write the facility's U.S. EPA ID number in Item 1 of the new manifest. Write the generator's name and mailing address in Item 5 of the new manifest. If the mailing address is different from the generator's site address, then write the generator's site address in the designated space for Item 5.

(ii) Write the name of the initial generator and the generator's U.S. EPA ID number in the designated facility block (Item 8) of the new manifest.

(iii) Copy the manifest tracking number found in Item 4 of the old manifest to the Special Handling and Additional Information Block of the new manifest, and indicate that the shipment is a residue or rejected waste from the previous shipment.

(iv) Copy the manifest tracking number found in Item 4 of the new manifest to the manifest reference number line in the Discrepancy Block of the old manifest (Item 18a).

(v) Write the DOT description for the rejected load or the residue in Item 9 (U.S. DOT Description) of the new manifest and write the container types, quantity, and volume(s) of waste.

(vi) Sign the Generator's/Offeror's Certification to certify, as offeror of the shipment, that the waste has been properly packaged, marked and labeled and is in proper condition for transportation.

2. Rejection of waste to an alternate facility:

a. Full Load Rejections While Transporter Remains On-site:
1) The generator will supply the pertinent information regarding the alternate facility. All information must be provided to the Storage Facility personnel; if not, the load cannot be sent to the alternate facility.
2) Indicate "full rejection" in line item 18a of the manifest and write the generators name, address, EPA ID No., and phone number in line item 18b.
3) Sign and date box 20 of the PA manifest.
4) Make one copy of the first sheet of the PA manifest, retain benzene form, and give all originals back to the driver.

(note that as an alternative to the procedures detailed in II.D.2.a

above, a new manifest may be prepared in accordance with the procedures in II.D.2.b below)

b. For Full and Partial Load Rejections and Residues Where Transporter has not Remained On-site:
1) After material has been determined to be unacceptable, you must reject the load.
2) Contact the generator of the waste. Telephone numbers are located in the Storage Facility office.
3) Prepare a new manifest in accordance with 40 CFR §262.20(a) and the following instructions:
(i) Write the generator's U.S. EPA ID number in Item 1 of the new manifest. Write the generator's name and mailing address in Item 5 of the new manifest. If the mailing address is different from the generator's site address, then write the generator's site address in the designated space for Item 5.
(ii) Write the name of the alternate designated facility and the facility's U.S. EPA ID number in the designated facility block (Item 8) of the new manifest.
(ii) Copy the manifest tracking number found in Item 4 of the old manifest to the Special Handling and Additional Information Block of the new manifest, and indicate that the shipment is a residue or rejected waste from the previous shipment.
(iv) Copy the manifest tracking number found in Item 4 of the new manifest to the manifest reference number line in the Discrepancy Block of the old manifest (Item 18a).
(v) Write the DOT description for the rejected load or the residue in Item 9 (U.S. DOT Description) of the new manifest and write the container types, quantity, and volume(s) of waste.
(vi) Sign the Generator's/Offeror's Certification to certify, as the offeror of the shipment, that the waste has been properly packaged, marked and labeled and is in proper condition for transportation.

3. Sampled material from a rejected truck must be returned with the truck. If not, the material shall be shipped off-site for disposal at a permitted facility.

Note: Because some of the following attachments change frequently, the attachments given with this SOP are examples only. The current and updated lists and forms are maintained in the facility's files and may be viewed upon request.

Attachment #1

List of Generators

Generator	Address	Telephone #	EPA ID #
ACN Providence, LLC	455 George Washington Hwy, Smithfield, RI 02917	401-231-2100	RID048976732
Aimco Solrec, Ltd.	425 Morobel Drive, Milton, Ontario L9T 4N6	905-878-2627	PAD002389559
Akzo Nobel Chemicals	3 Livingstone Street, Dobbs Ferry, NY 12077	914-674-5287	NYD056301104
Albermarle Corporation	Tyrone Ind. Park, 2 Adams Ave., Tyrone, PA 16686	800-684-4310	PAD030069140
Aleris Light Gauge Products	EKCO Prod. Div., 838 N Delsea Dr., Clayton, NJ 08312	856-863-5420	NJD051415909
Allstate ORC	473 Hamburg Turnpike, West Miford, NJ 07480	800-300-3122	NJR000016295
Anachem LTD	255 Norman St., Lachine, Quebec H8R 1R4	514-481-8010	PAD002389559
Avery Dennison Chemical Div.	RD 2, Draketown Rd, Mill Hall, PA 17751	570-893-6840	PAD065649527
Bridgeport United Recycling	50 Cross Street, Bridgeport, CT 06610	203-334-1666	CTD002593887
Bristol Myers Squibb Co.	P.O. Box 4755, Syracuse, NY 13221	315-432-2135	NYD002230902
Callahan Chemical Co. - Palmyra	Broad & Filmore Sts, PO Box 65, Palmyra, NJ 08065	856-786-8401	NJD011588027
Callahan Chemical Co. - Walpole	18 Industrial Road, Walpole, MA 02081	856-786-8401	MAD071723241
Can Corporation of America	Excelsior Ind. Park, PO Box 170, Blandon, PA 19510	610-926-3044	PAD981034259
Casie Ecology Oil Salvage	3209 North Mill Road, Vineland, NJ 08360	609-676-4401	NJD045995693
Chem Fleur/Firmenich Corp.	150 Firmenich Way, Port Newark, NJ 07114	973-589-3443	NJD981080401
Chemical Pollution Control	120 South Fourth Street, Bay Shore, NJ 11706	516-586-0333	NYD082785429
Chemical Solvents Inc	1010 Denison Road, Cleveland, OH 44109	216-741-9310	OHD980897656
Chemtron Corp.	35850 Schneider Court, Avon, OH 44011	440-871-8048	OHD066060609
Cherokee Pharmaceutical	100 Avenue C, Riverside, PA 17868	570-271-2082	PAD003043353
Chiyoda America	P.O. Box 470, Morgantown, PA 19543	610-286-3100	PAD987270170
Clean Earth of North Jersey	105 Jacobus Avenue, South Kearny, NJ 07032	973-344-4004	NJD991291105
Clean Harbors – Baltimore	1919 Russell Street, Baltimore, MD 21230	410-244-8200	MDD980555189
Clean Harbors – Braintree	1 Hill Avenue, Braintree, MA 02184	781-849-1807	MAD053452637
Clean Harbors – Canada	551 Avondale Road, Mississauga, Ontario L5J 4B1	905-822-3781	PAD002389559
Clean Harbors Services	11800 S. Stony Island Ave., Chicago, IL 60617	781-849-1800	ILD000608471
Coastal Eagle Point Oil Co.	Routes 230 & 295, P.O.Box 1000, Westville, NJ 08093	609-853-4406	NJD990753162
Connecticut Waste Oil	1250 Old Colony Road, Wallingford, CT	203-235-8889	CTD018844050
CRI Environmental, Inc.	75 Rue du Progres, Coteau-du-Lac, Quebec J0P 1B0	450-763-5541	PAD002389559
Cycle Chem – NJ	217 S. First Street, Elizabeth, NJ 07206	908-355-5800	NJD002200046
Cycle Chem – PA	550 Industrial Drive, Lewisberry, PA 17339	717-938-4700	PAD067098822
Englehard, Inc.	1729 East Avenue, Erie, PA 16503	814-870-3023	PAD041399403
Environmental Enterprises, Inc.	4650 Spring Grove Avenue, Cincinnati, OH 45232	513-541-1823	OHD083377010
Env. Services of America-IN	604 S. Scott Street, South Bend, IN 46601	219-234-0441	IND980590947
Environmental Waste Treatment	208 Route 109, Farmingdale, NY 11735	631-249-3774	n/a
EQ Resource Recovery, Inc.	36345 Van Born Road, Romulus, MI 48174	313-326-3100	MID060975844
Fairchild Semiconductor	333 Western Avenue, South Portland, ME 04106-0022	207-775-8495	ME5000001313
FedChem	275 Keystone Drive, Bethlehem, PA 18020	610-837-1808	PAD053061578
Fibermark Inc.	1 Goldsmith Street, Johnston, RI 02919	413-263-5980	RID080815145
Fielding Chemical Co.	3549 Mavis Road, Mississauga, Ontario L5C 1T7	905-279-5122	PAD002389559
Gage Products Co.	625 Wanda Avenue, Ferndale, MI 48220	248-691-6714	MID005338801
Ganes Chemicals	630 Broad Street, Carlstadt, NJ 07075	201-507-4300	NJD001213727
General Chemical Corp.	133 Leland Street, Framingham, MA 01701	508-872-5000	MAD019371079
Giant Resource Recovery-Arvonia	State Route 652, Arvonia, VA 23004	434-685-7021	VAD098443443
Giant Resource Recovery-Sumter	755 Industrial Road, Sumter, SC 29151	803-773-1400	SCD036275626
Givaudan-Roure	Merry Lane, E Hanover, NJ 07936	973-386-9800	NJD986598340

Glidden	301 Bern Street, Reading, PA 19601	610-373-4111	PAD071445423
Glyptal Inc	305 Eastern Avenue, Chelsea, MA 02150	617-884-6918	MAD001408483
Hazleton Oil Salvage	300 S. Tamaqua Street, Hazleton, PA 18201	570-454-3464	PAO000101816
Heico Chemical	P.O. Box 160, Delaware Water Gap, PA 18327	570-420-3900	PAD003037504
Heritage Env. Services	54 Avenue D, Williston, VT 05495	802-860-1200	VTD982766537
Hotz Environmental	239 Lottridge Street, Hamilton, Ontario L8L 6W1	905-545-2665	PAD002389559
Hukill Chemical	7013 Krick Road, Bedford, OH 44146-4493	440-232-9400	OHD001926740
Ideal Tape Company	1400 Middlesex Street, Lowell, MA 01851	978-458-6833	MAD056019979
Industrial Oil Tank Services	120 Dry Road, Oriskany, NY 13424	315-736-6080	NYR000005298
Infineum USA	Park & Brunswick, PO Box 23, Linden, NJ 07036	908-474-2036	NJR000026690
Intelicoat Technologies	28 Gaylord Street, S. Hadley, MA 01075	413-539-5393	MAD985293802
International Petroleum Corp.	505 South Market Street, Wilmington, DE 19801	302-421-9307	DED984073692
Internat'l Flavors/Fragrances	800 Rose Lane, Union Beach, NJ 07735	732-264-4500	NJD002194843
ISP Fine Chemicals	1979 Atlas Street, Columbus, OH 43228	614-529-3331	OHD000721803
ISP Van Dyk, Inc.	Main & Williams Streets, Belleville, NJ 07109	973-450-7754	NJD002146504
Jones Env. Services	263 Howard Street, Lowell, MA 01852	978-453-7772	MAD047075734
Kama Corporation	600 Dietrich Avenue, Hazleton, PA 18201	570-455-2021	PAD094224771
Lacombe Waste Services	5573 Power Road, Gloucester, Ontario K1G 3N4	613-822-2700	PAD002389559
Lancaster Oil Company, Inc.	1062 Old Manheim Pike, Lancaster, PA 17601	717-393-2627	PAD987266749
Mack Truck, Inc.	7000 Alburtis Road, Macungie, PA 18062	610-966-8810	PAD060493582
Mauser Corp.	Convery Blvd., Woodbridge, NJ 07095	732-634-6000	NJD002179190
Merck & Co., Inc.	126 E. Lincoln Ave., Rahway, NJ 07065	732-594-5555	NJD001317064
Nelco	40 Governor Drive, Newburgh, NY 12550	914-567-6200	NYD044127355
Norlite Corporation	628 S. Saratoga Street, Cohoes, NY 12047	518-235-0401	NYD080469935
Northeast Environmental	4123 Canal Road, Canastota, NY 13032	315-697-3411	NYD057770109
PA-MAX	158 Industrial Road, Glen Rock, PA 17327	717-227-1774	PAR000042168
Penn Color	2801 Richmond Road, Hatfield, PA 19440	215-997-2221	PAR000033993
Pinnacle Waste Services	38 Forwell Road, Kitchener, Ontario N2B 3E8	519-725-9285	PAD002389559
Prillaman Chemical	P.O. Box 4024, Martinsville, VA 24115	540-638-8829	VAD003111416
Renaissance Recycling	Male Road, PO Box 116, Wind Gap, PA 18091	610-863-6159	PAR000041822
Republic Env. Recycling - NJ	1000 Cenco Blvd, Clayton, NJ 08312	609-881-7400	NJD981133150
Republic Env. Systems - OH	33 Industry Drive, Bedford, OH 44146	440-439-1257	OHD055522429
Republic Env. Systems – PA	2869 Sandstone Drive, Hatfield, PA 19440	215-822-8995	PAD085690592
Roche Vitamins	206 Roche Drive, Belvidere, NJ 07823	908-475-5300	NJD042321042
RPR Environmental	164-166 Service Rd., Stoney Creek, Ontario L8E3H6	905-662-0062	PAD002389559
SABIC Innovative Plastics	Selkirk Operations, 1 Noryl Avenue, Selkirk, NY 12158	518-475-5219	NYD066832023
Safety-Kleen, Canada Inc.	2730 boul Industriel, Chambly Quebec J3L 4V2	450-576-6250	PAD002389559
Safety-Kleen Canada, Inc.	3 Lafarge Road, St. Constant, Quebec J5A 2G3	450-635-1275	PAD002389559
Safety-Kleen Corp.	1200 Sylvan Street, Linden, NJ 07036	908-862-2000	NJD002182897
Safety-Kleen Mississauga	DELTE THIS ROW – change		
Safety-Kleen North Andover	221 Sutton Street, North Andover, MA 01845	978-683-1002	MAD000604447
Safety-Kleen Quebec	RR 5, East Thurso, Quebec J0X 3B0	819-985-0110	PAD002389559
Safety-Kleen Ste Catherine	6785 Route 132, Ville Ste.-Catherine, Quebec J0L 1E0	516-632-6440	PAD002389559
Sartomer Co., Inc.	610 S. Bolmer Street, West Chester, PA 19382	610-344-2137	PAD042259374
Schenectady International	1000 Main St., Rotterdam Junction, NY 12150	518-370-4200	NYD002070118
Sherwin Williams/Conlux	226 Talmadge Road, Edison, NJ 08818	732-476-1500	NJD002157030
Smith-Kline Beecham	1250 S. Collegeville Road, Collegeville, PA 19426	610-917-7787	PAD000935684
Sun Chemical Corp.	1301 South Park Avenue, Linden, NJ 07036	908-486-5125	NJD000533877
Tevco, Inc.	110 Pomponio Avenue, S. Plainfield, NJ 07080	908-754-7306	NJD986602043

United Oil Recovery, Inc.	136 Gracey Avenue, Meriden, CT 06450	203-238-6745	CTD021816889
Veolia ES Canada Services	11455, Rue Ontario Est, Montreal, Quebec H1B 5J3	514-645-4242	PAD002389559
Veolia ES Canada Services	2630 Boul. Industriel, Chambly, Quebec J3L 4V2	450-447-2000	PAD002389559
Veolia ES Tech Solutions	125 Factory Lane, Middlesex, NJ 08846	732-469-5100	NJD002454544
C. R. Warner	6050 W. Passyunk Ave., Philadelphia, PA 19153	215-726-4300	PA0000538827
WRR Env. Services	5200 State Road 93, Eau Claire, WI 54701	715-834-9624	WID990829475
Waste Recovery Solutions	343 King Street, Myerstown, PA 17067	717-866-9955	PAR000043026

State Agencies

State	Address
State of Alabama	ADEM
	P.O. Box 301463
	Montgomery, AL 36130-1463
State of Connecticut	Dept. of Environmental Protection
	79 Elm Street, Fourth Floor
	Hartford, CT 06106-5125
State of Indiana	IDEM
	P.O. Box 7035
	Indianapolis, IN 46207-7035
State of Maine	Attn: Manifest Section
	Dept. of Environmental Protection
	Bureau of Oil & Hazardous Material
	State House Station 17
	Augusta, ME 04333
State of Maryland	Maryland Department of the Environment
	Waste Management Administration
	Hazardous Waste Program
	2500 Broening Highway
	Baltimore, MD 21224
State of Massachusetts	Division of Hazardous Waste
	Dept. of Environmental Quality & Engineering
	One Winter Street
	Boston, MA 02108
State of Michigan	Attn: Manifest Section
	Michigan Hazardous Waste Division
	Env. Protection Bureau/Dept. of Natural Resources
	P.O. Box 30038
	Lansing, MI 48909-7538
State of New Jersey	NJDEP
	Hazardous Waste Regulations Program-Manifest Section
	P.O Box 414
	Trenton, NJ 08625-0414
State of New York	NY Dept. of Environmental Conservation
	Div. Of Solid & Hazardous Materials-Manifest Section
	625 Broadway – 9th Floor
	Albany, NY 12233-7250

State of Ohio	Ohio EPA Permits & Manifests Section Division of Solid & Hazardous Waste P.O. Box 1049 Columbus, OH 43216
State of Pennsylvania	PA Dept. of Environmental Protection Bureau of Waste Management P.O. Box 8550 Harrisburg, PA 17105-8550
State of Rhode Island	Division of Air & Hazardous Materials Dept. of Environmental Management 291 Promande Street Providence, RI 02908
State of South Carolina	SC Department of Health & Environmental Control 2600 Bull Street Columbia, SC 29201
State of Vermont	Agency of Natural Resource, Waste Management Div. 103 S. Main Street Waterbury, VT 05676
State of Virginia	Dept. of Environmental Quality 629 E. Main Street Richmond, VA 23219
State of Wisconsin	Wisconsin Dept. of Natural Resources Bureau of Solid/Hazardous Waste Box 8094 Madison, WI 53708
Province of Ontario, Canada	Ministry of the Environment Env. Monitoring & Reporting 'Area M' 135 St. Clair Avenue West Toronto, Ontario M4V 1P5
Province of Quebec, Canada	Transboundary Movement Branch Operations Section – Environment Canada Place Montcalm 70 Cremazie St., 6th Floor Gatineau, Quebec K1A 0H3

Attachment #2

Manifest System

Transporter	PA-AH #	EPA ID #	Permit Expiration	Telephone #
ABC Tank Co., Inc.	0342	NJD986583417	11/30/2000	609-881-6586
Action Resources	0650	ALR000007237	2/28/2006	256-352-2689
Ahles Pump & Tank Co., Inc.	5234	NYD986987543	10/31/1998	315-336-6699
Allstate O.R.C., Inc.	0564	NJD986588630	5/31/2011	973-696-3122
Allstate Power Vac, Inc.	0339	NJD003812047	9/30/2000	732-815-0220
American Tank Transport	0081	ILD049812696	6/30/2000	410-796-9300
Auchter Industrial Vac Service, Inc.	0444	NJD980772768	11/30/2009	908-925-1515
C. R. Warner, Inc.	0460	PAD000538827	4/30/2000	215-726-4300
Casie Ecology Oil Salvage	0307	NJD045995693	3/31/2010	856-696-4401
Chemical Leaman Tank Lines	0030	PAD084770023	4/30/1998	610-363-4200
Clean Harbors Env. Services	0312	MAD039322250	3/31/2001	781-849-1800
Clean Venture, Inc.	0299	NJ0000027193	8/31/2011	908-355-5800
D-Tox, Inc.	0586	CT5000001685	5/31/2002	800-336-3869
D.G.D. Environmental Services, Inc.	0603	PAR000033464	9/30/2000	800-891-4404
Disposal Systems, Inc.	0470	NJD156163438	11/30/2000	609-259-6340
Edward Armstrong & Sons, Inc.	0027	PAD014286009	4/30/2000	717-393-2770
Eldredge, Inc.	0056	PAD014146179	11/30/2010	610-436-4749
Elk Transportation, Inc.	0413	PAD987271020	5/31/2006	610-372-4760
Environmental Transport Group(ETGI)	0104	NJD000692061	3/31/2011	800-598-3844
Enviroserve, J.V.	0456	OHD987050564	4/30/2000	216-642-1311
Fortress Trucking, Limited	0512	MIR000002881	2/28/2004	519-650-3804
Franklin Environmental Services	0224	MAD084814136	4/30/2003	508-384-6151
Frank's Vacuum Truck Service Inc.	0331	NYD982792814	3/31/2010	716-284-2132
Freehold Cartage, Inc.	0067	NJD054126164	5/31/2010	732-462-1001
General Chemical Corp.	0374	MAD019371079	2/28/2000	508-872-5000
Harold Marcus	0207	MIT270012321	10/31/2008	519-695-3734
Hazleton Oil Salvage, LTD	N/A	PAO000101816	N/A	717-454-3464
Hazmat Environmental Group	0315	NYD980769947	6/30/2011	716-827-7200
Heritage Transport, LLC	0200	IND058484114	12/31/2003	317-381-6844
Hukill Chemical Corporation	0625	OHD001926740	6/30/2009	440-232-9400
J. T. Sands	0483	OHD987041860	5/31/2001	800-348-3835
Lacy's Express, Inc.	0243	NJD046555033	1/31/2010	856-299-2569
Laidlaw Env. Services (Quebec), Ltd	0403	NYD980773675	4/30/2000	514-923-9999
Lancaster Oil Co.	N/A	PAD987266749	N/A	717-393-2627
M & T Transport	0437	OHD004457834	9/30/1999	330-659-2201
Marisol, Inc.	0164	NJD002454544	8/31/2004	732-469-5100
Maumee Express, Inc.(MXI)	0420	NJD986607380	9/30/2006	732-424-8441

McCutcheon Ent., Inc.	0130	PAD013826847	1/31/1998	724-568-3623
Metropolitan Env., Inc.	0289	INT190010397	2/28/2002	800-334-9139
Midwest Environmental Transport, Inc.	0368	OHD000000539	11/30/2005	513-772-1145
Nappi Trucking Corp.	0278	NJD000813477	8/31/2005	732-566-3000
Northeast Environmental Services	0376	NYD057770109	4/30/2000	315-697-3979
NORTRU, Inc.	0451	MID021087275	4/30/2007	419-726-1500
Oldover Corporation	0125	VAD040159436	6/30/2000	804-798-7981
Onyx Industries	0335	NYO000260828	6/30/2003	514-351-7264
Page E.T.C., Inc.	0338	NYD986969947	9/30/2000	315-834-6681
Phillips/Republic Env. Systems (Transportation Group)	0317	PAD982661381	6/30/2001	215-822-2676
Pure Tech Systems, Inc.	0647	OHD004178612	1/31/2002	216-623-8383
Quality Carriers, Inc.	0630	FLR000057414	9/30/2009	800-282-2031
Reifsneider Transportation	0486	PAR000001107	6/30/1999	610-458-9337
Remtech Environmental, L.P.	0146	PAD067098822	1/31/2001	717-938-4700
Republic Env. Systems (Transportation Group), Inc.	0317	PAD982661381	6/30/2011	215-997-2446
Research Oil Transportation Co.	0527	OHD004178612	6/30/2000	216-623-8383
Robbie D. Wood, Inc.	0504	ALD067138891	12/31/2005	205-744-8440
Safety-Kleen Systems, Inc.	0172	TXR000050930	8/31/2011	972-265-2335
Safety-Kleen (Canada)	0517		4/30/2010	800-265-2582
Safety-Kleen (TG), Inc.	0271	SCD987574647	6/30/2001	803-933-4313
S & C Transportation, Inc.	0446	MID018604399	7/31/2010	313-272-2500
S-J Transportation Co.	0015	NJD071629976	3/31/2010	609-769-2741
Schneider National Bulk Carriers	0524	WID981193998	5/31/2000	920-592-2000
Stat, Inc.	0532	NCD980799142	7/31/2000	704-396-2304
Sumter Transport Company	0439	SCD987584778	9/30/2005	803-775-1002
Suttles Truck Leasing	0332	ALD095704011	8/31/2008	334-289-0870
Tonawanda Tank Transport Service	0429	NYD097644801	9/30/2000	716-873-9703
Transport Rollex LTEE	0544	NYF006000053	1/31/2007	450-652-4282
Transport TFI4, S.E.C.	0720	NYF006000087	11/30/2007	888-331-0404
Trans-Enviro, INC.	0480	OHR 000028498	3/31/2001	216-518-3300
Triumvirate Environmental, Inc.	0477	MAD985286988	3/31/2005	617-628-8098
US Environmental Inc	0675	PAR000508374	12/31/2008	610-518-5800
United Industrial Services	0378	CTD021816889	6/30/2010	203-238-6745
Weavertown Transport Leasing	0263	PAD980707442	7/1/2000	412-746-4850
Zecco, Inc.	0416	MAD052924495	7/2/2000	508-393-2537
24 - HOUR PHONE #'S F0R TRANSPORTERS ARE LOCATED ON THE PA PERMIT				

Attachment #3

TYPES OF CONTAINERS

DM	=	Metal drum, barrel, keg
DW	=	Wooden drum, barrel, keg
DF	=	Fiberboard or plastic drum, barrel, keg
TP	=	Tank, portable
TT	=	Cargo tank (tank truck)
TC	=	Tank car
DT	=	Dump truck
CY	=	Cylinder
CM	=	Metal box, carton, case (including roll-off)
CW	=	Wooden box, carton, case
CF	=	Fiber or plastic box, carton, case
BA	=	Burlap, cloth, paper, or plastic bag

UNITS OF MEASURE

G	=	Gallons (liquids only)
P	=	Pounds
T	=	Tons (2,000 pounds)
Y	=	Cubic yards
L	=	Liters (liquids only)
K	=	Kilograms
M	=	Metric tons (1,000 kg)
N	=	Cubic meters

Attachment #4

WASTES APPROVED FOR USE AS FUEL AT KEYSTONE

D001	D023*	D043*	K030	U004	U112	U194
D004*	D024*	F001	K035	U009	U113	U196***
D005*	D025*	F002	K036	U012	U115	U210***
D006*	D026*	F003	K048	U019	U117	U211***
D007*	D027*	F004	K049	U031	U118***	U213***
D008*	D028*	F005	K050	U037***	U121***	U220
D009*	D029*	F037	K051	U043***	U122***	U226***
D010*	D030*	F038	K052	U044***	U127	U227***
D011*	D031*	K014	K083	U051	U128	U228***
D012*	D032*	K015	K085	U052	U131	U239
D013*	D033*	K016	K086 **	U055	U140	U359***
D014*	D034*	K017	K087	U056	U153	
D015*	D035	K018	K156	U057	U154	
D016*	D036*	K019	K169	U070***	U159	
D017*	D037*	K020	K170	U072	U161	
D018	D038*	K022	K171	U075	U162***	
D019*	D039*	K023	K172	U077***	U165***	
D020*	D040*	K025	U001	U078	U169	
D021*	D041*	K026	U002	U080***	U171	
D022*	D042*	K028	U003***	U105	U188	

* Secondary trace contaminants that exhibit hazardous waste characteristics identified in Table 2 and by PA Code Title 25, Section 261 Subchapter C, which incorporates by reference 40 CFR 261 Subchapter C.

**solvent washings only

*** Secondary waste codes accepted at concentrations as approved during Module 1 process

Attachment #5
Keystone Cement Company - Bath, PA
WASTE ACCEPTANCE CRITERIA
SUMMARY OF ANALYTICAL METHODS AND SCREENING LIMITS

Parameter	Test Method[1]	Source	Keystone ID	Limits	Units
% Chloride	9253 (Mod)	SW846	RL.7	3.00	%
PCBs Screen	3620B (Mod)/8000B (Mod)/8082 (Mod)	SW846	RL.18, RL.19, RL.20	25.00	ppm
Btu/lb	5050 (Mod)/ E711 (Mod)	SW846/ASTM	RL.6	≥5000	Btu/lb
Peroxide	Manufacturers Specs	EM QUANT or Equiv.	RL.12	Not Present (<10)[3]	ppm
pH	9045C (Mod)	SW846	RL.14	>2.00 - <12.5	-
Compatibility[7]	D5058 (Mod)	ASTM	RL.9, RL.10, RL.11	Yes	-
Phases [4]	Visual Inspection	N/A	N/A	Consistent with Mod 1 [4]	Number of Phases
Iodine [5]	Keystone SOP	KCC Method	S-1	<2	%

[1] Changes to the analytical methods may be made via the Part IV Section F (SOP Modification) process. Updated methods will be incorporated consistent with the facility's laboratory accreditation.

[2] Reserved.

[3] On site screening level.

[4] The incoming shipment should not indicate a greater number of phases than indicated on the Mod 1 Form. In the event that there are a greater number of phases than indicated on the Mod 1 Form, the generator will be contacted to ensure that the additional phases do not represent a change in the waste or process generating the waste.

[5] Applies waste streams where there is discrepancy in the number of phases is identified during incoming shipment inspection procedures (i.e.- there are a greater number of phases than identified on the Module 1/Form U). Keystone will determine iodine content for any phase containing 25% or greater of the waste sample by volume and containing 75% or greater water content.

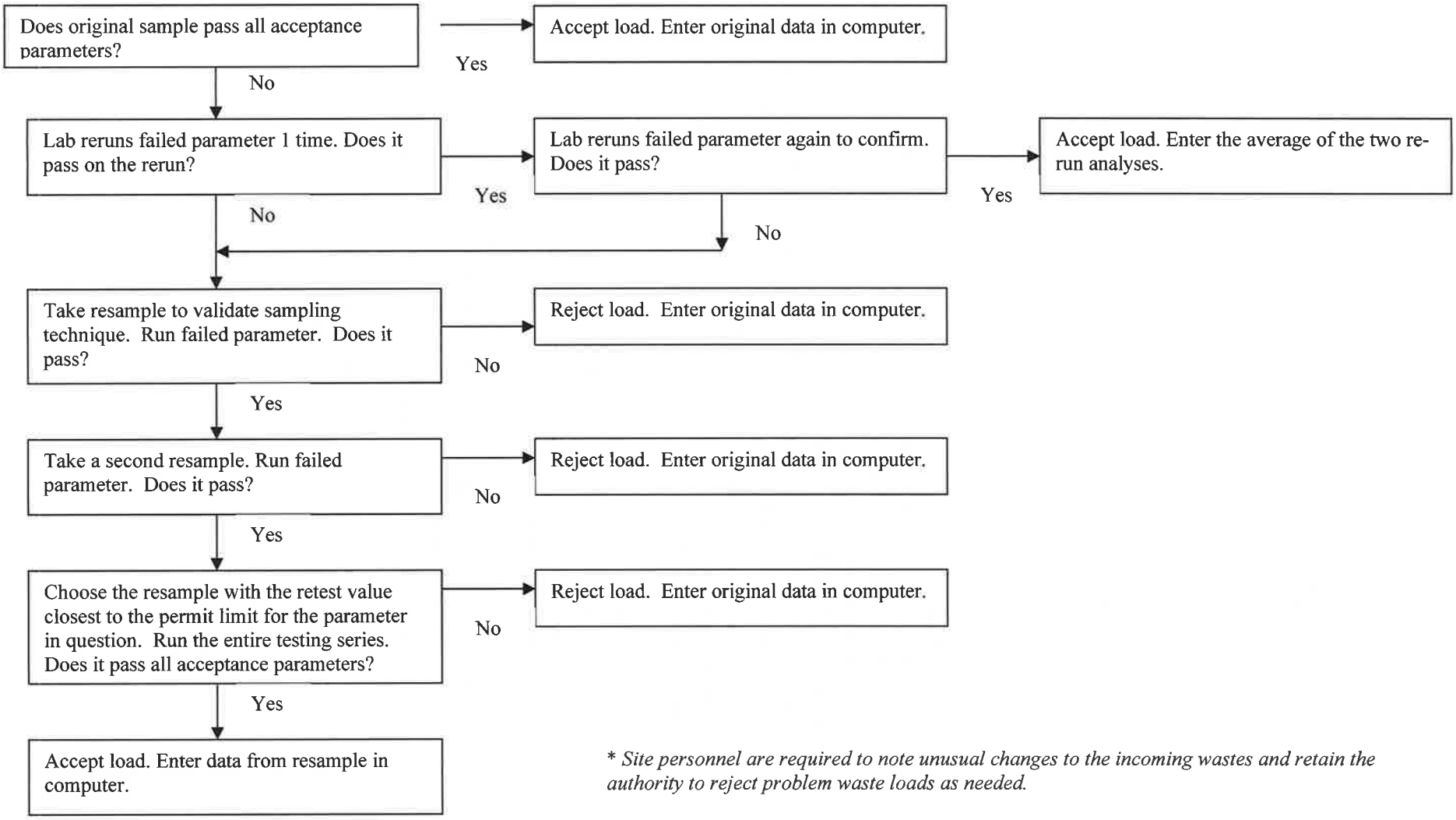
[7] Compatibility testing required for materials to be commingled in the facility tank farm and is not required for direct transfer materials.

Attachment #5.1
Keystone Cement Company - Bath, PA
PERIODIC METALS CONFIRMATION TESTING
SUMMARY OF ANALYTICAL METHODS AND SCREENING LIMITS

Parameter	Test Method	Source	Keystone ID	Limits[1]	Units
As	3051(Mod)/6010B (Mod) or 7061A (Mod)	SW846	RL.15, RL.16	1120 (combined)[1]	ppm
Be	3051(Mod)/6010B (Mod) or 7090	SW846	RL.15, RL.16		ppm
Cr	3051(Mod)/6010B (Mod) or 7190	SW846	RL.15, RL.16		ppm
Cd	3051(Mod)/6010B (Mod) or 7130	SW846	RL.15, RL.16	3500 (combined)1	ppm
Pb	3051(Mod)/6010B (Mod) or 7420	SW846	RL.15, RL.16		ppm

[1] Metals testing is only required to be performed on every tenth shipment of waste from each generator. The periodic testing will be used to confirm that the waste stream metals concentrations remain below the limits detailed above. However, the testing is not required to be performed prior to individual shipment acceptance and unloading.

Attachment #6
Sample Acceptance Limit Discrepancy Resolution Procedure*



** Site personnel are required to note unusual changes to the incoming wastes and retain the authority to reject problem waste loads as needed.*

Attachment #7

KEYSTONE CEMENT COMPANY
Resource Recovery Facility

TRANSPORTER AFFIRMATION:

Manifest Number:_____

Transporter Name:_____

Transporter EPA ID Number:_____

PA License Number (Green Card):_____

License Expiration Number:_____

I certify that I possess the requisite training as required by USDOT, PADOT, EPA, PADEP and/or OSHA regulations. While on Keystone Cement property I agree to abide by the rules and regulations promulgated for my safety and the safety of others and to follow the instructions from Keystone's Emergency Coordinator in the event of an emergency. I am familiar with and understand the hazards associated with the chemicals and contents of this shipment and certify that the entire waste quantity (no materials added and no materials removed) offered for transport by the generator, as estimated on the manifest, was delivered to Keystone Cement Company. My employer reviews and monitors my compliance with these rules and regulations.

- Drivers must follow designated in-plant route at all times.
- Check in at Solvent Office before driving onto unloading area.
- Hard hat, safety glasses, and safety shoes required at all times when on mine property.
- Do not block traffic at any time in the plant.
- No smoking in designated "NO SMOKING" area.
- Use rear parking area to turn around.
- Restroom in Solvent Office is not to be used by drivers. Use restroom in the main wash house.
- All tractors and/or trailers must have a back-up alarm; if not, they must have assistance when backing up.

Transporter
Signature:_____ Date:_____

revised 6/2006

Attachment #8
WASTE ACCEPTANCE CHECKLIST

DATE:

Supplier: _____ Manifest #: _____

Signature: _____ Title: ENVIRONMENTAL TECHNICIAN

Manifest: **Check**

1) Are 5 copies present? Are generator address, (both site and mailing), ID#, and telephone number correct? _____
2) Is the transporter listed on the manifest the same as the transporter who delivered the material? _____
3) Is the transporter's ID # correct? _____
4) Are Keystone's address, ID #, and telephone number correct? _____
5) Are the 5 required items listed in the DOT description? _____
6) In Box 10, is the number of containers '1'; '001'; or 'XX1'; and is the type 'TT' or 'TP'? _____
7) Is there a total quantity in Box 11? _____
8) Does the unit of measure in Box 12 correspond with the quantity in Box 11? _____
9) Does Box 13 contain acceptable codes? _____
10) Is there an "L" marked in the physical state in Box 14? _____
11) Is there an emergency contact number in Box 3? _____
12) Are the codes listed on the manifest acceptable by Keystone? _____
13) Has the generator signed the manifest in Box 15? _____
14) Has the transporter signed the manifest? _____
15) Is the Generator Certification Form attached? _____
16) Is the Formaldehyde Section of the Generator Certification Form filled out properly? _____
17) Is the MN number on the manifest? _____

Land Disposal Restriction Form:

1) Is the manifest number on the LDR form the same as the manifest? _____
2) Are the waste codes listed approved by Keystone? _____
3) Is the LDR form signed? _____

Truck Release and Analytical Data Review:

1) Do analytical results match with computer printout? _____
2) Are analytical results below limits? _____
3) Has Lab Tech signed the ICP Release form? _____
4) Have all unusual observations noted by either the technician or lab been resolved? _____

Miscellaneous:

1) Is the weight ticket attached? _____
2) Does the transporter have green card (permit to transport hazardous waste in PA)? _____
3) Is the transporter permitted to haul the waste shipped? _____

Attachment #9

Uniform Hazardous Waste Manifest

Attachment #10

GENERATOR CERTIFICATION FORM

MANIFEST NUMBER: _____ **GENERATOR:** _____

IMPERMISSIBLE DILUTION CERTIFICATION

By signing below, I hereby certify that the shipment corresponding to the above manifest number has sufficient organic content to justify combustion and, thus, has not been impermissibly diluted with regard to any characteristic EPA hazardous waste codes (if any are present).

PCB CERTIFICATION

By signing below, I hereby certify that the shipment corresponding to the above manifest number does not contain PCB's based upon generator knowledge and/or testing with a minimum detection limit of 25 ppm.

HERBICIDE / PESTICIDE CERTIFICATION

By signing below, I hereby certify that the shipment corresponding to the above manifest number does not include certain listed herbicides and pesticides defined as: tri-, tetra-, and pentachlorophenols (i.e., waste code F027); wastes from the production of specific pesticides, such as chlordane (i.e., waste code K032); and 'P' and 'U' wastes defined in 40 CFR §261.33(e) and (f).

DIOXIN / FURANS CERTIFICATION

By signing below, I hereby certify that the shipment corresponding to the above manifest number was prepared in accordance with a system designed to assure Keystone Cement Company that this waste fuel does not contain dioxin/furans.

Generator Certification Form - continued

PEROXIDE / REACTIVES CERTIFICATION

By signing below, I hereby certify that the waste stream corresponding to the above manifest number was prepared in accordance with a system designed to assure Keystone Cement Company that this waste fuel does not contain peroxides at a detection level of 10 ppm, is not air reactive, water reactive, nor subject to polymerization.

BENZENE NESHAPS CERTIFICATION

Please check the item below which indicates your status in regard to the reporting requirements under 40 CFR Part 61, Subpart FF. This statement must accompany each shipment regardless of whether the
referenced regulation is applicable to your operation.

_____ This waste does not contain benzene.

_____ This waste contains benzene, which is not subject to 40 CFR Part 61, Subpart FF.

_____ This waste may contain benzene which is from facilities exempt from the benzene management requirements of 40 CFR Part 61, Subpart FF, per section 61.342(a).

FORMALDEHYDE CERTIFICATION

_____This shipment corresponding to the above manifest number does not contain formaldehyde.

_____This shipment corresponding to the above manifest number does contain formaldehyde.

The concentration is _____

I certify that the information contained in this document is, to the best of my knowledge and belief, true, accurate, and complete with regard to shipment corresponding to the above manifest number. I am aware that if the information provided by me is inaccurate substantial costs may be imposed upon Keystone and its customers, creating the obligation to indemnify and hold harmless Keystone against any cost or other liabilities that may result from my inaccuracies.

I also certify that the referenced waste stream or the process generating the waste has not changed.

Signature: _____

Printed Name: _____

Title: _____ Date: _____

WF- 04
Storage Tank Sampling

I. PURPOSE

In order to test for compatibility, a sample will be taken from each storage tank every morning before any material is unloaded. Additional samples shall be taken any time a tank is discontinued for use.

II. RESPONSIBILTY

It is the responsibility of the Environmental Technicians or trained assignee to ensure compliance with this procedure at all times.

III. EQUIPMENT

A. Storage Tanks #1A, #1B, #2, #3
B. One 1,000 ml sample bottle
C. Chain of custody sticker and form
D. Respiratory equipment, tyvex suit, rubber gloves
E. Container for secondary containment
F. Pipe elbow

IV. PROCEDURE

A. Sample each storage tank prior to unloading to tank.

B. Sample each storage tank any time a storage tank is discontinued for use.

C. Personal protective equipment must be worn.

D. Procedure for sampling at tanks:

1. Ensure tank agitator has been running for at least 30 minutes prior to sampling.

2. Place container under sample line discharge or have absorbent material available to capture any minor spills.

3. Remove cap from sample line and hold the sample bottle under the sample line discharge.

4. Slowly open the valve and fill sample bottle.

5. Close the valve and replace cap on the sample line.

E. Procedure for sampling at pumps:

1. Remove ¾ plug on the ball valve and attach the pipe elbow.

2. Provide secondary containment such as a bucket or an absorbent pad under the elbow discharge.

3. Place the sample bottle under the elbow discharge and slowly open the ball valve to fill the sample bottle.

4. Close the ball valve, remove the elbow, and replace the plug.

F. Complete chain of custody sticker (tank #, date, time, and signature) and place on each sample bottle.

G. Take sample to the laboratory.

1. Deliver sample to laboratory. Sign sample in by completing 'Solvent Truck Sample Log-in Form'.

I. PURPOSE

To identify procedures and safeguard for unloading waste fuel to burn tanks.

II. RESPONSIBILITY

All truck drivers and Environmental Technicians or trained assignees must follow this procedure. There are no exceptions.

III. EQUIPMENT

A. Hard Hat
B. Safety glasses
C. Protective gloves
D. Protective clothing
E. Fall Protection
F. Steel-toe boots
G. Respiratory Equipment
H. Bucket
I. Ground Cable
J. Safety Harness

IV. PROCEDURE

A. Pre-unloading

1. Stage the vehicle to be unloaded on the waste receiving pad.

2. Attach ground cable to vehicle – Confirm green light on grounding station is illuminated.

3. Put on personal protective equipment including protective clothes and respiratory equipment.

4. Attach safety harness, if necessary.

5. Inspect the gasket seal on the unloading hose for cracks, missing pieces, or swelled gasket material. Replace as necessary.

6. Place containment device under the tanker-unloading valve to capture any spillage that may occur when connecting to the tanker truck. Check the tanker truck to ensure discharge valves are 'closed' position. With the tanker valve(s) fully closed, manually remove the tanker discharge cap.

7. Connect the unloading hose to the discharge valve on the tanker.

8. If the tanker is equipped with a vent, remove the vent cap to allow vacuum relief.

9. Don appropriate fall protection.

10. If applicable, unbolt latches on dome lid loosening the bolts on hinge side opposite the operator. Continue around the dome lid until all bolts are off. Open the dome lid and prop open on two bolts opposite of hinge to allow vacuum relief.

11. In the event that vapor balancing is used, connect the vapor balancing line to the tank truck fitting if in use. Secure the connection.

12. If carbon absorption is used as the vapor control method, do not connect vapor-balancing line. If applicable, unbolt the latches on the dome lid, loosening the bolts on the hinge side opposite the operator. For tankers without bolts, tanker must be vented as appropriate to the equipment. Open lid and prop open on the two bolts opposite of the hinge to allow vacuum relief.

B. Unloading

1. After receiving approval to unload from the Environmental Technician or trained assignee, you can proceed to unload.

2. Open vapor-balancing line, if in service.

3. Open internal safety valve, if equipped, and outer external tanker unloading valve.

4. Each unloading pump can receive liquid from one of three hoses. After choosing the hose you will use for unloading, ensure that the other two hoses are secure. Each must be capped and ball valve associated with each hose must be closed. Open valve for hose in use.

5. Open valve immediately before the filter housing (Pit Hog).

6. Bleed all air from tanker through the filter housing (Pit Hog).

7. Bleed all air from filter housing to the pump, using the valve before pump.

8. Communicate with office personnel to confirm approval for unloading has been received. Office personnel will then turn the grinder power own.

9. Open discharge valve and start the grinder, if available. Only open discharge slightly and slowly until pressure is established visibly on sight gauge.

10. Start pump.

11. If flow is not established or stops during unloading, perform one of the following functions.

    a) Purge low-pressure nitrogen through the unloading line.

        1) Verify that liquid level in truck is sufficiently below the manhole to prevent splashing/spills.

        2) Close manhole and secure clamp (ears) tight enough for liquid seal to occur, but loose enough to allow natural venting. Open manhole after blockage has been removed.

        3) Open low-pressure nitrogen supply valve.

        4) Purge nitrogen through hose for a brief period of time.
        5) Close nitrogen supply valve.

        6) Attempt to establish flow through unloading hose.

        7) Repeat 1 through 5 as necessary.

        8) If flow cannot be established via this procedure, proceed to method describe below in 9b.

    b) Unload tanker from top manway

        1) Close discharge valves on trailer

        2) Remove hose

3) Insert hose, using hoist system if available, in manway on top of tanker

4) Start unloading pump

C. Unhooking

1. Determine if waste flow has stopped or if tanker is empty by visual inspection through dome on tanker or if sight gauge indicated 0 psi.

2. If flow has stopped or tanker is empty, close the internal safety valve and external unloading valve on the loaded truck.

3. Shut the valve on the filter housing.

4. Shut off the valve for the unloading hose you are using.

5. Close vapor balancing valve and remove vapor hose, if in service.

6. Turn off the unloading pump.

7. Place cap on truck fitting.

8. Empty hose as necessary utilizing nitrogen purge hose as needed.

9. Shut discharge valve after the unloading pump.

10. Disconnect the hose, cap hose end, and hang on hose rack.

11. Put cap on the tanker discharge fitting where hose was removed.

12. Close dome on tanker.

13. Disconnect the ground cable.

14. Inform driver it is safe to clear the unloading pad and assist him in departure.

15. Implement the procedures detailed in SOP WF-02, Section A. (1) (Box 18 a) for the determination of quantity off-loaded.

16. Transporter must return to the solvent trailer for his copy of the signed manifest.

WF-06
PROCESS CHANGE

I. PURPOSE

To establish requirements for all solvent facility equipment and/or process modifications prior to implementation.

II. RESPONSIBILITY

It is the responsibility of all Environmental Technicians or trained assignees, Resource Recovery Facility Manager, Maintenance Supervisors, Environmental Compliance Manager and Plant Manager, to ensure compliance with this procedure.

III. EQUIPMENT | REFERENCES and/or REQUIREMENTS

A. 'Request for Change' form – FORM_WF-06.01

B. 'Waste Fuel Operation Plan SOP Version Summary' table – TABLE_WF-06.01

Definitions

'Primary Revision' – Changes to a procedure or process activity that are deemed significant or of major consequence. Such changes require issuance of a new revision to the SOP.

'Minor Change' – Changes to an existing procedure that are deemed to be of limited significance and/or do not have major impact on the overall procedure content. Minor changes may range from grammatical corrections to updates in content.

'Process Change' - Any project or activity designed to change what is currently in service. Examples of process change include but are not limited to: changing type of pumps, change routing of pipes, new design, new control valves, different data acquisition unit.

IV. PROCEDURE

Prior to implementing a process, equipment, or standard operating procedure (SOP) change in the hazardous waste fuel area, approval must be given by the Plant Manager.

A. Any individual requesting to make any change shall complete a 'Request for Change' (FORM_WP-06.01 - attached) for approval by the Plant Manager. The form details:

1. Identity of the person(s) and date upon which the change has been requested.
2. Description of the change, including SOP # | Name and a determination if the change is considered a "primary revision" or a "minor change."

3. Explanation of why change is requested.
4. Define what additional standard operating procedure (SOP), if any, needs to be developed or what existing SOP needs to be changed.
5. Identify who will be affected by this change.
6. Secure all necessary Regulatory Approvals. This is done to ensure that any modifications to facility procedures or new and/or replaced equipment meets appropriate environmental and safety regulations, e.g., OSHA Process Safety or NFPA Class and Division requirements.

   NOTE: Regulatory approval may require the assistance of third-parties such as a professional engineer (P.E.).

B. In the event a situation arises which is not addressed by an existing SOP and requires an immediate action, one representative from compliance and one representative from operations will meet to review and develop an appropriate action.

C. Submit 'Request for Change' form to the Manager, Environmental Compliance.

D. The Environmental Manager will review form and discuss with the Plant Manager (or other appropriate key leadership staff) alerting them of the requested change. A determination will be made regarding potential environmental permit modifications through consultation with corporate environmental staff personnel.

E. The request may be returned to the Originator without approval if additional information is needed.
   1. If returned, the Originator will respond to the questions and re-submit the form in a timely fashion.

F. If approval is given, the form will be signed by the Plant Manager and a copy provided to the Originator. The work can proceed.

   The original signed form will be maintained with supporting files in the Main Office.

G. Any proposed change to an Approved Site SOP must be submitted to the Pennsylvania Department of Environmental Protection (the Department) at least fifteen (15) days prior to initiation of changes to site operations, except if submitted as part of a construction certification, permit application, or permit modification.
   1. Each new or revised SOP submittal must include the following:
      a. The new or revised SOP;
      b. The original SOP being revised (if any);
      c. A cover letter identifying the change (if any);
      d. The completed WF-06 'Request for Change Form';
      e. Certification that the proposed SOP will meet relevant OSHA, MSHA, NFPA, or other industry standard, with identification of standard, if applicable; and
      f. Any other documentation needed to show that the change will not affect the safety, health, and environment of site personnel and the public or

otherwise violate the conditions of the facility's Hazardous Waste Storage Permit.

2. If the Department does not respond with fifteen (15) working days, the new or revised SOP may be implemented as long as the SOP does not require changes to site construction or otherwise conflict with the conditions of the facility's Hazardous Waste Storage Permit and if the SOP was not submitted as part of an application for permit, permit modification, or construction certification.
3. Any SOP change requiring or associated with changes to site construction will require an application for permit modification of submitted construction certification, and shall be approved, rejected, or approved with conditions as part of the permit modification application of construction certification.

H. A summary of all Waste Fuel Operation Plan SOPs will be maintained as part of this procedure – presented in the attached TABLE_WF-06.01. The table will be updated as necessary to reflect current version information for all Plan SOPs.

FORM_WP-06.01

Request for Change

REQUEST FOR CHANGE

REQUESTOR: _____

DATE: _____ **REQUEST MADE BY:** _____

Description and reason for change - SOP # | NAME: WF-06 | Process Change

If the change is only to a procedure – is this change considered a: ☐ Primary Revision ☐ Minor Change

Description and reason for change: **(Attach drawings, equipment specifications, etc.)**

Details relative to Section # and page # as well as any referenced documents as appropriate.

Other SOPs that require modification as part of this change:

Which site personnel will require new training to address this change?
Detailed as relevant to this SOP and any other SOPs as noted above.

REGULATORY APPROVALS

	[Circle One]			Initials
Is a permit required for this change?	**Y**	**N**		_____
Is a P.E. review needed?	**Y**	**N**		_____
Has a process safety review been conducted?	**Y**	**N**	**N/A**	_____
Will the change meet relevant industry standards?	(Cite standards, if applicable)			
OSHA _____	**Y**	**N**	**N/A**	_____
MSHA _____	**Y**	**N**	**N/A**	_____
NFPA _____	**Y**	**N**	**N/A**	_____
Other _____	**Y**	**N**	**N/A**	_____

COMMENTS

Details provided as/if appropriate.

Plant Manager Approval: _____
[Signature]

TABLE_WP-06.01

Waste Fuel Operation Plan SOP Version Summary

TABLE WF-06.01 | Waste Fuel Operation Plan SOP Version Summary

Document/Procedure Title	SOP Number	Original Issue Date	Number and Date of Latest Revision	Referenced Documents | Comments
Document Formatting	WF-00	09/18/14	Rev #: 0 | 09/18/14	None
Sampling Bulk Containers	WF-01	6/19/98	2/16/24	
Waste Acceptance/Rejection Procedure	WF-02	6/19/98	12/20/22	
~~Qualifying Waste Fuel Burn Tanks~~	~~WF-03~~	~~6/19/98~~	~~3/12/08~~	**DELETED | VOID**
Storage Tank Sampling	WF-04	6/19/98	9/5/06	
Unloading Waste Fuel to Burn Tanks	WF-05	6/19/98	2/16/24	
Process Change	WF-06	6/19/98	Rev #: 3 | 09/18/2014	FORM_WF-06.01 | TABLE_WF-06.01
Nitrogen System - Inspection and Monitoring	WF-07	6/19/98	9/5/06	
Daily Waste Fuel System Inspection Procedure	WF-08	6/19/98	12/7/09	
Foam System - Inspection and Maintenance	WF-09	6/19/98	NA	
Carbon Canister Replacement Procedure	WF-10	6/19/98	3/12/08	
Liquid Level Alarm Inspection and Maintenance	WF-11	6/19/98	11/17/10	
Resource Recovery Facility Storm Water Management	WF-12	6/19/98	12/7/09	
Carbon Vent Line Condensate Draining	WF-13	6/19/98	5/11/04	
VOC Monitoring	WF-14	6/19/98	8/28/03	
Waste Fuel Feed Lines Purge Procedure	WF-15	6/19/98	11/17/10	
Carbon System - Temperature Device Inspection and Maintenance	WF-18	6/19/98	5/10/02	
Carbon System - Pressure Relief Device Inspection and Maintenance	WF-19	6/19/98	NA	

TABLE WF-06.01 | Waste Fuel Operation Plan SOP Version Summary

Document/Procedure Title	SOP Number	Original Issue Date	Number and Date of Latest Revision	Referenced Documents | Comments
Carbon System - Flame Arrestor Inspection and Maintenance	WF-20	6/19/98	NA	
Carbon System – Carbon Canisters Inspection and Maintenance	WF-21	6/19/98	5/11/04	
Carbon System - CO and O_2 Monitoring System Inspection and Maintenance	WF-22	6/19/98	11/17/10	
Tank System - Temperature Device Inspection and Maintenance	WF-23	6/19/98	5/10/02	
Tank System - Pressure Sensors Inspection and Maintenance	WF-24	6/19/98	5/10/02	
Tank System - Flame Detonator/Arrestor Inspection and Maintenance	WF-25	6/19/98	3/19/13	
Tank System - Emergency Relief/Conservation Vent Inspection and Maintenance	WF-26	6/19/98	NA	
Tank System - Agitators Inspection and Maintenance	WF-27	6/19/98	NA	
Tank System - Structural Integrity Inspection and Maintenance	WF-28	6/19/98	5/21/02	
Piping System - Structural Integrity Inspection and Maintenance	WF-29	6/19/98	11/17/10	
Containment Area - Structural Integrity Inspection and Maintenance	WF-30	6/19/98	11/17/10	
Tank System Incident Response	WF-31	6/19/98	4/30/02	
CO Alarm Response	WF-32	6/19/98	8/31/98	
Operations Exceedance Report	WF-33	6/19/98	11/17/10	FORM_WP-33.01

TABLE WF-06.01 | Waste Fuel Operation Plan SOP Version Summary

Document/Procedure Title	SOP Number	Original Issue Date	Number and Date of Latest Revision	Referenced Documents | Comments
Tank System - Liquid Level Alarm Response	WF-34	6/19/98	8/26/98	
Tank System - High Temperature Response	WF-35	6/19/98	9/5/06	
Tank System - High Pressure Incident Response	WF-36	6/19/98	9/5/06	
~~Emergency Response~~	~~WF-37~~	~~6/19/98~~	~~3/13/13~~	**DELETED | VOID**
Waste Fuels Operations Plan Review and Update	WF-38	6/19/98	5/28/02	
Open Flame and Hot Work	WF-39	6/19/98	9/5/06	
Personal Hygiene Procedure	WF-40	6/19/98	11/17/10	
Personal Protective Equipment Requirements	WF-41	6/19/98	9/5/06	
Respirator Use	WF-42	6/19/98	11/17/10	
Communication Device Procedure	WF-43	6/19/98	3/12/08	
Contractor Safety and Health Program	WF-44	6/19/98	5/28/02	
Emergency Siren	WF-45	6/19/98	5/28/02	
Waste Fuels Operations Plan and SOP Training	WF-46	6/19/98	11/17/10	TABLE_WP-46.01
~~Waste Fuel Flow Meter Controlotron Calibration and Verification~~	~~WF-47~~	~~6/19/98~~	~~5/28/02~~	**DELETED | VOID**
Waste Fuel Flow Meter Security	WF-48	6/19/98	12/7/09	
Waste Fuel Flow Systems Inspection Form	WF-49	6/19/98	3/19/13	
Documentation Requirements for the Waste Fuels Operations Plan	WF-50	6/19/98	3/19/13	
Plant Visitors Policy/Procedure	WF-51	6/19/98	11/17/10	
Purge Storage Tanks with Nitrogen	WF-52	6/19/98	5/1/02	
Confined Space Entry	WF-53	8/26/00	3/12/08	

TABLE WF-06.01 | Waste Fuel Operation Plan SOP Version Summary

Document/Procedure Title	SOP Number	Original Issue Date	Number and Date of Latest Revision	Referenced Documents | Comments
Emergency Equipment Inspection Maintenance	WF-54	8/26/00	10/11/02	
Containment Area Cleanup	WF-55	12/17/02	NA	
Vapor Balance System - Conservation Vent Inspection and Maintenance	WF-56	7/19/01	5/1/02	
Vapor Balance System - Pressure Sensors Inspection and Maintenance	WF-57	7/19/01	5/2/02	
Vapor Balance System - Flame Arrestor Inspection and Maintenance	WF-58	7/19/01	3/19/13	
Vapor Recovery	WF-59	7/19/01	8/3/18	
Truck Staging and Parking Areas	WF-60	8/29/02	10/22/09	
Daily Inspection Procedure for Kiln Residue Management Equipment	WF-62	10/22/09	3/19/13	
~~Truck Staging Area: RMP Limits~~	~~WF-63~~	~~09/18/14~~	~~Rev #: 0 | 9/18/14~~	**DELETED | VOID**
Heated Material and Direct Transfer SOP	WF-64	4/10/15	NA	
Mixing System Operation	WF-65	8/3/18	12/14/23	
Procedure for Chemical Receiving Log (Chemical Reagents)	RL.1	5/5/98	Rev #: 1 | 4/16/08	
Procedure for Chemical Reagents (Preparations) Log Book	RL. 1A	5/5/98	Rev #: 1 | 4/16/08	
Procedure for Certified Standards Receiving Log	RL.2	5/5/98	Rev #: 1 | 4/16/08	
Procedure for Chemical Standards (Preparations) Log Book	RL.2A	5/5/98	Rev #: 1 | 4/16/08	
General Preparation of Samples for Analysis	RL.3	5/5/98	Rev #: 1 | 4/16/08	

TABLE WF-06.01 | Waste Fuel Operation Plan SOP Version Summary

Document/Procedure Title	SOP Number	Original Issue Date	Number and Date of Latest Revision	Referenced Documents | Comments
Temperature of Liquid Fuel Samples	RL.4	5/5/98	Rev #: 1 | 4/16/08	
Determination of the Specific Gravity of a Liquid Fuel Sample	RL.5	5/5/98	Rev #: 1 | 4/21/08	
Calibration of a Graduated Cylinder for Specific Gravity	RL.5A	8/27/99	Rev #: 1 | 4/21/08	
Determination of BTU's and Percent Ash for Liquid and Solid Fuel Samples	RL.6	5/5/98	Rev #: 1 | 4/21/08	
Determination of the Chloride Content of Liquid and Solid Fuel Samples	RL.7	5/5/98	Rev #: 2 | 12/13/13	
Analysis of Fuel Samples for Water Content	RL.8	5/5/98	Rev #: 2 | 12/12/13	
Compatibility Testing for Liquid Fuel Samples (Test #2) Tank Compatibility	RL.9	5/5/98	Rev #: 1 | 4/23/08	
Compatibility Testing for Liquid Fuel Samples (Test #1) Super Compatibility	RL.10	5/5/98	Rev #: 1 | 4/23/08	
Water Compatibility Testing for Liquid Fuel Samples	RL.11	5/5/98	Rev #: 1 | 4/23/08	
Peroxide Testing for Liquid Fuel Samples	RL.12	5/5/98	Rev #: 2 | 10/21/10	
Determination of the Relative Viscosity of a Liquid Fuel Sample	RL.13	5/5/98	Rev #: 2 | 12/11/13	
pH of Liquid Fuel Samples	RL.14	5/5/98	Rev #: 2 | 12/13/13	
Preparation of Fuel Samples for Metals Analysis by Microwave Digestion	RL.15	5/5/98	Rev #: 2 | 12/19/13	
Inductively Coupled Plasma-Atomic Emission Spectroscopy	RL.16	5/5/98	Rev #: 3 | 12/4/13	

TABLE WF-06.01 | Waste Fuel Operation Plan SOP Version Summary

Document/Procedure Title	SOP Number	Original Issue Date	Number and Date of Latest Revision	Referenced Documents | Comments
Mercury Analysis by Cold Vapor Atomic Absorption Spectroscopy	RL.17	5/5/98	Rev #: 1 | 4/28/08	
Preparation of Liquid Fuel Samples for Screening of Aroclors 1016, 1242, 1248, 1254, and 1260	RL.18	5/5/98	Rev #: 2 | 6/20/13	
Gas Chromatography	RL.19	5/5/98	Rev #: 1 | 4/28/08	
Screening for Aroclors 1016, 1242, 1248, 1254, and 1260 using Capillary Gas Chromatography	RL.20	5/5/98	Rev #: 5 | 6/16/17	

WF-07
NITROGEN SYSTEM - INSPECTION AND MAINTENANCE

I. PURPOSE

To ensure a continuous, available supply of nitrogen.

II. RESPONSIBILITY

It is the responsibility of the Environmental Technician or trained assignee to comply with this standard operating procedure.

III. EQUIPMENT

A. Nitrogen tank
B. Heat exchanger
C. Regulators
D. Tank blanketing valves
E. Measuring gauges

IV. PROCEDURE

A. The nitrogen system is owned by a 3rd party vendor and leased to Keystone. As such, the system is inspected and maintained by this vendor. Nonetheless, there are certain daily checks we will perform to ensure proper operation. These checks are defined in the Daily Waste Fuel Systems Inspection standard operating procedure (WF-08).

1. Additional checks will be performed by the vendor's technician each time the vendor delivers product. Items to be checked include:

a. Safety relief valves
b. Condensation on outer shell
c. Regulator settings
d. Ice build-up
e. Level gauges

2. The vendor's 24-hour support number is posted in the solvent office.

WF-08
DAILY INSPECTION PROCEDURE FOR WASTE FUEL SYSTEMS

I. PURPOSE

To visually inspect areas where waste fuel handling occurs; also to keep a record of these inspections as well as the date and type of repairs or remedial action taken to correct all noted deficiencies.

II. RESPONSIBILITY

It is the responsibility of the Environmental Technician or trained assignee to comply with this procedure.

III. EQUIPMENT

A. Hard hat
B. Safety shoes
C. Safety glasses
D. Clipboard with inspection sheet
E. Tank System

IV. PROCEDURE

This procedure covers the daily inspection conducted at the storage area.

A. Each day (00:00 to 23:59) the storage facility inspection must be conducted. Use sheet entitled "Solvent Facility Daily Inspection Form - Tanks, Associated Areas and Devices" (Attachment #1).

B. Using the inspection form, note any deficiencies applicable to the area inspected.

C. In each one of the specific areas, one of the following must be recorded on the form:

1. Acceptable

2. Unacceptable

D. If acceptable is checked, nothing further needs to be recorded for that specific area for that day.

E. If unacceptable is checked, the 'Date and Nature of Repairs or Corrective Action' column must be filled in. Supervisor must be notified. Refer to WF-31 to determine if an Incident Report is required.

F. There are eleven main categories to be inspected, and each category has a list of specific areas to check.

1. Containment devices (Unloading pad, temporary waste storage area (Pier 2 of Kiln No. 2), for Tanks #1A and #1B, for Tanks #2 and #3)
   a. Check containment surfaces for cracks that would allow liquid material to seep through.
   b. Check diked area to ensure no waste material has accumulated. If material has accumulated, remove from the area.
   c. Check for staining of surrounding area around all containment areas.
   d. Check containment areas for accumulated stormwater not removed within 24 hours.

2. Safety Devices
   a. Check warning signs for placement and legibility.
   b. Check fire extinguisher placement.
   c. Check for fluid level at eyewash station located in the storage facility office.
   d. Check for obvious damage to the emergency shower.
   e. Check that communication devices are available.
   f. Check surveillance cameras for clean and clear glass. If not clean or clear, contact Electrical Supervisor. Check for adequate lighting.
   g. Check for adequate safety items and clean-up supplies as described in PPC Plan.

3. Foam System
   a. Confirm the system operational light on the foam system control panel is working. It should be green.
   b. Walk foam system piping and inspect for leaking or damaged pipes.
   c. Inspect bladder tank and pump for leakage or damage.

4. Tanks
   a. Check for any corrosion at the shell identified by leaks in the shell or rust flakes on the shell.
   b. Check for staining or discoloring of the paint on each tank.
   c. Check for any waste material leakage from valves or piping associated with each tank identified by an accumulation of waste material underneath valve or pipe.
   d. Check that all tank openings (manholes, caps, flanges, and emergency vents) are properly secured.
   e. Check for condition of temperature monitors and record the tank temperature of each storage tank on the Instrumentation Log (attached). If temperature is greater than 30° above background, stop the unloading process and notify Supervisor immediately. Follow Standard Operating Procedure WF-35.
   f. Check the condition of pressure monitors. Record tank pressure on instrumentation log. If pressure is above 1.8 psig, stop the unloading process and notify Supervisor immediately. Follow Standard Operating Procedure WF-36.
   g. Check the condition of measuring devices. Record tank level on instrumentation log.
   h. Inspect flame detonator. Check for any staining or leakage.
   i. Inspect agitator for proper operation.
   j. Record nitrogen flow rate on daily instrumentation log.

5. Tank Trucks
   a. Visually inspect all spotted tankers to determine that there are no visible openings or gaps through which organics could be emitted.

   b. Close any opening that is found. If an opening cannot be closed, contact the facility supervisor for further guidance.

6. Pumps and Piping
   a. Follow each of the unloading pipes from each pump to the storage tank and from the storage tank to the kiln. Also, follow the piping on the vapor control system from the storage tank to the carbon system. Check each system for any abnormal situations such as leaks or staining.
   b. Visually inspect all pumps for liquid leakage at intake and discharge flanges, pump head, and pump housing.
   c. Check pump for abnormal vibration or noise. Significant vibration or noise is a sign of possible trouble.
   d. Visually inspect seal for leakage of liquid at seal gland and fittings.

e. Check buffer tank sight glass for discoloration of solution. (Changing from light to dark)
f. Check buffer tank sight glass for normal operating level. Normal level should be approximately two inches above the top hose connection of tank.
g. Check temperature of feed pumps #1 (Kiln) and #3 (DDC) and recirculation pumps #4 (1A&1B) and #2 (2 & 3). Normal temperature is less than 130°F. Record on Instrumentation Log.
h. Check air/nitrogen pressure on buffer tank. Record on Instrumentation Log.

7. Resource Recovery Roadways
   a. Check for any spills on roadway. If spills are present, clean immediately.
   b. Check for any discoloration of the nearby soil.

8. Surrounding Areas
   a. Check for any rags or trash lying around storage area.
   b. Check that the retaining walls are clean.

9. Carbon System
   a. Inspect carbon canister daily for leakage or damage.
   b. Inspect carbon inventory. At least one spare canister must be in inventory. If not in inventory, notify Supervisor and re-order immediately.
   c. Record CO and O_2 instrument reading on daily instrumentation log. If CO reading is above 500 and not already stopped, stop the unloading process and notify Supervisor immediately.
   d. Record temperature readings on daily instrumentation log.
   e. Inspect flame arrestor and pressure relief devices. Check for any staining or leakage.

10. Nitrogen System
    a. Vessel and heat exchanger daily inspections

       1) Record the nitrogen level on the instrument reading log. If level is below 30 psig, contact the vendor for a delivery.
       2) Inspect the heat exchanger coil. If more than one-half of the unit is encased in ice, contact the vendor.
       3) Contact the vendor if excessive ice encases any operating device such as relief valves or valve handles. Contact the vendor if ice forms a solid bridge between the underside of the tank and the foundation or if ice forms on any overhead line.

4) Remove any debris, weeds, or vegetation from the nitrogen pad.
5) Cease unloading fuel if nitrogen system is not operational.

b. Regulators dial inspections

1) Visually inspect regulators in nitrogen system. If malfunctioning or damaged, notify supervisor and repair.

c. Nitrogen blanketing valve daily inspection

1) Visually inspect blanketing valves. If malfunctioning or damaged, as determined by the oxygen in the tank system, notify supervisor of repair.

11. Drums
    a. Check that drums being used to store hazardous wastes have a lid and the ring is secured.
    b. Check that the drums are dated and labeled.
    d. Check that drums are stored in containment area.
    e. Inspect sump at drum storage area for build-up of debris or dirt.

G. Description of column headings

1. Acceptable
   If everything in that specific area is acceptable, working properly, and in its proper place, check the column marked 'Acceptable.'

2. Unacceptable
   If an area is unacceptable, malfunctioning, or missing from its proper place, check the column marked 'Unacceptable.' Complete Incident Report; notify Supervisor.

3. Date and Nature of Repair or Corrective Action
   When a repair is made to an area, this column is checked as well as the date of repair. If a repair cannot immediately be made, record date, time and person contacted to make the repair. Complete an Incident Report.

Attachment #1

SOLVENT FACILITY DAILY INSPECTION FORM
EMERGENCY EQUIPMENT, TANKS, ASSOCIATED AREAS AND DEVICES

ate: Time: Signature:

ITEM	POTENTIAL PROBLEMS (Criteria for Acceptable Status (ACC))	ACC	UN-ACC	DATE/NATURE OF REPAIR OR CORRECTIVE ACTION
EMERGENCY EQUIPMENT				
Containment Devices	Cracked or spalled? (No)			
	Liquid in containment pad/sump? (No)			
	Staining of surrounding area? (No)			
Safety Devices and Equipment	Signs missing/illegible/damaged? (No)			
	Fire extinguishers missing/not charged or inspected/obstructed? (No)			
	First-aid supplies missing/damaged/inaccessible? (No)			
	Contingency plan available? (Yes)			
	Eyewash/shower (Fluid present in eyewash and shower not damaged)			
	Telephone/radios/pager system (Available and operational)			
	Lighting/cameras/TV monitor (Working and unobstructed)			
	Clean-up supplies missing/depleted? (No)			
Foam System	Light on foam system control panel (Working and green)			
	Piping (No leaks or damage)			
	Bladder tank and pump (No leaks or damage)			
Tank	Corrosion of shell (No leaks or rust flakes)			
	Overflow or overflow staining? (No)			
	Valve leakage? (No)			
	Tank openings properly secured? (Yes)			
	Tank temperature (<30 deg. above ambient & pressure <1.8 psig)			
	Flame detonation (No stains or leaks)			
	Agitators (Operational)			
Tank Trucks	Visible openings (None)			
Pump & Piping	Piping or flange leakage - liquid fuel? (No)			
	Piping or flange leakage - solvent vapors? (No)			
	Seals (No leakage)			
	Buffer tank air pressure (Operational)			
	Pump oil level (Operational)			
Yard Roadways	Waste spilled on roadways? (No)			
	Stained areas? (No)			
Surrounding Area	Contaminated rags/trash around? (No)			
	Retaining wall clean? (Yes)			
Carbon System	CO and O_2 (CO < 500, O_2 < 5%)			
	Flame arrestor (No stains or leaks)			
	Canister (No stains or leaks & at least one spare available)			
	Thermocouples (Operational)			
	Pressure relief (No stains or leaks)			
Nitrogen System	Vessel and heat exchanger (N level > 30 psig and operational)			
	Blanketing valve (Not damaged or malfunctioning)			
Drums	All containers closed, properly sealed, and in containment area? (Yes)			
	Containers labeled? (Yes)			

COMMENTS:

Attachment #2

KEYSTONE CEMENT COMPANY
Resource Recovery Department
Daily Instrumentation Log

Signature _____ **Date** _____

Instrument			Time	Value	Acceptable
Temperature	Tanks [<30o Above Ambient]	1A			
		1B			
		2			
		3			
	Ambient				
	Carbon Cannisters	1			
		2			
		3			
	Pumps [<130o F]	1 (Kiln)			
		2 (2&3 recirc)			
		3 (DDC)			
		4 (1A&1B Recirc			

Instrument			Time	Value	Acceptable
Nitrogen Pressure to Mechanical Seals	Unloading Pumps	2			
		3			
	Pumps	1 (Kiln)			
		2 (2&3 recirc)			
		3 (DDC)			
		4 (1A&1B Recirc			

Nitrogen Pressure to the Tank Blanketing Valves	1A & 1B			
	2 & 3			

Nitrogen Flow to the Agitator Seals	1A			
	1B			
	2			
	3			

Pressure	Tanks [<1.8 psig]	1A			
		1B			
		2			
		3			

Liquid Tank Levels	Nitrogen			
	1A			
	1B			
	2			
	3			

Carbon Readings	O2 [<5%]			
	CO [<500 ppm]			

WF-09
FOAM SYSTEM - INSPECTION AND MAINTENANCE

I. PURPOSE

To follow a written inspection and maintenance plan for the foam suppression system to ensure proper operation.

II. RESPONSIBILITY

It is the responsibility of the Environmental Technician or trained assignee to comply with this standard operating procedure.

III. EQUIPMENT

A. Daily inspection form
B. Foam system master control panel
C. Foam system

IV. PROCEDURE

The waste receiving and storage areas have been designed with a foam fire suppression system. This foam system will be utilized in the event of a large spill or fire. The system is designed to place a protective foam coating over material released in any containment area.

This standard operating procedure describes the procedure to inspect and maintain the system.

A. Daily Inspection

1. The daily inspection items are covered under the Daily Waste Fuel Systems Inspection standard operating procedure (WF-08).

B. Quarterly Inspection

1. Each quarter, an outside professional fire protection contractor shall inspect the system and prepare a written certification confirming the operability of the system.

2. Typical items to be inspected are:
   a. Alarm devices - operation, functional
   b. Control valves - condition, operation, security
   c. Gauges - condition, operation
   d. Buildings - heating, condition, coverage
   e. Hangers and bracing including seismic bracing
   f. Pipe and fittings - condition visually from external view and only exposed piping
   g. Sprinklers to be visually inspected for proper temperature, quantity, location/spacing
   h. Spare sprinklers and storage cabinet
   i. Main drain - condition and operation where permissible
   j. Bladder/foam mixing tank - inspected quarterly

   Items may be added or deleted to this list based on recommendation from the fire protection professionals.

C. Incident Response

1. If the foam system is discharged at any time, follow the standard operating procedure for incident reporting.

2. Contact the professional fire protection company to refill the bladder tank.

3. Waste fuel cannot be received until a supplemental foam system is made available or the tank is refilled.

WF-10
CARBON CANISTER REPLACEMENT PROCEDURE

I. PURPOSE

To define the procedure for proper removal and replacement of a spent carbon canister. Canisters will be replaced when reading exceeds 180 ppm VOC above background between primary and polishing unit.

II. RESPONSIBILITY

It is the responsibility of the Environmental Technicians, Maintenance personnel, or trained assignees to comply with this procedure.

III. EQUIPMENT

A. If applicable - Spark resistant tools*
B. Carbon canister
C. Labels for hazardous waste
D. Personal protection equipment

*In the event spark resistant tools are not utilized, the atmosphere must be monitored to confirm explosive conditions do not exist prior to commencement of work.

IV. PROCEDURE

A. Removal of the canister (Refer to Drawing V6654D.)

1. Close the 8" inlet ball valve to the canister.

2. Purge nitrogen through canister for 1 to 5 minutes or until oxygen level reaches 5% or less.

3. Close nitrogen valve.

4. Close 8" discharge ball valve from canister.

5. Remove pressure relief device and temperature device from canister and plug openings.

6. Disconnect liquid nitrogen fitting from carbon tank.

7. Disconnect the carbon unit from the inlet piping. Quickly place flange cap on inlet piping; secure cap.

8. Disconnect the carbon unit from the discharge piping. Be sure to use spark resistant wrenches, if necessary. Quickly place flange cap on discharge piping; secure cap.

9. Disconnect grounding strap.

10. Place hazardous waste label on canister.

11. Remove carbon canister from pad and place in the secure storage area.

12. Add water to carbon as necessary.

B. Installing new carbon canister

1. Place carbon canister on carbon pad.

2. Connect grounding strap.

3. Connect discharge flange.

4. Connect inlet flange.

5. Install pressure relief device.

6. Install liquid nitrogen line.

7. Install temperature device.

8. Open 8" discharge and inlet ball valves when ready for use.

9. Purge nitrogen through carbon until oxygen levels are below 5%.

WF-11
LIQUID LEVEL ALARM INSPECTION AND MAINTENANCE

I. PURPOSE

To ensure the proper operation of the low level and high level devices and take all possible steps to avoid a waste fuel spill due to overfilling a tank and/or to prevent any unauthorized blending of waste fuels.

II. RESPONSIBILITY

It is the responsibility of the Resource Recovery Manager or his trained assignee to initiate a quarterly simulated test of the low level and high level devices on each of the four hazardous waste fuel tanks.

It is the responsibility of the Control Room Operator or his trained assignee to make sure that the light and annunciator in the Control Room work properly during the test and to document same.

It is the responsibility of the Resource Recovery Manager or his trained assignee to make sure the light and audible alarm work on the unloading pad and that the proper unloading pump shuts off when the applicable hazardous waste fuel tank high level alarm is initiated.

III. EQUIPMENT

A. Low level device
B. High level 1 device
C. High level 2 device
D. High level 3 device
E. Control Room light and audible annunciator
F. Unloading pad light and audible alarm
G. Communication device

IV. PROCEDURE

A. Low Level, High Level 1, and High Level 3 Devices (liquid level pressure sensor)

1. At least quarterly, the Resource Recovery Manager or trained designee shall simulate a low level, high level 1, and high level 3 alarm test.

2. The Control Room and solvent office must be notified when the test is to be conducted.

3. The Resource Recovery Manager or trained assignee shall simulate a level alarm condition.

4. Resource Recovery Manager or trained assignee shall verify that the alarm annunciator and light are activated.

5. Resource Recovery Manager or trained assignee shall verify unloading pump does not have power.

6. Control Room Operator or trained assignee shall verify that the light and annunciator in the Control Room are working properly.

7. Resource Recovery Manager or trained assignee will complete 'Tank Level Alarms - Unloading Pad' inspection form.

B. High Level 2 Device (physical probe or radar device)

At least two Environmental Technicians or trained assignees must be present when testing high level 2 devices. Each must have a two-way radio. One Technician or trained assignee will be in the solvent trailer watching the tank gallon read-out. The other will be at an unloading station.

1. Each tank must be checked at least once each quarter.

2. Notify Control Room of testing.

3. Solvent tank will be taken to high level 1.

4. Verify that alarm and light (red) activated.

5. Verify that pump does not have power.

6. If light, alarm, or pump do not function properly, stop unloading immediately. Contact Supervisor.

7. If high level system operates properly, wait 30 seconds and restart pump.

8. Solvent tank will be taken to preset high level 2.

9. Verify that alarm and light (orange) activated.

10. Verify that pump shut off and will not allow you to restart.

11. If light, alarm, or pump do not function properly at present high level 2, stop unloading immediately. Contact Supervisor.

12. The Resource Recovery Manager or trained assignee will complete the high level 2 alarm quarterly report.

13. If test fails, please follow SOP WF-31 for incident response.

Example
Attachment #1

KEYSTONE CEMENT COMPANY **WASTE LIQUID FUEL**

TANK LEVEL ALARMS
(Control Room & Unloading Pad)

Quarterly Inspection

Component	Status				Comments/Action Taken
	1A	1B	2	3	(specify unit - 1A,1B,2, or 3)
PUMP SHUT OFF*					
LOW LEVEL LIGHT					
LOW LEVEL ANNUNCIATOR					
HIGH LEVEL 1 LIGHT					
HIGH LEVEL 1 ANNUNCIATOR					
HIGH LEVEL 3 LIGHT					
HIGH LEVEL 3 ANNUNCIATOR					

*Applicable only to the Unloading Pad inspection

This certifies that I have completed this quarterly inspection.

Control Room

TITLE: _____

NAME (print): _____

SIGNATURE: _____

DATE: _____

Unloading Pad

TITLE: _____

NAME (print): _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS _____ *DATE* _____

Example
Attachment #2

KEYSTONE CEMENT COMPANY WASTE LIQUID FUEL

HIGH LEVEL 2 ALARM

Quarterly Inspection

Component	Status				Comments/Action Taken
	1A	1B	2	3	(specify unit - 1A,1B,2, or 3)
UNLOADING PAD HIGH LEVEL 2 ALARM					
UNLOADING PAD HIGH LEVEL 2 LIGHT					
CONTROL ROOM HIGH LEVEL 2 ALARM					
CONTROL ROOM HIGH LEVEL 2 LIGHT					
PUMP SHUT OFF					

This certifies that I have completed this quarterly inspection.

TITLE: _____

NAME (print): _____

SIGNATURE: _____

DATE: _____

DATE

DOCUMENT COORDINATOR'S INITIALS _____ _____

WF-12
RESOURCE RECOVERY FACILITY
STORM WATER MANAGEMENT

I. PURPOSE

To segregate and analyze rainwater collected in the HWF storage containment areas for hazardous determination and selection of disposal methodology

II. RESPONSIBILITY

Environmental Technicians or trained assignees and Shift Foremen are responsible for this procedure.

III. PROCEDURE

A. Rainwater accumulating in any hazardous waste storage area must be pumped to one of the unqualified storm water storage tanks.

B. Prior to pumping, a visual test to verify that water is homogeneous and is not multi-layered or obviously contaminated must be completed. In the event storm water is not homogeneous or is obviously contaminated, refer to item K below.

C. The Environmental Technician or trained assignee shall take a representative sample from the applicable unqualified storm water storage tank.

D. The sample will be labeled and submitted to the laboratory for the following tests: pH, flash point, TCLP metals, and organic parameters in Attachment No. 3.

E. Analytical results will be reviewed by the Environmental Technician or trained assignee for hazardous determination.

F. If the storm water meets the following criteria, it may be released to Operations for use in the cement manufacturing process (via the qualification form attached).

Attachment #1

Stormwater Tank Qualification Form

KEYSTONE

KEYSTONE CEMENT COMPANY

ROUTE 329, P.O. BOX A, BATH, PA 18014-0058 TELEPHONE (610) 837-1881

STORMWATER TANK QUALIFICATION

On _____ I received analytical results from the laboratory and compared those results with Keystone's acceptable limits.

My signature below indicates that the following stormwater tank is, at this time, qualified to use in the cement manufacturing process.

Tank No: _____

4-Digit ID No.: _____

_____ _____

Signature Date

Shift Foreman
Acknowledges receipt
Of qualification forms

_____

Signature

Attachment #2

KEYSTONE CEMENT COMPANY

STORMWATER QUALIFICATION RECORD

					NOTIFICATION TO STOP WATER FEED TO THE CEMENT MANUFACTURING PROCESS		
TANK	4-DIGIT ID NO.	SIGNATURE	DATE	TIME	DATE	TIME	SIGNATURE

Attachment #3

Parameter	Check
pH	
Ignitability, flash point	
TCLP	
Arsenic	
Barium	
Cadmium	
Chromium	
Lead	
Mercury	
Selenium	
Silver	
Chlordane	
Endrin	
Heptachlor	
Heptachlor epoxide	
Gamma-BHC (Lindane)	
Methoxychlor	
Toxaphene	
2,4-D-TCLP extracted	
2,4,5-TP (Silvex)	
Pyridine	
Phenol	
Bis (2-chloroethyl) ether	
2-Methylphenol	
Hexachloroethane	
3/4-Methylphenol	
Total Cresol	
Nitrobenzene	
Hexachlorobutadiene	
2,4,6-Trichlorophenol	
2,4,5-Trichlorophenol	
2,4-Dinitrotoluene	
3,4,6-Tetrachlorophenol	
Hexachlorobenzene	
Pentachlorophenol	

WF-13
CARBON VENT LINE
CONDENSATE DRAINING

I. PURPOSE

To ensure the safe and proper management of vent line condensate.

II. RESPONSIBILITY

It is the responsibility of the Resource Recovery Manager or trained assignee to ensure compliance with this procedure at all times.

III. EQUIPMENT

A. Ball valve lock
B. Key
C. Flammable safety container (FSC)
D. 55-gallon drum
E. Electrical bonding strap
F. Personal protective equipment - respirator, gloves, tyvek suit, safety glasses

IV. PROCEDURE

When performing this procedure the following safety equipment must be worn: tyvek suit, protective gloves, respirator, and, safety glasses.

A. Each vent line drain will be emptied daily.

B. Take a FSC to each drain.

C. Place FSC under drain.

D. Remove lock on ball valve.

E. Open ball valve.

F. Leave ball valve open until condensate stops flowing.

G. Close ball valve.

H. Lock valve in 'closed' position.

I. Repeat steps 'B through H' at each drain.

J. After all vent line condensate has been removed from each drain, place contents of pail (bond drum and pail) into a 55-gallon properly labeled hazardous waste storage drum.

Attachment #1

KEYSTONE CEMENT COMPANY HWF TANK FARM

VENT LINE CONDENSATE DRAINS

Daily Inspection

Location	YES	NO	Comments
CARBON TANK 1			
CARBON TANK 2			
VAPOR BALANCE 1 Unloading Pad East			
VAPOR BALANCE 2 Unloading Pad West			
VAPOR BALANCE 3 Containment Pad – Tanks 2 & 3			

This certifies that I have completed this daily inspection.

TITLE: _____

NAME _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS _____ *DATE* _____

WF-14
VOC MONITORING

I. PURPOSE

To ensure compliance with appropriate regulations and permits.

II. RESPONSIBILITY

It shall be the responsibility of the Environmental Technician or trained assignee to comply with this procedure.

III. EQUIPMENT

A. Standard safety equipment
B. TVA-1000 meter or similar (referred to as 'instrument')
C. Log with equipment and ID numbers
D. Leak report forms
E. Calibration kit
F. Incident report
G. Calibration sheet

IV. PROCEDURE

This procedure covers the monitoring of VOCs (volatile organic compounds) from meter calibration and start-up, PID (photoionization detector) and FID (flame ionization detector) to actual VOC testing and filling out a leak report.

A. TVA-1000 Meter

1. Start Guide - PID
   a. Turn on machine. The TVA will perform a diagnostic self-test.
   b. Press 'Control' key.
   c. Press '1' to turn on pump.
   d. Press '1' to Run.
   e. Press 'Exit' to read PID.

2. Calibration
   a. Allow machine to warm up 2 to 3 minutes.
   b. Press 'Exit' to go to Main Menu.

c. Press '2' for Set-up.
d. Press '1' for Calibration.
e. Press '1' for Zero.
f. Press '2' for PID.
g. Introduce zero air and press 'Enter'.
h. TVA will display 'Accepted' when finished and go directly to Calibration Menu.
i. Press '3' for Span.
j. Press '2' for PID.
k. Introduce isobutylene gas and press 'Enter'.
l. TVA will display 'Accepted' when finished and go directly to Calibration Menu.
m. Press 'Exit' two times to go to Main Menu.
n. Press '1' to Run.
o. Press 'Exit' to get PID reading.
p. TVA is ready to use.

3. Shutdown
   a. Press 'Exit' to stop.
   b. Press 'Control' to go to Control Menu.
   c. Press '1' to turn off pump.
   d. Press 'Control' to go to Control Menu.
   e. Press '3' to turn off PID.
   f. Press 'Off' to turn off machine.

4. If calibration and system self-test are acceptable, complete daily calibration form.

B. TVA-1000 Meter

1. Start-up - FID
   a. Turn red hydrogen supply valve to 'On'.
   b. Wait 2 to 3 minutes for hydrogen fuel to fill the FID chamber.
   c. Press 'On'. The TVA-1000 will perform a 15-second diagnostic self-test.
   d. Press 'Control' key.
   e. Press '1' to turn pump on.
   f. Press 'Control' key.
   g. Press '2' to ignite.
   h. Press '1' to run.

Note: If "Warning: FID Flame out! Ignite Again" message appears, press 'Exit' to acknowledge the alarm and wait 2 to 3 minutes. Repeat steps 'f' and 'g' to attempt ignition again.

2. Calibration – Use certified gas specified by the instrument manufacturer, typically isobutylene (50 to 200 ppm) and methane (5000 to 15,000 ppm)
   a. Allow machine to warm up 2 to 3 minutes.
   b. Press 'Exit' to go to Main Menu.
   c. Press '2' for set-up.
   d. Press '1' for calibration.
   e. Press '1' for zero.
   f. Press '3' for FID.
   g. Introduce the probe to the zero air bottle.
   h. Press 'Enter' to start.
   i. TVA will display 'Accepted' when finished and go directly to Calibration Menu.
   j. Disconnect probe from zero air bottle.
   k. Press '3' for span.
   l. Press '3' for FID.
   m. Introduce probe to methane gas.
   n. Press 'Enter' to start.
   o. TVA will display 'Accepted' when finished and go directly to Calibration Menu.
   p. Press 'Exit' two times to go to Main Menu.
   q. Press '1' to run.
   r. Introduce methane gas again.
   s. Check FID actual reading and compare to gas concentration on bottle.
   t. TVA is ready to use if actual reading and gas concentration on the bottle is within +/- 10%.
   u. Disconnect the probe from methane gas bottle.

3. Shutdown
   a. Press 'Exit' to stop.
   b. Turn red hydrogen valve off.
   c. Press 'Control' to go to Control Menu.
   d. Press '1' to turn off pump.
   e. Press 'Control' to go to Control Menu.
   f. Press '3' to turn off FID.
   g. Press 'Off' to turn off machine.

4. If using an instrument other than the TVA-1000, follow manufacturer's calibration and maintenance procedures.

C. Testing

1. A reading of 10,000 ppm or more is a leak.

2. Initial testing is done monthly. If no leak is detected for a given pump, valve, or flange for a period of two months, then the piece of equip-ment is required to be monitored quarterly (sections 264.1052, 264.1057, 264.1058).

3. Each valve is tested at the stem protruding through the valve body and at the threaded connection on both ends.

4. Each flange is tested around the gap in which the gasket fits between the two joining surfaces.

5. Each pump is tested at the shaft protruding through the body of the pump at the packing flange.

6. If the sampling point is obstructed by a secondary containment device, take the sample along the perimeter of the secondary containment device.

7. Unidentifiable detectable solvent odor will be considered a possible leak and must be investigated. Testing will be performed to identify if a leak exists.

8. The Environmental Technician or trained assigned doing the testing will cross reference the ID number on the valve, flange, or pump with the corresponding ID number on the log to report whether there is a leak [Y=leak detected; N=no leak detect (< 10,000 ppm)].

9. If a leak is detected, a report must be filled out and the leak must be repaired as defined in Section D.2. Failed equipment must then be monitored monthly until there are two consecutive months with no leak.

D. Leak Reports

1. A leak report and incident response report (attached) must be filled out when equipment fails to read <10,000 ppm.

2. Corrective action consistent with the "Tank System Incident Response" SOP must be initiated.

3. After repair, the failed equipment must be retested.

4. Leak report and incident response report are put in file to be retained by the Company.

E. Daily Inspection of Carbon Adsorption Units

1. Take monitoring instrument to an area out of doors within the storage facility.

2. Obtain and record background VOC reading.

3. Take monitoring instrument to the sampling port between the two in-series carbon canisters.

4. While truck is being unloaded into any one of the storage vessels, move the instrument probe slowly around sampling port. Record VOC concentration.

5. If your reading is greater than 180 ppm (Step 5) above the background reading:
   a. Stop unloading as soon as practicable.
   b. Remove middle polishing unit and/or switch to other carbon canister.
   c. Replace carbon units as necessary.

Attachment #1

KEYSTONE CEMENT COMPANY

TVA 1000A CALIBATION

INSPECTOR: _____

SERIAL NUMBER: _____

SYSTEM SELF TEST: ACCEPTABLE _____ UNACCEPTABLE _____

CARBON TANK CALIBRATION (PID) N/A _____

ZERO AIR ACCEPTABLE _____ UNACCEPTABLE _____

ISOBUTYLENE ACCEPTABLE _____ UNACCEPTABLE _____

SUBPART BB (FID) N/A _____

ZERO AIR ACCEPTABLE _____ UNACCEPTABLE _____

METHANE ACCEPTABLE _____ UNACCEPTABLE _____

SPAN CHECK (after taking readings)

	What ppm is calibration gas	What is the TVA reading	Acceptable limit	
Methane	_____	_____	+/- 10%	Acceptable _____
				Unacceptable _____

SIGNATURE: _____

DATE: _____

TIME: _____

BACKGROUND _____

HIGHEST READING _____

Attachment #2

KEYSTONE CEMENT COMPANY HWF TANK FARM

CARBON ABSORPTION

Daily VOC Reading

			Comments
TIME			
BACKGROUND READING			
< 180 ppm ABOVE BACKGROUD **			
"DID NOT UNLOAD INTO TANK FARM"			

** Must be unloading while taking reading.

This certifies that I have completed the daily meter reading.

TITLE: _____

NAME _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS _____ *DATE* _____

Atta. .ent #3

KEYSTONE CEMENT COMPANY
Bath, PA

Leak Detection Log

EPA ID# PAD002389559

1 Detection Equipment

Type: _____

Equipment ID#: _____

2 Date Leak Found: _____

2a Equipment ID#: _____

3 Date(s) of Attempted Repair:

_____
_____
_____
_____

3a Method of Repair:

_____
_____
_____
_____

3b Above 10,000 ppm?

Y N (circle one)
Y N
Y N
Y N

4 Repair Delayed:

_____
_____
_____
_____
_____
_____

4a Reason(s) for Delay:

_____
_____
_____
_____
_____
_____

4b Expected Date of Repair:
(if more than 15 days from leak detection)

_____

4c Actual Date of Repair:

_____

5 Leak cannot be repaired without WMU shutdown or leak is inaccessible.

Person making determination:

_____
Print Name

_____
Date

_____
Signature

_____
Date

Name of Person Completing Log

_____
Print Name

_____
Date

_____
Signature

_____
Date

WF-15
WASTE FUEL FEED LINES PURGE PROCEDURE

I. PURPOSE

To set forth the proper procedure for purging solvent lines to storage tanks #1A, #1B, #2 and #3 and feed line to kiln burner floor and DDC burner floor. This is a routine maintenance procedure and not an incident.

II. RESPONSIBILITY

It shall be the responsibility of the Environmental Technician, Shift Foremen or trained assignees to comply with this procedure fully.

III. EQUIPMENT

A. Personal protective equipment
B. Adjustable wrench
C. 3/4" pipe thread Chicago fitting
D. Drain pipe
E. Bucket
F. Nitrogen supply

IV. PROCEDURE

A. Purge Kiln Feed System

1. Notify Shift Foreman, Control Room Operator or their assignee that you will be purging the system.

2. Shut down kiln waste fuel feed pump by calling Control Room to shut off pump OR turning off switch located by the pump.

3. Close ball valve on inlet side of kiln feed pump.

4. Close ball valve on discharge side of kiln feed pump.

5. After both valves are shut, remove plug on ball valve on the inlet side of the pump. Install Chicago fitting; use handle of adjustable wrench across the ears of the fitting to snug tight. Attach nitrogen line and turn on pressure.

6. Open valve on inlet side of pump and blow back into tank until tank pressure rises. Close valve on inlet side.

7. Open valve on the discharge side of the pump. Open nitrogen ball valve to pressurize the line. Pressure should rise on the gauge to approximately 100 psi. After a short period, the pressure should drop to approximately 50 psi. Shut off nitrogen to the line. Bleed off nitrogen in hose then disconnect hose.

8. Using the handle of the adjustable wrench across the ears, loosen the Chicago fitting and remove. Install the L-shaped pipe (hand tighten only). Hang the bucket by its handle onto this pipe.

9. Nitrogen must now be bled out of the feed lines. Open the valve on the discharge side of the pump going to the panel. Slowly open the ¾" ball valve and bleed the line until nitrogen stops. Close ¾" ball valve. Open valve on inlet side of pump and slowly open ½" ball valve, bleed and prime the pump. Close ¾" ball valve. Remove L-shaped pipe and reinstall plug and snug tight.

10. Call Control Room to restart pump. Watch to see that pressure comes up to normal level.

11. Contact Shift Foreman or Control Room Operator or trained assignee to restart hazardous waste fuel.

B. Purge 1A and 1B Recirculating System

1. Locate all tools and equipment to perform this procedure.

2. Shut off recirculating pump with switch on the wall by the pump.

3. After the pump has come to a complete stop, close two valves. The first one is the valve on the inlet side; the second is on the discharge side. Confirm that the bypass valve above the grinder is closed.

4. After all valves are shut, using a wrench, remove the plug from the ¾" ball valve on the discharge side of the pump. Install Chicago fitting. Use handle of adjustable wrench across the ears of the fitting to snug tight. Attach nitrogen line and turn on pressure.

5. Open valve on inlet side of pump and blow back to tank until tank pressure rises. Close valve on inlet side.

6. Open valve on the discharge side of the pump. Open ¾" ball valve to pressurize line. Pressure should rise on the gauge to approximately 100 psi. After a short period, the pressure should drop to approximately 50 psi. When this happens, close the valve to discharge side of pump. Slowly open the valve. After a few seconds, the nitrogen will have displaced the liquid and the valve can be shut. Shut off nitrogen to the line. Quickly, open and close valve to relieve pressure in the hose. Disconnect hose.

7. Using the handle of the adjustable wrench across the ears, loosen the Chicago fitting and remove. Install L-shaped pipe (hand tighten). Hang the bucket by its handle on this pipe.

8. Nitrogen must now be bled out of the discharge and feed lines. Open the valve on the discharge side of the pump going to the storage tanks. Slowly open the ¾" ball valve and bleed the line until nitrogen stops. Close discharge valve and close ¾" ball valve. Open feed line to the pump and slowly open ¾" ball valve to bleed out the nitrogen until there is a steady stream of liquid without air pockets. Close the ¾" ball valve. Remove the bucket after the line has stopped dripping. Set the bucket on the floor. Remove L-shaped pipe and reinstall plug and snug tight. Proper safety equipment must be worn.

9. Restart the pump with the switch on the wall and watch to see that pressure comes up to normal level.

10. Return fittings and wrench to toolbox and empty bucket into pit hog on the unloading pad. Put bucket on unloading pad and cover with lid.

C. Purge DDC Feed Pump

1. Notify Shift Foreman, Control Room Operator or their assignee that you will be purging the system.

2. Shut down the calciner feed pump by calling Control Room to shut off pump OR turning off switch located by the pump.

3. Close ball valve on inlet side of calciner feed pump.

4. Close ball valve on discharge side of calciner feed pump.

5. After all valves are shut, remove plug on ¾" ball valve on the inlet line of the pump. Install Chicago fitting; use handle of adjustable wrench across the ears of the fitting to snug tight. Attach nitrogen line and turn on pressure.

6. Open valve on inlet side and blow back to pump until tank pressure rises. Close valve on inlet side.

7. Open valve on the discharge line that goes to the panel. Open ¾" ball valve to pressurize the line. Pressure should rise on the gauge to approximately 100 psi. After a short period, the pressure should drop to approximately 50 pounds. When this happens, close the valve on the discharge line to the panel. Slowly open the valve on the inlet side of the pump. After a few seconds, the nitrogen will have displaced the liquid and the valves can be closed. Shut the ¾" ball valve and then shut off nitrogen to the line. Open bleeder valve after removing pipe plug. Nitrogen line can now be removed.

8. Using the handle of the adjustable wrench across the ears, loosen the Chicago fitting and remove. Install the L-shaped pipe (hand tighten only). Hang the bucket by its handle onto this pipe.

9. Nitrogen must now be bled out of the discharge and feed lines. Open the valve on the discharge side of the pump going to the panel. Slowly open the ¾" ball valve and bleed the line until nitrogen stops. Open inlet valve, bleed and prime pump. Close ¾" ball valve. Remove L-shaped pipe and reinstall plug and snug tight. Open valve on the discharge line of the pump.

10. Call Control Room to restart pump. Watch to see that pressure comes up to normal level. (Pressure differs according to pump output percentage.)

11. Return fittings and wrench to toolbox. Empty bucket into pit hog (strainer) on the unloading pad. Put bucket on unloading pump and cover with lid.

WF-16

LEFT BLANK

WF-17 ***LEFT BLANK***

WF-18
CARBON SYSTEM – TEMPERATURE DEVICE INSPECTION AND MAINTENANCE

I. PURPOSE

To monitor, on a daily basis, the temperature device that provide the temperature in the carbon canisters to ensure proper operation and prevent possible equipment failure. Also, to inspect and calibrate the thermocouples on an annual basis.

II. RESPONSIBILITY

It shall be the responsibility of the Environmental Technician and Maintenance Technician or trained assignees to comply with this procedure.

III. EQUIPMENT

A. Carbon canisters 1 and 2 temperature device
B. Carbon canisters 1 and 2 temperature device readout monitors
C. #3 Carbon canister

IV. PROCEDURE

A. Procedure for the daily inspection and sign-off of the carbon canister temperature device and readout monitors is provided in the Daily Waste Fuel Systems Inspection standard operating procedure (WF-08).

B. Procedure for the annual calibration and inspection of the carbon canister temperature device:

1. Perform an annual in-house calibration of the temperature device using guidance provided in the operations and maintenance manual for the instrument.

C. Annual Calibration and Inspection Sheet

1. Upon satisfactory inspection and calibration of each item, check the appropriate box on the inspection form (attached).
2. List any appropriate comments in the 'Comments' section.

Attachment #1

KEYSTONE CEMENT COMPANY **HWF TANK FARM**

TEMPERATURE TRANSMITTERS

Yearly Inspection

Component	Tank				Carbon			Kiln		Amb	Comments/Action Taken
	1A	1B	2	3	1	2	3	1	2	1	Specify Location
CALIBRATION											

This certifies that I have completed these yearly inspections.

TITLE: _____

NAME (print): _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS _____ *DATE* _____

WF-19
CARBON SYSTEM - PRESSURE RELIEF DEVICE
INSPECTION AND MAINTENANCE

I. PURPOSE

To inspect the pressure relief device on the carbon canisters on a daily basis to ensure proper operation and prevent possible equipment failure. Also, to inspect and test the pressure relief devices, which has a setting of 15 psi, on an annual basis.

II. RESPONSIBILITY

It shall be the responsibility of the Environmental Technician and Maintenance Technician or trained assignees to comply with this procedure.

III. EQUIPMENT

A. Carbon Canisters 1 and 2 pressure relief devices

IV. PROCEDURE

A. Procedure for the daily inspection and sign-off of the pressure relief devices is provided in the Daily Waste Fuel Systems Inspection standard operating procedure (WF-08).

B. Procedure for the annual inspection and maintenance of the pressure relief devices.

1. Remove the pressure relief devices from the carbon canisters and visually inspect the unit, including springs and seals to ensure structural integrity.
2. Introduce a gas stream with a known pressure of greater than 15 psi to the pressure relief device to ensure proper operation.
3. Re-install the pressure relief device to the canister.

C. Annual Inspection Sheet

1. Upon satisfactory inspection and proper operation of the unit, check the appropriate box on the inspection form.
2. List any appropriate comments in the 'Comments' section.

Attachment #1

KEYSTONE CEMENT COMPANY **CARBON SYSTEI**

PRESSURE RELIEF DEVICE

Yearly Inspection

Component	Location			Comments/Action Taken
	CARBON 1	CARBON 2	CARBON 3	Specify Location
VISUAL INSPECTION				
TEST DEVICE				

This certifies that I have completed the yearly inspection.

TITLE: _____

NAME (print): _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS _____ *DATE* _____

WF-20
CARBON SYSTEM - FLAME ARRESTOR
INSPECTION AND MAINTENANCE

I. PURPOSE

To monitor the flame arrestor on a daily basis to ensure proper operation and prevent possible equipment failure. Also, to inspect, disassemble, and clean the flame arrestor on an annual basis.

II. RESPONSIBILITY

It shall be the responsibility of the Environmental Technician or trained assignee to comply with this procedure.

III. EQUIPMENT

A. Vapor System flame arrestor

IV. PROCEDURE

A. Procedure for the daily inspection and sign-off of the flame arrestor is provided in the Daily Waste Fuel Systems Inspection standard operating procedure (WF-08).

B. Procedure for the annual inspection and maintenance of the flame arrestor.

1. Disassemble the flame arrestor and steam clean the unit if necessary using vendor-specified techniques.
2. Visually inspect the unit to ensure structural integrity.
3. Reassemble and re-install the unit in the vapor system.

C. Annual Inspection Sheet

1. Upon satisfactory inspection and cleaning of the unit, check the appropriate box on the inspection form.
2. List any appropriate comments in the 'Comments' section.]

Attachment #1

KEYSTONE CEMENT COMPANY **HWF TANK FARM**

FLAME ARRESTOR

Yearly Inspection

Component	Carbon Tank		Comments/Action Taken
	1	2	(specify unit - 1 or 2)
CLEAN AND INSPECT			

This certifies that I have completed this yearly inspection.

TITLE: _____

NAME (print): _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS _____ *DATE* _____

WF-21
CARBON SYSTEM - CARBON CANISTERS
INSPECTION AND MAINTENANCE

I. PURPOSE

To monitor the carbon canisters on a daily basis to ensure proper operation and prevent possible equipment failure.

II. RESPONSIBILITY

It shall be the responsibility of the Environmental Technician or trained assignee to comply with this procedure.

III. EQUIPMENT

A. Carbon Canisters 1, 2 and 3.

IV. PROCEDURE

A. Procedure for the daily inspection and sign-off of the carbon canisters is provided in the Daily Waste Fuel Systems Inspection standard operating procedure (WF-08).

B. Carbon canister replacement

If there is a need to remove and/or replace a carbon canister, please refer to SOP WF-10 Carbon Canister Replacement.

WF-22
CARBON SYSTEM - CO AND O_2 MONITORING SYSTEM
INSPECTION AND MAINTENANCE

I. PURPOSE

To inspect the CO and O_2 sampling system, analyzers, and data monitor on a daily basis to ensure proper operation and prevent possible equipment failure. Also, to calibrate the system on a weekly basis and to perform maintenance and upkeep of the monitoring system on a quarterly basis.

II. RESPONSIBILITY

It shall be the responsibility of the Maintenance Technician to comply with this procedure.

III. EQUIPMENT

A. CO and O_2 sampling system
B. CO and O_2 analyzer
C. CO and O_2 data monitor
D. CO and O_2 calibration equipment

IV. PROCEDURE

A. Procedure for the daily inspection sign-off of the CO and O_2 Monitoring System.

1. Inspect analyzer flow rate

B. Procedure for the weekly calibration and inspection of the CO and O_2 Monitoring System.

1. The CO and O_2 Monitoring Systems will be calibrated according to the manufacturer's guidelines and all calibration records will be maintained on-site.
2. Inspect filters. Replace as necessary.
3. Inspect condition of flow meter tubes.
4. Inspect alarm operation.
5. Inspect calibration gas pressure into analyzer

C. Procedure for the quarterly inspection and maintenance of the CO and O_2 Monitoring System.

1. The fan filter in the CO and O_2 Monitoring Systems shall be inspected and cleaned or replaced as needed.
2. The sample filter in the CO and O_2 Monitoring Systems shall be inspected and cleaned or replaced as needed.
3. The analyzers and the control panels shall be cleaned and components shall be replaced as needed or as specified by the manufacturer's guidelines. (See attached.)

D. Daily Inspection Sheet

1. Upon satisfactory inspection of monitoring systems, check the appropriate box on the inspection form.
2. List any appropriate comments in the 'Comments' section.

E. Weekly Calibration and Inspection Sheet

1. Upon satisfactory inspection and calibration of monitoring systems, check the appropriate box on the inspection form.
2. List any appropriate comments in the 'Comments' section.

F. Quarterly Inspection and Maintenance Sheet

1. Upon satisfactory inspection and maintenance of the monitoring systems, check the appropriate box on the inspection form.
2. List any appropriate comments in the 'Comments' section.

Attachment #1

KEYSTONE CEMENT COMPANY WASTE LIQUID FUEL

CO AND OXYGEN - HWF TANK FARM

Daily Inspection

Component	Status	Comments/Action Taken
ANALYZER FLOW RATE		

This certifies that I have completed this daily inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

Attachment #2

KEYSTONE CEMENT COMPANY HWF TANK FARM

CO and OXYGEN

Weekly Inspection

Component	Status				Comments/Action Taken
	1	X	X	X	
CALIBRATE ANALYZER					
ALARM OPERATION					
CONDITION OF FILTERS					
CONDITION OF FLOWMETER TUBES					
CALIBRATION GAS PRESSURE					

This certifies that I have completed the weekly inspection.

TITLE: _____

NAME _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS _____ *DATE* _____

Attachment #3

KEYSTONE CEMENT COMPANY **HWF TANK FARM**

CO and OXYGEN

Quarterly Inspection

Component	Status				Comments/Action Taken
	1	x	x	x	
FAN FILTER ELEMENT CLEAN / REPLACE					
REPLACE SAMPLE FILTER ELEMENT					
CLEAN EXTERIOR OF THE ANALYZER					
REPLACE ANALYZER FILTER ELEMENT					

This certifies that I have completed this quarterly inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

WF-23
TANK SYSTEM – TEMPERATURE DEVICE INSPECTION AND MAINTENANCE

I. PURPOSE

To monitor, on a daily basis, the tank temperature device that provide the vapor space temperature in the tanks to ensure proper operation and prevent possible equipment failure. Also, to inspect and calibrate the thermocouples on an annual basis.

II. RESPONSIBILITY

It shall be the responsibility of the Environmental Technician and Maintenance Technician or trained assignees to comply with this procedure.

III. EQUIPMENT

A. Tank 1A, 1B, 2 and 3 temperature device
B. Tank 1A, 1B, 2 and 3 temperature device readout monitors

IV. PROCEDURE

A. Procedure for the daily inspection and sign-off of the tank temperature device and readout monitors is provided in the Daily Waste Fuel Systems Inspection standard operating procedure (WF-08).

B. Procedure for the annual calibration and inspection of the tank temperature device:

1. Perform an annual in-house calibration of the tank temperature device using guidance provided in the operations and maintenance manual for the instrument.

C. Annual Calibration and Inspection Sheet

1. Upon satisfactory inspection and calibration of each item, check the appropriate box on the inspection form (WF-18).
2. List any appropriate comments in the 'Comments' section.

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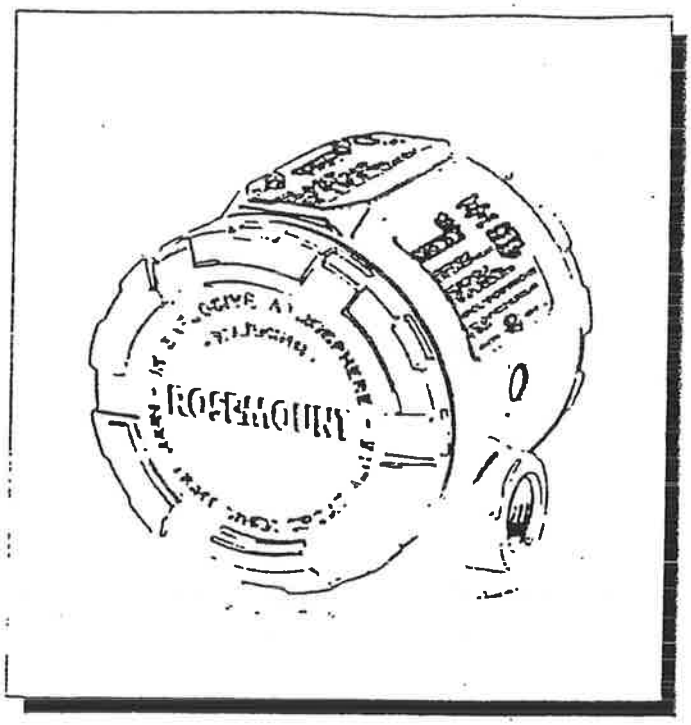
January 1996



Model 3144 and 3244MV Smart Temperature Transmitters (EN)

Transmisores inteligentes de temperatura modelo 3144 y 3244MV (E)

Transmetteurs de température intelligents modèles 3144 et 3244MV (F)

Transmissores de Temperatura Inteligentes Modelos 3144 e 3244MV (P)

ROSEMOUNT MEASUREMENT

FISHER-ROSEMOUNT™ Managing The Process Better.™

WF-24
TANK SYSTEM - PRESSURE SENSORS
INSPECTION AND MAINTENANCE

I. PURPOSE

To monitor the pressure sensors that provide the pressure in the vapor space in the tanks on a daily basis to ensure proper operation and prevent possible equipment failure. Also, to inspect and calibrate the pressure sensors on an annual basis.

II. RESPONSIBILITY

It shall be the responsibility of the Environmental Technician and Maintenance Technician or trained assignees to comply with this procedure.

III. EQUIPMENT

A. Tank 1A, 1B, 2 and 3 pressure sensors
B. Tank 1A, 1B, 2 and 3 pressure sensor readout monitors

IV. PROCEDURE

A. Procedure for the daily inspection and sign-off of the pressure sensors and readout monitors is provided in the Daily Waste Fuel Systems Inspection standard operating procedure (WF-08).

B. Procedure for the annual calibration and inspection of the pressure sensors.

1. Perform an annual calibration of pressure sensor using vendor-specified techniques.

C. Annual Calibration and Inspection Sheet

1. Upon satisfactory inspection and calibration of each item, check the appropriate box on the inspection form (attached).
2. List any appropriate comments in the 'Comments' section.

Attachment #1

KEYSTONE CEMENT COMPANY HWF TANK FARM

PRESSURE TRANSMITTERS

Yearly Inspection

Component	Tank Level				Tank Pressure				Comments/Action Taken
	1A	1B	2	3	1A	1B	2	3	Specify Unit
CALIBRATION									

This certifies that I have completed these yearly inspections.

TITLE: _____

NAME (print): _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS _____ *DATE* _____

WF-25
TANK SYSTEM - FLAME DETONATOR/ARRESTOR
INSPECTION AND MAINTENANCE

I. PURPOSE

To monitor the flame detonator/arrestor on a daily basis to ensure proper operation and prevent possible equipment failure. Also, to inspect, disassemble, and clean the flame detonator/arrestor on an annual basis.

II. RESPONSIBILITY

It shall be the responsibility of the Environmental Technician or trained assignee to comply with this procedure.

III. EQUIPMENT

A. Tank 1A, 1B, 2 and 3 flame detonators/arrestors

IV. PROCEDURE

A. Procedure for the daily inspection and sign-off of the flame detonator/arrestor is provided in the Daily Waste Fuel Systems Inspection standard operating procedure (WF-08).

B. Procedure for the annual inspection and maintenance of the flame detonator/arrestor.

1. Disassemble the flame detonator/arrestor and steam clean the unit if necessary using vendor-specified techniques.
2. Visually inspect the unit to ensure structural integrity.
3. Reassemble and re-install the unit in the vapor system.

C. Annual Inspection Sheet

1. Upon satisfactory inspection and cleaning of the unit, check the appropriate box on the inspection form.
2. List any appropriate comments in the 'Comments' section.

Attachment #1

KEYSTONE CEMENT COMPANY HWF TANK FARM

FLAME DETONATOR/ARRESTOR

Yearly Inspection

Component	Tank				Comments/Action Taken
	1A	1B	2	3	(specify tank)
CLEAN AND INSPECT					

This certifies that I have completed this yearly inspection.

TITLE: _____

NAME:Print): _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS _____ *DATE* _____

WF-26
TANK SYSTEM - EMERGENCY RELIEF/
CONSERVATION VENT
INSPECTION AND MAINTENANCE

I. PURPOSE

To monitor the emergency/conservation vents on a daily basis to ensure proper operation and prevent possible equipment failure. Also, to inspect, disassemble, and clean the emergency/conservation vents on an annual basis.

II. RESPONSIBILITY

It shall be the responsibility of the Environmental Technician or trained assignee to comply with this procedure.

III. EQUIPMENT

A. Tank 1A, 1B, 2 and 3 emergency/conservation vents

IV. PROCEDURE

A. Procedure for the daily inspection and sign-off of the emergency/conservation vents is provided in the Daily Waste Fuel Systems Inspection standard operating procedure (WF-08).

B. Procedure for the annual inspection and maintenance of the emergency/ conservation vents.

1. Disassemble the emergency/conservation vents and clean the pallet using vendor-specified techniques.
2. Visually inspect the unit, including seals to ensure structural integrity.
3. Reassemble and re-install the unit on the tank.

C. Annual Inspection Sheet

1. Upon satisfactory inspection and cleaning of the unit, check the appropriate box on the inspection form.
2. List any appropriate comments in the 'Comments' section.

Attachment #1

KEYSTONE CEMENT COMPANY HWF TANK FARM

EMERGENCY/CONSERVATION VENTS

Yearly Inspection

Component	Tank				Comments/Action Taken
	1A	1B	2	3	(specify unit)
CLEAN PALLETS					
VISUAL INSPECTION					

This certifies that I have completed this yearly inspection.

TITLE: _____

NAME (print): _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS _____ *DATE* _____

WF-27
TANK SYSTEM - AGITATORS
INSPECTION AND MAINTENANCE

I. PURPOSE

To monitor the agitators on a daily basis to ensure proper operation and prevent possible equipment failure. Also, to inspect and perform routine maintenance on an annual basis.

II. RESPONSIBILITY

It shall be the responsibility of the Environmental Technician or trained assignee to comply with this procedure.

III. EQUIPMENT

A. Tank 1A, 1B, 2 and 3 agitators.

IV. PROCEDURE

A. Procedure for the daily inspection and sign-off of the agitators is provided in the Daily Waste Fuel Systems Inspection standard operating procedure (WF-08).

B. Procedure for the quarterly inspection and maintenance of the agitators.

1. Check the oil level of the gear drive when the agitator is stopped.
2. Check coupling alignment.
3. Clean any accumulated foreign matter from the fan guard.

C. Procedure for the annual inspection and maintenance of the agitators.

1. Take a sample of oil from each agitator drive and have lubricant supplier test. The supplier should recommend the economical change out period based on the rate of lubricant contamination and degradation.

D. Quarterly Inspection Sheet

1. Upon satisfactory inspection and maintenance of the unit, check the appropriate box on the inspection form.
2. List any appropriate comments in the 'Comments' section.

E. Annual Inspection Sheet

1. Upon satisfactory inspection and maintenance of the unit, check the appropriate box on the inspection form.
2. List any appropriate comments in the 'Comments' section.

Attachment #1

KEYSTONE CEMENT COMPANY **HWF TANK FARM**

AGITATOR

Quarterly Inspection

Component	Tank				Comments/Action Taken
	1A	1B	2	3	(specify unit)
OIL LEVEL					
VISUAL INSPECTION					
COUPLING ALIGNMENT					
FAN GUARD					

This certifies that I have completed this quarterly inspection.

TITLE: _____

NAME (print): _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS _____ *DATE* _____

Attachment #2

KEYSTONE CEMENT COMPANY **HWF TANK FARM**

AGITATOR

Yearly Inspection

Component	Tank				Comments/Action Taken
	1A	1B	2	3	(specify unit)
OIL SAMPLE					

This certifies that I have completed this yearly inspection.

TITLE: _____

NAME (print): _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS _____ *DATE* _____

WF-28
TANK SYSTEM - STRUCTURAL INTEGRITY INSPECTION AND MAINTENANCE

I. PURPOSE

To monitor the structural integrity of the tanks on a daily basis to prevent possible equipment failure. Also, to inspect and certify structural integrity and tank wall thickness on an annual basis.

II. RESPONSIBILITY

It shall be the responsibility of the Environmental Technician or trained assignees to perform or coordinate the daily inspection of the tank system's structural integrity. It is the responsibility of the Compliance Manager to coordinate the annual inspection and certification of the tank integrity inspection and testing and to review and file the inspection report.

III. EQUIPMENT

A. Tank 1A, 1B, 2 and 3.

IV. PROCEDURE

A. Procedure for the daily inspection and sign-off of the integrity of the tanks is provided in the Daily Waste Fuel Systems Inspection standard operating procedure (WF-08).

B. Procedure for the annual inspection and certification of the tank integrity to be performed by an engineering firm.

1. Visually inspect the integrity of tanks, looking for cracks, failed welding seams, and damage to the tank shell.
2. Perform a multi-point ultrasonic thickness test on the tank shell to determine the average shell thickness.

C. Annual Inspection Report

1. Upon satisfactory inspection and maintenance of the unit, review the tank structural integrity Inspection Report from the engineering firm for issues to address and recommendations.
2. File the Inspection report in the operating record.

WF-29
PIPING SYSTEM - STRUCTURAL INTEGRITY INSPECTION AND MAINTENANCE

I. PURPOSE

To monitor the structural integrity of the piping system on a daily basis to prevent possible pipe failure. Also, to inspect and certify the structural integrity of the pipe system on an annual basis.

II. RESPONSIBILITY

It shall be the responsibility of the Environmental Technician or trained assignees to perform or coordinate the daily and quarterly inspection of the piping system's structural integrity. It is the responsibility of the Compliance Manager to coordinate the annual inspection and certification of the piping system integrity inspection and to review and file the inspection report.

III. EQUIPMENT

A. Tank 1A, 1B, 2, and 3 waste fuel piping systems including all pumps, flanges, and valves (from the waste fuel unloading area to the storage tanks and from the storage tanks to the kiln and calciner)
B. Tank 1A, 1B, 2, and 3 vapor piping systems including all pumps, flanges, and valves (from the storage tanks to the carbon system and from the storage tanks to the kiln and calciner)

IV. PROCEDURE

A. Procedure for the daily inspection and sign-off of the integrity of the piping system is provided in the Daily Waste Fuel Systems Inspection standard operating procedure (WF-08).

B. Procedure for the quarterly inspection, sampling, and reporting of the piping system is performed in accordance with the Subpart BB sampling procedures as identified in SOP WF-14 VOC Monitoring.

C. Procedure for the annual inspection and certification of the piping system (may be performed by an engineering firm).

1. Visually inspect the integrity of piping system looking for cracks, leaks, staining.
2. Visually inspect the flanges and valves looking for leaks, staining, and missing or inoperable components.
3. Visually inspect each pump for vibration, leakage, seal leakage, buffer solution level, air pressure, and pump oil level.

C. Annual Inspection Report

1. Upon satisfactory inspection of the piping system, review the piping system Inspection Report from the engineering firm for issues to address and recommendations.
2. File the Inspection report in the operating record.

D. Corrective Action

1. Any detected abnormal situation shall trigger implementation of Tank System Incident Response Standard Operating Procedure WF-31.

WF-30
CONTAINMENT AREA - STRUCTURAL INTEGRITY INSPECTION AND MAINTENANCE

I. PURPOSE

To monitor the structural integrity of the containment areas on a daily basis to prevent possible containment failure. Also, to inspect and certify structural integrity and containment volume on an annual basis.

II. RESPONSIBILITY

It shall be the responsibility of the Environmental Technician or trained assignees to perform or coordinate the daily inspection of the containment area's structural integrity. It is the responsibility of the Compliance Manager to coordinate the annual inspection and certification of the containment areas integrity inspection and to review and file the inspection report.

III. EQUIPMENT

A. Tank 1A and 1B containment area
B. Tank 2 and 3 containment area
C. Waste fuel unloading containment area
D. 90-Day Storage Area

IV. PROCEDURE

A. Procedure for the daily inspection and sign-off of the integrity of the containment areas is provided in the Daily Waste Fuel Systems Inspection standard operating procedure (WF-08).

B. Procedure for the annual inspection and certification of the containment integrity and storage volume to be performed by an engineering firm.

1. Visually inspect the integrity of containment areas, looking for cracks, failed seals, and damage to the containment walls and flooring.
2. Visually inspect the containment area coatings to ensure an impermeable surface.

3. Confirm the dimensions of the containment area and certify the storage volume of each containment area.

C. Annual Inspection Report

1. Upon satisfactory inspection of the containment areas, review the containment area integrity Inspection Report from the engineering firm for issues to address and recommendations.
2. File the Inspection report in the operating record.

D. Corrective Action

1. Any detected abnormal situation shall trigger implementation of Tank System Incident Response Standard Operating Procedure WF-31.

I. PURPOSE

This procedure shall define the steps to be taken to properly clean, inspect, and/or re-certify the tank system including associated ancillary equipment (carbon system, pumps and piping, foam system, tanks, etc.) and containment systems in response to leaks (including vapor leaks), spills outside proper containment, or other incidents (including chemical or physical reactions, deteriorating or malfunctioning system components, system alarms, etc.) that affect the normal functioning of the system.

This standard operating procedure is to aid in the proper implementation of the facility's PPC Plan and ensure that the facility's PPC Plan requirements are followed. This standard operating procedure is not a substitute for the facility's PPC Plan which is a mandatory permitted document with which the facility must comply.

This SOP also provides a procedure for evaluating an incident's impact on human health.

II. RESPONSIBILITY

It is the responsibility of the Storage Facility and/or plant personnel to identify an incident as described in Section I and implement the response procedures as defined in the facility's PPC Plan. PPC Plan notification requirements to the Control Room Operator and subsequent Primary Emergency Coordinator must be followed. The designated Emergency Coordinator should complete an incident report which details the incident or situation warranting corrective action and/or investigation. It is the responsibility of the Primary Emergency Coordinator to ensure compliance with the procedures detailed herein and the facility's PPC Plan including DEP notification and reporting requirements.

III. EQUIPMENT

A. Tank System Incident Report
B. Non-Reportable Incident Form (for non-reportable incidents)
C. Tank system alarms
D. PPC Plan required safety and emergency equipment and/or supplies

1. PID/FID VOC monitor
2. White suit
3. Protective gloves
4. Eye protection
5. Telephone
6. Radio
7. Foam system
8. Cement kiln dust
9. Heavy equipment
10. Fire extinguishers
11. Siren

IV. PROCEDURE

Class A and Class B incidents, as defined in the facility's PPC Plan, shall be responded to as prescribed in the PPC Plan. All post-incident recordkeeping and recording requirements shall conform to this incident response.

Class C incidents are incidents which can be handled and controlled on-site without outside intervention or assistance.

A tank system from which there has been a leak, spill outside proper containment, or other incident which meets the requirements of 40 CFR 265.196 that affects the normal functioning of the system and is classified as a Class C incident, shall be isolated from the system and removed from service immediately. In addition, the following tasks shall be performed:

A. Spill and leak response actions

1. If the release was from a component (pipe, valve, pump, etc.) of a liquid pipeline:
   a. Waste flow through the pipeline shall be immediately stopped and locked out. Inspect the system and all affected system components to determine the cause of the release.
   b. Any waste material remaining in the isolated pipeline shall be removed within 24 hours after detection of the leak or in as timely a manner as possible and managed as a hazardous waste.

c. Fugitive emissions of VOCs shall be monitored. If levels are ≥10,000 ppm for more than one hour, the DEP Air Quality Division at the Bethlehem office shall be notified.
d. If the material released was to a secondary containment area, released materials shall be removed within 24 hours or in as timely a manner as possible in accordance with Keystone SOP "Containment Area Cleanup."
e. If the material release was to the soil, the release shall be immediately contained and cleaned up. Additionally, if the release cannot be quantified or if the release to the soil or air is greater than one pound, the release shall be reported to the Department within 24 hours; and a written report consistent with the requirements of 40 CFR 265.196(d)(3) shall be submitted to the Department within 30 days.
f. Sections C and D (below) must be followed.

2. If the release was from a component (pipe, valve, flange, etc.) of a tank vapor control pipeline:
   a. Vapor flow through the pipeline shall be immediately stopped and inspect the system and all affected components to determine the cause of the release.
   b. The vapor line shall be purged with nitrogen.
   c. Any waste material (condensate) remaining in the isolated pipeline shall be removed within 24 hours after detection or in as timely a manner as possible and managed as a hazardous waste.
   d. Fugitive emissions of VOCs shall be monitored. If levels are ≥10,000 ppm for more than one hour, the DEP Air Quality Division at the Bethlehem office shall be notified.
   e. Sections C and D (below) must be followed.

3. If the release was from a component (manway, shell, pressure gauge, etc.) of a tank:
   a. Flow of material into the tank shall be immediately stopped and inspect the system and all affected components to determine the cause of the release.
   b. Any waste material remaining in the tank shall be removed within 24 hours after detection or in as timely a manner as possible and managed as a hazardous waste.
   c. Fugitive emissions of VOCs shall be monitored. If levels are ≥ 10,000 ppm for more than one hour, the DEP Air Quality Division at the Bethlehem office shall be notified.
   d. If the material released was to the secondary containment area, released materials shall be removed within 24 hours or in as timely a manner as possible and managed as a hazardous waste.

e. Sections C and D (below) must be followed.

B. Inoperable tank system response actions

1. If it is determined that a component of the liquid pipeline is inoperable (blocked line, faulty valve, etc.) or has affected the normal functioning of the system:
   a. Waste flow through the pipeline shall be immediately stopped and inspect the system and all affected components to determine the cause of the release.
   b. Follow waste fuel feed line purging SOP. Purge line out.
   c. Any waste material remaining in the isolated pipeline shall be removed and managed as a hazardous waste, if necessary, to facilitate investigation/inspection/ repairs.
   d. Sections C and D (below) must be followed.

2. If it is determined that a component of the tank vapor control pipeline is inoperable (faulty valve, fan, etc.) or has affected the normal functioning of the system:
   a. Vapor flow through the pipeline shall be immediately stopped.
   b. The vapor line shall be purged with nitrogen.
   c. Any waste material (condensate) remaining in the isolated pipeline shall be removed and managed as a hazardous waste, if necessary, to facilitate investigation/ inspection/repairs.
   d. Sections C and D (below) must be followed.

3. If it is determined that a component of a tank is inoperable (solids, faulty monitors, etc.) or has affected the normal functioning of the system:
   a. Unloading of material into the tank shall be immediately stopped.
   b. In the event peroxides are detected in a storage tank, tank agitation shall be stopped until the peroxides are removed.
   c. Any waste material remaining in the tank shall be removed and managed as a hazardous waste, if necessary, to facilitate investigation/inspection/repairs.
   d. Sections C and D (below) must be followed.

C. Incident Reporting and Notification

1. All items detailed in Sections I and IV A and B (above) are considered 'incidents.' As such, a complete incident report must be recorded and maintained in the facility's operating records. A copy of the Tank System Incident Report form is attached.

The general items which must be documented are:

Reporter name/date
Incident date/time
Incident description
Kinds and quantities of materials involved
Injuries
Potential hazards to human health and/or environment
Immediate actions taken
Investigative actions taken
Description of system repairs, if any
Actions taken to prevent future occurrence
System integrity
Confirmation of Keystone management and DEP notification, if necessary

Non-reportable incidents will be recorded on a Non-reportable incident form. Completed non-reportable incident forms will be maintained in the facility's files.

2. A release to the environment outside secondary containment which cannot be quantified or greater than one pound must be reported to the Department within 24 hours of its detection.

3. Incidents which include waste solidification, polymerization, physical/ chemical reactions, or system component malfunctions which require major repairs as defined in Section D must be reported to the Department within 24 hours of its detection.

4. Within 30 days of detection of an incident requiring 24-hour notification, a report shall be submitted to the Department.

D. Major Repairs

1. If the system requires major repairs, the isolated system may not be returned to service until a certification by an independent, qualified, registered professional engineer under 40 CFR 270.11(d) is obtained certifying that the repaired system is capable of handling hazardous wastes without release for the intended life of the system.

2. Major repairs are defined as extensive repairs such as structural damage to a tank vessel or secondary containment area or changes in equipment following failure, malfunction, or release. Major repairs do not include:

a. Periodic and/or routine replacement of like kind tank system components installed per manufacturer recommendations and properly inspected/calibrated prior to being placed in service. For example: pumps, valves, piping sections, monitors, vents, etc.
b. Periodic and/or routine maintenance of tank system components installed per manufacturer recommendations and properly inspected/calibrated prior to being place in service. For example: pump seals, gaskets, agitator blades, grinder repairs.

3. Certification of all major repairs shall be submitted to the Department within seven days after returning the tank system to use.

4. If subsequent to an incident investigation it is determined that major system repairs which will result in a change in the tank system design configuration must be made, the following procedures shall be followed:
   a. A request for approval, including preliminary engineering, shall be submitted to the Department for review and approval.
   b. Subsequent to approval, repairs may commence.
   c. Upon completion of repairs, Section D.2 and/or D.4 (above) relating to P.E. certification shall be satisfied.

E. Evaluating Impact on Human Health

1. Individuals exposed during an incident will be questioned by the Safety Director or his designee. If exposed individual indicates symptoms potentially related to exposure, they will be sent to either a Keystone panel Physician or a local hospital emergency room for evaluation.

2. Ensure that exposed personnel are verified as unaffected as soon as possible in the event of potential exposure.

3. In the event of a significant incident, Keystone will utilize the services of Robert Schoenberger PhD, John Oransky, CIH, or other appropriate professionals to make an evaluation of impact on human health. The methods employed will depend on the scope and type of incident.

Attachment #1

Incident Report # _____

KEYSTONE CEMENT COMPANY

TANK SYSTEM INCIDENT REPORT

Reporter's Name: _____Report Date: _____

Incident Date:_____Incident Time:_____

- OPERATIONS -

A) Incident Description:

B) Kinds and quantities of materials involved: N/A _____

If material released: (i) material _____

(ii) volume released _____ (iii) immediately contained _____ Yes _____ No

(iv) volume of material recovered _____ (v) date and time cleaned up _____

(vi) fugitive VOC monitored _____ Yes _____ No (if yes, attach data)

C) Injuries: _____ Yes _____ No If yes, describe.

D) Immediate Actions Taken:

E) Investigative Actions Taken:

1) When was failed component last inspected?

2) When was failed component installed?

3) What is failed component's maintenance record?

4) When was relevant SOP or procedures last revised?

5) Additional actions.

F) System Repairs: _____ Yes _____ No If yes, identify the following and include qualifications, inspection reports, calibrations, etc.

1) Individual who conducted repairs

2) Individual who inspected repairs

G) Supervisor Notified: date _____ time _____
Plant Manager Notified: date _____ time _____
Compliance Manger Notified: date _____ time _____

H) System Integrity: _____ Out of Service

_____ Returned to Service: date _____ time _____

Specify supporting documentation.

Operations Manager Signature: _____

- ENVIRONMENTAL -

I) Potential environmental hazards: ____ Yes _____No
If yes, describe.

J) Incident reportable to DEP: _____Yes _____ No
If no, justification:

K) Actions Taken to Prevent Future Occurrence:

1) Is additional secondary containment necessary?

2) Is upgraded equipment necessary?

3) Is new or revised SOP necessary?

4) Additional actions:

L) Incident Terminated: date _____ time _____

Report to DEP: date _____ time _____

Compliance Manager Signature: _____

Plant Manager Signature: _____ date _____

Attachment #2

KEYSTONE CEMENT COMPANY

Non-Reportable Incident Form

Reporter's Name: _____

Report Date: _____

Description of Event: _____

_____

_____

_____

_____

Outcome: _____

_____

_____

_____

_____

Additional Notes: _____

_____

_____

_____

WF-32
CO ALARM RESPONSE

I. PURPOSE

To identify response procedures for a CO alarm in the carbon vent system which may be indicative of a fire, chemical reaction, or ketone vapors reacting with the carbon material.

II. RESPONSIBILITY

It will be the responsibility of the Environmental Technicians, Shift Foremen or trained assignees to follow this procedure.

III. EQUIPMENT

A. CO instrument (installed on vent line from each large carbon canister)
B. Carbon canisters
C. Metal surface and gas vent temperature reading device.

IV. PROCEDURE

If the CO level at the discharge of the first carbon canisters exceeds 500 ppm, an audible alarm will be triggered in the Control Room and solvent unloading area and the unloading pump will automatically shut down. The following procedure will be followed.

A. The Control Room Operator shall notify the Environmental Technician, Shift Foreman, or trained assignee.

B. The Environmental Technician or trained assignee shall confirm the unloading pump shut off. If not, immediately stop the unloading pump.

C. The Environmental Technician or trained assignee shall monitor storage system instrumentation, e.g. carbon bed temperature, oxygen level in carbon, and storage tank temperature.

D. If instrumentation readings show no other indications of system problems, unloading can continue when CO levels drop below 500 ppm.

E. If instrumentation readings indicate abnormal conditions such as continued temperature increase, CO level continues to increase, or O_2 level increases, take the following steps:

1. Close inlet ball valve to carbon canister.
2. Purge nitrogen into canister for a period of one to five minutes until oxygen level reaches 5% or less.
3. Isolate carbon canister from the vent system by closing the discharge ball valve.
4. Open inlet and discharge ball valves for the other canister to redirect any vapor flow.
5. Unloading can be resumed.
6. Monitor temperature in canister.
7. Periodically check CO level in canister.
8. Periodically check O_2 levels in canister.

F. If alarm or pump interlock does not work, complete Tank System Incident Response SOP WF-31.

WF-33
OPERATIONS EXCEEDANCE REPORT

I. PURPOSE

To document and notify the appropriate individuals when a condition occurs in the operations and monitoring of waste fuel firing to the cement kiln and/or calciner that results in an interlock of waste fuel firing.

II. RESPONSIBILITY

It is the responsibility of all Operations personnel (including Control Room Operators, Shift Supervisor, Production Coordinator, Production Manager, and Plant Manager, or trained assignees) to ensure compliance with this procedure.

III. EQUIPMENT

A. Operations Incident and AWFCO Report (Attachment #1)

IV. PROCEDURE

A. Each AWFCO incident shall be documented on an Operations Incident and AWFCO Report.

B. If a particular section does not apply to the incident you are reporting, record 'N/A' in that section.

C. The Shift Foreman or Control Room Operator must complete "Actions Taken to Prevent Future Occurrence" section if appropriate.

D. The interlock report shall be sent to the Plant Manager and Environmental Manager for review.

Attachment #1

KEYSTONE CEMENT COMPANY

Incident Date: _____

OPERATIONS INCIDENT and AWFCO REPORT

COMPLETE AND FAX IMMEDIATELY TO 2267. SEND ORIGINAL IN INTERCOMPANY MAIL

Kiln System_____ Kiln Comb. Zone_____Calciner Comb. Zone_____

Incident Type: Test _____ Interlock _____ Other _____

Valve Closed Time: _____ **Time Waste Fuel Restarted:** _____

	CIRCLE ONE	
Did an interlock occur?	**YES**	**NO**
Did HWF remain in the kiln at the time the regulatory limit was exceeded?	**YES**	**NO**
Malfunction	**YES**	**NO**

Supervisor Notified: _____ Yes _____ No

_____

Reporter - Print name **Signature** **Date**

_____

Shift Foreman – Print name **Signature** **Date**

---COMPLETE questions on page 2. Use additional sheets as necessary. Attach (staple) Daily Combined MACT Interlock Report printout and CERF form (for malfunctions) if necessary.---

A) Incident Description:

B) Immediate Actions Taken:

C) Actions Taken to Prevent Future Occurrence:

WF-34
TANK SYSTEM -
LIQUID LEVEL ALARM RESPONSE

I. PURPOSE

To ensure the proper response and reaction of Environmental Technicians, Maintenance Technicians, Control Room Operators or trained assignees to the Low Level, High level 1, High level 2, and the High level 3 alarms.

The alarm levels are set at the following values for Tanks 1A and 1B:

Low level alarm	1,525 gallons
High level 1 alarm	14,000 gallons
High level 2 alarm	14,500 gallons
High level 3 alarm	15,000 gallons

The alarm levels are set at the following values for Tanks 2 and 3:

Low level alarm	2,000 gallons
High level 1 alarm	30,500 gallons
High level 2 alarm	31,000 gallons
High level 3 alarm	31,500 gallons

II. RESPONSIBILITY

It shall be the responsibility of the Environmental Technicians, Maintenance Technicians, Control Room Operators or trained assignees to comply with this procedure.

III. EQUIPMENT

A. Low level alarm
B. High level 1 alarm
C. High level 2 alarm
D. High level 3 alarm
E. Waste fuel pumps
F. Control Room light and audible annunciator
G. Unloading pad light and audible alarm

H. Two-way radios and/or telephones

IV. PROCEDURE

A. Procedure for response to the Low level alarm:

1. After tripping the Low level alarm, the waste fuel unloading pumps will be automatically shut off and the alarm on the unloading pad and in the Control Room will sound.
2. The Control Room Operator shall contact the Environmental Technician or trained assignee when the alarm is triggered.
3. The Environmental Technician, Shift Foreman or trained assignee will inspect the waste fuel feed system and tank(s) of concern to determine what, if any, corrective action is required. Proceed to Step 4 if no corrective action is required. If corrective action is needed, stop unloading until the problem is resolved.
4. After 30 seconds, the waste fuel unloading pumps may be restarted.

B. Procedure for response to the High level 1 alarm:

1. After tripping the High level 1 alarm, the waste fuel unloading pumps will be automatically shut off and the alarm on the unloading pad and in the Control Room will sound.
2. The Control Room Operator shall contact the Environmental Technician or trained assignee when the alarm is triggered.
3. The Environmental Technician, Shift Foreman or trained assignee will inspect the waste fuel feed system and tank(s) of concern to determine what, if any, corrective action is required. Proceed to Step 4 if no corrective action is required. If corrective action is needed, stop unloading until the problem is resolved.
4. After 30 seconds, the waste fuel unloading pumps may be restarted.

C. Procedure for response to the High level 2 alarm:

1. After tripping the High level 2 alarm, the waste fuel unloading pumps will be automatically shut off and are not capable of restarting until the waste fuel levels in the tanks are below the High level 2 volumes.
2. The Control Room Operator shall contact the Environmental Technician or trained assignee when the alarm is triggered.
3. The Environmental Technician, Shift Foreman or trained assignee will inspect the waste fuel feed system and tank(s) of concern to determine what, if any, corrective action is required.

4. The waste fuel tank will be qualified and the waste fuel can be fired in the kilns in accordance with the standard operating procedure so that the waste fuel tank level will be lowered below the High level 2 alarm level.
5. After approval from the Resource Recovery Facility Manager or trained assignee, the waste fuel unloading pumps may be restarted.

D. Procedure for response to the High level 3 alarm:

1. After tripping the High level 3 alarm, the waste fuel unloading pumps will be automatically shut off (if they are not already shut off as a result of the High level 1 or High level 2 alarms). They will not be allowed to restart until liquid level goes below High level 2 setting. In addition, all pumps and feed line valves entering that tank shall be manually shut off by the Environmental Technician, Shift Foreman or trained assignee.
2. The Control Room Operator shall contact the Environmental Technician or trained assignee when the alarm is triggered.
3. The Environmental Technician, Shift Foreman or trained assignee will inspect the waste fuel feed system and tank(s) of concern to determine what, if any, corrective action is required.
4. The maintenance and inspection SOP for the High level 1 and the High level 2 will be performed to ensure that the High level 1 and High level 2 alarms are functioning properly.
5. The waste fuel tank will be qualified and the waste fuel can be fired in the kilns in accordance with the standard operating procedure so that the waste fuel tank level will be lowered below the High level 2 alarm level.
6. After approval from the Resource Recovery Facility Manager or trained assignee, the waste fuel unloading pumps may be restarted.
7. The Facility Incident Response Procedure will be enacted.

WF-35
TANK SYSTEM -
HIGH TEMPERATURE RESPONSE

I. PURPOSE

To ensure the proper response of Resource Recovery Facility personnel and Keystone Operations personnel to a high temperature alarm on any of the HWF storage tanks. The high temperature alarm system is controlled by an automated system that continuously monitors the alarm set point at 30 degrees above the ambient temperature.

Operations shall cease when the tank temperature is greater than 30 degrees above the ambient temperature. The cause of the excessive temperature shall be identified prior to restarting the operations.

II. RESPONSIBILITY

It shall be the responsibility of the Environmental Technician or trained assignee, Control Room Operator or trained assignee, or Shift Foremen to comply with this procedure.

III. EQUIPMENT

A. Tank high temperature sensor and alarm system
B. Hand-held infrared (or equivalent) temperature monitoring device
C. HWF feed pump temperature monitor
D. HWF flow meter temperature monitor
E. Communication device
F. Clipboard and note pad.

IV. PROCEDURE

A. When the tank temperature is greater than 30 degrees above the ambient temperature, the high alarm will activate and unloading operations shall

cease. The solvent vent system control panel will indicate which tank the high temperature is occurring. An audible alarm will also sound.

B. Upon high temperature alarm, the Control Room Operator or trained assignee shall notify the Shift Foreman and Solvent Personnel to inform them of the high temperature.

C. The Control Room Operator shall also notify the Environmental Technician or trained assignee.

D. Response action

1. The Environmental Technician, Shift Foreman, or trained assignee shall verify that the unloading pump(s) to the tank has automatically shut off. If it has not shut off automatically, manually shut it off. Unloading may not resume until the cause of the alarm is determined and corrected.

2. The Environmental Technician, Shift Foreman, or trained assignee shall record the tank temperature reading from the monitoring device initially at the time of the alarm and at five-minute intervals until the cause of the incident is determined and resolved.

3. Identify each load of waste material entering the tank and determine the as-received temperature of each load.

4. If the tank temperature is within 30 degrees of the highest as-received truck temperature, you can proceed to unload. If not, proceed to Step 5.

5. If possible and as soon as practical, the Environmental Technician, Shift Foreman, or trained assignee shall record the HWF feed pump temperature and tank temperature at five-minute intervals until the cause of the alarm is determined and resolved.

6. Using an infrared hand-held temperature measuring device (or equivalent), if available and as soon as practical, the Environmental Technician, Shift Foreman, or trained assignee shall measure and record the tank skin temperature three feet from the top and three feet from the bottom of the tank at five-minute intervals until the cause of the alarm is determined and resolved.

7. If the temperature measured by the tank thermocouple reaches or exceeds 200°F or if the temperatures measured by any one of the other instruments increases at a rate greater than 50 degrees for two consecutive five-minute readings, all HWF firing and tank unloading procedures shall be immediately discontinued and the alarm shall be considered a Class A incident resulting in implementation of the facility PPC Plan.

8. The Tank System Incident Report must be completed by Environmental Technician or trained assignee.

9. Prior to continued use of waste fuel or unloading of waste fuel, the incident reports must be reviewed and corrective action approved by the Plant Manager or his assignee. Verbal approval is acceptable.

WF-36
TANK SYSTEM -
HIGH PRESSURE INCIDENT RESPONSE

I. PURPOSE

To ensure the appropriate response of Resource Recovery Facility personnel and Keystone Operations personnel to a high pressure alarm on any HWF storage tank.

The high pressure alarm system is controlled by an automated system that continuously monitors the alarm set point at 1.8 psig.

II. RESPONSIBILITY

It shall be the responsibility of the Environmental Technician or trained assignee, Control Room Operator or trained assignee, or the Shift Foremen to comply with this procedure.

III. EQUIPMENT

A. Tank high pressure sensor and alarm system
B. Communication device.
C. Clipboard and note pad.

IV. PROCEDURE

A. The solvent system control panel indicates high pressure is occurring, and an audible alarm will sound.

B. Upon high pressure tank alarm, the Control Room Operator and/or trained assignee shall inform the Shift Foreman and Solvent Personnel of the high pressure.

C. The Control Room Operator shall also notify the Environmental Technician or trained assignee.

D. Response action

1. The Environmental Technician or trained assignee shall verify that the unloading pump(s) to the tank has automatically shut off. If it has not shut off automatically, manually shut it off and note for investigation.

2. If unloading when pressure alarm occurs, first check vent system valves to the unloading pad. Make sure the pathway is clear to the tanker. If not, open the system and resume unloading. If not unloading at the time of alarm, check the carbon conservation vent and the carbon valves. Make sure all are open. If not, open.

3. Prior to resuming pumping, monitor system pressure recorded by in-tank and vent line pressure sensors. If pressure exceeds 2 psig and tank emergency relief vent is activated, shut off all pumps and discontinue firing HWF to the cement kilns. If outside assistance is required, the incident shall be handled as a Class A incident as prescribed in the facility PPC Plan.

4. The Tank System Incident Report shall be completed by the Environmental Technician or trained assignee.

5. An Operations Incident Report shall be completed by the Control Room Operator and/or Shift Foreman or trained assignee.

6. Prior to resuming use or unloading of waste fuel, the incident reports must be reviewed and corrective action approved by the Plant Manager or his assignee. Verbal approval is acceptable.

WF-37
EMERGENCY RESPONSE

DELETED

WF-38
WASTE FUELS OPERATIONS PLAN
REVIEW AND UPDATE

I. PURPOSE

To ensure the review and modification of the Waste Fuels Operations Plan minimally on an annual basis or as-needed to address all aspects of waste fuel operations and any ancillary processes.

II. RESPONSIBILITY

It shall be the responsibility of the Compliance Manager, Plant Manager, and the Resource Recovery Facility Manager or trained assignee to review and update the Waste Fuels Operations Plan.

III. EQUIPMENT

A. Waste Fuels Operations Plan
B. Standard Operating Procedures Document

IV. PROCEDURE

A. The procedure for the annual review of the Waste Fuels Operation Plan is to review all components of the plan and to modify and/or update the Plan should there have been any changes at the facility which impact the Plan. These changes may include:

- minor changes in waste fuel operations;
- the addition or modification of SOPs;
- changes to other affected equipment or process operations at the facility;
- changes necessary as a result of state and/or federal permit modifications.

B. The procedure for the as-needed review of the Waste Fuels Operation Plan is to review any appropriate components of the plan and to modify and/or update the Plan should there have been any changes at the facility which impact the Plan. These changes may include:

- an incident at the facility that mandated the implementation of the Tank System Incident Response;
- changes in waste fuel operations that require the modification of the Plan or SOPs.

WF-39
OPEN FLAME AND HOT WORK

I. PURPOSE

Consideration must be given to the special hazards associated with the facility, most prominently the handling and storage of flammable and combustible materials prohibits, or at a minimum the restriction of open flames in active areas of the facility. The term open flames must include such items as matches, lighters, lit cigarettes or other smoking materials, electric arc or fuel gas welding and cutting equipment, or open flames from other sources.

This program has been developed to be consistent with the requirements of 29 CFR 1910.252, as well as safe handling procedures as defined by open flame/hot work equipment suppliers.

II. RESPONSIBILITY

It is the responsibility of each facility employee to ensure that these procedures are complied with at all times. Furthermore, it is the responsibility of each Supervisor to review these requirements with all outside contractors and ensure their compliance with these procedures.

A. Safety Director

1. Provide necessary training for employees.
2. Assist supervisors with compliance.
3. Update procedure as necessary.

B. Supervisor

1. Provide practical training for employees.
2. Ensure safe handling and storage of equipment.

3. Secure the area in which the operations will take place.

4. Ensure an adequate grounding device is present.

5. Ensure the presence of fire extinguishers.

6. Provide necessary safety equipment.

C. Employee

1. Abide by this procedure.

2. Immediately notify Supervisor of any hazardous conditions or defective equipment.

3. Act as a fire watch, when necessary, in the welding or cutting area.

III. PROCEDURE

A. The use of open flames is expressly forbidden in all areas of the facility as indicated in Section C unless an Open Flame/Hot Work Permit (see attached) is completed.

The use of flame cutting and gas or arc welding will be restricted from the hazardous waste facility. The only exceptions shall be those granted by Resource Recovery personnel through the hot work permit system. This permit system applies to repairs, adjustments, etc., utilizing electric arc, gas welding and cutting, or other open flame activities performed on stationary or mobile equipment or machinery.

1. All cutting and welding will be performed by personnel qualified by training and experienced in these activities.

2. If possible, the object to be cut or welded will be moved to a safe location away from all flammable and combustible materials.

3. If item '2' cannot be accomplished, guards in the form of non-combustible screens or flameproof tarpaulins can be used to protect flammable and combustible materials in the area of the work.

4. When there is danger of a smoldering fire, wet down work areas before and after hot work.

5. Inspect such areas after work is completed until all possibility of a fire has been eliminated.

6. Where possible and practical, mechanical cutting will be substituted for flame cutting.

B. Permit System

No cutting or welding operations will be conducted on "NO OPEN FLAME" sites at the facility as outline in Section C without first obtaining authorization in the form of a "Hot Work" permit, signed by the appropriate personnel in the area and in evidence at the job site. This permit is valid only for the operation, shift and personnel for which it is issued. Upon completion of the work, it must be returned to the appropriate manager who will review and forward the form for filing. All documentation of "Hot Work" permits will be maintained in the file for six months after completion of the work.

C. **"NO OPEN FLAME/HOT WORK AREAS"** <u>without permit and authorization *sign be on floor by hoses.</u>

1. Within 35 feet of waste fuel systems including:
   a. Tanks
   b. Open pipes
   c. Pumps
   d. Containment systems
   e. Carbon systems
   f. Vent line systems, including condensate drains

2. Within 35 feet of hazardous waste storage area

Use a tape measure or equivalent measuring device to identify where the 35-foot boundaries are located.

WF-40
PERSONAL HYGIENE PROCEDURE

I. PURPOSE

To ensure proper respirator fit, proper clothing attire, and any possible body contamination is removed prior to leaving Company property.

II. RESPONSIBILITY

It is the responsibility of all authorized personnel who work in and around the waste fuel operations to comply with this procedure..

III. EQUIPMENT

A. Shower
B. Soap
C. Shaving gear
D. Clean work clothes
E. Emergency eyewash bottles
F. Emergency shower

IV. PROCEDURE

A. Prior to wearing a respirator, all Resource Recovery personnel will be clean shaven in order to provide a tight seal of respirator.

Personnel need not be clean shaven if using a positive pressure powered air purifying respirator and passed appropriate fit test.

B. Prior to reporting for work, all jewelry will be removed or covered with gloves/clothes (rings, necklaces, earrings, etc.) to prevent any static discharge when handling waste fuel.

C. If waste material comes in contact with your skin, you must decontaminate yourself immediately or as soon as possible.

D. Work clothing will be changed on an as-needed basis.

1. Dirty work clothing is deposited in the dirty laundry receptacle to be picked up by the laundry service.
2. All contaminated tyvex suits and gloves are disposed of in a drum with a hazardous waste label.

E. All Resource Recovery personnel must wash their hands before coming in contact with food or drink. Hands can be washed at nearest location.

F. In case of emergency (i.e., being sprayed by hazardous waste), there are emergency showers and eyewash stations located in the Resource Recovery area.

WF-41
PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

I. PURPOSE

To ensure personal safety and protection of every employee and contractor when working in or around the Resource Recovery Facility area.

II. RESPONSIBILITY

It is the responsibility of the Environmental Technician or trained assignee to ensure that all Keystone employees and contractors wear personal protective equipment and are instructed in its proper use when in the Resource Recovery Facility area.

III. EQUIPMENT

A. Hard hat
B. Safety glasses
C. Safety shoes
D. Protective clothing
E. Respiratory protection or SCBA
F. Protective gloves
G. Anti-static boots

IV. PROCEDURE

A. Protective clothing, full-face respirator or half-face respirator with protective shield or SCBA, safety shoes, hard hat, safety glasses, protective gloves equipment must be worn in the following situations:

1. Sampling waste fuel tankers.

2. Connecting/disconnecting hoses to tankers.

3. Changing or working on waste fuel pumps where an exposure to waste fuel could be expected.

4. Working on existing solvent feed piping where an exposure to waste fuel could be expected.

5. Taking flex hose off of hazardous waste fuel torch where an excessive exposure to waste fuel could be expected.

B. A protective clothing, safety shoes, hard hat, and safety glasses must be worn in the following situations:

1. Going on top of storage tanks for inspection.

C. Employees must obey all safety and health signs posted throughout the plant.

WF-42
Respirator Use

I. PURPOSE

To ensure the protection of all employees, from respiratory hazards, through proper use of respirators.

II. RESPONSIBILITY

It is the responsibility of all authorized personnel who work in and around the waste fuel operations to comply with this procedure.

III. EQUIPMENT

A. Respirator
B. Respirator storage bags
C. Appropriate cleaning solution
D. Shaving gear

IV. PROCEDURE

A. Prior to wearing a respirator, the employee must be clean shaven in the area where the respirator contacts the face in order to provide a tight seal.

   Personnel need not be clean shaven if using a positive pressure powered air purifying respirator and passed appropriate fit test.

B. All Environmental Technicians or trained assignees will be issued his/her personal respirator.

   1. Any employees who has a temporary need and who has not been issued a respirator will be provided one on a sign-out basis. The respirator must be returned when finished, and will be cleaned and disinfected by an Environmental Technician or trained assignee before it can be signed out again (see section D).

C. Before use of a respirator, all employees are trained in proper respirator fitting and must be fit tested.

1. Respirator facepiece is put over the nose and mouth; headstraps are pulled up over and cradle the back of the head. The lower straps are connected at the back of thee neck.

2. After respirator is on, the top adjusting straps are pulled to make the facepiece snug at the face, cheek, and forehead areas. The lower straps are then pulled to attain a snug fit at the neck area.

3. Respirator should now be airtight at the face seal, but it should also be comfortable. Check for air-tightness by putting your hands over the cartridges and inhaling. The face piece should pull inward toward your face. Also check tightness by putting your hand over the exhalation valve and blowing. The facepiece should lift of your face.

4. If the facepiece does not move in or lift off during test, re-adjust respirator and perform the seal test again.

5. Seek supervisor assistance if the respirator does not seal properly.

D. Respirator Cleaning and Maintenance

1. When in use respirators will be cleaned daily or more frequently, if necessary. Cleaning will be done using appropriate cleaning solution to disinfect all parts on the facepiece.

2. During cleaning, all working parts are to be examined. If during examination a part is found to be cracked or broken, it is to be replaced immediately.

3. Filter cartridges will be replaced following the lesser interval of the intervals presented below:

-per manufacturer's recommendations based on exposure

-OR-

-for employees unloading waste fuel, at least once every seven days.

-for all other activities, including laboratory and tank inspections, at least monthly.

4. After an Environmental Technician or trained assignee is finished cleaning and inspecting a respirator, it is his/her responsibility to properly store the respirator to keep it clean and available for use.

WF-43
COMMUNICATION DEVICE PROCEDURE

I. PURPOSE

In order to maintain constant communication between Resource Recovery Facility personnel and the plant Operations personnel, a radio will be carried by the Environmental Technician or trained assignee at all times.

II. RESPONSIBILITY

It is the responsibility of the Environmental Technician or trained assignee to see that this procedure is followed at all times.

III. EQUIPMENT

A. Communication device (intrinsically safe)
B. Device chargers

IV. PROCEDURE

A. When reporting for work each morning, the Environmental Technician or trained assignee will secure a communication device to be worn until the conclusion of their shift.

   Due to the noise of pumps and trucks during the unloading process, the Environmental Technician or trained assignee will attach the microphone or receiver on himself/herself in a way that will enable him/her to hear any communication.

B. When the second shift reports for work, they will retrieve the communication device from the personnel being replaced.

C. Communication device must be maintained with an adequate charge.

WF-44
CONTRACTOR SAFETY AND HEALTH PROGRAM

I. PURPOSE

This safety and health program has been developed to protect outside contractors while working at Keystone Cement Company by assuring that all of their employees have been fully trained.

II. RESPONSIBILITY

It will be the responsibility of the Resource Recovery Facility Manager or Safety Director and the Environmental Technician or trained assignee to ensure that all contractors working on or around the solvent system (encompassing unloading pumps to the burner floor) be informed of Keystone's safety and health program through site-specific training. The contractor must sign and date the checklist as well as the employee training the contractor.

III. CONTRACTOR REQUIREMENTS

All contractors are required to provide minimum training for employees who will work on the physical property of Keystone Cement Company. A contractor who is engaged in "hazardous waste" work or within the "hazardous waste" part of the plant may be required to meet the requirements as provided in 29 CFR, HAZWOPER training. The acceptability of the training will be the responsibility of the Compliance Manager, and the intensity of the training can range from 0 to 40 hours. It shall be the responsibility of the contractor to provide Keystone with training certificates and annual updates for all employees.

Persons who perform welding on all pipe lines must provide certification that the work has been performed following acceptable welding standards.

IV. EQUIPMENT

A. PPC Plan
B. Contractor Training Form
C. Personal protective equipment
D. Other pertinent SOPs including *lockout/tagout and confined space entry,* as appropriate.

V. PROCEDURE

A. A copy of the PPC Plan will be offered to the supervisor of each contractor. A review of the relevant portions of the Plan will be conducted for each new contractor.

B. The following safety and health procedures will be explained to each contractor prior to beginning a project.

1. Evacuation notification
2. Evacuation assembly points
3. Designated smoking areas
4. Use and wear of personal protective equipment
5. Explanation of type of material in storage area and availability of MSDS.
6. Who to notify in case of an emergency
7. Fire extinguisher locations
8. Meaning of alarms and notification
9. Procedures for approval to perform certain work (e.g., electrical).

C. After these procedures are explained to the contractor and all questions have been answered, the contractor and employee must sign the checklist (see attached form).

Attachment #1

KEYSTONE CEMENT COMPANY

PROJECT: _____

_____

CONTRACTOR SAFETY

and HEALTH CHECKLIST

I have been informed of the site emergency response procedures and any potential fire, explosion, health, and safety hazards associated with the hazardous waste operation at Keystone Cement Company.

The information included:

Evacuation notification	_____
Evacuation assembly points	_____
Designated smoking areas	_____
Use and wear of PPE	_____
MSDS review	_____
Emergency notification	_____
Fire extinguisher location	_____

Date: _____

Name: _____

Company: _____

Supervisor: _____

_____ _____

Employee Signature **Date**

_____ _____

Trainer's Signature **Date**

WF-45
EMERGENCY SIREN

I. PURPOSE

The emergency siren is for use during an emergency. The activation of this alarm signifies a plant evacuation. This procedure describes the procedure for testing this alarm.

II. RESPONSIBILITY

It will be the responsibility of the Resource Recovery Department to test this alarm on a quarterly basis.

III. EQUIPMENT

A. Inspection form
B. Activation switch in Substation.
C. Activation switch in Control Room

IV. PROCEDURE

A. At least once each quarter, an actual test of the emergency siren will be conducted.

B. The siren must be activated from both activation points:

1. Substation

2. Control Room

C. If the alarm activates, complete the quarterly siren inspection form.

D. If the alarm does not sound, immediately notify the Resource Recovery Facility Manager.

Attachment #1

KEYSTONE CEMENT COMPANY **WASTE LIQUID FUE**

EMERGENCY SIREN

Quarterly Inspection

Component	Location		Comments/Action Taken
	SUBSTATION	CONTROL ROOM	(specify which location)
SIREN			

This certifies that I have completed the quarterly inspection for this unit.

TITLE: _____

NAME (print): _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS _____ *DATE* _____

WF-46
WASTE FUELS OPERATIONS PLAN AND SOP TRAINING

I. PURPOSE

To ensure that the company employees have received the necessary training and possess the knowledge to safely and properly manage hazardous wastes assuring compliance with applicable state and federal regulations and plant standard operating procedures.

II. RESPONSIBILITY

It shall be the responsibility of the Plant Manager, Safety Director and the Resource Recovery Manager to ensure that the personnel associated with the management of hazardous waste fuels have received the requisite training of the facility's Waste Fuels Operations Plan and relevant SOPs to assure compliance with state and federal regulations and minimize hazards to human health and the environment. The management of hazardous waste fuels must be performed in accordance with the SOPs and procedures defined in the company's Waste Fuels Operations Plan. Only properly trained individuals may be permitted to perform unsupervised work in these associated areas.

III. EQUIPMENT

A. Keystone Cement Company's "Waste Fuels Operations Plan"
B. Keystone Cement Company's "Preparedness, Prevention and Contingency Plan"
C. Keystone Cement Company's "Standard Operating Procedures"

IV. PROCEDURE

Key individuals who are involved in the management of hazardous waste fuels are trained in areas pertinent to their areas of responsibility.

A. Initial Training

Within six months of assignment to waste management positions, all newly hired, transferred, or cross-trained personnel will receive instruction and on-the-job training for each standard operating procedure that relates specifically to their assigned duties. In general, all newly hired, transferred, or cross-trained waste management facility personnel will be assigned to assist fully trained, experienced personnel.

Only when specific SOP training has been completed and properly documented will an individual be permitted to perform unsupervised work.

B. Annual Training Review

At least once per year, employees involved in the waste management activities are required to undergo refresher training in the company's PPC Plan and position-related SOP training. See Table 1 for the SOPs required for each job position.

C. Revised and/or New SOP Training

In the event an existing SOP is revised or a new SOP is developed due to incident response corrective action, system modifications, or simply improving an existing procedure, the following requirements shall be met:

1. The procedures outlined in SOP WF-06: Process Change will be followed.

2. Waste Fuels Operations Plan will be revised and updated.

3. New and/or revised SOP will be listed on the SOP Training Table in Section 10 of the Waste Fuels Operations Plan and appropriate personnel to be trained will be identified.

4. Prior to operating new or revised systems or performing new or revised procedures, all relevant personnel will be properly trained.

D. Relevant Job Positions

The personnel responsible for the safe operation of the resource recovery systems require proper training to perform specific activities in a safe, responsible manner. These individuals and the SOPs associated with each job position are detailed in Table 1.

E. Documentation

Individual training documentation will be maintained in the facility's operating record and will be made available for inspection by the regulatory authorities upon request.

Table 1
Summary of SOP Training

SOP	A ENVIR. TECH.	B R.R. FACILITY MGR.	C PLANT MGMT.	D SHIFT SUPER.	E COMP. MGR.	F MAINT. TECH.	G ELEC. TECH.	H CNTRL. ROOM OPR.	I LAB MGR.	J LAB TECH.
Waste Fuel Operation Plan	X	X	X	X	X				X	
PPC Plan	X	X	X	X	X	X	X	X	X	X
Lab SOPs		X	X		X				X	X
WF-01 Sampling of a Bulk Liquid Container	X	X	X		X					
WF-02 Waste Acceptance/Rejection Procedure	X	X	X		X				X	X
WF-03 Qualifying Waste Fuel Burn Tanks	deleted									
WF-04 Storage Tank Sampling	X	X	X		X					
WF-05 Unloading Procedure	X	X	X		X					
WF-06 Process Change	X	X	X	X	X	X	X	X	X	X
WF-07 Nitrogen System Inspection and Maintenance	X	X	X		X					
WF-08 Daily Waste Fuel Systems Inspection Procedure	X	X	X		X					
WF-09 Foam System Inspection and Maintenance	X	X	X		X					
WF-10 Carbon Canister Replacement Procedure	X	X	X		X					
WF-11 Liquid Level Alarm Inspection and Maintenance	X	X	X		X			X		
WF-12 Resource Recovery Facility Stormwater Management	X	X	X	X	X				X	
WF-13 Carbon Vent Line Condensate Draining	X	X	X		X					
WF-14 VOC Monitoring	X	X	X		X					
WF-15 Waste Fuel Feed Lines Purge Procedure	X	X	X	X	X			X		
WF-16 Left Blank										
WF-17 Left Blank										
WF-18 Carbon System Temperature Device Inspection and Maintenance	X	X	X		X		X			
WF-19 Carbon System Pressure Relief Device Inspection and Maintenance	X	X	X		X					
WF-20 Carbon System Flame Arrestor Inspection and Maintenance	X	X	X		X					

SOP	A ENVIR. TECH.	B R.R. FACILITY MGR.	C PLANT MGMT.	D SHIFT SUPER.	E COMP. MGR.	F MAINT. TECH.	G ELEC. TECH.	H CNTRL. ROOM OPR.	I LAB MGR.	J LAB TECH.
WF-21 Carbon System Carbon Canisters Inspection and Maintenance	X	X	X		X					
WF-22 Carbon System CO + O2 Monitoring System Inspection and Maintenance	X	X	X		X		X			
WF-23 Tank System Temperature Device Inspection and Maintenance	X	X	X		X		X			
WF-24 Tank System Pressure Sensors Inspection and Maintenance	X	X	X		X		X			
WF-25 Tank System Flame Detonator Inspection and Maintenance	X	X	X		X					
WF-26 Tank System Emergency Relief Vents Inspection and Maintenance	X	X	X		X					
WF-27 Tank System Agitators Inspection and Maintenance	X	X	X		X					
WF-28 Tank System Structural Integrity Inspection and Maintenance	X	X	X		X					
WF-29 Piping System Structural Integrity Inspection and Maintenance	X	X	X		X					
WF-30 Containment Area Structural Integrity Inspection and Maintenance	X	X	X		X					
WF-31 Tank System Incident Response	X	X	X	X	X	X	X	X	X	X
WF-32 CO Alarm Incident Response	X	X	X	X	X			X		
WF-33 Operations Incident Response	X	X	X	X	X		X	X		
WF-34 Tank System Liquid Level Alarm Response	X	X	X	X	X			X		
WF-35 Tank System High Temperature Response	X	X	X	X	X			X		
WF-36 Tank System High Pressure Level Incident Response	X	X	X	X	X			X		
WF-37 Emergency Response	X	X	X	X	X	X	X	X	X	X
WF-38 Waste Fuels Operations Plan Review and Update	X	X	X	X	X	X	X	X	X	X
WF-39 Open Flame and Hot Work	X	X	X	X	X	X	X	X	X	X
WF-40 Personal Hygiene Procedure	X	X	X	X	X	X	X	X	X	X
WF-41 Personal Protective Equipment Requirements	X	X	X	X	X	X		X	X	X

SOP	A ENVIR. TECH.	B R.R. FACILITY MGR.	C PLANT MGMT.	D SHIFT SUPER.	E COMP. MGR.	F MAINT. TECH.	G ELEC. TECH.	H CNTRL. ROOM OPR.	I LAB MGR.	J LAB TECH.
WF-42 Respirator Use	X	X	X	X	X	X		X	X	X
WF-43 Communication Device Procedure	X	X	X	X	X	X	X	X	X	X
WF-44 Contractor Safety and Health Program	X	X	X	X	X	X		X	X	X
WF-45 Emergency Siren	X	X	X	X	X	X	X	X	X	X
WF-46 Waste Fuel Operations Plan and SOP Training		X	X		X					
WF-47 Waste Fuel Flowmeter Calibration and Verification	deleted									
WF-48 Waste Fuel Flowmeter Security			X	X	X		X	X		
WF-49 Waste Fuel Flow Systems Inspection Form			X	X	X		X	X		
WF-50 Documentation Requirements for the Waste Fuel Operations Plan	X[a]	X	X	X	X	X	X	X	X	X
WF-51 Plant Visitors Policy and Procedures	X	X	X	X	X	X	X	X	X	X
WF-52 Purge Storage Tanks with Nitrogen	X	X	X		X					
WF-53 Confined Space	X	X	X	X	X	X	X		X	
WF-54 Emergency Equipment	X	X	X		X					
WF-55 Containment Area Cleanup	X	X	X	X	X					
WF-56 Vapor Balance System-Conservation Vent Inspection and Maintenance	X	X	X		X					
WF-57 Vapor Balance System-Pressure Sensor Inspection and Maintenance	X	X	X		X		X			
WF-58 Vapor Balance System-Flame Arrestor Inspection and Maintenance	X	X	X		X					
WF-59 Vapor Recovery	X	X	X		X					
WF-60 Truck Staging and Parking Areas	X	X	X	X	X					
WF-62 Daily Inspection Procedure for Kiln Residue Management Equipment	X	X	X	X	X					

[a] The Documents Coordinator is also included with the Environmental Technicians for this standard operating procedure.

Envir. Tech. - Environmental Technician, Unloader, & Maintenance
R.R. Facility Mgr. - Resource Recovery Facility Manager
Plant Mgmt. - Plant Management
Shift Super. - Production Manager, Coordinator, Shift & Utility Supervisor
Comp. Mgr. - Compliance Manager & Coordinator
Maint. Tech. - Maintenance Manager & all maintenance personnel
Elec. Tech. - Electrical Manager and Electrical Technician
Cntrl. Room Opr. - Control Room Operator and Expeditor A & B
Lab Mgr. - Laboratory Manager
Lab Tech. - Laboratory Technician

WF-47
WASTE FUEL FLOW METER - CONTROLOTRON
CALIBRATION AND VERIFICATION

DELETED

WF-48
WASTE FUEL FLOW METER SECURITY

I. PURPOSE

Invoking security to the computer database is necessary to prevent anyone without proper authorization from gaining access to any menu location where data can be changed or invoking any activity which could interrupt or affect operation.

II. RESPONSIBILITY

It shall be the Electronic Technician's or trained assignee's responsibility to install the security to the system. The Electronic Technician shall not divulge the identity of the alpha-numeric security Password to anyone unless authorized by the Compliance Manager.

III. EQUIPMENT

A. MicroMotion mass flow tube
B. MicroMotion instruction book

IV. PROCEDURE

A. Once all of the site setup parameters have been installed in the database, the Electronic Technician or trained assignee shall invoke security.

B. Security shall be invoked by entering the alpha-numeric security code as procedurally described in the MicroMotion instruction book.

C. The security code shall be recorded by the Electronic Technician, placed in a sealed envelope, and retained in the CONFIDENTIAL section of the written operating record.

D. Once security has been set, any subsequent activation or deactivation of the database must be clearly documented and retained in the written operating record. This record shall contain the following information:

1. Date of access
2. Time of access
3. Reason for access
4. Modification performed
5. Signature of authorized personnel

Note: The Electronic Technician or trained assignee must be notified and grant permission prior to any authorized entry.

E. If the need for an emergency access arises at a time when all password-authorized personnel are absent from the site, the password can be given by phone to a trained technician by a password-authorized person. The code must then be modified upon the Electronic Technician's return to the site.

F. In order to preserve the effectiveness of the security system, the Electronic Technician shall modify the security code on an annual basis.

G. Authorized personnel shall be the Electronic Technicians and the Environmental Department.

WF-49
WASTE FUEL FLOW SYSTEMS INSPECTION FORM

I. PURPOSE

Timely and proper completion of the Waste Liquid Flow Systems Inspection Form will certify the proper functioning and reliability of the instruments, prevent and/or identify potential instrument malfunctions, and ensure the integrity of the collected liquid flow data.

II. RESPONSIBILITY

The Electrical Supervisor, Production Manager, or a properly trained designee shall be required to perform the waste liquid flow systems inspections. The Documents Coordinator is responsible for complying with the mandatory compliance inspection schedules and maintaining the proper documentation in the operating record.

III. EQUIPMENT

A. Alarms
B. Sensor
C. PLC computer
D. Server screens
E. Micro Motion flow meter

IV. PROCEDURE

The Documents Coordinator shall schedule, manage, and maintain records of all inspections and forms and ensure they are performed in a timely fashion. The Electrical Supervisor or a qualified designee shall ensure that all inspections are performed in accordance with manufacturer's recommendations. At a minimum, the following inspection at these specified intervals shall be performed.

Attachment #1
SAMPLE FORM [1]

KEYSTONE CEMENT COMPANY

MACT TECHNICIANS/INSPECTION FORMS
Master List

	CHECK	DAILY	WEEKLY	30-DAYS	QUARTERLY	YEARLY	DEPT
Kiln 1 System Interlock Simulated Performance Test	Simulated & actual interlocks			√			Elec. & Oper.
Control Room Monitors #1 & #2	Data screens	√					Elec.
	Receiving data	√					
	Clock time	√					
Telemetry System	Modem / PC anywhere	√					Elec.
	File server – date and time	√					
	File server - data	√					
Purge Air Pressure	Kiln	√					Oper.
	Calciner	√					
Room 201 Server #1, #2 Screens	All indicators properly displayed on screen	√					Elec.
/F Feed Interlock	Cut-off valve		√				Oper.
HWF Flow Meters	Calibration					√ *	Elec.

* Inspection conducted annually typically in conjunction with plant shutdown.

This is to certify that all requirements have been completed.

Signature Date: Time:

[1] Actual form and/or format used may vary, but will contain all information listed on this sample as required by this Standard Operating Procedure.

All inspection reports, when complete, shall be signed, dated and copied to the Documents Coordinator.

All technical inspections shall be performed in accordance with the manufacturer's field manual.

All noted malfunctions shall be acted upon per applicable standard operating procedure.

KEYSTONE CEMENT COMPANY WASTE LIQUID FUEL

CONTROL ROOM MONITORS #1 & #2

Daily Inspection

Component	Status		Comments/Action Taken
	1	2	(specify unit 1 or 2)
DATA SCREENS			
RECEIVING DATA			
CLOCK TIME			

This certifies that I have completed this daily inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY WASTE LIQUID FUEL

TELEMETRY SYSTEM

Daily Inspection

Component	Status	Comments/Action Taken
MODEM / PC ANYWHERE		
FILE SERVER DATE AND TIME		
FILE SERVER DATA		

This certifies that I have completed this daily inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY WASTE LIQUID FUEL

PURGE AIR PRESSURE

Daily Inspection

Panel No.	Air Pressure	Regulator Operable
KILN		
CALCINER		

This certifies that I have completed this daily inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY WASTE LIQUID FUEL

ROOM 201 SERVER #1, #2 SCREENS

Daily Inspection

Component	Status		Comments/Action Taken
	1	2	(specify unit-1 or 2)
ALL INDICATORS PROPERLY DISPLAYED ON SCREEN			

This certifies that I have completed this daily inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY WASTE LIQUID FUEL

HAZARDOUS WASTE FEED INTERLOCK KILN & CALCINER

Weekly Inspection

Component	Status		Comments/Action Taken
	KILN	CALCINER	(specify unit)
VALVE			

This certifies that I have completed this weekly inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY WASTE LIQUID FUEL

HAZARDOUS WASTE FEED INTERLOCK KILN & CALCINER

Yearly Inspection*

Component	Status		Comments/Action Taken
	KILN	CALCINER	(specify unit)
CALIBRATION			

* Inspection conducted annually, typically in conjunction with plant shutdown. Inspection requires the monitor to be sent to the manufacturer.

This certifies that I have completed this yearly inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ *DATE:* _____

WF-50
DOCUMENTATION REQUIREMENTS FOR THE WASTE FUELS OPERATIONS PLAN

I. PURPOSE

To ensure all inspection forms are completed, filed, and/or sent to the proper location at the proper time.

II. RESPONSIBILITY

It is the responsibility of the Maintenance Technicians, Shift Foremen, Resource Recovery Facility personnel, and the Documents Coordinator to follow this procedure.

III. EQUIPMENT

A. Inspection forms
B. Filing equipment
C. Waste Fuel Operations System Master List

IV. PROCEDURE

A. Required Inspection Reports

The Documents Coordinator will be receiving daily, weekly, quarterly, and yearly inspection reports from the various departments throughout Keystone. The Coordinator's responsibility is to see that all inspection reports are received on time and completed properly. Also, some of the reports need to be forwarded to other locations outside of the plant. This also will be the responsibility of the Coordinator.

The following is a list of inspection reports that should be received by the Coordinator and at what time they should arrive.

1. Daily Inspection Reports - Inspection to be completed by 11:59 p.m. and documentation to Coordinator by the morning of the following day. On weekends and holidays, forward by the morning of the next Plant Office operating day.

   a. Solvent System Daily Inspection

b. Instrumentation Log
c. CO and O_2 Analyzer
d. Carbon Adsorption
e. Kiln Residue Management Equipment Inspection

2. Weekly Inspection Reports - Inspection to be completed by Friday 11:59 p.m. and documentation to Coordinator by the morning of the following Monday. (On holidays, forward by the morning of the next Plant Office operating day.

   a. CO and O_2 Analyzer

3. Quarterly Inspection Reports - Inspection to be completed by 11:59 p.m. on March 31, June 30, September 30, and December 31 and documentation to Coordinator by the morning of the following day. On weekends and holidays, forward by the morning of the next Plant Office operating day.

   a. Foam System
   b. CO and O_2 Analyzer
   c. Emergency Siren
   d. Tank System Subpart BB Testing

4. Yearly Inspection Reports - Inspection to be completed by 11:59 p.m. on December 31 and documentation to Coordinator by the morning of the following morning. On weekends and holidays, forward by the morning of the next Plant Office operating day.

   a. Waste Fuel Operations Plan
   b. PPC Plan
   c. Pressure Transmitters
   d. Temperature Transmitters
   e. Flame Arrestor
   f. Flame Detonator
   g. Carbon System Pressure Relief
   g. Emergency Vents
   h. Tank System Certification

B. Check each inspection report for:

1. A checkmark in 'status' column

2. Title of inspector

3. Printed name of inspector

4. Date of inspection

5. Signature of inspector

6. Comments/action taken column filled in *

7. Any attached Incident Report **

If any of the above are not filled in (except comments section) return the inspection report to the department responsible for the report. Have them return to you the completed inspection report by a time mutually agreed upon.

C. Initial inspection form and record time.

D. Date each inspection form.

E. After receipt of all inspection forms for that day, sign, date, and record the time on the Solvent Flow Master List.

F. Place all inspection forms and the master list in the appropriate binder in the filing area of the Plant Office.

* If comment section is filled in, send a copy of the report to the Compliance Manager and Plant Manager.

** If an Incident Report is included with the inspection form, send a copy to the Compliance Manager and Plant Manager.

KEYSTONE CEMENT COMPANY (SAMPLE FORM)**

WASTE FUEL OPERATIONS SYSTEM MASTER LIST

	CHECK	1 DAILY	2 WKLY	3 MTHLY	4 QRTLY	5 YEARLY
DAILY WASTE FUEL SYSTEMS INSPECTIONS	containment	*				
	safety devices & equipment	*				
	foam system	*				
	tanks	*				
	tank trucks	*				
	pumps & piping	*				
	yard roadways	*				
	surrounding areas	*				
	carbon & nitrogen systems	*				
	drums	*				
INSTRUMENTATION LOG	temperature	*				
	pressure	*				
	carbon readings (O_2 & CO)	*				
	nitrogen to pump seals	*				
	nitrogen to blanketing valves	*				
	nitrogen to agitator seals	*				
	liquid tank levels	*				
	vent line	*				
CO and O_2 ANALYZER	analyzer flow rate	*				
	calibrate analyzer		*			
	alarm operation		*			
	condition of filters		*			
	condition of flowmeter tubes		*			
	calibration gas pressure		*			
	fan filter element clean/replace				*	
	replace sample filter element				*	
	clean exterior of analyzer				*	
	replace analyzer filter element				*	
EMERGENCY SIREN	siren-substation & control room				*	
FOAM SYSTEM	certification				*	
WASTE FUEL OP PLAN	update					*
PPC PLAN	update					*
PRESSURE TRANSMITTERS	calibrate					*
TEMP. TRANSMITTERS	calibrate					*
FLAME ARRESTOR	clean and inspect					*
FLAME DETONATOR	clean and inspect					*
CARBON SYSTEM	pressure relief					*
CARBON ADSORPTION	background reading	*				
	< 180 ppm above background	*				
TANK SYSTEM SUBPART BB	testing complete				*	
TANK SYSTEM CERTIFICATION	tank certification					*
	piping certification					*
	containment certification					*
EMERGENCY VENTS	clean pallet					*
	visual inspection					*
KILN RESIDUE MNGMT, EQUIPMENT	valve & tank leakage	*				
	cyclone & conveyors	*				
	baghouse	*				
	elevator	*				
	accumulation of dust	*				

** Actual form and/or format used may vary, but will contain all information listed on this sample as required by this Standard Operating Procedure.

This is to certify that all requirements have been completed.

Signature: _____ Date: _____ Time: _____

WF-51
PLANT VISITORS POLICY/PROCEDURE

I. PURPOSE

To maintain the integrity and effectiveness of Keystone's Cement Company's plant security and safety, it is absolutely essential and mandatory that all visiting personnel (other than working Keystone employees or Keystone employed contractors specifically assigned at the site) sign a plant visitor's log book and be escorted at all times while on company property. Log books are located at the Plant Office, Purchasing Department, Cement Lab, and Resource Recovery trailer.

II. RESPONSIBILITY

It shall be the responsibility of all Keystone employees to notify the on-duty Shift Foreman immediately upon the recognition of any unauthorized, unescorted or unfamiliar persons or vehicles on Keystone property. It shall be the responsibility of all Shift Foremen to either call the police or approach any unknown individuals or vehicles on plant property, require or request proper identification, verify that visitors have properly signed a visitor's log book and arrange or verify that all visitors are properly escorted.

During normal business hours it shall be the receptionist's or Environmental Technician's responsibility to require all visitors to properly complete the visitor's log book and arrange for an escort to meet, accompany, and assist all visitors.

During non-business hours it shall be the responsibility of the Control Room Operator or trained assignee to notify the Shift Foreman and arrange for an escort to meet, accompany, and assist all visitors. It shall be the responsibility of all designated Keystone escorts to never leave a visitor unattended.

III. EQUIPMENT

A. Visitor's log book
B. 24 hour surveillance cameras

C. Communication device*

*All Keystone cement employees carry a communication device. Visitors being escorted or accompanied by a Keystone employee can gain access to a communication device through the Keystone employee in the event of an emergency. If the visitor is working independent of Keystone personnel, emergency communications can be performed by utilizing their personnel communication device or locate the closest Keystone communication device (i.e., employee, plant phone, etc.).

IV. PROCEDURE

For the purpose of this procedure, a visitor is defined as any person(s) or vehicle(s) who is not a Keystone Cement Company employee(s) or their designated driver and their vehicle(s); a Keystone Cement Company employed contractor(s) and their vehicle(s) or a Keystone Cement Company customer.

A. Normal Business Hours - Monday through Friday 8:00 a.m. to 5:00 p.m.

1. During normal business hours all visitors are to report or be directed to the appropriate location where visitor log books are located. Log books are located at the Plant Office, Purchasing Department, Cement Lab, and Resource Recovery trailer.

2. The on-duty office receptionist or Environmental Technician shall require all visitors to sign the visitor's log book.

3. The on-duty office receptionist or Environmental Technician shall notify the proper Keystone authority to meet said visitor at the log book location.

4. All visitors must remain within the waiting area until a Keystone authority arrives to properly escort said visitor while on company property.

5. All visitors will be issued the proper safety equipment, if necessary.

6. All visitors must be accompanied by a Keystone escort at all times and never left unattended.

7. Upon the conclusion of the visit, inspection, tour, etc., the Keystone escort will accompany said visitor back to the visitor log book location

to return all issued safety equipment and sign out in the visitor's log book.

B. Non-business Hours - Monday through Friday 5:00 p.m. to 8:00 a.m.
Saturday, Sunday, and Holidays

1. During non-business hours or any time the plant's main office is closed or unattended, all visitors are to report or be directed to the Purchasing Office on the east side of Route 329.

2. A sign posted in the vestibule area of the Purchasing Office will direct all visitors to follow these instructions:
   a. sign the visitor's log book
   b. contact the Control Room via the provided telephone and number to notify the on-duty operator of visitor's identity and purpose of visit
   c. wait within the Purchasing Office for an escort to arrive

3. The Control Room Operator or trained designee shall contact the proper Keystone authority (usually the Shift Foreman) to provide an escort for said visitor.

4. The designated Keystone escort shall verify that the visitor has properly completed the visitor's log book and the directives listed above are performed.

C. Unauthorized/unescorted Visitors Discovered in Plant

1. If an employee discovers any unauthorized, unescorted or unfamiliar person(s) or vehicle(s) on Keystone property, they are to immediately notify the on-duty Control Room Operator or trained assignee.

2. The Control Room Operator or trained assignee will immediately contact, via telephone and/or radio, the on-duty Shift Foreman.

3. The Shift Foreman will immediately respond and investigate as defined above.

4. The Shift Foreman shall initiate the appropriate procedures identified above.

5. If the unauthorized visitor is uncooperative or unwilling to abide by the Plant Visitors Policy, the Shift Foreman may either approach the

subject and kindly request that they leave the property or, if necessary, simply call the police for assistance.

WF-52
PURGE STORAGE TANKS WITH NITROGEN

I. PURPOSE

To ensure that the oxygen levels in the storage tanks are below 5% before filling a storage tank that has been taken out of service for repair, routine maintenance, or inspection. This procedure must also be performed whenever a tank isolation valve is found to be closed.

II. RESPONSIBILITY

It shall be the responsibility of the Storage Facility personnel to comply with this procedure.

III. EQUIPMENT

A. Nitrogen supply lines
B. Storage tanks
C. Oxygen analyzer

IV. PROCEDURE

A. Isolate tank from vent line system so that air displaced from the tank will be vented directly to atmosphere or through carbon.

B. Connect nitrogen supply line to the storage tank to be purged.

C. Purge nitrogen through the waste fuel tank until the oxygen concentration at the tank or carbon discharge vent is below 5%.

D. When the oxygen level has dropped to 5% or below, disconnect nitrogen purge line.

E. Initiate unloading procedure.

WF- 53
CONFINED SPACE ENTRY

I. PURPOSE

To provide safe procedures for employees and contractors entering and/or working in a confined space in Keystone's Waste Fuel Area as defined in Keystone Cement Company's Confined Space Entry Program.

II. RESPONSIBILTY

If Confined Space Entry is performed by Keystone Cement Company employees, it will be the responsibility of the Resource Recovery Manager and Safety Director to ensure Keystone employees follow the procedures in Keystone's Confined Space Entry Program (see Attachment A).

If Confined Space Entry is performed by a contractor, Keystone's Resource Recovery Manager will inform the contractor that they are required to follow Keystone's Confined Space Entry Program. As an alternative, if the contractor has their own Confined Space Entry Program, they may elect to have it reviewed by Keystone's Safety Director, or his designee. The Safety Director or his designee will evaluate the contractor's program and employee certification dates to ensure it covers all essential points and is in adherence with OSHA/MSHA requirements. If these requirements are met, the Safety Director or his designee can approve and the contractor may use their Confined Space Entry Program.

Under either scenario, the leader or highest ranking member of the contractor's crew will be responsible to ensure that the contractor's employees follow correct confined space entry procedures.

III. EQUIPMENT*

A. Personal Protective Equipment (as required for by specific case)
B. Intrinsically Safe Communication Device
C. Gas Monitor
D. Ladders
E. Tripod

F. Manual Hoist
G. Body Harness
H. Lanyards and ropes
I. Fire Extinguishers
J. SCBA air packs if needed
K. Supplied Breathable air if needed
L. Intrinsically Safe Lighting
M. Other Equipment as needed by specific case

*Not all equipment required for every confined space entry.

IV. PROCEDURE

See Attachment #1, Keystone Cement Company Confined Space Entry Program, procedures for testing and evaluation of confined space atmospheres to determine safety and personal protection requirements.

Written permission in the form of a Confined Space Entry Permit (Attachment #2) must be obtained and posted at the entrance of the confined space as described in the Confined Space Entry Program (Attachment #1). Written permission is required for both Keystone employees and contractors.

Attachment #1

CONFINED SPACE ENTRY PROGRAM

KEYSTONE CEMENT COMPANY
Certain

INTRODUCTION

WHENEVER IT IS NECESSARY FOR AN EMPLOYEE OF KEYSTONE CEMENT COMPANY or outside contractor TO ENTER A CONFINED SPACE, PRECAUTIONARY MEASURES MUST BE TAKEN AS TO THE CONTENTS OF THE SPACE, THE ADEQUACY OF VENTILATION FOR THE EMPLOYEE AND THE ADHERENCE TO THE SOUND PRACTICES FOR THE PARTICULAR TYPE OF CONFINED SPACE TO BE ENTERED.

THIS STANDARD OPERATING PROCEDURE DETAILS THOSE MEASURES TO BE TAKEN TO ENSURE EMPLOYEE/CONTRACTOR SAFETY WHEN CONFINED SPACE ENTRY IS REQUIRED. ALL ENTRIES INTO A CONFINED SPACE ARE BY PERMIT ONLY. THE PERMIT CONSTITUTES A WRITTEN AUTHORIZATION AND SPECIFIES THE LOCATION AND TYPE OF WORK TO BE PERFORMED. IN ADDITION, THE PERMIT CERTIFIES THAT ALL EXISTING HAZARDS HAVE BEEN EVALUATED AND THAT THE APPROPRIATE PROTECTIVE MEASURES AND EQUIPMENT HAVE BEEN ASSIGNED TO ENSURE THE SAFETY OF THE WORKER.

DEFINITIONS

CONFINED SPACE: A VESSEL, ROOM OR AREA WITH A RESTRICTED MEANS OF EXIT OR ENTRY. AN AREA WITH UNFAVORABLE VENTILATION WHICH CAN HARBOR DANGEROUS LEVELS OF AIR CONTAMINATES OR AN OXYGEN DEFICIENT ATMOSPHERE. A RESTRICTED MEANS OF EXIT OR ENTRY ALONE WILL NOT DEEM AN AREA CONFINED SPACE, HOWEVER ALL MONITORING WILL BE DONE AND THE BUDDY SYSTEM MAY NEED TO BE INITIATED AFTER DISCUSSION WITH SAFETY COORDINATOR, SUPERVISOR, AND WORKERS TO ENTER THIS AREA.

CONFINED SPACE ENTRY: THE POINT AT WHICH AN INDIVIDUAL'S FACE OR TRUNK OF THE BODY BREAKS THE PLANE OF THE CONFINED SPACE.

CONFINED SPACE COORDINATOR: PLANT SAFETY COORDINATOR OR HIS DESIGNEE.

OXYGEN DEFICIENT ATMOSPHERE: AN ATMOSPHERE WHICH CONTAINS LESS THAN 19.5% OXYGEN. AN ATMOSPHERE WITH GREATER THAN 25%

OXYGEN SHALL ALSO BE DEEMED IMMEDIATELY DANGEROUS TO LIFE AND HEALTH -- IDLH.

ISOLATING OR ISOLATION: A PROCESS WHERE THE CONFINED SPACE IS TOTALLY REMOVED FROM SERVICE AND COMPLETELY PROTECTED AGAINST RELEASE OF ENERGY OR MATERIAL.

STAND-BY OR BUDDY SYSTEM: A PERSON TRAINED IN RESCUE PROCEDURES AND ASSIGNED TO REMAIN OUTSIDE OF THE CONFINED SPACE. THIS INDIVIDUAL WILL REMAIN IN CONSTANT COMMUNICATION BY VERBAL OR NONVERBAL MEANS WITH THOSE WORKING IN THE CONFINED SPACE. THIS PERSON SHALL BE EQUIPPED WITH RADIO AND ANY OTHER SAFETY EQUIPMENT NECESSARY TO SAFELY COMPLETE WORK IN CONFINED SPACE.

RESPONSIBILITIES

PLANT SAFETY COORDINATOR

1. MAINTAIN ALL NECESSARY EQUIPMENT.
2. ASSIST SUPERVISOR IN PREPARING AND APPROVING ENTRIES.
3. ASSIST IN TRAINING THE WORKERS.
4. FINAL DECISION OF WHAT DEFINES A CONFINED SPACE AT KEYSTONE CEMENT PLANT.

ALL SUPERVISORS AND MANAGERS WHOSE PERSONNEL MUST ENTER A CONFINED SPACE.

1. ASSIST WITH SPECIFIC JOB TRAINING, WHEN NECESSARY.
2. APPROVE CONFINED SPACE ENTRIES.
3. MONITOR ENTRY TO ENSURE PROPER PROCEDURES ARE BEING FOLLOWED.
4. MAKE SURE THE AREA IS CLEANED UP AND ALL EQUIPMENT IS RETURNED TO ITS PROPER STORAGE LOCATION.
5. FORWARD ALL CONFINED SPACE ENTRY PERMITS TO SAFETY COORDINATOR.

EMPLOYEE/CONTRACTOR

1. ABIDE BY ALL PROCEDURES.
2. NOTIFY SUPERVISOR OR SAFETY COORDINATOR OF ANY POTENTIAL HAZARDS.

PROCEDURES

1. THE CONFINED SPACE ENTRY COORDINATOR FOR THE PURPOSE OF THE STANDARD OPERATING PROCEDURE SHALL BE THE PLANT SAFETY COORDINATOR OR HIS DESIGNEE.

2. THE SPECIFIC ENTRY TO BE PERFORMED WILL BE EVALUATED AHEAD

OF TIME TO DETERMINE THE EQUIPMENT NECESSARY. THIS EVALUATION INCLUDES A DETERMINATION OF THE REQUIRED CONFINED SPACE ENTRY RESCUE EQUIPMENT, SAFETY BELTS AND HARNESSES, LIGHTING AND THE PROPER TOOLS FOR THE TYPE OF WORK TO BE PERFORMED WITHIN THE CONFINED SPACE.

3. PRIOR TO ENTERING A CONFINED SPACE, THE EMPLOYEE/CONTRACTOR WILL BE THOROUGHLY TRAINED IN THE CONTENTS OF THIS CONFINED SPACE ENTRY PROCEDURE. THIS TRAINING WILL INCLUDE THE PROPER PROCEDURES FOR RESCUE. ALL EMPLOYEES OF KEYSTONE CEMENT COMPANY WITH RCRA TRAINING ARE CERTIFIED FOR CONFINED ENTRY AND RESCUE, ON SITE FOLLOW UP BY SAFETY COORDINATOR WILL BE CONDUCTED IF NECESSARY AND ALL QUESTIONS ON THIS CONFINED SPACE PROCEDURE WILL BE ANSWERED. OUTSIDE CONTRACTORS WILL SHOW EVIDENCE OF CONFINED SPACE CERTIFICATION OR WILL MAKE PROVISIONS THROUGH THE PLANT SAFETY COORDINATOR FOR ON SITE TRAINING ON THIS AND ALL PLANT SAFETY PROCEDURES.

4. THE CONFINED SPACE WILL BE EMPTIED TO THE GREATEST EXTENT POSSIBLE OF ANY MATERIALS, CHEMICALS OR VAPORS PRIOR TO THE ACTUAL ENTRY. TO ACCOMPLISH THIS TASK WHEN ENTERING THE MANWAYS WILL BE REMOVED.
IF NECESSARY, A VENTILATION DEVICE MAY BE UTILIZED TO INTRODUCE FRESH AIR INTO CONFINED AREA.

5. THE CONFINED SPACE WILL BE SECURED FROM THE INTRODUCTION OF MATERIAL, ELECTRICAL OR MECHANICAL ENERGY UTILIZING THE PROCEDURES OF PLANT LOCK OUT/TAG OUT POLICY.

6. THE ATMOSPHERE WITHIN THE CONFINED SPACE WILL BE TESTED IN ORDER TO DETERMINE THE PROPER PERSONAL PROTECTIVE EQUIPMENT TO BE UTILIZED BY THE EMPLOYEE/CONTRACTOR PERFORMING THE CONFINED SPACE ENTRY.

7. THE ATMOSPHERE WITHIN THE CONFINED SPACE SHALL BE ALTERED TO BRING RISK LEVELS TO A MINIMUM IF NECESSARY.

8. WRITTEN PERMISSION TO ENTER THE CONFINED SPACE MUST BE OBTAINED FROM THE PLANT SAFETY COORDINATOR AND MUST BE POSTED AT ENTRANCE TO CONFINED BEFORE ENTRY AND DURING WORK PERIOD INSIDE CONFINED SPACE.

9. A CONFINED ENTRY PERMIT SHALL BE VALID FOR ONLY THE TIME PERIOD OF CONTINUOUS WORK BEING PERFORMED IN CONFINED SPACE, IF WORK LASTS MORE THAN 8 HOURS, RETESTING OF ATMOSPHERE WILL

BE DONE BY SAFETY COORDINATOR BEFORE ADDITIONAL EMPLOYEES/CONTRACTORS ENTER AND COMPLETE WORK IN CONFINED SPACE.

10. THE PERSONS ENTERING THE CONFINED SPACE MUST BE EQUIPPED WITH THE APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT AS DETERMINED BY THE CONDITIONS PRESENT.

11. THERE MUST BE A STAND-BY PERSON PRESENT AT ALL TIMES DURING ENTRY AND WORK, THE STAND BY PERSON SHALL BE EQUIPPED WITH SAME EQUIPMENT AS THE CONFINED SPACE ENTRANTS. IN IGNITION OR FLAMMABLE CONDITIONS STAND-BY PERSONNEL SHALL BE EQUIPPED WITH ADEQUATE FIRE FIGHTING EQUIPMENT.

12. ALL RESCUE PROCEDURES WILL BE DISCUSSED WITH ALL PERSONNEL INVOLVED WITH CONFINED SPACE WORK BEFORE ENTRY IS PERMITTED. ALL STAND-BY PERSONNEL WILL BE EQUIPPED WITH RADIO AND WILL CONTACT CONTROL ROOM FOR NOTIFICATION OF OUTSIDE EMERGENCY RESCUE PERSONNEL TO BE DISPATCHED TO EXACT SITE. IN ADDITION SUPERVISOR AND ADDITIONAL BACK UP PERSONS SHALL BE CALLED ON RADIO.

IN ADDITION TO ALL PROCEDURES IN THIS POLICY, ANY ADDITIONAL MEASURES THAT DEEM TO BE TAKEN DURING CONFINED SPACE WORK ARE TO BE DOCUMENTED AND WILL BE ADDED TO A REVISED CONFINED SPACE POLICY IMMEDIATELY. AT NO TIME WILL ANY EMPLOYEES OF KEYSTONE CEMENT COMPANY OR CONTRACTORS DISREGARD THIS OR ANY OTHER REGULATION OR POLICY ESTABLISHED BY COMPANY OR MSHA TO ENSURE SAFETY OF ALL PERSONS ON COMPANY PROPERTY.

Attachment #2

KEYSTONE CEMENT COMPANY

CONFINED SPACE ENTRY PERMIT

1. GENERAL

DATE OF ENTRY:_____ **LOCATION OF ENTRY:**_____
_____

ANTICIPATED WORK DESCRIPTION:_____
_____
_____
_____

ESTIMATED TIME REQUIRED TO COMPLETE WORK:_____

2. SAFETY

ARE ALL MATERIAL FEEDS LOCKED OUT, DISABLED OR CAPPED?_____

ARE ALL POWER SOURCES LOCKED OUT?_____

HAS AREA BEEN POSTED AND UNAUTHORIZED ENTRY PREVENTED?_____

LIST ALL SAFETY AND RESCUE EQUIPMENT NEEDED TO COMPLETE TASK:_____
_____
_____
_____
_____
_____
_____

HAS ALL ABOVE EQUIPMENT BEEN INSPECTED FOR DEFECTS:_____

LIST ALL POTENTIAL PHYSICAL HAZARDS TO AWARE OF:_____
_____
_____
_____

HAVE ENTRANT RESCUE PROCEDURES BEEN DISCUSSED WITH ALL INVOLVED PERSONNEL_____

DESIGNATED FIRE/SAFETY WATCH_____

_____

3. FIRE HAZARDS AND PROCEDURE

IS ATMOSPHERE AND SURROUNDING MATERIALS CAPABLE OF PRODUCING IGNITION:_____
IF YES ARE FIRE EXTINGUISHERS PRESENT:_____
EACH MAN EQUIPPED WITH RADIO:_____

4. HEALTH

LIST ALL READINGS FROM GAS MONITOR
1. OXYGEN:_____
2. CO:_____
3. H2S:_____
4. ADDITIONAL READINGS:_____

_____

LIST TYPE OF RESPIRATORY PROTECTION USED AND REQUIRED:_____

_____

ARE SUPPLIED AIR RESPIRATORS REQUIRED:_____
IS ATMOSPHERE SAFE FROM CHEMICAL EXPOSURE:_____

5. AUTHORIZATION

ADDITIONAL COMMENTS OR REQUIREMENTS:_____

_____

_____

_____

SUPERVISOR/MANAGER:_____

SUPERVISOR/MANAGER SIGNATURE:_____

EMPLOYEE'S SIGNATURES AND SIGN OFF ON CERTIFICATION OF TRAINING: (RCRA AND/OR ON SITE):_____

_____

_____

_____

_____

SAFETY COORDINATOR'S SIGNATURE:_____

DATE AND TIME OF SAFETY COORDINATOR'S RELEASE TO ENTER CONFINED SPACE:_____

DATE AND TIME THIS CONFINED SPACE PERMIT NO LONGER VALID AND WORK COMPLETED ON THIS PERMIT:_____

WF-54
EMERGENCY EQUIPMENT INSPECTION MAINTENANCE

I. PURPOSE

To ensure that emergency equipment is available and in proper working order.

This procedure is not intended to replace the inspection procedures given in SOPs WF-07, WF-08, WF-09, WF-11, WF-18, WF-19, WF-20, WF-21, WF-22, WF-23, WF-24, WF-25, WF-26, WF-27, WF-28, WF-29, WF-30, WF-56, WF-57, WF-58, and other SOPs developed after the date of this revision of WF-54.

II. RESPONSIBILTY

Environmental Technician or trained assignee as directed by Resource Recovery Manager

III. EQUIPMENT

A. Solvent Facility Inspection Form (Attachment of SOP WF-08)

IV. PROCEDURE

A. Environmental Technician or trained assignee shall obtain a Solvent Facility Daily Inspection Form (Top section of form lists Emergency Equipment).

B. Environmental Technician shall inspect every item on the form. Figure 6 of Keystone's Preparedness, Prevention and Contingency (PPC) Plan, which shows the locations of emergency equipment, may be used to locate certain items.

C. If item passes inspection, the Environmental Technician shall put a check in the 'ACC' column, indicating 'acceptable'.

D. If item requires correction that the Environmental Technician can immediately perform, he or she shall make correction and note in the 'Comment' column.

E. If item requires correction that the Environmental Technician cannot immediately perform, he or she shall put a check in the 'UNACC' column indicating 'unacceptable'. In that case, the Environmental Technician shall notify supervisor.

F. The completed form shall be given to the Resource Recovery Manager.

G. If there are any inspection items indicated as unacceptable, the Resource Recovery Manager shall ensure corrections are made in a timely manner.

H. Completed forms shall be filed and archived as needed.

WF-55
CONTAINMENT AREA CLEANUP

I. PURPOSE

This procedure defines the steps to be taken to properly clean Resource Recovery facility tank system containment pad(s) after a release has occurred. If waste material is released to secondary containment, it must be removed within 24 hours or in as timely a manner as possible. This standard operating procedure addresses the cleanup of the containment pad(s) only. It does not cover investigation of the incident or reporting of the incident. Those activities are covered under separate standard operating procedures.

II. RESPONSIBILITY

It is the responsibility of the Resource Recovery Facility personnel and/or plant personnel, or an outside vendor, to clean the containment area(s) after a release has occurred.

III. EQUIPMENT

A. Storage tanks
B. Tank Qualification forms
C. Pumps
D. Personal protective equipment
E. Spill cleanup equipment, i.e., shovel, broom
F. Absorbent material

IV. PROCEDURE

A. Restrict entry into the Resource Recovery area to those involved in the spill cleanup activities.

B. Those involved directly with the cleanup must wear personal protective equipment in accordance with the applicable standard operating procedure.

C. Through visual inspection or other means, determine the volume of released material.

D. Determine into which storage tank(s) the released material could be placed. If sufficient volume is not available, the released material may be placed in other containers. If containers are used, make sure all are properly labeled, stored, and secured.

E. Pump the released material into a storage tank or other container. Sump pump(s), provided in the containment area, or other acceptable pumps may be used as necessary. Make sure all hose fittings are properly secured before pumping.

F. If you are pumping into a storage tank, make certain it is unqualified. If it is not, you must unqualify prior to pumping.

G. Conduct a compatibility test prior to pumping into a tank containing waste materials.

H. Following the standard operating procedure for tank qualification, qualify the tank into which the released material was pumped.

I. If necessary, after pumping place absorbent material onto the containment area. Using manual or other methods, spread absorbent material onto any remaining material.

J. Place all contaminated absorbent material into properly stored, labeled, and secured containers. Dispose of the material in accordance with state and federal laws.

WF-56
VAPOR BALANCE SYSTEM - CONSERVATION VENT INSPECTION AND MAINTENANCE

I. PURPOSE

To inspect the conservation vents on a daily basis to ensure proper operation and prevent equipment failure. Also, to inspect, disassemble, and clean the conservation vents on an annual basis.

II. RESPONSIBILITY

It shall be the responsibility of the Environmental Technician or trained assignee to comply with this procedure.

III. EQUIPMENT

A. Tank 1A, 1B, 2 and 3 conservation vents

IV. PROCEDURE

A. Procedure for the daily inspection and sign-off of the conservation vents is provided in the Daily Waste Fuel Systems Inspection standard operating procedure (WF-08).

B. Procedure for the annual inspection and maintenance of the conservation vents.

1. Disassemble the conservation vents and clean the pallet using vendor-specified techniques.
2. Visually inspect the unit, including seals to ensure structural integrity.
3. Reassemble and re-install the unit on the tank.

C. Annual Inspection Sheet

1. Upon satisfactory inspection and cleaning of the unit, check the appropriate box on the inspection form.
2. List any appropriate comments in the 'Comments' section.

Attachment #1

KEYSTONE CEMENT COMPANY HWF TANK FARM

CONSERVATION VENTS

Yearly Inspection

Component	Status				Comments/Action Taken
CLEAN PALLETS					
VISUAL INSPECTION					

This certifies that I have completed this yearly inspection.

TITLE: _____

NAME _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS _____ DATE _____

Robert Schoenberger P.E.
Post Office Box 620
Uwchland, PA 19480-0620
(610-458-5009)

March 09,2002

Mr. Rocco Marinaro
Environmental Manager
Keystone Cement Company
Post Office Box A
Bath, PA 18014-0058

Re: Certification of Vapor Balance Vent System

Dear Mr. Marinaro:

I have completed a new evaluation of the entire vapor vent system, which has been installed at Keystone. The vent system was initially installed to vent fumes and vapor displacement gases to the cement kiln clinker coolers for combustion and destruction of these VOC containing gases. Following the incident of December 1997 the vent lines were redesigned and routing to the kilns was changed to carbon adsorption of the fumes and displacement gases. To minimize the emission of VOC containing gases, a vapor recovery system was proposed to minimize the quantity of gases routed to carbon. While carbon is an efficient and recognized state of the art control system, the recovery of each VOC compound varies depending upon various physical and chemical properties such as polarity. Vapor recovery to the truck from which the fuel is being off loaded has been viewed as state of the art for gasoline and other VOC compounds, and in fact is 100 percent efficient for the amount, which can be returned. Because of operating inefficiencies not all vapor can be returned for every truck, and that excess must be diverted to the carbon. Hence in this revised system, the overall efficiency for VOC removal will increase. I have evaluated the changes made to the system for vapor recovery since the construction completed after the incident of December 1997.

Revised plans and permit modifications were made to the Bureau of Air Quality on 7/17/98, and notification that construction was completed was made on 11/13/98. On 2/23/99 a Permit Modification was made to the Bureau of Land Recycling and Waste Management. On 7/19/01 a revised plan was sent to Mr. Tomayko. This certification and analysis of the vapor system responds to comments and inspections by DEP since the submission of the most recent Permit Modification request.

The system that has been constructed and was designed according to pertinent industry codes including NFPA 29,30 and 70. Tanks were constructed according to ASME non-pressure vessel criteria. Before being place in service the system was tested according to standards for tightness and leaks. All electrical equipment was specified and used which meets the NFPA requirements for combustible atmospheres. The vent and carbon system meets the requirements of Part CC in the regulations. The system was designed to meet the regulatory criteria in 264.192 Design and Installation of New Tank Systems or Components. Placement and spacing of flame and detonation arrestors was done in accordance with the recommended industry standards including pertinent portions of API Publication No. 2210. There has been some question regarding sequence of arrestors and isolation valves for tanks and piping. Most of the arrestors are two way detonation arrestors for which sequence of installation is not covered by the codes or regulations. The important criteria is the installation of the arrestor at a distance which is equal to or less than the maximum distance a flame or wave can travel. All arrestors meet those industry standards.

Considerable effort has been spent on development of a physical system that has ease of operation as well as system tightness. The final method of construction uses a connection cap identical to the hatch cover on the transport vehicle. The hatch has a viton gasket and when tightened down by the hatch bolts the vent system is free of leaks at the pressure exerted by the vent system.

Condensate taps are installed at the low points in the piping system. A new tap has been installed in the new section of piping which connects the two tank groups. Condensate taps are not to be compared with condensate traps installed in steam pipes. Those traps are not tight and are subject to overflow when the traps are not functioning properly. The vent system at Keystone is tight and condensate may build up in the pipe and collect at low points. To remove the condensate it is necessary to physically remove plugs or open a valve to allow the liquid to be drained to a bucket. Only small amounts of condensate build up and removal of the liquid is done on as needed basis. Since the vent line is constructed at an elevation above the carbon units. Any liquid which exceeds the storage capacity of the pipe will flow to the carbon system and not to the off-loading truck. The only condensate in the line, which could reach the truck, is from the section of vent between the carbon canisters and the truck. In the event that condensate needs to be removed or a section of the vent pipe isolated for maintenance, nitrogen gas can be injected into the line to either dispel any accumulated liquid or remove VOC containing gas to allow maintenance without concern for fire or explosion.

After the event of December 1997 a complete hazardous operations process review and analysis was completed. The design of the vent system was based upon that review. When the vent system was modified for vapor return another hazardous operations review was conducted. IES Engineers who conducted the process review forwarded that review to Keystone under date of October 18, 2001.

I have reviewed the drawing and checked the drawings in the field for accuracy and completion. It is my opinion that the drawings accurately reflect the field construction of the vent system and vapor control piping.

Enclosed is my certification for the vent and vapor control system. If you have any questions, please feel free to contact me.

Sincerely,

Robert J. Schoenberger P.E., DEE

RJS:ssj

WF-57
VAPOR BALANCE SYSTEM - PRESSURE SENSORS
INSPECTION AND MAINTENANCE

I. PURPOSE

To inspect the pressure sensors/transmitters in the tank vapor space on a daily basis to ensure proper operation and prevent equipment failure. Also, to inspect and calibrate the pressure sensors on an annual basis.

II. RESPONSIBILITY

It shall be the responsibility of the Environmental Technician and Maintenance Technician or trained assignees to comply with this procedure.

III. EQUIPMENT

A. Tank 1A, 1B, 2 and 3 pressure sensors
B. Tank 1A, 1B, 2 and 3 pressure sensor readout monitors

IV. PROCEDURE

A. Procedure for the daily inspection and sign-off of the pressure sensors and readout monitors is provided in the Daily Waste Fuel Systems Inspection standard operating procedure (WF-08).

B. Procedure for the annual calibration and inspection of the pressure sensors.

1. Perform an annual calibration of pressure sensor using vendor-specified techniques.

C. Annual Calibration and Inspection Sheet

1. Upon satisfactory inspection and calibration of each item, check the appropriate box on the inspection form (attached).
2. List any appropriate comments in the 'Comments' section.

Attachment #1

KEYSTONE CEMENT COMPANY **HWF TANK FARM**

PRESSURE TRANSMITTERS (VAPOR BALANCE SYSTEM)

Yearly Inspection

Component	Status		Comments/Action Taken
	Positive	Negative	
CALIBRATION			

This certifies that I have completed this yearly inspection.

TITLE: _____

NAME (print): _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS _____ *DATE* _____

WF-58
VAPOR BALANCE SYSTEM - FLAME ARRESTOR INSPECTION AND MAINTENANCE

I. PURPOSE

To inspect the flame arrestor on a daily basis to ensure proper operation and prevent equipment failure. Also, to inspect, disassemble, and clean the flame arrestor on an annual basis.

II. RESPONSIBILITY

It shall be the responsibility of the Environmental Technician or trained assignee to comply with this procedure.

III. EQUIPMENT

A. Vapor System flame arrestor

IV. PROCEDURE

A. Procedure for the daily inspection and sign-off of the flame arrestor is provided in the Daily Waste Fuel Systems Inspection standard operating procedure (WF-08).

B. Procedure for the annual inspection and maintenance of the flame arrestor.

1. Disassemble the flame arrestor and clean the unit if necessary using vendor-specified techniques.
2. Visually inspect the unit to ensure structural integrity.
3. Reassemble and re-install the unit in the vapor system.

C. Annual Inspection Sheet

1. Upon satisfactory inspection and cleaning of the unit, check the appropriate box on the inspection form (Attachment #1).
2. List any appropriate comments in the 'Comments' section.

Attachment #1

KEYSTONE CEMENT COMPANY HWF TANK FARM

FLAME DETONATOR/ARRESTOR

Yearly Inspection

Component	Vapor Balance		Comments/Action Taken
	1	2	(specify unit
CLEAN AND INSPECT			

This certifies that I have completed this yearly inspection.

TITLE: _____

NAME _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS _____ *DATE* _____

WF-59
VAPOR RECOVERY

I. PURPOSE

To describe the operating procedures that Resource Recovery Facility personnel must follow when using the vapor return system, the vapor vent line to the kiln and the vapor vent line to the carbon adsorption system

II. RESPONSIBILITY

It shall be the responsibility of the Resource Recovery personnel to comply with this procedure.

III. EQUIPMENT

A. Vapor return hose
B. Quick-disconnect fitting
C. Tank truck
D. Computer Automation

IV. PROCEDURE FOR VAPOR BALANCING TO A TANKER TRUCK

A. Connecting

1. Prepare the truck for offloading following standard operating procedure WF-05 *Unloading Procedure*.

2. Open the manhole on the tank truck to be offloaded.

3. Place the vent hose connector/adaptor on the tanker manway. Inspect the seal to ensure a tight fit.

4. Connect the quick-disconnect cam lock valve, located near the unloading pump. After the valve has been connected you may proceed to offload.

5. When the vent system is connected as described, pressure is equalized in the tanks, vent system, and tanker truck.

B. Disconnecting

1. Close the quick-disconnect cam lock valve.

2. Remove the vent hose connection from the tanker manway.

C. System Notes

1. If the vent system pressure is less than –2" w.g., nitrogen will enter the tanker through the tank blanketing system.

2. If the vent system pressure is greater than 1 psig, the carbon tank conservation vent will open allowing vapors to pass through the carbon.

3. If the vent system pressure drops below –3" w.g., an alarm will annunciate on the unloading pad and in the Control Room. If this alarm activates, the system is drawing a vacuum. Stop unloading pumps. Investigate. Check all system components paying particular attention to the nitrogen system and the position of all valves. Correct any problems found.

4. If the vent system pressure drops below –6" w.g. (an alarm will sound), the system vacuum relief valve will open allowing ambient air into the system. Ambient air will protect the trucks, tanks, and vent system from structural damage due to excess vacuum. Check all system components paying particular attention to the nitrogen system and clogged flame arrestor. Correct any problems found.

5. Two pressure transmitters are installed in the vent header near the truck unloading containment area. One transmitter measures negative pressure as described in Item 3 above. The other will monitor positive pressure. When pressure is less than 1 psig set point of the carbon conservation vent, vapor will flow back to the tanker. Tank system pressure alarm is set at 1.8 psig. Follow standard operating procedure WF-36 *Tank System – High Pressure Incident Response* for a high-pressure response.

6. If over-the-top unloading is needed, only one tanker can be offloaded at any one time.

7. Typically, isolation valves should be shut for maintenance only. When re-opening an isolation valve, follow standard operating procedure WF-52 *Purge Storage Tanks with Nitrogen* for purging procedure.

V. PROCEDURE FOR VAPOR RECOVERY TO THE KILN AND CARBON ADSORPTION SYSTEM

1. Ensure that the kiln is operating in a normal stable capacity (not preheating or in a malfunction mode).

2. Confirm that the default damper position is "open" to the carbon adsorption system and closed to the kiln vent line.

3. Ensure that the Nitrogen system is properly blanketing the ventilation system

4. Utlizing the computer automation system, confirm that the vent fan to the kiln is operating. (vent fan will automatically start once kiln is running in a stable condition)

5. Upon confirmation that vent fan is operational, confirm that the Nitrogen system damper to the carbon adsorption system remains open for at least 30 seconds to purge the carbon filters.

6. Once the carbon filters are purged, confirm that the damper to the carbon filters automatically closes to isolate the carbon filters.

7. At this time the damper to the kiln vent line will automatically open and vapors will be pulled through the clinker cooler undergrate fan into the kiln.

8. When the kiln is shut down, the damper to the carbon filter vent line will open and the damper to the kiln vent line will close diverting the vapors to the carbon adsorption system.

9. During any "emergency" condition, (e.g., loss of power, kiln system failures, loss of cooler fans, etc.) the system will automatically shut off the vent fan, and close the damper to the kiln vent line and open the damper to the carbon adsorption system vent line.

Note: The ventilation system to the kiln will be fully automated and operators should only need to confirm and check the proper operation of the system. Should the

automation system malfunction, the operator will have the capability and must divert the HWF vapors to the Carbon Adsorption System.

WF-60
TRUCK STAGING AND PARKING AREAS

I. PURPOSE

To ensure that individuals in the Resource Recovery Department are familiar with Keystone's permit conditions related to handling of vehicles containing waste fuel. This standard operating procedure also identifies the steps Keystone personnel will take to ensure compliance.

II. RESPONSIBILITY

It shall be the responsibility of the Resource Recovery personnel and the Environmental Department to comply with this procedure.

III. EQUIPMENT

A. Unloading pad
B. Truck staging area
C. Truck parking area
D. Portable Secondary Containment Units (e.g., spill barrows)

IV. PROCEDURE

Keystone parks vehicles containing waste fuel in three locations: truck unloading area, staging area, and parking area. Trucks that are emptied, but not decontaminated, are also parked in these three locations. When necessary, Keystone personnel will assist the vehicle operators with maneuvering the vehicles so as to prevent collisions and damage to the trucks. The trucks will be parked to allow adequate spacing for potential emergency response actions. Each area has certain functions and permit conditions associated with it. Those conditions are described herein.

A. Truck Unloading Area

1. All vehicles being unloading shall be parked on the pad within secondary containment.

2. Daily inspections of this area will be performed.

B. Staging Area

1. Waste vehicles may be staged in this area for a period of time up to 48 hours.

2. Waste fuel vehicles cannot be unloaded from this area.

3. Sampling activities: Sampling of truck contents may occur within the truck staging area while portable containment units are in place.

   a. Prior to sampling, place the portable secondary containment unit directly under the sampling port of the truck so as to prevent drips from reaching the ground surface.
   b. Sample the contents of the truck following Standard Operating Procedure WF-01 and reseal the sampling port.
   c. Inspect the portable secondary containment unit for liquids.
   d. If the unit contains liquids, wipe the unit with a cloth.
   e. Use the secondary containment device at the next sampling location or return to its storage location.

4. Daily inspections of this area will be performed. The transporter/ generator shall be notified if the vehicle is approaching the 48-hour holding time limit. Arrangements will be made to move the truck to the unloading pad or rejected.

C. Truck Parking Area

1. Waste fuel vehicles can be parked in this area.

2. Waste fuel vehicles cannot be offloaded from this area.

3. No storage of vehicles containing waste is allowed overnight.

D. Each waste tanker contains material that, if handled improperly, could result in injury or damage. The following procedures must be followed at all times.

1. The following safety equipment must be worn when sampling waste fuel tankers: protective suit, respirator, and protective gloves.

2. Direct the driver to park the tanker in the proper location for sampling. This area must be free of any obstacles.

3. Using a communication device such as a walkie-talkie or by using hand signals, direct the driver to stop the vehicle in the sampling area. Confirm that the tanker is within range of grounding and fall protection system. Re-spot the tanker if it is not within grounding or sampling system.

4. Only one tanker can be sampled in the staging area at any one time.

5. If another tanker is parked in the staging area, there must be sufficient distance between them so you can comfortably work between the units with the sampling rod. Use the sampling rod as a gauge as to the proper distance.

6. The driver must shut down the power unit before sampling.

7. The driver must take the paperwork to the Resource Recovery office. The driver will be required to review and sign Keystone's transporter affirmation. This affirmation includes instructions in the event of an emergency.

8. After sampling of the tanker, instruct the driver as to where he is to park the vehicle. Allow for a comfortable distance between tankers if more than one is parked in any area.

E. Inspection of Staging/Parking Areas

1. Inspection of the staging and parking areas is to be performed daily. Note any discrepancies on the Daily Solvent Inspection Form. Keystone's operating permit allows up to 48 hours of storage in the staging area. Make every attempt to have the truck removed within 48 hours unless it becomes a necessity for an efficient operation.

2. A discrepancy would include a leaking tanker, ground staining, an unauthorized vehicle in any parking area, unacceptable distance between tankers, etc.

F. Truck Storage Exceedence Notifications:

Keystone's RCRA Permit Condition VI.C.2 requires that Keystone "shall notify the Department immediately if any waste-containing truck is stored for more than forty-eight (48) hours onsite, and provide written explanation within twenty-four (24) hours." However, this

notification may not be required under certain circumstances as detailed below. The following procedures regarding the tracking of truck storage duration and subsequent notifications should be implemented:

1. In the event that a waste-containing truck is stored on-site for a period greater than 48 hours, the facility shall determine if the storage exceedence was a result of one of the following conditions:

   - A load may be rejected and time is needed to make arrangements with the transporter and alternate receiving facility,
   - A load may be within the acceptance limits but the analytical parameters make it necessary to off-load the shipment into more than one tank,
   - Unplanned kiln downtime or the kiln experiences reduced operation (e.g. refractory wear) or unable to fire waste fuel,
   - Weekends and Holidays are times when many of our customers and transporters do not work and therefore we need to receive the fuel volume to meet our fuel needs prior to these time periods,
   - Delays experienced in our laboratory, and
   - Resolving discrepancies with customers.

2. If the storage was not a result of one of the conditions detailed above, the facility shall make notify the Department immediately of such storage. This notification may be in the form of a telephone call or e-mail. A follow-up written explanation of the storage exceedence shall be submitted within 24 hours. The written explanation may be in the form of a letter or e-mail.

3. In the event that a storage exceedence was a result of one of the conditions detailed above, the facility shall document the exceedence and a full description of the reasons for the exceedence. This documentation shall be maintained in the facility operating record and shall be made available to the Department upon request.

WF-62
DAILY INSPECTION PROCEDURE FOR KILN RESIDUE MANAGEMENT EQUIPMENT

I. PURPOSE

To visually inspect areas where kiln residue, i.e. bypass dust and cement kiln dust (CKD), is managed and to keep a record of these inspections as well as the date and type of repairs or remedial action taken to correct all noted deficiencies. This SOP does not apply to CKD management equipment used to recycle CKD back into the kiln system, but only to equipment used to manage residues removed from the kiln system.

II. RESPONSIBILITY

It is the responsibility of the Environmental Technician or trained assignee to comply with this procedure.

III. EQUIPMENT

A. Hard hat
B. Safety shoes
C. Safety glasses
D. Clipboard with inspection sheet
E. Kiln residue management equipment (See inspection form for listing of equipment)

IV. PROCEDURE

This procedure covers the daily inspection conducted of the kiln residue management equipment.

A. Each day (00:00 to 23:59) the kiln residue management equipment inspection must be conducted. Use sheet entitled "Kiln Residue Equipment Daily Inspection Form."

B. Using the inspection form, note any deficiencies applicable to the area inspected.

C. In each one of the specific areas, one of the following must be recorded on the form:

1. Acceptable

2. Unacceptable

D. If acceptable is checked, nothing further needs to be recorded for that specific area for that day.

E. If unacceptable is checked, the 'Date and Nature of Repairs or Corrective Action' column must be filled in. Supervisor must be notified.

F. There are three main categories to be inspected.

1. Bypass Storage Tank
   a. From ground level, visually inspect the tank. The visual inspection should focus on fugitive dust coming from any part of the tank, including connections and any openings.
   b. If dust is emitting from any area of the storage tank, notify the Shift Supervisor immediately.

2. Bypass Dust Handling System
   a. Visually inspect the dust handling system from kiln discharge to the storage tank. Visually inspect equipment in the system including conveyors, cyclones, elevator and baghouse.
   b. The visual inspection should focus on any fugitive dust being discharged from any component.
   c. If dust is emitting from any area of the bypass system, notify the Shift Supervisor immediately.

3. Surrounding Areas
   a. Check ground level areas for any accumulation of dust.
   b. If dust is found on the ground in any of the surrounding area, notify the Shift Supervisor immediately.

G. Description of column headings

1. Acceptable
   If everything in that specific area is acceptable, working properly, and in its proper place, check the column marked 'Acceptable.'

2. Unacceptable
   If an area is unacceptable, malfunctioning, or missing from its proper place, check the column marked 'Unacceptable.' Complete Incident Report; notify Supervisor.

3. Date and Nature of Repair or Corrective Action
   When a repair is made to an area, this column is checked as well as the date of repair. If a repair cannot immediately be made, record date, time and person contacted to make the repair.

KILN RESIDUE EQUIPMENT DAILY INSPECTION FORM
TANKS, PIPING, ASSOCIATED AREAS AND DEVICES

Date: **Time:** **Signature:**

ITEM	POTENTIAL PROBLEMS (Criteria for Acceptable Status (ACC))	ACC	UN-ACC	DATE/NATURE OF REPAIR OR CORRECTIVE ACTION
Tank	Valve leakage			
	Tank leakage			
Bypass Dust Handling System	Cyclone			
	Conveyors			
	Baghouse			
	Elevator			
Surrounding Area	Any accumulation of dust			

COMMENTS: _____

_____

_____

WF-64
HEATED MATERIAL AND DIRECT TRANSFER SOP

I. PURPOSE

To provide detailed procedures for the management of heated material accepted at the site for use as kiln fuel in a direct transfer process.

II. RESPONSIBILITY

All truck drivers, Environmental Technicians or trained assignees, and kiln operators must follow this procedure. There are no exceptions.

III. EQUIPMENT

A. Hard hat
B. Safety glasses
C. Protective gloves
D. Protective clothing
E. Steel-toe boots
F. Respirator (available)
G. Bucket
H. Ground cable (at each unloading station)
I. Safety harness
J. Hydrogen Sulfide (H_2S) Monitor

IV. PROCEDURE

A. Acceptance and Direct Transfer Staging

1. Implement the waste acceptance procedures detailed in the facility's Waste Analysis Plan (WAP) and Waste Fuel SOP WF-02 and the HWC MACT Feedstream Analysis Plan (FAP).

2. Confirm that shipment has passed all acceptance criteria detailed in the facility's WAP and SOP WF-02 and the burn criteria detailed in the facility's FAP.

3. Once acceptance is confirmed, the tank may be staged in the direct transfer area of the unloading pad.

4. Complete Initial Inspection of the tank truck as noted within Attachment 1 of this SOP, *Heated Material Direct Transfer System Tanker Truck and Associated Direct Transfer Equipment Inspections* checklist.

B. Pre-unloading (Pre-transfer):

1. Stage the vehicle in the direct transfer area of the waste-receiving pad.

2. Inspect the Tanker Truck for the Pre-Unloading conditions listed in Attachment 1 of this SOP. Make any corrective actions to any unacceptable tank conditions identified during this inspection.

3. Once all tanker inspections are complete and findings are acceptable, attach ground cable to the vehicle.

4. Put on personal protective equipment including protective clothes and respirator.

5. Attach safety harness, if necessary.

6. Inspect the gasket seal on the unloading hose for cracks, missing pieces, or swelled gasket material. Replace as necessary.

7. Place containment device under the tanker-unloading valve to capture any spillage that may occur when connecting to the tanker truck. Check the tanker truck to ensure discharge valves are in the 'closed' position. With the tanker valve(s) fully closed, manually remove the tanker discharge cap.

8. Connect the unloading hose to the discharge valve on the tanker.

9. Unbolt latches on dome lid loosening the bolts on hinge side opposite the operator. Continue around the dome lid until all bolts are off. Open lid and prop open on two bolts opposite of hinge to allow vacuum relief. Conduct initial Hydrogen Sulfide (H_2S) monitoring.

C. Unloading (Direct Transfer)

1. After receiving approval to commence direct transfer procedures from the Environmental Technician or trained assignee, you can proceed to commence direct transfer procedures as follows:

2. Open internal safety valve, if equipped, and outer external tanker unloading valve.

3. Open valve before the filter housing.

4. Bleed all air from tanker through the filter housing.

5. Turn on Grinder if available.

6. Open discharge valve. Only open discharge slightly and slowly until pressure is established visibly on sight gauge.

7. Start pump.

8. If flow is not established or stops during unloading, perform one of the following functions.

   a) Purge low-pressure nitrogen through the unloading line.

      1) Verify that liquid level in truck is sufficiently below the manhole to prevent splashing/spills.
      2) Close manhole and secure clamp (ears) tight enough for liquid seal to occur, but loose enough to allow natural venting. Open manhole after blockage has been removed.
      3) Open low-pressure nitrogen supply valve.
      4) Purge nitrogen through hose for a brief period of time.
      5) Close nitrogen supply valve.
      6) Attempt to establish flow through unloading hose.
      7) Repeat 1 through 5 as necessary.
      8) If flow cannot be established via this procedure, contact appropriate operational and environmental compliance personnel to determine next steps in the management of the tanker.

D. Direct Transfer Inspection:

1. Once direct transfer has commenced, perform the additional tank and transfer line inspections included on the inspection form included in Attachment 1 of this SOP.

2. In the event that the direct transfer tanker is maintained at the direct transfer location for a period greater than 24 hours, perform the direct transfer tanker inspections detailed in Attachment 1 once each day.

E. Unhooking

1. Communicate with the kiln operators when the tanker is approaching its empty state and coordinate fuel switching activities with tank farm personnel.

2. Once it is appropriate to discontinue direct transfer flow to the kiln, close the internal safety valve first, followed by the external unloading valve.

3. Shut valve to the filter housing.

4. Place cap on truck fitting.

5. Turn off the unloading pump.

6. Empty hose as necessary utilizing nitrogen purge hose as needed.

7. Shut discharge valve after the unloading pump.

8. Disconnect the hose, cap hose end, and hang on hose rack.

9. Disconnect the ground cable.

10. Put cap on the tanker discharge fitting where hose was removed.

11. Close dome on tanker.

12. Coordinate removal off tanker from unloading pad as appropriate.

F. Weigh-out

1. Transporter must weigh-out and bring weight ticket to solvent trailer.

2. Transporter must return to solvent trailer for his copy of the signed manifest.

ATTACHMENT 1

HEATED MATERIAL DIRECT TRANSFER SYSTEM
TANKER TRUCK AND ASSOCIATED DIRECT TRANSFER EQUIPMENT INSPECTIONS

Date: **Time:** **Signature:**

ITEM	POTENTIAL PROBLEMS (Criteria for Acceptable Status (ACC))	ACC	UN-ACC	DATE/NATURE OF REPAIR OR CORRECTIVE ACTION
INITIAL INSPECTION | TANKER TRUCK ARRIVAL				
	Tanker Truck Properly Secured (Yes)			
	Corrosion of shell, damage, signs of leakage (No)			
PRE-UNLOADING (AND DAILY) INSPECTION				
Direct Transfer Tankers	Grounding Wires Secured (Yes)			
	Tank openings properly secured? (Yes)			
	Tank Conservation Vents Operating Properly (Yes)			
	Connections to Direct Transfer Line Secure? (Yes)			
	Initial Hydrogen Sulfide (H_2S) monitoring (Value: _____)			
POST-DIRECT TRANSFER (AND DAILY) INSPECTION				
Direct Transfer System	Direct Transfer Pump Operating Properly (Yes)			
	Leaking Connections to Pump System (No)			
	Piping or flange leakage - liquid fuel? (No)			
	Piping or flange leakage - solvent vapors? (No)			
	Seals (No leakage)			
	Pump oil level (Operational)			
	Periodic Hydrogen Sulfide (H_2S) monitoring (Value: _____)			
	(Value: _____)			
	(Value: _____)			
	(Value: _____)			
	(Value: _____)			
	(Value: _____)			
	(Value: _____)			

COMMENTS: _____

_____

_____

WF-65
MIXING SYSTEM OPERATION SOP

I. PURPOSE

To provide detailed procedures for the mixing of sludges in bulk tanker trucks prior to unloading the mixed sludges to a hazardous waste fuel storage tank. Material must pass all acceptance criteria prior to acceptance and mixing with material from the existing storage tanks. The "mixing" of sludges in the bulk tanker truck will occur with accepted hazardous waste fuel from the storage tanks. The reason for the mixing is so that the material may be offloaded from the bulk tanker trucks and unloaded into the storage tanks via a pump.

II. RESPONSIBILITY

Environmental Technicians or trained assignees must follow this procedure.

III. EQUIPMENT

A. Hard hat
B. Safety glasses
C. Protective gloves
D. Protective clothing
E. Steel-toe boots
F. Respirator
G. Bucket
H. Ground cable (at each unloading station)
I. Safety harness
J. Air Monitoring Device

IV. PROCEDURE

A. Acceptance and Preparation for Mixing

1. Implement the waste acceptance procedures, including sampling in accordance with Sampling Bulk Containers SOP WF-01, detailed in the facility's Waste Analysis Plan (WAP) and Waste Fuel SOP WF-02 and the HWC MACT Feedstream Analysis Plan (FAP). There are three fuel carrying pods in the STC Tanker Trailer, Pod #1 closest to the cab, Pod #2 middle and Pod #3 at the rear of the tanker. Each of the pods must be sampled separately and compared to Waste Analysis Plan.

2. Confirm that the shipment has **passed all acceptance criteria** detailed in the facility's WAP and SOP WF-02 and the burn criteria detailed in the facility's FAP.

If shipment does not pass all acceptance criteria, the shipment will be rejected back to the generator or an alternate facility.

3. Once acceptance is confirmed, the STC Tanker Truck may be staged in the mixing system bay of the waste fuel unloading pad.

4. Complete Initial Inspection of the STC Tanker Truck.

B. Pre-mixing:

1. Stage the vehicle in the mixing system bay of the waste fuel unloading pad. The wheels of the STC Tanker Truck are to be chocked to prevent potential movement. The bulk tanker is to be positioned in the unloading bay such that the retractable platform will properly rest upon the side of the tanker when lowered into place. In addition, the retractable platform should be as level when lowered. The STC Tanker Truck must be properly aligned in the unloading bay to ensure that each of the three mixers will be aligned with the mixer opening located on the top of each tanker pod. If necessary, the tanker truck may need to be readjusted to properly align the mixer with the pods of the tanker truck. Once properly aligned, use the platform lower lever to slowly lower the platform onto the STC Tanker Truck.

2. Keystone personnel should instruct STC Tanker Truck driver to exhaust the tanker suspension air bags. This will prevent the tanker from rising and lowering as fuel is loaded or when the pods are unloaded. During the loading of hazardous waste fuel (HWF) from the storage tanks into the STC Tanker Truck or the unloading of the final mixed fuel into the receiving HWF storage tanks, the truck driver should vacate his vehicle once the fuel transfer into or out of the tanker truck begins. Keystone will direct the truck drive to wait in a designated area of the facility.

3. Once all tanker inspections are complete and fuels analyses are acceptable, attach ground cable to the vehicle.

4. Don personal protective equipment including protective clothes and respirator.

5. Attach safety harness, if necessary.

6. Prior to connecting the loading hoses slowly loosen the top hatch bolts to allow any pressure to gradually bleed off. The bolts are to be loosened, alternating sides, starting at the hinge end of the dome lid. Do not fully loosen and lay down the bolts until all vacuum or pressure has been released from tanker truck. The bolts nearest the handle are the last ones removed. Do not use the smaller hatch to perform the pod pressure bleed off. Do not use the vacuum relief valve to bleed pressure out of the truck.

C. Placement of the Overhead Mixers into the STC Tanker Truck Pods

1. The electrically powered overhead hoist will be used to transport the mixer from its resting storage canister.

2. After opening the Mixer designated hatch or manway on tanker pods, position the mixer over to the opening. Then begin to lower the mixer into the pod until the mixer adapter plate rest on the pod's opening.
3. The mixer manway seal and holder is an inflatable boot which will require the connection of the designated nitrogen line. Inflate the boot utilizing the nitrogen line. The nitrogen pressure is preset at 20 PSI to ensure proper seal without damage to the boot. Care should be taken to inflate the boot only when it is properly positioned in the Pod hatch.

   Using the mixer leveler/stabilizer jack, adjust the mixer so that unit is level. Now that the mixer is properly positioned & leveled, connect the Nitrogen Line and slowly open the valve to pressurize the sealing boot to secure the mixer into the pod's man-way opening.
4. Pull down the 8–inch pod vent and level instrument lid from above and position it such that the hinge on the open pod hatch is used as the anchor point for the tab located on the hatch cover containing the vent hose and level instrument.
5. Once the vent lid is oriented into place, use the tanker attached hatch lever to securely hold this lid cover onto the pod opening. Secure the hatch lever with the adjustable toggle clamp to secure the lever in place. This adjustable toggle clamp applies downward pressure to vent the lid, to achieve proper seal.
6. Once the vent lid is securely in place enable level indicator at the PLC panel view HMI to verify the measured level is indicating a reasonable measured value of level in the pod.
7. The vent is used when filling the pod with HWF from the HWF tanks and during unloading to equalize the internal pressure and vent when necessary.
8. Now engage the mixer motor power disconnect switch. This is done by removing the process lock from the switching handle as shown in the photo below.
9. Now that the pod mixer is in place, vent lid is secured in-place, and the mixer local disconnect switch is turned on, this respective pod is ready for blending and unloading from the topside perspective.
10. Repeat steps for the remainder of the pods.

D. STC Tanker Truck Pod Bottom inlet/outlet hose connections

1. Inspect the gasket seal on the loading hose for cracks, missing pieces, or swelled gasket material. Replace as necessary.

2. Place containment device under the tanker-unloading valve to capture any spillage that may occur when unloading the tanker truck. Check the tanker truck to ensure discharge valves are in the 'closed' position. With the tanker valve(s) fully closed, manually remove the tanker discharge cap.

3. Begin with the connection of the outlet process hoses. Each Pod outlet contains a 4-inch Camlock hose connection and an outlet block valve which is contained on the tanker's pod outlet pipe. Ensure that all manual valves are initially closed on the

header and truck tanker pods.

4. Attach the 4-inch unloading hose to Pod #1 truck connection (Pod #1 is closest to the cab). Ensure that the cam locks are secured using cotter pins, tape, securing straps or similar locking devices to hold the "ears" down. This will prevent the cam lock from accidentally coming loose during loading operations. Repeat this spill prevention and hose connection process for the remaining pods.
5. Now that the Pod outlet hoses on the lower side are in place and the mixer and level/vent hatch is in-place, the STC tanker is ready to begin the unloading process as detailed below.
6. Process Awareness: Initially the connecting hose/header is used to load the HWF from the storage tanks into the pod to enable the mixing of the sludges. Once fully mixed the connecting hose becomes the unloading hose when the pod is emptied.
7. The STC Mixing System will require HWF from the existing storage tanks. The HWF from the existing tanks has already been accepted in accordance with Keystone's WAP. It is important to note that it may be necessary to halt other unloading activities if the selected source tank is being used by another unloading process.
8. Now set up the correct transfer pump and manual valve path to transfer HWF from the storage tanks to the designated pod.
9. When ready open the manual valves (one at the supply header and the other at the bottom of the pod) for the desired pod to be supplied with HWF.
10. Then "Start" the transfer system to deliver HWF to the STC unloading pad bay tanker supply header manifold. Note: When the HWF transfer to the STC Tanker Truck Pod is complete the pump must be manually stopped.
11. Continuously monitor the level of the HWF as it enters/fills the manually open pod. The level indication of the respective pod will require that the Solvent Technician stop the HWF supply pump when the pod level reaches the desired volume. The desired volume may vary depending on the properties of the fuel in the Pod and the amount of solid fuel that was loaded into the pod.
12. During the HWF filling process, the respective Pod mixer will need to start at a low speed. The mixer is started and stopped using the Pod Mixer control station. Adjust the pod mixer's speed by using a locally provided potentiometer. Rotating the respective potentiometer will increase or decrease the mixer's speed.
13. Once the Pod's HWF fill level has been reached and the pump stopped, the operator must close the respective manifold header outlet valve along with the pod's outlet valve. Once the Pod is at the desired fill level with HWF and the manifold manual valves closed, the mixer speed can be increased for optimum mixing.
14. Purging of Residual Material from the transfer hose: This is an optional procedure. Once the loading pipe valve located on lower side of the pod has been closed then slowly open the nitrogen purge line to clear residual material from the flexible hose into the truck. Next, the valves on the truck are closed (bottom or top inlet valve and any safety valves. The remainder of the valves at the pumps and manifold may remain open.
15. The filling with HWF will be completed one Pod at a time by following steps 2 through 15 above. It is very important that the Pod be thoroughly mixed so that the resulting mixture is pumpable and that the sludge in the pod are fully mixed so

the Pod is clean or completely empty when unloaded. An indication of a thoroughly mixed Pod can be confirmed by the temperature of the lower exterior portion of the pod's shell wall. If the entire side, is the same temperature the pod is mixed, if not, allow to mix further and recheck pod's surface temperature for temperature uniformity.

16. The Mixing time for each pod will be displayed on the STC tanker unloading screen. The operator will be responsible for manually shutting off the mixer once the Pod is fully mixed.

E. STC Tanker Trailer POD Unloading Process

1. **Awareness:** The attached vent line will allow air to freely flow into the pod preventing it from be imploded as the blended fuel is unloaded.

2. Set the manual valve path to the desired transfer pump and HWF storage tank. Open the respective valves for the pod outlet and the header manifold hose connection.

3. It may be necessary to prime the transfer pump in order to transfer the fuel to the desired storage tank.

4. Switch the transfer pump to "start" position to begin the unloading process.

5. During the unloading process, the level in the pod will drop below the mixer's blades. **When this occurs, the mixer will need to be manually stopped**. It is necessary to ensure that each Pod is completely emptied when the transfer pump has completed the unloading of the respective pod. This is done by removing the 8 inch vent hatch and physically looking inside the pod. If the Pod is properly emptied, reattach the vent hatch in place and move to unloading the next Pod. If the Pod is not properly emptied, then transfer additional HWF from the storage tanks to the pod and begin the process over for that specific pod.

The pods must be RCRA empty before the truck can be released. Multiple additions of HWF may be required.

6. Once confirmed that the Tanker Truck Pod is empty, the unloading valves on the truck are to be closed. The first valve (closest to the truck cab) in the unloading line is closed. The nitrogen purge line is slowly opened to clear residual material from the flexible hose back into the receiving tanks.

7. When moving to the next Pod the process will begin again.

8. Once all pods have been unloaded and verified RCRA empty status the hoses will need to be completely purged of residual fuel so that when they are disconnected no spills occur.

9. Once confirmed that the STC Tanker Truck Pod is RCRA Empty, the manual unloading valves on the truck pods are to be closed. The first valve (closest to the truck cab) in the unloading line is closed. The

nitrogen purge hose line is then connected and slowly opened to clear residual material from the flexible hose back into the unloading pump/receiving tanks. The remainder of the valves at the pumps and manifold may remain open. Do not disconnect the 4-inch bottom flexible unloading hose without **first bleeding the pressure from the system.** Nitrogen in the flexible hose must be released using the purge connection. With a drip bucket in place and wearing proper PPE, disconnect the truck's bottom discharge 4-inch line and insure the valve cap is placed back over the discharge port and secured. Make sure the hose is capped, and out of the walk-way so that it is not run over when the truck pulls out of the unloading bay.

F. Disconnecting STC Tanker Truck

1. Switch the mixer lockout disconnect switch (located on the platform) to the "OFF" position and apply the designated "Production Lock" to lockout the device.
2. Now that the mixer is locked out and disabled the mixer inflatable bladder can be depressurized. Remove the Nitrogen hose from the bladder and open the bleed valve so that all the nitrogen is exhausted from the bladder. This will allow the bladder to clear the pod's manway opening when the mixer is lifted out.
3. Using the electric hoist slowly and carefully raise the mixer. Raise the mixer blade a few feet so it is clear of any sludge or the tanker hatch. Allow the agitator to drip dry for a few minutes before transferring it from above the truck. As the agitator is being transferred, use rags to clean off remaining fuel residues. Transfer the mixer into its storage compartment and secure the door on the compartment.
4. Place the mixer into the designated storage pipe. Close and latch the access entry door, then lower mixer so it rests on the storage pipe shell.
5. When unloading is completed and the mixer removed, close the vent ball valve on the 8-inch vent hatch. Remove the securing latch from the locking plate by disengaging the adjustable toggle clamp. Raise the vent hatch lid off of the 8-inch opening. The tool balance will keep it held at the desired elevated position. If the tool balance does not hold the hatch at the desired elevation, contact maintenance for balance adjustment.
6. Ensure all top side tanker connections are removed and that all three mixers are returned to their respective storage pipes. Ensure that all personnel are clear and not standing on the retractable platform.
7. Use the nitrogen operated lever (raise-Lower) located at the top of the platform steps to raise the retractable platform.

8. The grounding clamp and cable must be removed from the STC Tanker Truck and stored appropriately.

9. Remove wheel chocks, and visually check area for equipment or personnel prior to removing the truck from the unloading pad.

STANDARD OPERATING PROCEDURE ***RL. 1***

KEYSTONE CEMENT CO.
Bath, PA

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Procedure for Chemical Receiving Log (Chemical Reagents)

Method Reference In-house method

Scope and Application

This method details a procedure for logging and tracking of all chemicals received and used in the Resource Recovery Laboratory.

Summary of Method

Chemicals are logged into the Chemical Receiving Log Book using lot numbers and given a laboratory ID number. The ID number is used to track the chemical from received date to disposal date.

Interferences

Not applicable

Apparatus and Materials

Label maker

Labels

Reagents

Not Applicable

Sample Collection, Preservation, and Handling

Not Applicable

Quality Control

Not Applicable

Procedure

Log all chemicals received in the laboratory for use into the 'Chemical Receiving Log Book.' Record the following information on the log sheet:

1. Chemical name
2. Received date
3. Form of chemical (liquid or solid)
4. Volume or weight
5. MSDS location
6. Lot number
7. Chemical expiration date
8. Receiver's initials
9. Verification initials
10. Disposal date
11. Chemical ID number

Additional information may be added to or deleted from this list on an as-needed basis.

The MSDS location references the section of the MSDS book where the MSDS is filed.

Create the chemical ID number using the prefix CR (chemical receiving), followed by the page number on the log sheet, then a dash,the line number on which the chemical is logged and the last two digits of the year. The year was added in order to track the number of years chemicals have been on site. All chemicals are disposed after five years.

> *Example: Chemical ID number CR2-12-08 - All the information for this sample would be found on page 2, twelfth line down, of the 'Chemical Receiving Log.'*

Log in each chemical container separately. If a group of the same chemicals is received at the same time, the first line of the set must be filled in completely, and the following lines that repeat can be filled in by using an arrow.

Create a label with the individual chemical ID number and place on each corresponding container of chemical. Use the ID number on the label to document which reagents are used when making solutions.

Calculations

Not applicable

Corrective Action

Not applicable

Results

Not applicable

Maintenance

Not applicable

STANDARD OPERATING PROCEDURE	RL. 1A

KEYSTONE CEMENT CO.
Bath, PA

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Procedure for Chemical Reagents (Preparations) Log Book

Method Reference In-house Method

Scope and Application

This method details a procedure for logging and tracking of all chemical solutions made from reagents and used in the Resource Recovery Laboratory.

Summary of Method

Solutions are made and given a working ID number that is used to track all reagents back to the original source. Records are created to document the critical information including Chemical Receiving Log Book identification number.

Interferences

Not Applicable

Apparatus and Materials

Not Applicable

Reagents

Not Applicable

Sample Collection, Preservation, and Handling

Not Applicable

Quality Control

Not Applicable

Procedure

Prepare a record of all chemicals and the procedure used to make any solution in the laboratory. Document all solutions preparation in the Reagent Log Book including:

1. Reagent name, using the page number, RS-entry number
2. Reagent ID number
3. Chemical ID number(s)
4. Initials of preparer
5. Date prepared
6. Expiration dates (if any) of the chemical(s) being used
7. Expiration date of the reagent being prepared, if necessary.

Label the bottle to include the following:

1. Solution ID number (RS ID)
2. Solution name
3. Initials of the preparer
4. Date prepared
5. Expiration of the reagent solution

Calculation

Not Applicable

Corrective Action

Not Applicable

Results

Not Applicable

Maintenance

Not Applicable

STANDARD OPERATING PROCEDURE ***RL. 2***

KEYSTONE CEMENT CO.
Bath, PA

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Procedure for Certified Standards Receiving Log

Method Reference In-house method

Scope and Application

This method details a procedure for logging and tracking of all certified standards received and used in the Resource Recovery Laboratory.

Summary of Method

Certified standards are logged-in using lot numbers and given a laboratory ID number that is used to track the standard from received date to disposal date.

Interferences

Not Applicable

Apparatus and Materials

Label Maker

Labels

Reagents

Not Applicable

Sample Collection, Preservation, and Handling

Not Applicable

Quality Control

Not Applicable

Procedure

Log all certified standards received in the laboratory for use into the 'Certified Standards Receiving Log Book.' Record the following information:

1. Chemical name
2. Received date
3. Form of chemical (liquid or solid)
4. Volume or weight
5. MSDS location
6. Certificate of analysis location
7. Lot number
8. Chemical expiration date
9. Receiver's initials
10. Verification initials
11. Disposal date
12. Chemical ID number

Additional information may be added to or deleted from this list on an as-needed basis.

Record the MSDS location that references the section in the MSDS book where the MSDS is filed..

Record the Certificate of Analysis location in the "C of A" book where the Certificate of Analysis is filed.

Create a chemical ID number using the prefix CS (certified standard), followed by the page number on the log sheet, a dash, the line number on which the chemical is logged, and the last two digits of the year.

> *Example: Chemical ID number CS2-12-08 - All the information for this sample would be found on page 2, twelfth line down, of the 'Certified Standard Receiving Log.'*

Log-in each standard container separately. If a group of the same standards is received at the same time, the first line of the set must be filled in completely, and the following lines that repeat can be filled in by using an arrow.

Prepare and attach a label with the chemical standard ID number for each bottle. Document this ID number when making solutions. (See Standard Operating Procedure RL.2A for the chemical standards preparation procedure.)

Calculations

Not Applicable

Corrective Action

Not Applicable

Results

Not Applicable

Maintenance

Not Applicable

STANDARD OPERATING PROCEDURE ***RL. 2A***

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Procedure for Chemical Standards (Preparations) Log Book

Method Reference: In-house method

Scope and Application

This method details a procedure for logging and tracking of all mix standards made from certified standards and used in the Resource Recovery Laboratory.

Summary of Method

Working standards are made and given a working ID number that is used to track all standards back to the original source. Records are prepared to document the critical information including the Chemical Standards Log Book identification number.

Intereferences

Not Applicable

Apparatus and Materials

Not Applicable

Reagents

Not Applicable

Sample Collection, Preservation, and Handling

Not Applicable

Quality Control

Not Applicable

Procedure

Prepare a record of all standards and the procedures used to make all working standards in the laboratory. Document all standards preparation in the Analytical Standards Log Book including:

1. Working standard name
2. Working standard ID number
3. Stock standard name and ID number
4. Preparer
5. Date prepared
6. Expiration date(s) of the standard(s) being used
7. Expiration date of the standard being prepared.

Label the bottle to include the following:
:

1. Standard ID number (AS ID)
2. Solution name
3. Initials of the preparer
4. Date prepapred
5. Expiration of the standard solution

Calculation

Not Applicable

Corrective Action

Not Applicable

Results

Not Applicable

Maintenance

Not Applicable

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General Preparation of Samples for Analysis

Method Reference In-house

Scope and Application

This procedure is used to prepare homogenous liquid samples for analysis. Samples prepared by the method will be tested using SOPs RL.4-20.

Summary of Method

All liquid samples received by the laboratory are homogenized using a mixer. Two one-ounce jars are poured from the original mixed sample. All three containers, the original and the two one-ounce aliquots, are used for the analysis of liquid samples.

Interferences

Cross contamination may occur if the mixer is not well rinsed between samples. Thoroughly clean the mixer with acetone between samples.

Apparatus and Materials

Mixer

Analysis jars

Sample bottle

Beaker, 2000mL

Reagents

Not Applicable

Sample Collection, Preservation, and Handling

Refer to section VI Laboratory Measurement and Data Traceability of the Quality Assurance Manual.

Quality Control

The first truck sample of the day is received in two sample bottles for MQC analysis.

Pour the two samples into a 2000mL beaker and homogenize thoroughly with the mixer. Immediately following the mixing, pour back into the original bottles dividing the sample evenly. Homogenize one of the sample bottles and create two one-ounce aliquots for analysis following the procedure section of this SOP. Label all jars with the sample ID and "MQC" to identify this sample as the daily matrix QC sample.

Procedure

Shake the sample in the bottle. Open the bottle and homogenize using a mixer. Close the lid and reshake by hand. Open and fill two one-ounce jars. The sample is ready to be analyzed or further prepared according to testing methodologies.

Wipe the mixer clean and then rinse in acetone to ensure decontamination is complete.

Calculations

Not Applicable

Corrective Action

Visually compare the two one-ounce jars to the sample in the original bottle. The samples should be similar in appearance. If not, pour the one-ounce jars back into large bottle and start the homogenation process again.

Results

Not Applicable

Maintenance

Not Applicable

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Temperature of Liquid Fuel Samples

Method Reference: In-house

Scope and Application

This procedure is for testing liquid fuel samples for temperature.

Summary of Method

Upon receipt of a liquid sample by the laboratory a thermometer is inserted into the container and the temperature is measured.

Interferences

Environmental atmosphere different than that of sample can cause variations in temperature.

Any delay in perfoming the test will result in lower temperatures than when actually brought to the laboratory.

Apparatus and Materials

Thermometer: 0 to 212 degrees Fahrenheit or equivalent

Sample Handling, Preservation, and Handling

Refer to section VI Laboratory Measurement and Data Traceability of the Quality Assurance Manual.

Reagents

Not Applicable

Quality Control

See section VI Labaratory Measurement and Data Traceability of the Quality Assurance Manual.

Record the temperature of both MQC samples brought to the laboratory prior to sample homogenation.

Calibration

Refer to Section VIII Instrument and Equipment Maintenance and Calibration of the Quality Assurance Manual

Procedure

Place thermometer into sample ensuring that it is suspended and not touching the sides or bottom of the container. Once the temperature reading has stabilized, read and record the temperature.

Calculations

Not applicable

Corrective Action

Not applicable

Results

Record solvent sample results onto the release form for each individual sample. Enter this data into the manifest system. Enter the quality control results into the FEQC blank spreadsheet (template) and save to the FEQC drive. Quality control data are stored in an excel spreadsheet used as a database.

Maintenance

Not applicable

STANDARD OPERATING PROCEDURE	***RL. 5***

KEYSTONE CEMENT CO.
Bath, PA

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Determination of the Specific Gravity of a Liquid Fuel Sample

Method Reference: ASTM Volume 11.04, Method D5057 (modified)

Scope and Application

This method details a procedure for the determination of specific gravity of a fuel sample.

Summary of Method

A known volume of the fuel sample is brought to a temperature of 60 ± 2°F and is weighed on a balance. The specific gravity is the weight of the sample in grams divided by the volume of the sample in mL's.

Interference's

Graduated cylinders that are not properly cleaned and maintained may cause interference. A malfunctioning balance may cause irregular numbers. An incorrectly homogenized sample may interfere with consistency and repeatability of the measurement.

Apparatus and Materials

Graduated cylinder: 250mL or other appropriate size

Balance: Capable of weighing to +/- 0.1g

Thermometer

Apparatus to adjust temperature: Various devices may be used to control the temperature of the sample such as a refrigerator, water bath or circulator.

Reagents

Deionized Water

Sample Collection, Preservation, and Handling

Refer to section VI Laboratory Measurement and Data Traceability of the Quality Assurance Manual.

Quality Control

Refer to section VI Laboratory Measurement and Data Traceability of the Quality Assurance Manual.

Verify the accuracy of the graduated cylinder using deionized H2O once when new and daily thereafter. The calculated results should be ±1.0% of the actual value for water, 1.00g/ml at 4°C or 0.99g/mL at 60°F.

Refer to SOP RL. 5A for the procedure to calibrate a graduated cylinder.

Matrix Quality Control (MQC) Measure every twentieth sample in duplicate or once per day, whichever occurs first. The relative percent difference, RPD, must ≤ 20 %.

Calibration

Refer to SOP RL. 5A for the procedure to calibrate a graduated cylinder.

Procedure

Bring the temperature of water to 60 ± 2°F prior to obtaining the weight. This control of temperature may be performed through refrigeration, water bath, circulation or other appropriate method. Weigh a clean, dry graduated cylinder to the nearest +/- 0.1g. Accurately fill the graduated cylinder to the maximum measurable capacity with the water and weigh again to the nearest +/- 0.1g. This procedure is performed once every twenty samples or once daily whichever occurs first. This weight is used to calculate the specific gravity for up to 20 samples.

Primary Procedure: Bring the temperature of the fuel sample to 60 ± 2°F prior to obtaining the weight of the sample. This control of temperature may be performed through refrigeration, water bath, circulation or other appropriate method. Weigh a clean, dry graduated cylinder to the nearest +/- 0.1g. Accurately fill the graduated cylinder to the maximum measurable capacity with the fuel sample and weigh again to the nearest +/- 0.1g.

Secondary Procedure: Bring the temperature of the fuel sample to 60 ± 2°F prior to obtaining the weight of the sample. This control of temperature may be performed through refrigeration, water bath, circulation or other appropriate method. Tare the weight of a clean, dry graduated cylinder. Accurately fill the graduated cylinder with the fuel sample and weigh it to the nearest +/- 0.1g. The weight of the sample in the tared graduated cylinder replaces B and C in the calculation provided below and is divided by the cyclinder volume to obtain specific gravity.

Adjust the calculations according to the volume of the graduated cylinder.

Calculations

Calculation of specific gravity:

$A = (B-C)/ (D-C) * X$

where
A = specific gravity of the fuel sample (in g/mL)
B = weight of the graduated cylinder+ sample (in g)
C = weight of graduated cylinder (g) *omit if using tared cylinder*
D = weight of deionized water (g)
X = 0.99 g/mL, the conversion of mass/volume at 60°F

Calculation for Relative Percent Dfference(RPD):

$RPD = |E - F| /((E+F)/2)$

where
E = original result
F = duplicate result

Corrective Action

If a new graduated cylinder does not meet the requirements for accuracy, dispose of the item in the appropriate container and replace with a new one.

If the RPD between the MQC original and duplicate is > 20%. Repeat the test.

Results

Record solvent sample results onto the release form for each individual sample. Enter this data into the manifest system. Enter the quality control results into the FEQC blank spreadsheet (template) and save to the FEQC drive. Quality control data are stored in an excel spreadsheet used as a database

Maintenance

Clean the graduated cyclinder with an appropriate cleaner in between samples.

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Calibration of a Graduated Cylinder for Specific Gravity

Method Reference: ASTM Volume 11.04, Method D5057 (modified)

Scope and Application

This method details a procedure for the calibration of a graduated cylinder for use in the determination of the specific gravity of liquid fuel samples.

Summary of Method

A sample of deionized water is brought to 60 ± 2°F. The specific gravity of the water measured in the graduated cylinder is determined by the calculation of the weight of the water in grams divided by the volume of the water in milliliters. The specific gravity of water is known to be 1.00g/mL at 4°C and 0.99g/mL at 60°F.

Apparatus and Materials

Graduated cylinder: 250mL or other approprate size

Balance: Capable of weighing to +/- 0.1g

Thermometer

Apparatus to adjust temperature: Various devices may be used to control the temperature of the sample such as a refrigerator, water bath or circulator.

Sample Collection, Preservation, and Handling

Refer to section VI Laboratory Measurement and Data Traceability of the Quality Assurance Manual.

Quality Control

Refer to section VI Laboratory Measurement and Data Traceability of the Quality Assurance Manual.

The calculated results must be ± 1.0% of the actual value for water, 1.00g/ml at 4°C or 0.99g/mL at 60°F.

Procedure

Calibration

Weigh a clean, dry graduated cylinder to the nearest +/- 0.1g. Accurately fill the cylinder with deionized water brought to a temperature of 60 ± 2°F to the maximum capacity and weigh again to the nearest +/- 0.1g.

Calculations

(B – C)/ X = A *100 = percent recovery

where A = specific gravity of deionized water in (g/mL)
B = weight of the graduated + deionized water (grams)
C = weight of graduated cylinder (grams)
X = volume of the graduated cylinder (ml)

Corrective Action

If a new graduated cylinder does not meet the requirements for accuracy, dispose of the item in the appropriate container and replace with a new one.

Results

Record the results for all new cyinders in the Graduated Cylinder Check databook.

Maintenance

Clean the graduated cyclinder with an appropriate cleaner in between samples

STANDARD OPERATING PROCEDURE ***RL. 6***

KEYSTONE CEMENT CO.
Bath, PA

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Determination of BTU's and Percent Ash for Liquid and Solid Fuel Samples

Method Reference: SW846, Method 5050(modified), Volume 1C ,ASTM Volume 11.04, Method E711 (modified);

Scope and Application

This method details a procedure for igniting a fuel sample inside a bomb calorimeter in order to determine the BTU value and percent ash of the sample. The washings from the bomb can then be used to determine the percent chloride in a sample.

Summary of Method

Calorific value is determined in this test method by burning a weighed sample with pure oxygen under controlled conditions in a calibrated calorimeter. The calorimeter is standardized by burning the manufacturer's specified amount of benzoic acid. The heating value of the test specimen is computed from temperature observations made before, during, and after combustion, and making proper allowances for heat contribution by non-combustion processes. Liberated halogen compounds are absorbed in a sodium carbonate solution.

After disassembly of the bomb, the sample cup is dried, and the weight of the residue is used to calculate the percent ash.

Washings obtained from the procedure may be titrated to determine percent chloride.

Interferences

Samples with a very high water content (> 25%) may not combust efficiently. When a sample has > 25% water content, it must be run using 1:1 ratio with mineral oil.

Use .25xx gram mineral oil and .25xx gram sample and place into gelatin capsule. The mineral oil and sample mixture are ignited in the calorimeter. Calculate heating value of sample using the mineral oil spreadsheet located on the FEQC drive.

Apparatus and Materials

Calorimeter: Parr 1261 and/or 6200 Calorimeter equipped with a water handling system, oxygen bomb, bucket, electronic temperature sensing devices, ignition leads, water and stirrer.

Ignition wire: nickel-chromium alloy or platinum cut to approximately 100 mm in length.

Gelatin capsule: Used to encapsulate volatile samples.

Analytical Balance: Capable of weighing to +/- 0.0001g

Volumetric Flasks: 50mL, with stoppers. Other sizes may be used.

Funnels: Glass or plastic.

Graduated cylinder: Or other appropriate dispensing device.

Rubber policeman: Normal laboratory variety.

Pellet press: For solid fuel samples, optional.

Reagents

Deionized water

10% Sodium carbonate/sodium bicarbonate solution: Dissolve 50g of Na_2CO_3 and 50g $NaHCO_3$ in deionized water and dilute to 1L.

Benzoic acid: Pellets

Sample Collection, Preservation, and Handling

Refer to section VI Laboratory Measurement and Data Traceability of the Quality Assurance Manual.

Quality Control

Refer to section VI Laboratory Measurement and Data Traceability of the Quality Assurance Manual.

If samples are analyzed on a daily basis, prepare every twentieth sample in duplicate or a minimum of once a day.

CQC (LCS): Analyze a blank mineral oil and two mineral oil samples (spiked with chloride for RL.7) prior to sample analysis.

MQC (matrix spiking): If samples are analyzed on a daily basis, prepare every twentieth sample in duplicate or a minimum of once a day.

Analyze one benzoic acid tablet after completing maintenance on each bomb to verify the standardization.

Standardization

The calorimeter is standardized by combustion of benzoic acid. Each oxygen bomb must be standardized separately in each calorimeter.

Set the instrument up for standardization mode. Determine the energy equivalent as the average of ten individual runs made over a period not less than three days and not more than 5 days. Use the average energy equivalent for each individual bomb on all sample analyses. The % RSD must be <0.5 for the standardization to be considered valid.

Procedure

For a liquid fuel sample:

Insert an igniter wire into the holder, forming a loop.

Tare the balance. Weigh the empty cup. Record empty cup weight.

Tare the balance again. Weigh the gelatin capsule. Record the capsule weight as spike weight.

Tare the balance again. Fill the gelatin capsule with approximately .5g of liquid fuel. Weigh the filled gelatin capsule. Record weight.

Place the sample cup in its holder. Bring the igniter wire into contact with the gelatin capsule.

At this point, add 10mL of the Na_2CO_3 solution to the bomb, wetting the sides (The 10mL may be added prior to this point, but the sides of the bomb must be wetted immediately before placing the lid on the bomb.)

Place the holder into the bomb. Screw the lid onto the bomb. Close the pressure relief valve.

Pressurize the bomb to 32atm with oxygen.

Fill the bucket with water from the water recirculating system. Place the bucket into the calorimeter.

Place the bomb into the bucket containing the water minimizing any contact with the water that may remove water from the bucket. Connect the ignition leads. Observe that the bomb is not leaking, which would be indicated by air bubbles coming from anywhere on the bomb.

Close the lid on the calorimeter.

Ignite the sample by following the key sequence for the calorimeter. The sequence will prompt the user to enter the sample weight, capsule weight, and bomb ID number.

The instrument will record the temperature changes that occur during ignition of the sample and calculate the BTU content for the sample at the completion of the run.

At the conclusion of the run, disconnect the ignition leads from the bomb and remove the bomb from the bucket.

Dry the outside of the bomb and vent it to return to atmospheric pressure. Release the pressure at a slow, uniform rate so that the operation requires at least one minute.

Open the bomb. Remove the sample cup from the holder and place it on a hotplate until dry. Use dry, clean gloves or forceps to transfer the cup.

Tare the balance. Weigh the dried sample cup.

Rinse off the holder into the bomb with deionized water. Place the sample cup back into the bomb. Scrub the cup and inside of the bomb with a rubber policeman.

Rinse out the bomb into an appropriately sized volumetric flask (50mL is suggested). Take the flask to volume with deionized water. Aliquots from this flask will be used to determine percent chloride.

Clean the bomb: Remove any residual fuse wire from the terminals. Using tap water, rinse the interior of the bomb, the sample cup, terminals, and interior surface of the bomb cover. Final rinse all parts with deionized water. Acetone may be used to remove any stubborn deposits.

For solid fuel samples:

Proceed as above, omitting the gelatin capsule and weighing 0.90-1.00g of sample.

Alternatively, press approximately 1g of the sample into a pellet and proceed as above.

Calculations

Calculations for Btu/lb are performed by the automated calorimeter.

The calculation for a sample co-fired with mineral oil is as follows:
(Use the mineral oil spreadsheet to perform this calculation).

Btu/lb

A = Calculated Btu value from calorimeter (Btu/lb)
B = Weight of mineral oil (g)

C = Weight of sample (g) (total)
D = Btu value of mineral oil

$$((A \times B) + (A \times C) - (B \times D)) / C = \text{Sample Btu value (Btu/lb)}$$

Percent Ash:

$X = (Y / Z) \times 100$

Where X = percent ash of the sample
Y = weight of the residue in the cup (g)
Z = weight of the sample (g)

Percent Recovery

$$\%R = (E) / F * 100$$

where %R = Percent recovery
E = measured value
F = known value

Calculation for Relative Percent Dfference(RPD):

$$RPD = |E - F| / ((E+F)/2)$$

where E = original result
F = duplicate result

Corrective Action

For any instrument failures such as any failure preventing the calorimeter from entering the ready mode, contact the Lab Manager for guidance.

Re-analyze any QC (CQC, MQC) sample that fails the acceptance criteria for percent recovery or RPD

Results

Verify the data entry into the calorimeter is correct through a comparison to the initial record of weight. Place a check by all data that was verified,

Record solvent sample results onto the release form for each individual sample. Enter this data into the manifest system. Enter the quality control results into the FEQC blank spreadsheet (template) and save to the FEQC drive. Quality control data are stored in an excel spreadsheet used as a database

Maintenance

Clean the bombs in between samples to prevent cross-contamination of samples.

All bombs are sent to the manufacturer on an annual basis for re-calibration.

Perform in-house maintenance on each bomb every other month.

Replace the water in the water handling system and the water filter monthly.

All other maintenance is performed on an as needed basis.

STANDARD OPERATING PROCEDURE ***RL. 7***

KEYSTONE CEMENT CO.
Bath, PA

Issued: 5/05/1998	***Written by: Kimberly Kurdes***
Revision: 2	***Reviewed by:Mechella Saba***
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Determination of the Chloride Content of Liquid and Solid Fuel Samples

Method Reference: SW846, Method 9253(modified), Volume 1C

Scope and Application

This method details a procedure for determining the percent of chloride present in a waste fuel sample.

Summary of Method

An aliquot of the washings obtained from the BTU determination (Procedure RL.6) is titrated with silver nitrate solution until an endpoint is reached. An ion selective electrode is used to determine the endpoint of the titration through relative measurements of water versus the sample that may contain chloride. The percent of chloride can be calculated from the amount of reagent used.

Interferences

Bromide, iodide, and sulfides are titrated with the chloride. Bromide, iodide, and sulfides are calculated and reported as chloride.

Apparatus and Materials

Automatic Titrator: Metrohm Titroprocesso, Dosimat, and Exchange Unit or equivalent

Burette: Readable to +/- .01mL

Beaker: Appropriate size

Magnetic stirrer: Large enough to hold the beaker, with stir bar

Chloride electrode: Orion part # 9417BN or equivalent electrode

Reference electrode: Orion part # 900200 or other suitable electrode

Electrode filling solutions: Use the type and concentration of filling solutions recommended by the electrode manufacturer

Volumetric pipette: 20mL

Ion meter: Capable of reading in mV

Volumetric flask: 50mL, or other suitable size

Reagents

Silver nitrate solution ($AgN0_3$): 0.0141N. Other concentrations may be used if the conversion factor used in the calculations is modified accordingly.

Deionized water: Use deionized water for the preparation of all reagents and calibration standards and as dilution water.

Sodium chloride (NaCl): Reagent grade.

Chloride spiking solution #1: *This solution is the spike that is transferred to the bomb.* Weigh out 18.025g of NaCl and dilute to 1.0 liter using deionized water. 1mL of this solution will contain 2.2% chloride when spiked into a 0.5g sample and 4.4% chloride when spiked into a 0.25g sample.

Chloride spiking solution #2: *This standard solution is used to prepare the chloride check standards tested prior to sample analysis. This solution is not put into the bomb.* Weigh out 2.000g of NaCl and dilute to 1.0 liter of deionized water.

Chloride check samples: For the check samples, use spiking solution #2. Adding the following aliquots of the spiking solution to 100mL of deionized water in a beaker and titrating following the same procedure as for a sample should result in the following concentrations of chloride. Use a sample weight of .5g in the calculation:

Aliquot	Percent Chloride
2mL	1.21
1mL	.61
0.5mL	.30

Sample Collection, Preservation, and Handling

Refer to section VI Laboratory Measurement and Data Traceability of the Quality Assurance Manual.

Quality Control

Refer to section VI Laboratory Measurement and Data Traceability of the Quality Assurance Manual.

CQC – Analyze duplicate chloride spikes daily or every twenty samples, whichever comes first, using the chloride spiking solution #2. Rotate concentrations daily.

Analyze a blank mineral oil sample and duplicate spikes prior to sample analysis. Place the chloride spiking solution #1 in the bomb and carry through the entire sample preparation procedure (RL.6).

MQC - Analyze a sample , spike and spike duplicate samples every twentieth sample or once a day, whichever comes first, to check accuracy and precision.

Procedure

Calibration: The ion selective electrode is used to determine the endpoint of the titration through relative measurements of water versus the sample or standard. No instrument calibration is required for this method.

Method verification: The method is verified daily through the analysis of two types of spikes.

Place 100mL of deionized water into a 250mL beaker.

Insert a magnetic stir bar into the water and place on the magnetic stirrer.

Insert the chloride and reference electrodes into the beaker and record the initial mV reading from the ion meter.

For a liquid fuel sample: Pipette a 20mL aliquot of the washings obtained in the BTU determination (Procedure RL.6) into a beaker, add 80 mLs of DI water. Place the beaker on the stir plate and begin stirring.

For a solid fuel sample: Rinse all washings obtained in the BTU determination (Procedure RL.6) into a beaker. Fill to a final volume of 100mL with DI water. Place beaker on stir plate and begin stirring.
After filling the burette with the silver nitrate solution, begin adding the reagent dropwise. Add the reagent until the initial mV reading is once again obtained. Record the volume of silver nitrate solution used.

Spiking (for liquid samples): The sample is analyzed exactly as described above, except that 1mL of spiking solution #1 is added to the bomb. This addition should result in an approximate 2% increase in the chloride content for a 0.5g sample using the calculations described below. The amount of spike can be varied to obtain a range of concentrations.

Calculations (based on a 20mL aliquot taken from a 50mL total starting volume)

A = (B X C) / D

where A = percent chloride in the sample
B = volume of silver nitrate solution used (in mL)
C = .125, a conversion factor*
D = weight of sample used in the BTU determination (in g)

*(1L/1000mL) x (0.0141molAg/L) x (1molCl/1molAg) x (35.453gCl/molCl) x 2.5 (aliquot factor) x 100 (conversion to percent)

Corrective Action

Contact the Lab Manager for guidance when instrument failures occur.

Re-analyze any QC (CQC, MQC) sample that fails the acceptance criteria for percent recovery or RPD.

Results

Verify the weight and user method are correct. Place a check mark by the weight to indicate the data was verified.

Hand calculate the results and compare to the instrument calculated results.

Record solvent sample results onto the release form for each individual sample. Enter this data into the manifest system. Enter the quality control results into the FEQC blank spreadsheet (template) and save to the FEQC drive. Quality control data are stored in an excel spreadsheet used as a database

Maintenance

Clean the beaker and pipet in between samples to prevent cross-contamination of samples.

Clean the Cl ion selective electrode with fluoride toothpaste weekly.

Replace the solutions in the reference electrode weekly.

Replace the dessicant for the silver nitrate solution weekly.

Replenish the silver nitrate solution as needed.

STANDARD OPERATING PROCEDURE ***RL. 8***

KEYSTONE CEMENT CO.
Bath, PA

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Analysis of Fuel Samples for Water Content

Method Reference: Aquametry II User's Guide, ASTM Volume 11.04, D5530 (modified)

Scope and Application

This method details a titration procedure used to determine the water content of solvent samples.

Summary of Method

Standardization is performed using a 50uL aliquot of deionized water. A representative 100uL portion of the sample is titrated with a Karl Fischer reagent. Water content is determined using the volume of the Karl Fischer reagent needed to tie up all of the water in the sample.

Modification to conversion factors is based on reagent concentrations.

Apparatus and Materials

Digital buret: Brinkmann digital buret 25 or equivalent, with adapter suitable for reagent bottle and drying tube.

Stir plate and stir bar

Reaction vessel: Glass jar with screw lid capable of holding 100mL of liquid, with four lid ports for buret, drying tube, meter, and sample introduction.

Meter: Platinum/platinum electrode connected to a microammeter that shows endpoint of Karl Fischer titration or equivalent. See Note No. 1.

Pipettes: Appropriate size

Graduated Cylinder: 50mL

Note No. 1: An automated Karl Fischer titration unit may be used to determine percent water. Refer to the manufacturers specifications for instrument set-up and operation.

Reagents

Deionized water

Aquastar Comp 5 or equivalent

Anhydrous methanol

Sample Collection, Preservation, and Handling

Refer to section VI Laboratory Measurement and Data Traceability of the Quality Assurance Manual.

Quality Control

Refer to section VI Laboratory Measurement and Data Traceability of the Quality Assurance Manual.

Analyze a spiked sample and a duplicate spiked sample every twentieth sample or daily whichever occurs first. Otherwise, run a spiked sample and duplicate spiked sample with each analytical batch.

Analyze a check standard following standardization and at the end of each sample set to determine accuracy.

Procedure

Standardization: Before sample analysis can begin or after changing the Karl Fischer reagent, the water equivalence of the reagent must be standardized. To do this, place the stir bar in the reaction vessel. Add 70 to 80mL of anhydrous methanol to the reaction vessel. Turn on the stirrer. Fill and zero the buret. Remove any water present in the methanol by adding reagent dropwise until the meter reaches a set point in the brown zone. The set point of the titration can be any point in the brown zone provided that same mark is always used as the end point. Allow the solution to stabilize for one minute to be sure the endpoint is reached. Once reached, the endpoint should be stable indefinitely. Add 50uL of water into the reaction vessel via the sample port. The solution in the beaker will change from brown to clear, and the needle on the meter will be in the yellow "water zone." Titrate back to the same brown zone endpoint (as done previously); record the amount of reagent used. Perform this procedure in duplicate and calculate the average to compute the water equivalence of the Karl Fischer reagent.

Sample Analysis: After stabilizing the meter at the endpoint, add 100uL of **well mixed** sample to the reaction vessel via the sample port. Titrate back to the same endpoint (as done previously); record the amount of reagent used. Calculate the amount of water present in the sample.

Spiking: To the reaction vessel, add 100ul of sample. In addition, add 10uL of deionized water. Titrate as described above. The known value of the spike is 10%.

Calculations

Standardization:

$A = 50/B$

where A = the water equivalence of the KF reagent in mg/mL
B = the volume of KF reagent used in the titration (mL)
50 is the weight of the water used to standardize in mg

Calculation for corrected percent water in sample:

$C = (D \times A) / (E \times F \times 10)$

where C = percent (w/w) water in the sample
A = the water equivalence of the KF reagent in mg/mL
D = the volume of KF reagent used in mL to titrate the sample
E = the sample size in mL

F = the specific gravity of the sample in g/mL
10 is the result of the conversion factors for percent and mg to g.

Calculation for the corrected percent water of the matrix spike (MQC):

C = ((D x A) –10*/ (E x F x 10**)) + (10/1.00)

where C = percent (w/w) water in the sample
A = the water equivalence of the KF reagent in mg/mL
D = the volume of KF reagent used in mL to titrate the sample
E = the sample size in mL
F = the specific gravity of the sample in g/mL
10* is the weight of the water spike (10mL)
10** is the result of the conversion factors for percent and mg to g.
1.00 is the specific gravity of water

Corrective Action

When the instrument fails to work properly (either the needle does not move when water is added or does move but calculated values for standards are incorrect), remove some of the working solution. If this does not correct the problem, clean the reaction vessel and replace the working solution. Restandardize the new working solution. If the problem is still not resolved, replace the battery in the meter, replace the electrode, or the meter and the electrode. Contact the Lab Manager for guidance if none of these procedures resolve the problem.

Re-analyze the check standard one time if failing. If the standard fails a second time, replace the working solution and restandardize it.

Re-analyze any QC (CQC, MQC) sample that fails the acceptance criteria for percent recovery or RPD. If rerun fails again, note matrix interference.

Results

Enter the raw data collected into the water titration spreadsheet to calculate percent corrected water. Enter the corrected percent water into the manifest system. Enter the quality control results into the FEQC blank spreadsheet (template) and save to the FEQC drive. Quality control data are stored in an excel spreadsheet used as a database

Maintenance

Clean the reaction vessel when changing the working solution and at the end of the day.

Replace dessicant weekly.

Waste Disposal

Wastes generated by this method should be transferred to a non-metal waste container.

STANDARD OPERATING PROCEDURE ***RL. 9***

KEYSTONE CEMENT CO.
Bath, PA

Issued: 5/05/1998	***Written by: Fiona Adamsky***
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Compatibility Testing for Liquid Fuel Samples (Test #2) Tank Compatibility

Method Reference: ASTM Volume 11.04, Method 5058 (modified)

Scope and Application

This procedure details a method for determining compatibility between different loads of waste solvents.

Summary of Method

Aliquots of each load received for the day are blended in a beaker along with the heel from the appropriate tank the load is to enter. Reactions and temperatures are noted.

Apparatus and Materials

Digital Scanning Thermocouple Thermometer: Digisense with twelve operating channels or equivalent

Graduated cylinder: 250mL or applicable size

Glass beaker: Minimum of 1000mL

Thermocouples

Stir plate and stir bar

Ring stands

Reagents

Not applicable

Sample Collection, Preservation, and Handling

Refer to section VI Laboratory Measurement and Data Traceability of the Quality Assurance Manual.

Quality Control

Not Applicable

Procedure

Calculate the volume of the estimated tank heel aliquot by summing 25mL for every 1,000 gallons of the heel. Place the measured aliquot as calculated in a 1000mL beaker labeled for that tank using a graduated cylinder. For each subsequent load that is to be placed into a tank, calculate the volume of the aliquot to be used for testing by summing 25mL for every 1000 gallons of the material. Transfer the load aliquot to the same beaker using a graduated cylinder. Add the contents to the heel slowly to prevent splashing. Stir the contents using the magnetic stirrer to ensure complete and thorough mixing during the entire procedure. Note initial temperature and general appearance of contents. Note the temperature and appearance after a minimum of 15 minutes.

Note reactions including, but not limited to, excessive fuming, drastic change in temperature, clumping or thickening. Report any unusual observations to the appropriate Keystone personnel.

Calculations

Calculation to determine aliquot size:

$A = (B \times 0.25)$

where A = Aliquot size (mL)
B = estimated volume (either tank heel volume or load volume)(mL)

Corrective Action

Contact the Lab Manager for guidance on instrument problems.

Immeditately contact the appropriate Keystone personnel if any reaction is noted including temperature changes > 15 ° F.

Remake any tank compatibily if the mix of trucks to be added to the storage tank has changed and aliquots have been added representing loads that will not be put into the storage tank. If the last aliquot has been added followed by a decision not to unload the material, it is not necessary to re-make the tank compatibility sample.

Results

Enter "yes" onto the release form for each individual load with passing compatibility tests. Enter results into manifest system.

Maintenance

Clean the beaker, stir bar, and stir plate at the end of the day.

Waste Disposal

Wastes generated by this method should be transferred to the appropriate waste container.

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Compatibility Testing for Liquid Fuel Samples (Test #1) Super Compatibility

Method Reference: ASTM Volume 11.04, Method 5058 (modified)

Scope and Application

This procedure details a method for determining compatibility between different mixes of waste solvents.

Summary of Method

Aliquots of each tank heel and every load received for the day are blended in a beaker to determine if the material received is compatible. Reactions and temperatures are noted.

Apparatus and Materials

Digital Scanning Thermocouple Thermometer: Digisense with twelve operating channels or equivalent

Graduated cylinder: 250mL or applicable size

Glass beaker: Minimum of 1000mL

Thermocouples

Stir plate and stir bar

Ring stands

Reagents

Not applicable

Sample Collection, Preservation, and Handling

Refer to section VI Laboratory Measurement and Data Traceability of the Quality Assurance Manual.

Quality Control

Not Applicable

Procedure

Calculate the aliquot volume of the each estimated tank heel in operation for the day by summing 25mL for every 1,000 gallons of waste solvent and place in a 2000mL beaker. For each load that is selected for unloading, calculate the volume of the aliquot to be added by summing 25mL for every 1000 gallons.and add to the beaker. Measure and transfer all aliquots slowly to the beaker using a graduated cylinder. Stir the contents using the magnetic stirrer to ensure complete and thorough mixing during the entire procedure. Note initial temperature and general appearance of contents. Monitor the temperature and appearance at 60-minute intervals commencing when the first tank heel is added to the beaker. End the monitoring for temperature and appearance 60 minutes subsequent to the last truck aliquot added to the beaker.

Note any reactions including, but not limited to, excessive fuming, drastic change in temperature, clumping or thickening. Report any unusual observations to the appropriate Keystone personnel.

If the beaker becomes too full, split the contents in half by volume. Calculate every truck aliquot volume following the split by summing 12.5mL for every 1000gal of waste.

At the end of each day, test the daily super compatibility sample for the presence of peroxides utilizing method RL.12.

Calculations

Calculation to determine aliquot size:

A = (B x 0.25)

where A = Aliquot size (mL)
B = estimated volume (either tank heel volume or load volume)(mL)

Calculation to determine aliquot size following a split of the super compatibility beaker:

C = (D x 0.125)

where C = Aliquot size (mL)
D = estimated volume (load volume)(mL)

Corrective Action

Contact the Lab Manager for guidance on instrument problems.

Immeditately contact the appropriate Keystone personnel if any reaction is noted including temperature changes > 15 ° F.

Remake any super compatibily sample if the decision has been made not to unload material that has been already tested for super compatibility. Contact the appropriate person to obtain updated tank heels to re-make the tank when possible. If the last aliquot has been added followed by a decision not to unload the material, it is not necessary to re-make the super compatibility sample.

Results

Enter "yes" onto the release form for each individual load with passing compatibility tests. Enter results into the manifest system.

Maintenance

Clean the beaker, stir bar, and stir plate at the end of the day.

Waste Disposal

Wastes generated by this method should be transferred to the appropriate waste container.

STANDARD OPERATING PROCEDURE ***RL. 11***

KEYSTONE CEMENT CO.
Bath, PA

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Water Compatibility Testing for Liquid Fuel Samples

Method Reference: ASTM Volume 11.04, Method 5058 (modified)

Scope and Application

This procedure details a method for determining the water compatibility of a waste.

Summary of Method

Water and the waste are mixed in an approximate 10:1 ratio to test for compatibility. A thermometer is used to measure heat generation when applicable. Qualitative solubility and relative apparent density are observed concurrently.

Apparatus and Materials

Disposable test tubes

Pipettor: 1mL capacity

Pipet tips

Spatula

Thermometer: 0 to 212 degrees Fahrenheit or equivalent

Reagents

Deionized water

Sample Collection, Preservation, and Handling

Refer to section VI Laboratory Measurement and Data Traceability of the Quality Assurance Manual.

Quality Control

Refer to section VI Laboratory Measurement and Data Traceability of the Quality Assurance Manual.

Analyze the first sample of the day as a duplicate to verify method precision.

Procedure

Keep all thermometers at room temperature until ready for use. Bring sample to room temperature, if necessary. Place a small amount of water (approximately 10mL) into a disposable test tube. Introduce approximately 1 mL of waste using a pipet into the test tube and mix well. As soon as possible after sample introduction to the water and it has been determined that no violent reaction is occurring, place the thermometer into the test tube and note any temperature changes (increase or decrease), recording the temperature in degrees Celsius or Fahrenheit.

Some reactions may have a latent period of accelerate as they proceed. Record any temperature changes and/or reactions at five minute intervals for a total of 15 minutes.

Note any violent reactions and record observations. If any such reactions are noted, the waste fails the water compatibility test. If no reactions are observed and no significant temperature change is noted, the waste has passed the water compatibility test.

Calculations

Not applicable

Corrective Action

Immeditately contact the appropriate Keystone personnel if any reaction is noted including temperature changes > 15 ° F.

Results

Enter "yes" onto the release form for each individual load with passing compatibility tests. Enter results into the Manifest system.

Maintenance

Clean the thermometer after each test.

Waste Disposal

Wastes generated by this method should be transferred to the appropriate waste container.

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Revision Date: 10/21/2010	***Reviewed by:***
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MC: 5/8/2000	***Effective Date:***

Peroxide Testing for Liquid Fuel Samples

Method Reference:

Manufacturers Specifications

Scope and Application

This procedure helps quantify the analysis of peroxides in organic, densely colored, and inorganic compounds.

Summary of Method

Peroxidase (POD) transfers oxygen from the peroxide to an organic redox indicator, which is then converted to a blue-colored oxidation product. A colormeteric scale (0-25mg/l) determines the concentration of peroxides. The scale is considered accurate at 10mg/l and above.

Interference's

Colorful solvents may prohibit a distinct blue color change. Immersing half of the reaction zone can allow a measurable color change. Deionized water used in the reaction may become contaminated if not frequently changed.

Apparatus and Materials

EM quant peroxide test strips, or equivalent
Beakers: 25 or 50ml

Reagents

Deionized Water

30% Hydrogen Peroxide (proper dilutions to 10ppm)

Peroxide Standard Preparation: When using 30% Hydrogen Peroxide the following dilution is necessary to prepare a 10ppm standard:

1. Pipette 1 milliliter (ml) of 30% H_2O_2 into a 1000ml volumetric flask and dilute with deionized water. Label this flask 300ppm.
2. Pipette 10ml of the 300ppm solution into a 50ml volumetric flask and dilute with deionized water. Label this flask 60ppm.
3. Pipette 5ml of the 60ppm solution into a jar and dilute with 25ml of deionized water. Label this jar 10ppm peroxide standard.

Sample Collection, Preservation, and Handling

Refer to section VI Laboratory Measurement and Data Traceability of the Quality Assurance Manual.

Quality Control

Refer to section VI Laboratory Measurement and Data Traceability of the Quality Assurance Manual.

When opening a new container of quant strips, analyze a standard to show that the quant strip is accurate.

Control Quality Control(CQC): Run the 10ppm standard daily on quant strips prior to analysis.

Matrix Quality Control(MQC): Analyze the first truck of the day as a duplicate to verify results.

Procedure

Aqueous Solutions

Remove one test strip and immediately close the tube. Dip the test strip into the solution to be tested for one second so that the reaction zone is completely wetted. After 15 seconds remove the test strip, shake off excess liquid, and compare the reaction zone with the color scale. Darker samples should be dipped only half way to determine a color change.

Organic Solvents

Remove one test strip and immediately close the tube. Dip the test strip into the solvent to be tested for one second so that the reaction zone is completely wetted. Move the test strip to and fro for 3 to 30 seconds until the solvent has evaporated from the reaction zone. Then dip the test strip into deionized water for one second,(a) shake off excess water, OR (b) blow on the strip four times for a duration of three to five seconds each time. After 15 seconds, compare the reaction zone with the color scale. Darker samples should be dipped only half way to determine a color change.

Calculations

Not applicable

Corrective Action

If the standard does not produce the correct color change, remake the standard. If this does not resolve the problem, open a new container of strips.

Results

Enter the results onto the release form for each individual load. Enter results into the Manifest system. Enter the quality control results into the FEQC template located on the FEQC drive. Quality control results are stored in an excel spreadsheet used as a database.

Maintenance

None

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Determination of the Relative Viscosity of a Liquid Fuel Sample

Method Reference Manufacturer specifications.

Scope and Application

This method details a procedure for the determination of the relative viscosity of a fuel sample.

Summary of Method

A specified volume of fuel is measured for viscosity using a Brookfield Viscometer. The fuel temperature should be adjusted 60° Fahrenheit during the months of April to September and adjusted to 35°F during October to March.

Interference's

An incorrectly homogenized sample interferes with consistency and repeatability.

Apparatus and Materials

Brookfield LV viscometer: including spindles and/or parts, similar appartus may be substituted

Temperature Bath: Capable of maintaining constant temperatures

Sample Adapter: Adequate size

Thermometer: 0.5 degrees Fahrenheit increments

Epson Dot Matrix Printer

Reagents

Viscosity Fluid Standards

Sample Collection, Preservation, and Handling

Refer to section VI Laboratory Measurement and Data Traceability of the Quality Assurance Manual.

Quality Control

Refer to section VI Laboratory Measurement and Data Traceability of the Quality Assurance Manual.

At the start of every day, analyze a certified standard to verify the accuracy of the viscometer.

Analyze every twentieth sample in duplicate or a minimum of one per day.

Procedure

Pour fuel sample into a sample adapter. Select the appropriate spindle so that the viscometer gauge is 20 to 80% full deflection at the appropriate RPM rotation speed. Immerse the spindle in the sample adapter, turn on the viscometer, adjust the rpm's, and allow it to stabilize. The fuel temperature should be adjusted 60 ± 2° Fahrenheit during the months of April to September and adjusted to 35 ± 2°F during October to March.

Press print on the viscometer.
The following information will be included in the printout:

1. RPM's
2. spindle number;
3. % torque
4. viscosity
5. temperature

Label each printout with sample name and technician's initials. More than one printout can be included per page. The date can be listed once on the top of the page of printouts.

Calculations

Not applicable

Corrective Action

Contact the Lab Manager to troubleshoot instrument problems.

Results

Enter the results onto the release form for each individual. Enter results into the Manifest system. Enter the quality control results into the FEQC template located on the FEQC drive. Quality control results are stored in an excel spreadsheet used as a database.

Maintenance

Clean the sample cup and spindle after each test.

STANDARD OPERATING PROCEDURE	***RL. 14***

KEYSTONE CEMENT CO.
Bath, PA

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MC:	***Effective Date:12/23/13***

pH of Liquid Fuel Samples

Method Reference: SW846, Method 9045C (Modified), Volume 1C

Scope and Application

This procedure is for preparing liquid fuel samples for the measurement of pH.

Summary of Method

The sample is mixed with reagent water and the pH of the resulting aqueous solution is measured. Hygroscopic samples may be additionally diluted.

Interferences

Changes in temperature can cause erroneous results. Temperature effects on pH due to fluctuating electrode output are controlled using an ATC (automatic temperature control) probe. Changes in the pH of a sample due to changes in temperature cannot be controlled. Therefore, the temperatures of the buffers and samples are recorded with the pH result.

Errors will occur when the electrodes become coated. If an electrode becomes coated with an oily film that will not rinse free, the electrode can be cleaned with an ultrasonic bath, or with detergent, rinsed with water, placed in 1:10 HCl so that the lower third of the electrode is submerged, or be cleaned by manufacturer specifications.

Apparatus and Materials

pH Meter, Fisher Accumet AB15 or equivalent

pH Electrode, combination electrode

ATC probe for automatic temperature control

Beaker: applicable size

Magnetic Stir Bar

Stir Plate

Disposable Pipettes

Watch Glass

Reagents

Deionized water

Standardization Buffer Solutions: pH 1.00, 6.00, and 13.00. Other standard solutions may be used if necessary.

Standardization Verification: Analyze a standard pH 7.00 buffer solution.

Initial and Continuing Calibration Checks: Analyze a pH 2.00 buffer solution prior to beginning sample analysis. Following sample analysis, analyze a pH 12.00 buffer solution.

Quality Control

Control Quality Control (CQC)- after standardization of the pH meter analyze the mid-point standard (7.00) as a sample to verify calibration. The recovery must be 90-110 %. If the recovery is outside the range of acceptability, re-standardize the electrode/meter. If this does not correct the problem, refer to the Corrective Action Section.

Continuing Calibration Check Standards – Analyze the pH 2.00 buffer solution prior to sample analysis. The standard must meet 90-110% recovery before testing a sample. Following sample analysis, analyze the pH 12.00 buffer solution. The standard must meet 90-110% recovery. If the 12.00 buffer is outside the range for acceptability, determine the source of the problem and re-analyze the affected sample set bracketing the set with pre-and post-sample check standards. If the recovery is outside the range of acceptability, re-standardize the electrode/meter. If this does not correct the problem, refer to the Corrective Action Section.

Matrix Quality Control (MQC)- a duplicate analysis must be prepared and analyzed every 20 samples or at least once per day. The RPD for the duplicate must be ≤ 20%. If the RPD is outside the range of acceptability, re-prepare and re-test the samples. If this does not resolve the problem, refer to the Corrective Action section

Procedure

Refer to the pH Cookbook for instrument operating instructions.

Standardization: Calibrate the pH meter following the instructions outlined in the cookbook. The system must be calibrated at a minimum of two points that bracket the expected range of pH of the sample. Currently, the meter/electrode is standardized using the following buffer solutions: 1.00, 6.00, and 13.00. Repeat any adjustments on additional portions of buffer solution if the reading is > ±0.05pH units from the buffer solution value.

Sample Preparation: To 20 ml of DI water in a beaker add 20 ml of sample and stir for five minutes. Let stand for 15 minutes. Using a disposable pipette, remove the aqueous layer and place in another beaker for pH measurement. If the sample is miscible with water, obtain the pH of the mixture. Additional dilutions may be used if the sample is hygroscopic.

Determine and record the pH of aqueous layer and the temperature at which the measurement was made.

Results should be reported as "pH @ temperature °C".
Example: 7.34 @ 22.3°C.

Calculations

$$\%RPD = \frac{\text{Difference of the original and duplicate results} \times 100}{\text{Average of the original and duplicate results}}$$

$$\%\ \text{Recovery} = \frac{\text{Result}}{\text{Known Conc.}} \times 100$$

Corrective Action

a. If the slope of the standardization is not acceptable, replace all of the buffer solutions with fresh solutions and re-standardize the electrode/meter.
b. If after the buffer solutions have been replaced and the slope of the standardization is still not acceptable, open new buffer solutions and re-standardize the electrode/meter.
c. If steps a. and b. do not produce a standardization with an acceptable slope, clean the electrode.
    i. Rinse electrode and the ATC probe with DI water and lightly wipe clean with a Kimwipe.
    ii. Place electrode in 1:10 HCl so that the lower third of the electrode is submerged for approximately 1 minute
d. If a. through c. did not resolve the problem, replace the pH electrode.

Results

Record solvent sample results onto the release form for each individual sample. Enter this data into the manifest system. Enter the quality control results into the FEQC blank spreadsheet (template) and save to the FEQC drive. Quality control data are stored in an excel spreadsheet used as a database

Maintenance

Refer to the Instrument cookbook instructions.

KEYSTONE CEMENT CO.
Bath, PA

Issued: 5/05/1998	***Written by: Mechella Saba***
Revision:2	***Reviewed by:***
Revision Date: 12/19/13	***Approved by: Mechella Saba***
MC:	***Effective:07/11/2017***

Preparation of Fuel Samples for Metals Analysis by Microwave Digestion

Method Reference: SW846, Method 3051(Modified),

Scope and Application

This method is applicable to the microwave assisted acid digestion of waste solvents and coals for the following elements:

Al	Sb	As	B	Ba	Be	Cd	Ca	Cr
Co	Cu	Fe	Pb	Mg	Mn	Hg	Mo	Ni
K	Se	Ag	Na	Sr	Tl	V	Zn	S

This method is an alternative to the typical hotplate digestion. Hot plate digestion may also used to digest samples (3050B (modified)). Digestates produced by this method are suitable for analysis by the following determinative methods: Flame AA, Furnace AA, ICP, and ICP-MS.

Summary of Method

A representative sample of approximately 0.25g is placed in a teflon lined digestion vessel. Ten mL of concentrated nitric acid is added to the vessel which is then capped and heated in the microwave unit. After cooling, the vessel contents are centrifuged or filtered and diluted to standard volume. The metals in solution are then quantified using one of the appropriate determinative methods. The percent sample loss during digestion is calculated and is used as an indication of vessel rupture which can lead to sample loss.

Interferences

Very reactive or volatile sample material may create high pressures when heated, and can cause venting of the vessels with potential loss of sample and

analytes. Decomposition of carbonates and/or carbon based samples could cause the vessel to vent because of increased pressure, and thereby lose sample mass from the digestion vessel resulting in a percent loss greater than 10%.

Apparatus and Materials

Microwave Apparatus: CEM MDS-2000 Microwave Sample Preparation System, CEM Microwave Accelerated Reaction System (MARS) or equivalent with pressure and temperature controls

Ultimate Digestion Vessels, XP 1500 Vessels or equivalent: these vessels have the capability to maintain a minimum temperature of 200°C and a minimum pressure of 600 psi.

Centrifuge: minimum of 2000 rpm

Filter paper: Whatman 5 or equivalent. Store opened boxes of filter paper in a dessicator. Replace dessicant when pink in color.

Dessicator: capable of holding several boxes of filter paper

Dessicant: Drierite, indicating, 8 mesh

Funnels: Long stem, glass or plastic

Analytical balance: Capable of weighing to +/- 0.0001g

Volumetric flasks: 50mL, with stoppers

Centrifuge tubes: 50mL plastic with cap or appropriate size for centrifuge

Reagents

Nitric acid (HNO_3): Concentrated reagent grade.

Deionized water

Spiking solution: Following the standard preparation sheets, use commercially available stock standard solutions to prepare the CQC and MQC spiking solutions for each metal. Multi-element stock solutions may be used.

Sample Collection, Preservation, and Handling

Refer to section VI. Laboratory Measurement and Data Traceability of the Quality Assurance Manual.

Quality Control

Refer to section VI. Laboratory Measurement and Data Traceability of the Quality Assurance Manual.

The following quality control samples must be prepared and analyzed once daily or every twenty samples.

CQC (LCS) consists of a blank and two spikes carried through the digestion procedure:

- Blank. Prepare a mineral oil sample as a blank sample following the above procedure section.
- Spikes: Preparing two additional mineral oil samples for digestion following the above procedure section. Spike two of the mineral oil samples with 2 mL of the CQC spike solution, 2 mL of the Sulfur CQC spike solution, and 1 mL of the mercury CQC/MQC spike solution prior to capping the vessel.

MQC (matrix spiking) consists of one sample weighed out three times, two of which are spiked with a known concentration of metals (MS/MSD). All three samples are carried through the digestion procedure:

- Prepare one spiked sample. Weigh as close to the original sample (approximately 0.25g) as possible. Add 1 mL of the MQC spiking solution and 1mL of the mercury CQC/MQC spiking solution prior to digestion.
- Prepare one duplicate spiked sample. Weigh as close to the original sample (approximately 0.25g) as possible. Add 1 mL of the MQC spiking solution and 1mL of the mercury CQC/MQC spiking solution prior to digestion.

Calibration

Temperature feedback control is used during analysis; therefore, calibration is not required.

Procedure

Follow the instructions in the specific instrument manuals provided with the microwave to set up the system. Carefully read and follow the sections on safety and vessel assembly.

Sample Preparation

Regular vessel: Remove the vent nut from the vessel cover and install a single rupture membrane. Use a new rupture membrane for each digestion run. A dissecting needle or similar probe can be used to dislodge a rupture membrane after completion of each run. Dry and weigh the completely assembled empty vessel. Record weight. Tare the vessel liner. Place approximately 0.25g of the fuel sample into the vessel liner. Record sample weight. Add 10mL of concentrated HNO_3 to the vessel liner. Allow the sample to sit mixed with the acid uncovered for approximately 5 minutes (pre-digestion). Energize the vessel lid, if necessary. Assemble the vessel. Weigh and record the completely assembled and full vessel. Place the assembly into vessel holder. Place the vessel holder onto the turntable.

Pressure Control Vessel: Remove the vent nut from the vessel cover and install a new single rupture membrane. A dissecting needle or similar probe can be used to dislodge a rupture membrane after completion of each run. Weigh the completely assembled empty vessel. Record weight, see Note 1. Tare the vessel liner. Weigh .25g of laboratory grade mineral oil and place into the vessel liner. Record the weight of mineral oil. Add 10mL of concentrated HNO_3 to the vessel liner. Allow the sample to sit mixed with the acid uncovered for approximately 5 minutes (pre-digestion). Energize the vessel lid, if necessary. Assemble vessel. Weigh the completely assembled and full vessel. Record weight. Place the vessel assembly into the holder. Place the vessel holder onto the turntable. Attach the pressure line and temperature probe to the control vessel.

It is important to treat all samples and pressure vessels for the same amount of time. Therefore, the acid should be added to the pressure vessel at the same time as the sample vessels. Both the pressure vessel and sample vessels must be pre-digested for the same length of time.

Samples that are difficult to digest due to continual venting through the rupture membrane may be placed in the pressure control vessel for analysis. This will allow the microwave to directly control the pressure of the sample. Follow the procedure for the preparation of the control vessel placing the sample in the control vessel. Weigh the vessel before and after the digestion to calculate percent loss. No other samples should be placed in the microwave with the sample when it is used as the pressure contol vessel unless additional portions of the same sample are to be digested (example, MQC).

Note 1: The weights and percent sample loss from the pressure vessel are recorded and calculated only when a sample is placed in the pressure vessel for digestion.

Digestion

Arrange all vessels in a balanced pattern on the turntable. After all the vessels are on the turntable, close the microwave door.

Print a copy of the method prior to starting the microwave. Start the printer at the beginning of each run to record the temperature and pressure at each 15 second interval during digestion.

Digest the samples following the program below or an other equivalent program (any program may be used but the program must include a temperature hold at a minimum of 175°C for a minimum of 10 minutes):

	MDS 2000	MARS
STAGE	1	1
MAX POWER	NA	800W
POWER	100 %	100 %
RAMP	NA	5.00 mins
Pmax	550 psi	800 psi
RUN TIME	27.00 mins. (or sufficient time to allow for the temperature to rise and hold at the set value)	NA
HOLD TIME	10:00 mins., minimum	10:00 mins., minimum
TEMPERATURE	175° C +/-5 °C	175° C +/-5 °C
FAN SPEED	100 %	NA

NA, not applicable

Review the print-out for the digestion method to ensure the sample temperature held at 175 +/-5 °C for a minimum of 10 minutes. Initial and date the print out to document the data was reviewed.

Cool-down and Filtration or Centrifuge

After the digestion program is complete, allow the vessels to cool until the temperature is below 60°C. An ice or water bath may be used to speed up the cooling process.

Remove the vessels from the turntable. Place the vessels in the fume hood. Loosen the nut so that the pressure is relieved slowly with no spitting of liquid.

Once the vessel is vented, reweigh the completely assembled vessel. (Percent loss is used to demonstrate that the sample has not vented during a run. Newly designed vessels are designed to vent slightly in order to maintain higher temperatures and pressures. These losses do not affect the metals dissolution of a sample. However, if a sample is allowed to go to dryness, metals content will be affected. The laboratory will, therefore, re-digest if a sample goes to dryness or a membrane would have ruptured. If sample vessel and rupture membrane are intact but the percent of loss is greater than 10%, the laboratory will flag with a "fail" on the Microwave percent loss spreadsheet and notify laboratory manager.

Carefully loosen the cap and remove the cover. Rinse the cover into the liner with deionized water. Quantitatively transfer the contents of the liner to a 50 mL volumetric flask through a funnel lined with the Whatman 5 filter paper. Carefully adjust the volume of the flask to assure proper dilution. If the sample contains particulates following the filtering, either filter a second time or centrifuge the sample.

To centrifuge the sample pour the entire diluted sample into a centrifuge tube and cap tightly. Place the tube in the centrifuge and run for ten minutes at a minimum of 2000rpm. Remove and decant sample.

Note:

1. *If after centrifuging the sample is still not clear, follow the procedure for filtering.*
2. *Do not refill the volumetric flask to the 50mL line after centrifuging and filtering a second time.*

Calculation

Percent Loss is calculated by:

$$\%loss=[(E-C)/(D-C)*100]-100$$

Where E= Weight after venting vessel (g)
C= Weight of vessel empty (g)
D= Weight of full vessel (g)

Corrective Action

Samples digested in a run where the ten minute hold at 175 +/-5 °C was not obtained and the temperatures out of range were below 170 °C must be re-weighed and re-digested. When the ten minute hold at 175 +/-5 °C was not obtained and the temperatures out of range were above 180 °C contact the

Laboratory Manager for approval to use the resulting digestate for any metals analysis.

Re-weigh and re-digest any sample in a vessel that has gone to dryness, has a ruptured membrane, and/or damage to the vessel. With any percent loss greater than 10% contact the Laboratory Manager for approval to use the resulting digestate for any metals analysis.

Periodically, a microwave may stop a run due to a sensor error. Sometimes, the unit may stop due to printer vibration. If this occurs, open the door and inspect the vessels. Inspect the temperature and pressure line. If all vessels are intact and none have vented and the temperature and pressure lines are working, re-start the run. If any vessels do not appear normal or a problem with either the temperature or the pressure line is suspected, remove the vessels from the unit. Reweigh all the samples and start the process over.

If the printer stops during the digestion, print a graph at the end of the run to document temperature control during the run.

Results

File the data print out from each digestion and the record of sample percent weight loss in the daily packet for the appropriate matrix.

Maintenance

Store the MARS temperature probe capped in its case.

Wipe the microwave cavity at the end of each day or after each digestion run if required.

Inspect vessels for any flaws that may rupture if the vessel is subjected to pressure.

Keep the pressure control line full of water(MDS 2000).

Inductively Coupled Plasma-Atomic Emission Spectroscopy

Method Reference: SW846, Method 6010B (Modified)

Scope and Application

Inductively coupled plasma-atomic emission spectroscopy (ICP) determines trace elements, including metals, in solution. The method is applicable to all of the elements listed in Table 1. All matrices, including ground water, aqueous samples, TCLP extracts, industrial and organic wastes, soils, sludges, sediments, and other solid wastes require digestion prior to analysis.

Elements and the wavelengths used for which this method is applicable are listed in Table 1. These wavelengths may vary depending on sample matricies. Detection limits are established annually for each instrument and matrix at each wavelength used.

Table 1

Wavelengths and Example Detection Limits

Element	Wavelength(nm) Intrepid	Wavelength (nm) PE
Ag	328.068	328.068
Al	308.215	308.215
As	193.696	188.979
Ba	455.403	455.403
Be	313.042	313.107
Ca	317.933	317.933
Cd	226.502	214.440
Co	228.616	228.616
Cr	283.500	283.563
Cu	324.754	324.754
Fe	259.940	259.940
K	766.491	766.491
Li	670.784	670.784

Element	Wavelength(nm) Intrpeid	Wavelength (nm) PE
Mg	279.079	279.079
Mn	257.610	257.610
Mo	202.030	202.030
Na	588.995	588.995
Ni	227.800	231.604
P	213.318	213.318
Pb	220.353	220.353
S	182.000	182.563
Sb	206.833	206.833
Se	196.026	196.026
Sr	407.771	407.771
Tl	190.864	190.864
V	292.402	292.402
Zn	213.856	213.856

*Highly dependent on operating conditions and plasma operation

Summary of Method

Prior to analysis, samples must be solubilized or digested using an appropriate sample preparation method, such as microwave digestion. Refer to RL.15 for sample preparation by microwave digestion.

This method describes the multielement determination of metals by ICP. The method measures element-emitted light by optical spectrometry. Samples are nebulized and the resulting aerosol is transported to the plasma torch. Element-specific atomic-line emission spectra are produced by radio-frequency inductively coupled plasma. The spectra are dispersed by a grating spectrometer, and the intensities of the lines are monitored by a solid state detector. Background correction may be required for trace element determination. Background is measured adjacent to analyte lines on the sample during analysis. The position selected for the background-intensity measurement, on either or both sides of the analytical line, will be determined by the complexity of the spectrum adjacent to the analyte line. The position used must be free of spectral interference and reflect the same change in background intensity as occurs at the analyte wavelength measured. Background correction is not required in cases of line broadening, where a background correction measurement would actually degrade the analytical result.

Interferences

Spectral interferences are caused by overlap of a spectral line from another element, unresolved overlap of molecular band spectra, background contribution from continuous or recombination phenomena, and stray light from the line emission of high-concentration elements.

Spectral overlap can be compensated for by computer-correcting the raw data after monitoring and measuring the interfering element. Unresolved overlap requires selection of an alternate wavelength. Background contribution and stray light can usually be compensated for by a background correction adjacent to the analyte.

Physical interferences are effects associated with the sample nebulization and transport processes. Changes in viscosity and surface tension can cause significant inaccuracies, especially in samples containing high dissolved solids or high acid concentrations. If physical interferences are present, they can be reduced by diluting the sample or through use of an internal standard (Yttrium). Another problem that can occur with high dissolved solids is salt buildup at the tip of the nebulizer. The build up affects aerosol flow rate and causes instrumental drift. The salt problem can be controlled by wetting the argon prior to nebulization, using a tip washer, or diluting the sample. Control of the argon flow rate improves instrument performance. This flow rate is accomplished through the use of mass flow controllers.

Chemical interferences include molecular compound formation, ionization effects, and solute vaporization effects. Normally, these effects are not significant with ICP technique. If observed, they can be minimized by careful selection of operating conditions, by buffering the sample, by matrix matching, and by standard addition procedures. Chemical interferences are highly dependent on matrix type and the specific analyte element.

Apparatus and Materials

ICP: Thermo Elemental Intrpeid Simultaneous ICP (radial), Perkin Elmer Optima 5300 simultaneous ICP (axial) or equivalent

Volumetric flasks: Class A, 10, 50, 100, 250, 500, 1000, 2000 mL and any other appropriate size.

Volumetric pipettes: Class A, 0.5, 1.0, 5.0, 10.0, 20.0, 50.0 mL and any other appropriate size.

Analytical Balance: Accuracy to +/- 0.1 mg

Reagents

Deionized Water

Nitric acid (HNO_3): Reagent grade.

Liquid argon: Commercial grade.

General Preparation Procedure for Metals Standards:

All working standards are diluted volumetrically (in house) under stringent controls including glassware cleaning, and temperature control.

Stock Initial Calibration Standard Metal Solutions: ICP grade, commercially available standards are purchased in suitable concentrations and used as stock standards. The stock solutions are used to prepare the working calibration standards. Expired Standards are not used for working calibration standards preparation.

Initial Calibration Standards (Establishment of Linearity): The initial calibration curve is established with single element standards. The curve is determined with a minimum of three concentration points ***not*** including a calibration blank. The initial calibration standards are prepared from highly traceable and certified materials obtained from an outside supplier.

Working Metals Calibration Solutions (Standardization): The concentrations of the working calibration solutions are designed to span the expected concentration range of each element normally found in the analytical matrix. Calibration standards are prepared by appropriate dilution of stock standards. The matrix of the calibration standards is prepared to match the sample matrix as close as possible to reduce viscosity changes between standard and sample.. Mixed calibration standards are restricted to compatible elements.

Prepare the working standards by volumetric dilution following laboratory standard preparation sheets. Document all standards preparation in the appropriate laboratory notebooks. See Table 1 for current standard concentrations used for each instrument. The concentrations vary for each instrument primarily because the response produced by known concentrations is much greater for the axial plasma versus the radial plasma affecting linearity. All standard concentrations can be modified to adapt to changes in samples and matricies as needed.

Initial Calibration Verification (ICV) and/or Continuing Calibration Verification (CCV) Standard: The ICV is a mixed quality control standard prepared from a commercial stock produced by a source that is different from the stock used for the calibration standards. The ICV stock standard can also be from the same source as the calibration stock standard but must be a different lot number. Prepare the ICV standard to contain all analyzed elements at a concentration equal to the lowest concentration of the calibration curve following the standard preparation sheets. Analyze this standard following initial calibration and at the beginning of any sample set.

The CCV is a mixed quality control standard prepared from a commercial stock that is a separate source than the stock used for the calibration standards or a different lot number that is from the same source. Prepare the CCV standard to contain all analyzed elements at a concentration equal to the highest concentration of the calibration curve following the standard preparation sheets. Analyze this standard at the end of each sample set.

The primary function of the ICV/CCV is to verify the calibration stability for each element. The ICV and CCV must be analyzed at a minimum of every 10 samples and/or before and after each instrument run.

Yttrium, 10,000 ppm, commercially available stock

Internal Standard (optional): Prepare a 5 ppm Yttrium standard by pipetting 0.5mL of 10,000 Yttrium stock standard and transferring to a 1000 mL volumetric flask containing approximately 500mL of de-ionized water and 200mL of concentrated nitric acid. Dilute to volume with de-ionized water.

Inter-element check standard (IEC) prepare the IEC standard according to the standard preparation sheet from commercial IEC stock standards. Analyze the IEC standard once daily following initial calibration to verify the absence of interferences. The acceptance limits are ± 20% recovery. See Table 2 for a list of elements present in the IEC standard.

Sample Collection, Preservation, and Handling

Refer to section VI. Laboratory Measurement and Data Traceability of the Quality Assurance Manual.

Quality Control

Refer to section VI. Lab Measurement and Data Traceability of the QA Manual.

Instrument Quality Control – refer to calibration verification section

Control Quality Control (CQC) consists of a reagent blank, reagent spike and a reagent duplicate spike prepared in a control matrix. The recoveries of the reagent spikes for all elements must be +/- 20% based on the known concentration. The RPD between the matrix spikes must be ≤ 20 %. The CQC set is analyzed every 20 solvent samples or at least once a day.

Matrix Quality Control (MQC) consists of a sample, matrix spike and a matrix duplicate spike. The matrix spikes contains all elements and the recovery of the spikes must be +/-25% of the known matrix solution. The RPD between the two matrix spikes must be ≤ 20 %.

Procedure

Refer to the instrument cookbook for specific instructions on instrument operation.

Optimize the instrument following the instructions in the cookbook once daily before calibration.

Calibration/Standardization:

Standardize one or both instruments following start up and a minimum of 30 minutes thermal stabilization. Calibrate the instrument with a minimum of a blank and three standards for each element. Recalibrate the instrument when necessary as indicated by QC data outside the established quality control limits. The calibration coefficient for each linear curve must be > 0.995. The calibration coefficient for each non-linear curve must be >0.999.

Calibration Verification

Analyze the ICV (low level concentration) following the initial calibration and at the beginning of each sample set. The recovery must be +/-30 % for all calibrated elements.

Analyze the ICV (mid level concentration) following the initial calibration and at the beginning of each sample set. The recovery must be +/-10 % for all calibrated elements.

Analyze a calibration check blank at the beginning of a run (sample set), after every ten samples and at the end of each sample set. The calibration check blank must be less than the highest value of the following criteria.

A. The method detection limit
B. 10 % of the regulatory limit for each element
C. 10 % of the measured concentration of each analyte in the sample.

Analyze the CCV at the end of each sample set. If the the sample set is greater than 10, analyze the CCV after every ten samples and at the end of the run. The observed value must be +/- 10 % of the known value.

The linearity of the instrument and method must be verified whenever the method is changed or as required. The linearity must be verified by running a four point curve (min.) including a calibration blank. Acceptance is +/- 10 % relative to the known concentration for certified elements.

Sample Analysis

Refer to RL.15 to prepare the samples for ICP analysis.

Analyze the samples bracketed by the ICV, check blank, and CCV. Dilute samples where any element concentration is greater than that of the curve's high standard.

Calculations

Percent Recovery (MQC):

$$\% R = \frac{A - B}{C} \times 100$$

Where, R is the percent recovery (%),
A is the measured spike result (ppm),
B is the measured sample result (ppm),
and C is the known concentration (ppm).

The CQC spike recovery is calculated using this formula assuming the measured sample result is 0.

RPD

$$RPD = \frac{|D-E|}{(D+E)/2} \times 100$$

Where, D is the measured spike result (ppm),
and E is the measured spike duplicate result (ppm).

Corrective Action

If the calibration curve is not acceptable, re-calibrate the instrument for either only the failing elements or all elements. If the calibration curve remains unacceptable following standard re-runs, re-prepare the standard(s) that are affecting the calibration and re-calibrate the instrument.

If any of the check standards fail following calibration or later in the analysis, re-run the check standard once. If the check standard fails a second time, re-prepare the check standard. If the check standard fails routinely, re-calibrate the instrument.

If the CQC set does not pass for recovery or RPD, re-analyze the samples. If the CQC set does not pass for a second time, re-pour and re-analyze the sample set for analysis. If the CQC does not pass, re-digest the sample set. No samples can be analyzed until the CQC set has been successfully analyzed meeting all acceptability criteria.

If the MQC set fails for either percent recovery or RPD, re-analyze the sample set. If the samples fail a second time, re-digest and re-analyze the sample set. If the recoveries fail on the second digested sample, document matrix interference on the QC sheet.

Results

Record the solvent sample results onto the release form for each individual sample. Enter this data into the manifest system. Enter the quality control results into the CQC blank spreadsheet (template) and save to the FEQC drive. Results are stored in an excel spreadsheet used as a database.

Maintenance

Use the manufacturer's specifications as guidance on maintenance. Time intervals between maintenance events may be changed provided that the instrument meets all method performance specifications.

Record all maintenance in the instrument log.

Table 1

Intrepid Standard Summary
Trucks3

Element	Std 1 (ppm)	Std 3 (ppm)	Std 5 (ppm)	CHK Low (ppm)	CHK High (ppm)	CHK Mid (ppm)
As	1	5	50	1	50	5
Be	0.1	0.5	1	0.1	1	0.5
Cd	1	5	10	1	10	5
Cr	0.2	1	10	0.2	10	1
Ni	1	5	50	1	50	5
Pb	1	5	25	1	25	5
S	4	20	200	4	200	20

Perkin Elmer Standard Summary
Hi Sol Neb

Element	Cal Low (ppm)	Cal Mid (ppm)	Cal High (ppm)	CHK High (ppm)	CHK Mid (ppm)	CHK Low (ppm)
As	0.1	0.5	1	1	0.5	0.1
Be	0.005	0.01	0.05	0.05	0.01	0.005
Cd	0.01	0.1	1	1	0.1	0.01
Cr	0.05	0.1	1	1	0.1	0.05
Ni	0.05	0.5	5	5	0.5	0.05
Pb	0.1	1	10	10	1	0.1
S	2	10	50	50	10	2

Table 2

IEC Standard - Intrepid Solvent

Interference Check Standard 1, Sol A

Element	Concentration (ppm)	Diluted Concentration (ppm)
As	1000	5
Ba	300	1.5
Be	100	0.5
Cd	300	1.5
Cr	300	1.5
Co	300	1.5
Cu	300	1.5
Pb	1000	5
Mn	200	1
Hg	50	0.25
Ni	300	1.5
K	20000	100
Se	500	2.5
Tl	1000	5
V	300	1.5
Zn	300	1.5

Interference Check Standard 1, Sol B

Element	Concentration (ppm)	Diluted Concentration (ppm)
Ag	300	1.5

Interference Check Standard 2

Element	Concentration (ppm)	Diluted Concentration (ppm)
Sb	1000	5

Interference Check Standard 6

Element	Concentration (ppm)	Diluted Concentration (ppm)
Al	1200	6
Ca	6000	30
Fe	5000	25
Mg	3000	15
Na	1000	5

IEC Standard - Perkin Elmer Solvent

Interference Check Standard 1, Sol A

Element	Concentration (ppm)	Diluted Concentration (ppm)	0.5 mL/1000
As	1000	0.5	
Ba	300	0.15	
Be	100	0.05	
Cd	300	0.15	
Cr	300	0.15	
Co	300	0.15	
Cu	300	0.15	
Pb	1000	0.5	
Mn	200	0.1	
Hg	50	0.025	
Ni	300	0.15	
K	20000	10	
Se	500	0.25	
Tl	1000	0.5	
V	300	0.15	
Zn	300	0.15	

Interference Check Standard 1, Sol B **5 mL/1000**

Element	Concentration (ppm)	Diluted Concentration (ppm)
Ag	300	1.5

Interference Check Standard 2

Element	Concentration (ppm)	Diluted Concentration (ppm)	5 mL/1000
Sb	1000	5	

Interference Check Standard 6

Element	Concentration (ppm)	Diluted Concentration (ppm)	5 mL/1000
Al	1200	6	
Ca	6000	30	
Fe	5000	25	
Mg	3000	15	
Na	1000	5	

STANDARD OPERATING PROCEDURE	RL.17

KEYSTONE CEMENT CO.
Bath, PA

Issued: 5/05/1998	**Written by: Fiona Adamsky**
Revision: 1	**Reviewed by:**
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MC:	**Effective Date:**

Mercury Analysis by Cold Vapor Atomic Absorption Spectroscopy

Method Reference: SW846, Method 7470A (modified) and 7471A (modified), Volume 1A and 3051A (modified)

Scope and Application

An automated mercury analyzer designed to automate the cold vapor atomic absorption technique is used to determine the concentration of mercury in wastewater, ground water, industrial wastes, soil, TCLP extracts, and cement. All samples are subjected to the appropriate dissolution procedure before analysis. The sample dissolution procedure used is 3051A (modified), which is approved for mercury preparation.

Summary of Method

In the cold-vapor technique, ionic mercury in solution is introduced to the system and mixed with stannous chloride which reduces the mercury to form elemental mercury vapor.. The mixture flows into a gas-liquid mixer where nitrogen gas, an inert gas, is introduced to carry the atomic mercury. The mixture flows into a gas-liquid separator where the liquid is drained away and the mercury bearing gas moves into the drying tube, dehumidifying the gas. The gas then enters into a dual beam optical cell that has been optimized for fast response time and high sensitivity. A mercury lamp delivers a stable source of emission at 254nm. Absorbance by the mercury cold vapor is measured using a solid state detector with a wide dynamic range. Atom absorption measurements provide data to calculate the quantity of mercury present in the sample.

Interferences

Interference from sulfides is possible if concentrations are higher then 20 mg/L.

Copper at some concentrations may interfere. Studies using copper concentrations as high as 10-mg/L indicate that the copper has no effect on the recovery of mercury from spiked samples at that concentration.
Certain volatile organic materials that absorb at the mercury wavelength may also cause interferences. A preliminary run without reagents should determine if this type of interference is present.

Apparatus and Materials

Leeman Labs PS200II, Leeman Labs Hydra AA or equivalent

Mercury lamp: Teledyne Leeman Labs part # 317-00048

Autosampler cups: standard (50ml) and sample cups (15ml)

Drain Container

Volumetric flasks: 50mL, 100mL, 200mL, 1L

Pipettes: assorted sizes, class A

Analytical balance: Capable of weighing to +/-0.0001g

Graduated cylinders: Assorted

Reagents

Pre-purified nitrogen: Commercial grade.

Deionized water

Concentrated nitric acid (HNO_3): Reagent grade.

Concentrated hydrochloric acid (HCl): Reagent grade.

10% HCl: 1000mLs concentrated hydrochloric acid, 9000mLs de-ionized water. Other volumes may be prepared.

Stannous chloride ($SnCl_2$): Reagent grade.

Reducing agent (in 10% HCl): Weigh out 200g of stannous chloride. Add 200mL of HCl. Dilute it to 2000mL with deionized water. Mix well.

Standards Preparation:

Stock standard and Secondary source stock mercury solution: A commercially available standard 1000 ug/mL solution is used for the stock calibration standard. A commercially available 1000ug/mL standard solution is used for the stock ICV/CCV check standard. The ICV/CCV standard source is from a second vendor. Note: Any certified standard may be used at any concentration provided that the standard is used and stored as recommended by the manufacturer.

Standard Preparations: Larger volumes of standards may be prepared as necessary depending upon standard consumption. In addition, varied standard concentrations may be prepared as necessary in order to work within the ranges of detection for the individual instruments. The following are the standards that are currently used by the laboratory:

10ppm Mercury working standard: Dilute 1mL of the 1000ppm stock standard and 20mL of nitric acid to 100mL with deionized water. This solution may be kept in the refrigerator for one month.

100 ppb Mercury working standard: Dilute 5mL of the 10ppm standard and 40mL of nitric acid to 500mL with de-ionized water. Refrigerate up to one month.

These standards are typically made weekly:

25ppb Mercury calibration standard: Dilute 50mL of the 100 ppb solution, 40 mL of nitric acid, and 4 mL of hydrochloric acid to 200mL with de-ionized water.

10ppb Mercury calibration standard: Dilute 20mL of the 100 ppb solution, 40 mL of nitric acid, and 4 mL of hydrochloric acid to 200mL with de-ionized water.

5ppb Mercury calibration standard: Dilute 10mL of the 100 ppb solution, 40 mL of nitric acid, and 4 mL of hydrochloric acid to 200mL with de-ionized water.

2.5ppb Mercury calibration standard: Dilute 5mL of the 100 ppb solution, 40 mL of nitric acid, and 4 mL of hydrochloric acid to 200mL with de-ionized water.

1ppb Mercury calibration standard: Dilute 2mL of the 100 ppb solution, 40 mL of nitric acid, and 4 mL of hydrochloric acid to 200mL with de-ionized water.

Calibration blank : Add 40 mL nitric acid and and 4 mL of hydrochloric acid then dilute to 200 mL with de-ionized water.

Quality Control Standards Are Made Daily:

10ppm Mercury Initial Calibration Verification (ICV) and Continuing Calibration Verification standards (CCV) intermediate: Dilute 1mL of the 1000 ppm secondary source ICV/CCV standard, add 20mLs of nitric acid and dilute to 100mL with de-ionized water.

200ppb Mercury Initial Calibration Verification (ICV) and Continuing Calibration Verification standards (CCV) intermediate: Dilute 2mL of the 10 ppm ICV/CCV standard and 20mLs of nitric acid to 100mL with de-ionized water.

1ppb Mercury Initial Calibration Verification (ICV) and Continuing Calibration Verification standards (CCV) intermediate: Dilute 1mL of the 200 ppb intermediate standard, 40mL of nitric acid and 4mL of hydrochloric acid, to 200mL with de-ionized water. This solution is analyzed following the initial calibration and at the beginning of each sample set.

20ppb Mercury Initial Calibration Verification (ICV) and Continuing Calibration Verification standards (CCV) intermediate: Dilute 20mL of the 200 ppb intermediate standard, 40mL of nitric acid and 4mL of hydrochloric acid, to 200mL with de-ionized water. This solution is analyzed at the end of each sample set.

Initial Calibration and Continuing Calibration Check Blank – Dilute 40mL of nitric acid and 4mL of hydrochloric acid to 200mL with de-ionized water.

Final Dilution: All Standards (Calibration and Check Standards) – transfer a 10mL aliquot of the standard to a 50mL volumetric flask and dilute to 50mL with de-ionized water

Sample Collection, Preservation, and Handling

Refer to section VI. Laboratory Measurement and Data Traceability of the Quality Assurance Manual.

Quality Control

Refer to section VI. Lab Measurement and Data Traceability of the QA Manual.

Instrument Quality Control – refer to calibration verification section

Control Quality Control (CQC) consists of a reagent blank, reagent spike and a reagent duplicate spike prepared in a control matrix. The recoveries of the

reagent spikes must be +/- 20% based on the known concentration. The RPD between the matrix spikes must be ≤ 20. The CQC set is analyzed every 20 solvent samples or at least once a day.

Matrix Quality Control (MQC) consists of a sample, matrix spike and a matrix duplicate spike. The matrix spikes contain mercury and the recovery of the spikes must be +/-25% of the known matrix solution. The RPD between the two matrix spikes must be ≤ 20 %.

Procedure

Refer to the specific instrument cookbook for detailed operating instructions.

Initial generation of calibration curve:
Generate a calibration curve using a calibration blank and five standard concentrations, 1.0, 2.5, 5.0, 10.0, and 25.0 ppb.

Prepare the instrument for analysis.

Prepare the calibration standards and blank as described in the Reagents section. Fill an autosampler vial and place in the appropriate location on the auto-sampler rack.

Analyze the blank and standards collecting three replicate readings for each standard.. The correlation coefficient for the linear curve must be greater than 0.995 for the curve to be considered valid for analysis of samples. If the curve is less than 0.995, the instrument must be re-calibrated. Standard concentrations must be 90-110% of the known value. The %RSD values for the three integrations for each standard must be less than 10% for the 1.0 and the 2.5 ppb standards and less than 5% for the 5.0, 10.0, and 25.0 ppb standards. Individual standards may be re-analyzed alone to correct standard concentration and/or precision failures. Once a valid curve is obtained, accept the curve in the software.

Calibration Verification:
The calibration curve must be validated using an initial calibration verification (ICV) standard and an initial calibration verification blank (check blank). The ICV standard is prepared at the curve's lowest calibration concentration

Prepare and analyze a calibration check blank. The result must be less than 0.5 ppb to be considered valid. Analyze this blank before and after each sample set analyzed on the instrument.

Prepare and analyze the 1.0ppb initial calibration verification standard (ICV) prior to sample analysis. Analyze this standard at the beginning of each sample set. The result must be within +/- 30% of the known standard concentration.

Prepare a 20.0ppb continuing calibration verification (CCV) standard. Analyze the CCV after every 10 samples and at the end of each instrument run. The result of the CCV must be +/- 10% of the known standard concentration..

Sample Preparation:
Samples are prepared for analysis according to RL.15, Preparation of Fuel Samples By Microwave Digestion for Metals Analysis. Pipet a 10 mL aliquot of the digested sample into a 50mL volumetric flask, add 2mL of 10% HCl and dilute with de-ionized water. Analyze on the mercury instrument collecting three replicate readings.. Dilute any sample that generates a measured response that is above the range of the calibration curve. Include the additional dilution in the sample calculation for measured mercury concentration.

Calculations

All results obtained using the Hg analyzer are in ppb and must be divided by 1000 to convert the result to ppm.

Percent Recovery (MQC):

$$\% R = \frac{E - F}{G} \times 100$$

Where, R is the percent recovery (%),
E is the measured spike result (ppm),
F is the measured sample result (ppm),
and G is the known concentration (ppm).

The CQC spike recovery is calculated using this formula assuming the measured sample result is 0.

RPD

$$RPD = \frac{|H-I|}{(H+I)/2} \times 100$$

Where, H is the measured spike result (ppm),
and I is the measured spike duplicate result (ppm).

Corrective Action

If the calibration curve is not acceptable, re-run the standards that affect the calibration. If the calibration curve remains unacceptable following standard re-runs, re-prepare the standard(s) that are affecting the calibration.

If any of the check standards fail following calibration or later in the analysis, re-run the check standard once. If the check standard fails a second time, re-prepare the check standard. If the check standard fails routinely, re-calibrate the instrument.

If the CQC set does not pass for recovery or RPD, re-analyze the samples. If the CQC set does not pass for a second time, re-pipet the samples for mercury analysis. If the CQC does not pass, re-digest the samples. No samples can be analyzed until the CQC set has been successfully analyzed meeting all acceptability criteria.

If the MQC set fails for either percent recovery or RPD, re-analyze the sample set. If the samples fail a second time, re-digest and re-analyze the sample set. If the recoveries fail on the second digested sample note matrix interference on the quality control report.

Results

Record the solvent sample results onto the release form for each individual sample. Enter this data into the manifest system. Enter the quality control results into the CQC blank spreadsheet (template) and save to the FEQC drive. Results are stored in an excel spreadsheet used as a database.

Maintenance

Use the manufacturer's specifications as guidance on maintenance. Time intervals between maintenance events may be changed provided that the instrument meets all method performance specifications.

Record all maintenance in the instrument log.

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Preparation of Liquid Fuel Samples for Screening of Aroclors 1016, 1242, 1248, 1254, and 1260

Method Reference: SW846, Method 3620B (modified), Volume 1B

Scope and Application

This method details a procedure for the preparation of liquid fuel samples for screening of aroclors 1016, 1242, 1248, 1254, and 1260 by gas chromatographic analysis.

Summary of Method

A representative 100ul or 50ul sample is rinsed with a surrogate standard through a column containing a glass wool plug and florisil into a 10mL volumetric flask that contains an internal standard solution. The rinsing is performed using isooctane or hexane. A portion of the resulting solution is analyzed using gas chromatography for aroclors 1016,1242, 1248, 1254, and 1260.

Apparatus and Materials

Autosampler vials and caps: Hewlett-Packard kit (#5061-3350) or equivalent.

Crimper: Hewlett-Packard manual crimper for 11mm caps (#8710-0979) or equivalent.

Pipette and tips

Microliter syringes

Disposable polyethylene columns: Fisher (#11-387-50) or equivalent.

Vials: Glass, l0mL capacity, with screw caps.

Volumetric flasks: Glass, 5mL, 10mL and 100mL, with stoppers or applicable size.

Holding rack: Wooden or plastic for holding polyethylene columns above 10mL flasks

Analytical balance: Capable of weighing to +/-0.0001g

Dispenser: One for dispensing acetone and one for dispensing isooctane or hexane.

Pasteur Pipets with bulbs.

Reagents

Isooctane (2,2,4-trimethylpentane) or Hexane : Pesticide quality or equivalent.

Acetone: Reagent grade.

Florisil PR: 60/100 mesh pesticide grade(Supelco #20280-U). To deactivate, add 4% H_2O prior to use and mix well.

Glass wool: Supelco (#2-0384), or equivalent.

The quanities, concentrations, and dilution reagents may vary as long as GC compatible and PCB free.

Standard Preparation

Internal Standard, DDE: Reagent grade, neat.

Working internal standard solution, 10ug/mL DDE: Weigh out 0.0100g of the neat DDE. Quatitatively transfer to a 1000 mL volumetric flask and dilute to volume with isooctane to make a 10ug/mL solution. Use of larger volumes is allowed, manipulate calculation for proper dilution.

Surrogate Standard – Decachlorobiphenyl – Reagent Grade, neat.

Working standard solution, 10ug/mL decachlorobiphenyl: Weigh 0.0100g of the neat decachlorobiphenyl standard. Quantitatively transfer to a

1000 mL volumetric flask and dilute to volume with isooctane to make a 10 ug/mL solution.

Aroclor-1016: 1000ug/mL in isooctane or hexane; available from Restek or equivalent. Dilute 1 mL from a sealed ampule to 10 mL with isooctane in a volumetric flask. The resulting solution is 100 ug/mL.

Aroclor-1242: 1000ug/mL in isooctane or hexane; available from Restek or equivalent. Dilute 1 mL from a sealed ampule to 10 mL with isooctane in a volumetric flask. The resulting solution is 100 ug/mL.

Aroclor-1248: 1000ug/mL in isooctane or hexane; available from Restek or equivalent. Dilute 1 mL from a sealed ampule to 10 mL with isooctane in a volumetric flask. The resulting solution is 100 ug/mL.

Aroclor-1254: 1000ug/mL in isooctane or hexane; available from Restek or equivalent. Dilute 1 mL from a sealed ampule to 10 mL with isooctane in a volumetric flask. The resulting solution is 100 ug/mL.

Aroclor-1260: 1000ug/mL in isooctane or hexane; available from Restek or equivalent. Dilute 1 mL from a sealed ampule to 10 mL with isooctane in a volumetric flask. The resulting solution is 100 ug/mL.

Sample Collection, Preservation, and Handling

Refer to section VI. Laboratory Measurement and Data Traceability of the Quality Assurance Manual.

Quality Control

Refer to section VI. Laboratory Measurement and Data Traceability of the Quality Assurance Manual.

Whenever a new container of florisil is opened, perform a blank extraction to check for interferences. The florisil is acceptable if no PCBs are detected above the detection level for the specified aroclor.

Whenever a new container of florisil is opened, extract 0.5 ug/mL (50 ug/mL corrected) solutions of each aroclor and analyze to check for reaction of the

aroclors with the florisil. The florisil is acceptable for use when the recovery for each aroclor is 85-115 % of a prepared known standard.

CQC: Prepare a blank spike by pipetting 50 uL of a 100 ug/mL Aroclor and 100 uL of the surrogate standard onto the top of the florisil column. Rinse the column with iso-octane and collect the rinsate from the column in a 10 mL volumetric flask containing the internal standard(s). Rotate arolcors on a daily basis.

MQC: The MQC sample set includes a sample, a sample spike, and a sample spike duplicate. The same sample is dripped through florisil along with the surrogate. The spikes include the sample, surrogate, and 50 uL of an individual 100ug/mL aroclor all of which are dripped through the florisil column. Collect the rinsate from the column in a 10 mL volumetric flask containing the internal standard(s). Analyze using RL.20. Use the same aroclor as for the CQC.

Refer to RL.20 for additional QC requirements.

Procedure

Mark all flasks with the ID numbers.

Extraction: Place a small wad of glass wool in the bottom of the extraction column and tap firmly into place with a glass-stirring rod. Fill the column ¾ full with de-activated florisil. Place the prepared column in the holding rack. The florisil may be added to the columns up to one day in advance. Any prepared column must be capped tightly and stored in the upright position.

Place 100uL of the 10ug/mL internal standard solution(s) into a 10mL volumetric flask. Place the flask under the column so that any liquid eluting from the column will fall into the flask.

Completely wet the column with isooctane. Pipette 100uL of the thoroughly mixed sample onto the top of the column. (A 50 uL aliquot of the sample may be used if heavy interferences are expected.) Pipet 100uL of the surrogate standard on top of the column.

Flush the column with iso octane allowing the eluent to fill the volumetric flask close to the mark. Remove the flask and carefully dilute to the mark.

Discard the column in the appropriate container, cap the flask, and thoroughly mix the contents.

Transfer a portion of the eluent to an autosampler vial, filling it about 3/4 full. Cap and crimp shut.

When completely finished with the sample analysis, pour the remaining eluent into the solvent waste can and clean the volumetric flask by rinsing three times with acetone and then three times with isooctane.

Matrix Spiking: Prepare the sample following the above procedure adding a 50 uL aliquot of a 100 ug/mL aroclor standard to the top of the column so the standard is flushed through the column with the sample. Other spiking concentrations can be substituted.

NOTE: *Samples prepared using the above extraction procedure have a final correction of 1:100. To simplify final calculations, this correction factor has been applied to all standards.*

Calculations

Percent Recovery

% R = X/Y x 100

where,

R = Recovery, %
X = obtained result
Y = known value

Corrective Action

Checking a new florisil bottle:

If PCBs are detected in the extracted blank, prepare and extract a second blank. If PCBs are detected in the second blank, dispose of the florisil in an appropriate container. If PCBs are not found in the second blank, extract a third blank to confirm the second result.

If the recovery for the extracted standards is outside the range of accetibility, prepare and extract a second set of standards. If the second set confirms the first set of results, add 18 mL more water to the bottle and re-extract the blank and standards. If acceptable recovery cannot be obtained for the new florisil following the second addition of water, discard the bottle and de-activate and test a new bottle.

Results

Results for the florisil deactivation are given to the Lab Manager for review.

Waste Disposal

Wastes produced in this method can be transferred to an appropriate solvent waste container. Wastes that contain PCB material are collected in an appropriately labeled container and sent off-site for disposal.

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Gas Chromatography

Method Reference: SW846, Method 8000B(mod), Volume 1B

Scope and Application

Gas chromatography (GC) is a qualitative and quantitative analytical technique used for analyzing organic compounds capable of being volatilized without being decomposed or chemically rearranged. Proper use of this technique allows separation, identification, and quantification of compounds in a mixture of organic compounds.

Summary of Method

Properly prepare the sample for the appropriate GC method. Before the sample is introduced into the GC, a procedure for standardization must be followed to determine the recovery and detection limits for the analytes of interest. Following sample introduction into the GC, analysis proceeds with a comparison of sample values with standard values. Qualitative identification is made through a comparison of the retention times for analytes of interest in standards to retention times for analytes found in the samples. Quantitative analysis is achieved through integration of peak area and comparison of peak areas for analytes of interest in standards to peak areas for analytes of interest in samples.

Interferences

Contamination by carryover can occur when high concentration and low concentration samples are sequentially analyzed; thus, the sample syringe must be rinsed out between samples with an appropriate solvent. Whenever a sample with an unusually high concentration of analytes is encountered, it should be followed by an analysis of a solvent blank to check for cross contamination.

Apparatus and Materials

Gas chromatograph: Hewlett Packard 5890 equipped with ECD detectors and 7376 autosampler or equivalent

Gas chromatographic columns: Refer to RL.20

Sample Collection, Preservation, and Handling

Refer to section VI. Laboratory Measurement and Data Traceability of the Quality Assurance Manual.

Quality Control

Refer to the individual SOPs (RL.18 and RI.20)

Procedure

Prepare standards and samples as specified in the appropriate preparation method. Use procedure RL 18.

Calibration: Establish GC operating parameters equivalent to those indicated in the "Procedure" section of the method. Calibrate the system using either the external standard or internal standard technique as specified in the method.

Calculations

Refer to the individual SOPs (RL.18 and RI.20).

Corrective Action

Refer to the individual SOPs (RL.18 and RI.20).

Results

Refer to the individual SOPs (RL.18 and RI.20).

Maintenance

Use the manufacturer's specifications as guidance on maintenance. Time intervals between maintenance events may be changed provided that the instrument meets all method performance specifications. Maintenance events include: septa changes, liner changes, flow measurement, column changes.

Record all maintenance in the instrument log.

STANDARD OPERATING PROCEDURE ***RL. 20***

KEYSTONE CEMENT CO.
Bath, PA

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Revision:5	***Reviewed by:***
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Screening for Aroclors 1016,1242, 1248, 1254, and 1260
Using Capillary Gas Chromatography

Reference Method: SW846, Method 8082 (modified), Volume 1B

Scope and Application

This method details a procedure for the qualitative and quantitative identification of aroclors 1016, 1242, 1248, 1254, and 1260 through gas chromatographic analysis. Table I indicates retention times and minimum detectable limits for each aroclor.

Table I. Gas Chromatography for Aroclors

Compound	Retention Time
Aroclor-1016	Multiple peaks
Aroclor-1242	Multiple peaks
Aroclor-1248	Multiple peaks
Aroclor-1254	Multiple peaks
Aroclor-1260	Multiple peaks

Summary of Method

A sample is prepared using method RL.18. A small amount of the resulting solution is injected into a split interface with a portion of the sample being passed through a capillary column and the remainder discarded. The portion that passes through the capillary column is separated into its components that are detected with an electron capture detector. The resulting chromatogram is examined to determine the presence of the aroclors of interest with peak retention times being used to qualitate and peak areas being used to quantitate any aroclors present.

Interferences

Other chlorinated organics, as well as some oils, elute at the same time as some of the aroclor peaks. Consequently, it is necessary to have several peaks of a consistent amount before a definite quantitation can be made.

Apparatus and Materials

Gas chromatograph (Hewlett-Packard model 5890 or equivalent): An analytical system complete with a temperature programmable gas chromatograph suitable for split or splitless injection and all required accessories including capillary columns, HP Enviroquant Chemstation, autosampler (Hewlett-Packard model 7673A or equivalent), electron capture detector, and gases.

Capillary columns: any suitable column may be used provided that adequate separation can be obtained

Restek RTX-5: 5% diphenyl – 95% dimethly polysiloxane, 30m, 0.32mmID, 0.50u. df

Restek RTX-1: 100% dimethly polysiloxane, 30m, 0.32,,ID, 0.5um df

Restek RTX-35: 35 diphenly – 65% dimethly polysiloxane

Syringes: Hamilton 10ul, manual and suitable for autosampler, 100 uL for standards preparation.

Reagents and Chemicals

Isooctane and acetone: HPLC grade, for filling the autosampler rinse bottles.

Hydrogen gas: Ultra-pure carrier grade, for carrier gas.

Nitrogen gas: Ultra-pure carrier grade, for make-up gas.

Standards

Internal Standard, DDE: Reagent grade, neat.

Working internal standard solution, 10ug/mL DDE: Weigh out 0.0100g of the neat DDE. Quatitatively transfer to a 1000 mL volumetric flask and

dilute to volume with isooctane to make a 10ug/mL solution. Use of larger volumes is allowed, manipulate calculation for proper dilution.

Surrogate Standard – Decachlorobiphenyl – Reagent Grade, neat.

Working standard solution, 10ug/mL decachlorobiphenyl: Weigh 0.0100g of the neat decachlorobiphenyl standard. Quantitatively transfer to a 1000 mL volumetric flask and dilute to volume with isooctane to make a 10 ug/mL solution.

100 uL of either or both internal standards and 100 uL of the surrogate standard are added to all standards and samples.

Calibration Standards:

Aroclor-1016: 1000ug/mL in isooctane or hexane; available from Absolute Standards or equivalent

Aroclor-1242: 1000ug/mL in isooctane or hexane; available from Absolute Standards or equivalent.

Aroclor-1248: 1000ug/mL in isooctane or hexane; available from Absolute Standards or equivalent.

Aroclor-1254: 1000ug/mL in isooctane or hexane; available from Absolute Standards or equivalent.

Aroclor-1260: 1000ug/mL in isooctane or hexane; available from Absolute Standards or equivalent.

FOR CHECK SAMPLES AND SPIKING:

Aroclor-1016: 1000ug/mL in isooctane or hexane; available from Restek or equivalent

Aroclor-1242: 1000ug/mL in isooctane or hexane; available from Restek or equivalent.

Aroclor-1248: 1000ug/mL in isooctane or hexane; available from Restek or equivalent.

Aroclor-1254: 1000ug/mL in isooctane or hexane; available from Restek or equivalent.

Aroclor-1260: 1000ug/mL in isooctane or hexane; available from Restek or equivalent.

Working Standards:

Calibration Standards: For each aroclor, prepare a 100ug/mL stock standard by diluting 1.0mL of the 1000ug/mL purchased standard solution to 10mL with isooctane.

From the 100ug/mL solution, prepare calibration from the following solutions using a 100 uL syringe according to the table below. Add 100 uL each of the internal and surrogate standards. Dilute all standards to 10 mL with iso octane:

Std Name	Conc (ppm)	Aliquot from 100ppm stock (mL)	Dilute to (mL)
10	0.10	0.01	10
25	0.25	0.025	10
50	0.50	0.05	10
75	0.75	0.075	10
100	1.00	0.1	10

Store all solutions in 15mL glass vials at 4 degrees Celsius to prevent evaporation.

Mixed Calibration Standard: Transfer a 100uL aliquot of the 10ug/mL DDE, 100uL of the surrogate standard solutions and 50uL aliquots of the 100ug/mL aroclor 1016 and 100ug/mL aroclor 1260 solutions into a 10mL volumetric flask and dilute with isooctane. Store in a 15mL glass vial at four degrees Celsius to prevent evaporation. Other aroclors and/or reagents can be substituted in this preparation.

Calibration Check Standards: Using the Restek standards

The calibration check standards contain 1016 and 1260.

Prepare a 100ug/mL stock standard for each Arocor by diluting 1.0 mL of the 1000ug/mL purchased standard solution to 10.0mL with isooctane.

From the 100ug/mL solutions, prepare calibration check standards solutions using a 100 uL syringe according to the table below. Add 100 uL each of the internal and surrogate standards. Dilute all standards to 10 mL with iso octane:

Std Name	Conc (ppm)	Aliquot from 100ppm stock (mL) 1016 and 1260.	Dilute to (mL)
10	0.10	0.01	10
100	1.00	0.1	10

Store all solutions in 15mL glass vials at four degrees Celsius to prevent evaporation. The check standards should be made from a second source stock or a second lot number from the same vendor. Recovery for the check standards should be 80-120%.

Weekly Check Standards:

From the Restek 100ug/mL prepared standards, prepare 0.05 ug/mL standards of individual aroclors and analyze once weekly. The standard recovery must be 80-120%.

Quality Control

Control Quality Control (CQC or LCS) is a check sample that is analyzed daily or every 20 samples, whichever occurs first. Refer to RL.18 for instructions on how to prepare the CQC sample. The recovery must be 75-125%. Rotate Aroclors for spiking daily.

Matrix Quality Control samples are prepared as specified in the sample preparation procedure, RL.18. The recovery must be 75-125%. The RPD must be ≤ 20.

Check the calibration curves for the individual aroclors on a weekly basis. Recalibrate if necessary.

The percent recovery for the surrogate must be 70 – 130 %. Recalculate this range once a historical data base has been accumulated.

Procedure

Refer to the GC cookbook for detailed instructions to operate the GC.

Operating Conditions

Operating conditions vary depending on the instrument and type of column chosen. Once chosen, they are saved in a method file and also manually recorded in the instrument log book.

Calibration: Analyze the calibration standard solutions for each aroclor at the conditions selected to produce a calibration curve. Select the seven peaks with the greatest reponse which are the most consistent peaks for each aroclor. This will allow for qualitative identification of the aroclors.

Analyze the mixed calibration standard that is 0.5ug/mL aroclor 1016 and 0.5ug/mL aroclor 1260 at the conditions selected. From the chromatogram, determine which peaks are the seven peaks representing each aroclor. Select additional peaks as needed. Not all peaks from the individual aroclors need to be selected. Delete peaks that do not produce a significant reponse in the mixed calibration standard. There will be several overlapping peaks between 1016 and 1242, 1242 and 1248, 1248 and 1254, and 1254 and 1260.

All Aroclors, 1016, 1242, 1248, 1254, and 1260, will be quantitated by a direct comparison of the response factor for a sample peak to the response factor for the same peak in the standard curve. Area or height responses may be used to perform the quantitative calculations.

All calibration information is stored by the Enviroquant Chemstation. Concentrations may vary depending on the points with in the curve. Review each individual calibration curve. Individual calibration files for each of the four aroclors are stored. The correlation coefficient must be >0.995 for each peak.

Quantitative results that directly relate to each aroclor are printed out. All sample results are also stored using the Enviroquant Chemstation.

Calibration Verification:

Analyze the 10 ppm mixed aroclor check standard at the beginning of each day or every 20 samples, whichever occur first to verify calibration. The recovery must be 80-120%.

Analyze a calibration check blank once daily or every 20 samples, whichever occur first. The results must be less than the detection limit for all aroclors.

Analyze the 100ppm mixed aroclor check standard every 20 samples or at the end of the day. The recovery must be 80-120%.

Sample Analysis and Interpretation of Data

Prepare the samples as indicated in procedure RL.18. Analyze them using the same operating conditions used in the calibration. Printout of the chromatogram as well as the analytical results based on the calibration data stored in the method.

Examine the chromatogram first. Can you see the peaks or is the chromatogram off scale? Are the peaks well defined or are there many nonseparated peaks? Is the baseline stable or does it shift up or off scale? (If there is an indication of poor chromatography, you may have to re-prepare the sample at a smaller initial amount.) Do you see any PCB patterns?

Examine the report. Did the internal or refenence peaks show up at normal area counts and retention times? Order the results for each aroclor from peak one through seven. How many of the seven peaks are present? For those present, are the results consistent? If an aroclor is present, the majority of its peaks should show up on the report and the results should be fairly consistent all the way down the list. If an aroclor is present, re-drip the sample, and rerun one time. If the aroclor is present on the re-run sample, take a resmple from the tanker. Drip and run the resamples to confirm the presence of an aroclor. Majority presence and consistency should be your guide on PCB quantification.

WHEN IN DOUBT, ASK FOR A SECOND OPINION FROM AN EXPERIENCED ANALYST BEFORE MAKING A DECISION ON THE QUANTITY OF PCB'S PRESENT IN THE SAMPLE.

Calculations:

Results for samples must be reported on a per weight basis:

Sample Result = Results obtained from GC analysis/specific gravity for that sample (obtained from RL.5)

Percent Recovery :

$$\% R = \frac{A - B}{} \times 100$$

C

Where, R is the percent recovery (%),
A is the measured spike result (ppm),
B is the measured sample result (ppm),
and C is the known concentration (ppm).

RPD

$$RPD = \frac{|D-E|}{(D+E)/2} \times 100$$

Where, D is the measured spike result (ppm),
and E is the measured spike duplicate result (ppm).

Corrective Action

If the calibration curve is not acceptable, re-calibrate the instrument for the Aroclor in question.
If any of the check standards fail following calibration or later in the analysis, re-run the check standard once. If the check standard fails a second time, re-prepare the check standard. If the check standard fails routinely, re-calibrate the instrument.

If the CQC set does not pass for recovery or RPD, re-drip and re-analyze the CQC sample. If the CQC set does not pass for a second time, re-drip the CQC using a new 100ppm standard. If the CQC does not pass, re-calibrate the instrument. No samples can be analyzed until the CQC sample has been successfully analyzed meeting all acceptability criteria.

If the MQC set fails for either percent recovery or RPD, re-analyze a third spike. Use the third spike to confirm matrix interference on the QC sheet. If matrix interference is confirmed, make a note on the QC report.

If the surrogate is outside the QC range, re-drip the sample. If the surrogate is outside the range a second time, make a note on the data.

Results

Record the solvent sample results onto the release form for each individual sample. Enter this data into the manifest system. Enter the quality control results into the GC QC blank spreadsheet (template) and save to the FEQC drive. Results are stored in an excel spreadsheet used as a database.

Maintenance

Refer to RL.19

Waste Disposal

Wastes generated by this method can be poured into an appropriate solvent waste container. Waste contaminated with PCB material is collected in appropriate containers and sent off-site for disposal.

QA/QC MANUAL

KEYSTONE CEMENT COMPANY

RESOURCE RECOVERY LABORATORY

P.O. Box A Route 329 or 512
Bath, PA 18014

Revision: 10
Effective Date: 08/06/2019

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KEYSTONE CEMENT COMPANY
QUALITY ASSURANCE/QUALITY CONTROL

I. Quality Policy Statement

Keystone Cement Company is committed to achieving quality, analytical data. The integrity of analytical results generated is of utmost concern to management. Keystone delegates its time in proper employee training to ensure data accuracy. It is the responsibility of all laboratory personnel to follow established laboratory policies, and standard operating procedures pertaining to the generation and reporting of analytical data. Keystone's objective is to control a structured quality system that focuses attention on employees and training. This is a commitment to assure analytical data is accurate, that integrity is of maximal truth, and the responsibilities are upheld by the Resource Recovery Laboratory.

II. Organizational Structure

A. Reporting Structure

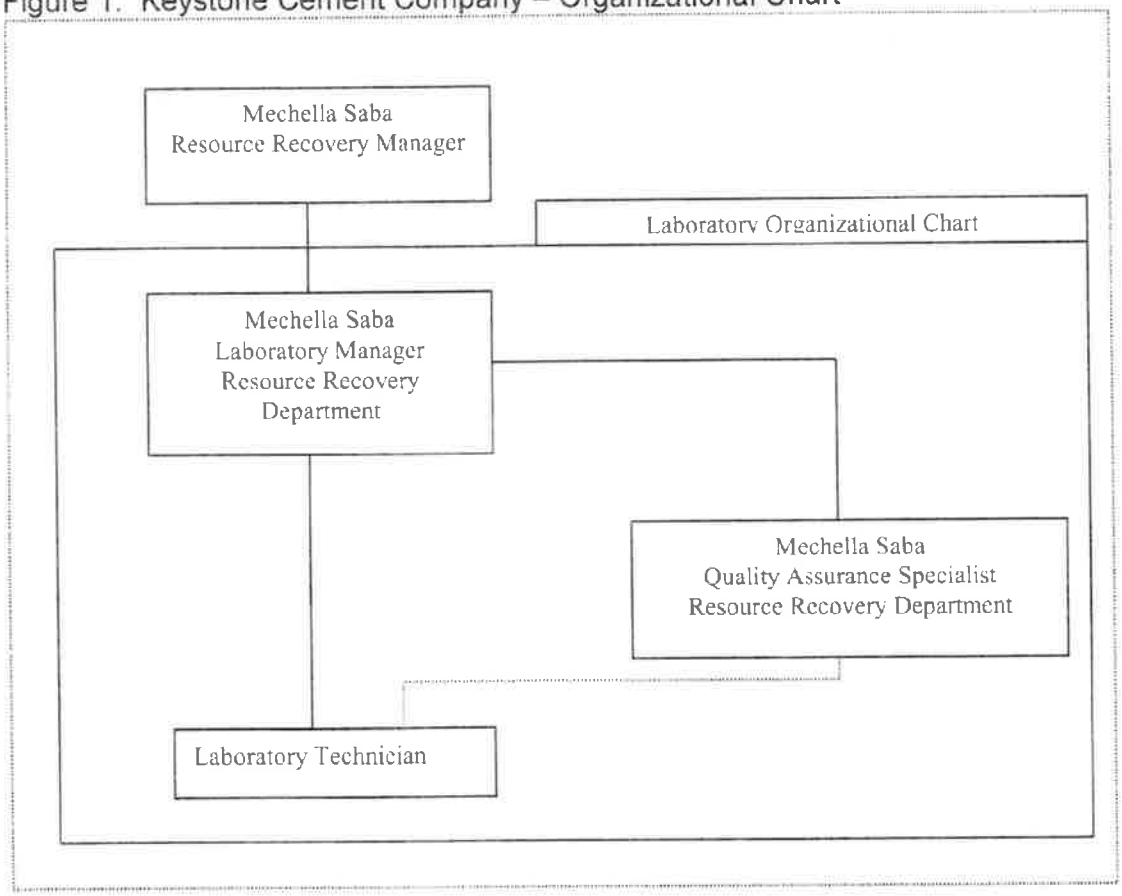
1. Laboratory Manager: The Laboratory Manager is responsible for all operations within the laboratory. This includes data analysis and reporting, data quality and assurance, laboratory SOPs, the laboratory facility, the laboratory equipment, personnel training, supply orders, and laboratory projects. The Laboratory Manager reports directly to the Resource Recovery Manager. The Laboratory Manager assumes responsibility for the QA Specialist when the QA Specialist is absent.

2. Quality Assurance (QA) Specialist: The Quality Assurance Specialist is responsible for the implementation of the quality assurance program which includes data review, calibration review and quality control data review. In addition, the QA Specialist is responsible for the maintenance of all databases for all laboratory data, the maintenance of all laboratory records, the monthly and quarterly checks that are performed in accordance with the QA Manual, and the maintenance of equipment certifications. The QA Specialist assumes the duties of the laboratory manager when the Laboratory Manager is absent. The QA Specialist reports to the Laboratory Manager.

3. Laboratory Technician: The Laboratory Technician is responsible for the accurate and timely generation of data for all samples signed into the laboratory and/or that are assigned by the Laboratory manager or other facility/department manager, for general maintenance of the laboratory and laboratory equipment and instruments, for monitoring supply inventories, for the preparation of

standards and reagents, for standard and reagent tracking, for the communication of problems and issues to the laboratory manager, and for the compliance with laboratory and company SOPs and policies. (This is a summary of duties, not a complete description of duties.) The Laboratory Technician reports directly to the Laboratory Manager. The Laboratory Technician also indirectly reports to the Quality Assurance Specialist when dealing with quality assurance and quality control issues.

Figure 1. Keystone Cement Company – Organizational Chart



B. Job Descriptions

1. Laboratory Manager: The Laboratory Manager is responsible for the supervision of laboratory operations and personnel. His/her responsibilities include the following:

a. Monitoring daily laboratory operations including:

I. Oversight and review of sample analyses and data to confirm accurate results performed in a timely manner.

II. Continued evaluation of instrument performance and calibration data to confirm accurate standard and sample analysis.
III. Continued review of QC data to establish accuracy, completeness, and acceptability of data results.

b. Generation of daily, weekly, and special sample reports related to Resource Recovery operations.

c. To maintain or procure maintenance of laboratory equipment other than that performed by technicians on a routine basis.

d. Implementation and monitoring of technician training on current and new laboratory procedures.

e. Implementation and monitoring of the Chemical Hygiene Plan.

f. Performance of laboratory work in conjunction with methods development, R&D projects and presentation of the results of this work.

g. Assure appropriate inventory of laboratory supplies, gases, and chemicals.

h. Satisfaction of routine client requests for help and information.

i. Development, implementation and enforcement of laboratory SOPs.

j. Assisting the Data Requestor to specify the analytical procedures to be used during the program.

k. Receiving samples from the field and verifying those incoming samples correspond to packing lists or chain-of-custody forms.

l. Implementation and enforcement of all company policies.

m. Submitting unknown samples to the lab for testing.

n. Preparing QC samples for analysis before and during the program.

2. Quality Assurance Specialist: This individual is responsible for reviewing and advising on aspects of QA/QC. He/she has broad authority to approve or disapprove specific analyses and final reports and should not be directly involved in the generation of data. His/her duties include, but are not limited to, the following:

a. Monitoring daily laboratory operations for quality assurance including:

i. Review of sample data for accuracy and completeness.
ii. Review of QC data for accuracy, completeness, and acceptability.
iii. Review of handwritten and computer generated records for completeness and correct filing.

b. Maintenance of a computer database containing all results generated for the laboratory on the following types of samples: waste solvent, fuel oil, coal, and kiln feed.

c. Generation of daily and weekly reports related to Resource Recovery operations and quality control.

d. Making on-site evaluations to assist in reviewing QA/QC procedures.

e. Making recommendations to management to ensure that appropriate corrective actions are taken when a problem is detected.

f. Training and qualifying personnel in specified laboratory QA/QC and analytical procedures prior to testing samples.

g. Verifying that laboratory QC and analytical procedures are being followed as specified in this manual and other additional documents; reviewing sample and QC data; and, if questionable data exist, determining whether repeat sample analyses are needed.

h. Maintaining records of all incoming samples; tracking those samples through subsequent processing and analyses; and, ultimately, appropriately disposing of those samples at the conclusion of the program.

i. Preparing QC and sample data for transmission and entry into a computer database.

j. Performing monthly and quarterly calibration checks on supplemental laboratory equipment.

k. Performing airflow checks on ventilation hoods quarterly or when necessary.

l. Maintaining records for calibration checks and equipment certifications.

m. Tracking and maintaining chemical reagents and standards received and used in laboratory.

3. Laboratory Technician (Data Generator) : The Resource Recovery Laboratory Technician reports to the Laboratory Manager. He/she is responsible for performing day-to-day laboratory operations and tasks as detailed below:

a. Analysis of liquid fuel samples (waste solvent, fuel oil).

b. Analysis of solid fuel samples (coal).

c. Analysis of kiln feed.

d. Recordkeeping for all test results

e. Compliance with lab procedures, SOPs and quality control/quality assurance procedures

f. Perform special testing as requested by the Laboratory Manager.

g. Perform routine maintenance as needed on equipment used for laboratory analysis.

h. Comply with relevant company policies related to laboratory operations and safety.

i. Submit sample results and QC data to the Quality Assurance Specialist for final review.

j. Alert the Laboratory Manager or the QA Specialist of any apparent or potential problems that may affect the quality of the data being generated during analyses.

4. Data Requestor: This individual submits samples and conveys information which identifies the analyses to be performed on these samples. He/she interacts directly with the Laboratory Manager in requesting and receiving data.

C. Stop-work Authority: The Lab Manager, the QA Specialist, and the Lab Technicians all have the authority to stop work. All levels can stop work on any test for any quality control or calibration failure. Laboratory Technicians have the authority to resume work without approval from the Lab Manager or the QA Specialist following quality control or calibration failures after the problem has been resolved provided that instrument and method have been demonstrated as accurate and precise. The Laboratory Manager, the QA Specialist, and the Laboratory Technician can stop work on any test following instrument/equipment failure or malfunction. The Lab Technician must seek manager approval before resuming work after an instrument/equipment failure.

D. Signature Authority: All trained Lab Technicians, the Lab Manager, and the QA Specialist have signature authority to release results for solvent sample results and non-regulated coal tests. The QA Specialist and the Lab Manager

have signature authority to release coal and kiln feed sample results in accordance with the MACT Standard.

E. Personnel Signatures and Initials: Signatures and initials for each technician and manager are recorded on an annual basis. This document is stored in each person's individual training file.

F. Electronic Signatures: All reports must be signed manually. Electronic passwords used to gain access to certain computers and laboratory equipment are recorded and stored in a locked file cabinet in the office area.

G. Ethics and Data Integrity: The laboratory is dedicated to reporting the most accurate results possible. To insure the integrity of analytical data at all times, all technicians employed by the Resource Recovery Department are required to complete ethics training within 2 months of employment and then annually thereafter. As a part of the ethics training, each technician is asked to sign an Ethics and Data Integrity Agreement. The requirements in this document are reviewed annually during training. The signed agreement is maintained on-site in the training files. Each employee understands by signing the Ethics and Data Integrity Agreement that failure to comply with the agreement may result in punitive actions including (but not limited to) verbal or written warnings, suspensions and potential termination of employment.

III. Facility and Equipment

A. Laboratory Facility: The laboratory is of suitable size and construction to facilitate the proper conduct of analyses. The laboratory operates three individual rooms: the wet lab, the metals prep lab, and the instrument room. Adequate bench space and working space per analyst is provided in each room. The space requirement per analyst depends on the equipment or apparatus being utilized, the number of samples being handled, and the number of functions being performed concurrently by the same analyst. The allotment of laboratory space is left to the discretion of the Laboratory Manager. In addition, the laboratory has adequate ventilation, lighting, control of dust and drafts, temperature control, and stable power as warranted by the operations being performed.

B. Equipment: The equipment used to perform testing of samples is summarized in Attachment I.

C. Laboratory Safety: The laboratory has adapted a Chemical Hygiene Plan (CHP) that outlines safety policies and procedures. This plan is maintained by the Lab Manager and/or his/her designee. The CHP is reviewed annually and updated as necessary.

D. Laboratory Security: Laboratory personnel are required to protect the integrity of lab data and results. The lab is staffed during the hours of operation. The lab staff maintains control of all lab data notebooks and reports while at work. Signs are posted outside the lab to prevent entry of unauthorized personnel.

IV. Personnel Training:

A. Training Policy: It is the policy of Keystone Cement Company Resource Recovery Laboratory to train all new employees in a manner consistent with current practices and Standard Operating Procedures (SOPs). Each new employee will train no less than six (6) weeks in each area of the lab with a qualified Laboratory Technician until his/her performance is approved by the Laboratory Manager. Once performance levels have been approved, the new employee must sign the SOP training documentation for each analytical procedure. A new employee cannot perform a sample test unsupervised until he/she has successfully completed an initial demonstration of capability (IDOC) and received approval from the Lab Manager and the QA Specialist. Completion of training is documented with a Certificate of Training. New employees are advised to ask questions and take notes on unfamiliar information.

B. Training methods: The lab work is divided into two test areas: in terms of testing, the wet lab and metals/PCB testing. Initial training is performed on the job in one area by qualified technicians who routinely perform the work. The Lab Manager oversees training and also provides additional training when necessary. The QA Specialist provides training for quality control and quality assurance procedures when necessary.

During the course of training, each trainee must successfully complete a series of exercises outlined in the training manual. Each trainee must then qualify for the position by performing the initial demonstration of capability (IDOC) for all tests where applicable. The IDOC consists of unknowns or round robin samples depending on the test performed.

C. SOP training: Trainees must read the SOPs during training. At the end of training, the trainee must sign-off on each individual SOP related to his/her training. Copies of the SOP sign-off sheets are stored in the individual training files.

All lab employees must review and sign-off on SOP training a minimum of once annually or when an SOP has been revised, prior to the effective date of the revision. Copies of the sign-off sheets are stored in the individual training files.

D. Continuing education/training: Records and/or certificates of any continuing education/training are kept in the employees training file.

E. Personnel Qualifications/Certification: A copy of each employees resume is kept on file in the individual training files to document employee qualifications.

F. Documentation of Training: Records for each lab employee are maintained in the training files. The training files are secured in the office area of the laboratory.

G. Qualifications of Key Personnel:

1. Lab Manager: The qualifications of the Lab Manager must meet the minimum requirements of the Pennsylvania Laboratory Accreditation Regulations, Chapter 252 for a laboratory engaged in chemical analysis. Copies of the regulation are maintained on-site. Documentation of the qualifications of the Lab Manager are kept in his/her training file.

2. QA Specialist: The QA Specialist must have a minimum of an Associates degree in chemistry or a related field and must have a minimum of two years of relevant lab experience. Documentation of the qualifications of the QA Specialist are kept in his/her training file.

V. Laboratory Analytical Procedures

A. Table 1 lists the procedures that are currently performed by the laboratory in accordance with Keystone Cement regulatory permit.

Analyte	Reference Method	Source	Matrix
Total Metals	3050(mod)/3051(mod)/6010B(mod)	SW-846	Solvent,Coal, Kiln Feed
Mercury	3050(mod)/3051(mod)/ 7470A(mod)/7471A(mod)	SW-846	Solvent,Coal, Kiln Feed
PCB (screen)	3620B(mod)/8082(mod)	SW-846	Solvent
pH	9045C(mod)	SW-846	Solvent
Btu/lb and ash	E711(mod)/5050(mod)	ASTM	Solvent
%Chloride	9253(mod)(In-house)	SW-846	Solvent, Coal
%Chloride	In-house method	NA	Kiln Feed
Compatibility	In-house method	NA	Solvent
Peroxide	In-house method	NA	Solvent
Specific Gravity	D5057(mod)	ASTM	Solvent
Viscosity	In-house method	NA	Solvent

B. Table 2. lists the procedures that are currently performed for informational purposes.

Table 2:

Analyte	Reference Method	Source	Matrix
%Moisture	D5530(mod)	ASTM	Solvent
Temperature	In-house	NA	Solvent
Btu	E711(mod)/5050(mod)	ASTM	Coal
Proximate Analysis	D3172	ASTM	Coal
% Sulfur	In-house	ASTM	Coal

VI. Laboratory Measurement and Data Traceability

A. Sample handling and receipt: All samples received by the laboratory must be labeled, intact and with sufficient sample to perform the required analysis. Samples are sampled on-site and delivered to the laboratory. The laboratory has sufficient space to store samples using temperature control as necessary. All samples introduced to the laboratory are tested on a schedule that complies with holding times for the analytical methodology used by the laboratory; therefore the tracking of holding times is unnecessary.

In the event that samples are received damaged and/or leaking, the laboratory will contact the person responsible for sampling and request a re-sample

1. Solvent: Solvent samples are received by the laboratory with a label that serves as the chain of custody for the sample and a release form. The label includes the following information: Sample Date, Generator, Manifest Number, Signature of the Technician, Gallons, Time Sampled, Mod 1 number and Sample ID. Samples are received with a Lab ID documented on the chain of custody and the release form. The information on the chain of custody label and release form are reviewed by the Laboratory Technician to verify the same information is included on both documents. Samples are then logged into the Sample Log book by the Laboratory Technician as received and prior to sample analysis.

Solvent samples are received in plastic bottles. The sample must be greater than 500mL in order to meet all method requirements. No preservation of samples is necessary due to the nature of the sample. Analysis is typically started within 30 minutes of receipt. Solvent samples stored over-night for compatibility testing are sealed with a chain of custody label and stored in the lab hood.

The lab ID number is used to track the solvent sample through the analytical process. The final report includes the lab ID number, manifest number,

generator, date and time sampled, and the name of the person who performed the sampling in addition to the analytical results.

2. Coal: Coal samples are delivered to the laboratory daily. Coal samples are received in a manila packet and are received dried, ground and sieved to pass a No. 60 sieve (250u). All coal samples are recorded into the sample log-in book and assigned a sample name used for tracking purposes.

a. Coal pipe samples: Coal pipe samples are received in a manila envelope labeled with the date and the kiln pipe sampled. A weekly composite sample is prepared by the Lab Technicians and logged into the Keystone sample log book. The sample is assigned a lab ID number for traceability. The individual samples that are used to form the composite are not tested for regulatory compliance and only tested for informational purposes when specifically requested.

b. Coal belt samples: Coal belt samples are received in a manila envelope labeled with the date and the kiln belt sampled. The label and date are used to trace coal belt samples through the analytical process. Coal belt samples are tested for informational purposes.

c. Coal supplier samples: Coal supplier samples are received in a manila envelope labeled with name of the supplier, the date, the transporter (optional), and the ticket number. The supplier name and sample date are used to trace the coal supplier samples through the analytical process. Coal supplier samples are tested for informational purposes.

3. Kiln Feed: Kiln feed samples are received in a manila envelope labeled with the date the sample was taken. Kiln feed samples are logged into the sample log-in book and assigned an ID number that is used to trace the sample through the analytical process.

B. Analytical Methodology and Documentation Control.

1. Analytical Methodology. The laboratory adheres to the internal SOPs when performing analytical procedures in the laboratory. These SOPs are based on the modified reference methods specified in Tables 1. and 2. of section V which are also specified by the operating permit. SOPs are revised as necessary and reviewed at a minimum of once annually or when changes are made. SOPs that are submitted to the DEP for approval are not effective until approval is received from the DEP.

Written SOPs are maintained by the Lab Manager and approved by the Quality Assurance Specialist. SOPs are tracked by revision date. Starting in June 2006, SOPs will be tracked by revision number and effective date. The original

SOPs are maintained by the Lab Manager. Copies of the operating SOPs are made available to all Laboratory Technicians and are placed in each of the laboratory rooms.

2. Document Control. The Resource Recovery Laboratory produces lab documentation consisting of: SOPs, lab notebooks and/or benchsheets, quality control records, maintenance logs, chemical and standard records, and computerized data printouts. The documents are records maintained in a legible and retrievable manner. Records are kept in storage, protected from outside deterioration and loss.

a. SOPs: SOPs are identified by title and tracked using the SOP number and revision date.

b. Laboratory Notebooks: Documents contained in notebooks are subject to format change on behalf of laboratory efficiency. Notebook organization for operational procedures include:
i. A label to indicate the name of the notebook and time period of use.
ii. All records written in ink.
iii. Errors crossed out with a single line and initialed.
iv. Pages distinguished by date and recorded on every page. Pages not referenced by date may be numbered.
v. Title of the notebook distinctly on each page.
vi. Revision number

c. Laboratory Benchsheets: Benchsheets not bound in notebooks are traced documents through revision number and effective date. These benchsheets may be stored either in binders in the lab or the QC packets. QC packets are a collection of copies from laboratory notebooks and computerized data generated daily. QC packets are identified by date and sample matrix of analysis.

d. Quality Control records. Quality control records are typically part of the lab notebook and/or a computerized document. These records are stored in the QC packet corresponding to the date and matrix of the sample/s analyzed. Copies may be stored in binders for accessibility.

e. Maintenance Logs: Procedures performed frequently are documented either in the opening/closing checklist or in a maintenance log. Recent opening/ closing checklists are stored in binders in the laboratory. All records not stored in the laboratory are stored in a secured space on the facility grounds. Maintenance logs are bound notebooks identified by title and revision number when applicable.

f. Chemical standards and reagent records. Chemical standard and reagent records are stored in bound notebooks identified by title and revision number when applicable.

g. Computerized Data: Computerized results are initialed and a hard copy obtained for record keeping. Computerized data are stored in the QC packet for the corresponding matrix.

C. Laboratory Procedures for Accuracy and Precision. Keystone has established a Quality Assurance Program (QAP) to monitor the quality of analytical procedures performed within the laboratory. Laboratory quality control procedures can be categorized as Control Quality Control (CQC) or Laboratory Control Standard (LCS), Matrix Quality Control, (MQC) or Instrument Quality Control (IQC). CQC consists of a blank and two laboratory control spikes that are tested and compared to a known standard to demonstrate method acceptability prior to sample analysis. MQC consists of a sample, sample spike and a sample spike duplicate. MQC is used to document the efficiency of sample preparation procedures and to identify matrix specific interferences. IQC consists of quality control procedures that are specific to individual instrumentation such as Initial Calibration Verification and Continuing Calibration Verification standard checks.

The CQC procedure is to monitor and improve the systematic (precision and accuracy) of the analytical system. The MQC procedure is to monitor the applicability of the analytical system and methodology for the materials and matrices analyzed. The acceptable (in control) performance of the analytical system is dependent on the analyst's proficiency, the instrumental performance, the standardization procedures, and the sample preparation methods. Once the analytical system performance is established as acceptable and in control, the performance dependence on specific matrix effects can be isolated and quantified.

1. CQC (Control Quality Control) or Laboratory Control Standard (LCS) contains the Laboratory Reagent Blank and two Fortified Laboratory Reagent Blanks. The CQC sample set is composed of a Control matrix material (or known and constant characteristics) fortified with a verified concentration of analyte, and a method blank. The CQC is run in duplicate during each analytical data collection period or once every 20 samples, whichever occurs first. The sample analyses subject to the results of the CQC are defined as those bracketed by a pair of CQC runs. The purpose of the CQC is to monitor the analytical status during the data collection period and to verify the acceptable method performance. The CQC is particularly used for identifying out-of-control analytical system conditions because it is not affected by matrix variations. The CQC samples are processed through the entire analytical train and are used to monitor its performance and to ensure its acceptable status. Unless specified in the individual SOP, the acceptable range for the CQC recovery is 80 to 120% and acceptable precision range is less than or equal to 20% where applicable. Precision is calculated as Relative Percent Difference

(RPD). The CQC is analyzed prior to sample analysis and the data must be acceptable prior to beginning sample analysis. The CQC can quickly and efficiently identify the following problems:

- Systematic contamination problems
- Sample preparation system malfunction
- Reagent interferences
- Analytical technique
- Instrumental calibration problems

A secondary use of the CQC is to identify analytical trends and forecast analytical problems before they cause unacceptable conditions and results. The CQC analysis is useful for improving the process by monitoring cause and effect ratios, thereby, allowing the analytical system to be optimized for accuracy and precision. If CQC quality parameters fall out of the acceptance range, the problem must be investigated and solved before routine analysis continues.

The CQC (LCS) is unique for each analysis and is broken down as follows:

Viscosity: Analysis of a Certified Standard at 25°C ± 2°C or manufacturers specified temperature. Standard recovery must be plus or minus 25% of the known value.

% Water: Analysis of a 10% water spike or applicable spike. Spike recovery must be plus or minus 25% of the known value.

Btu Value: Analysis of mineral oil in each of three bomb firings. Two of the three mineral oil samples are spiked with the chloride spiking solution and the bomb washings are used for CQC analysis of chlorides. The Btu values of all three analyses are recorded. The result for all samples must be plus or minus 25% of the known value. The RPD for the Btu value of the two samples spiked for chlorine must be less than or equal to 20%.

% Chloride: Analysis of a check sample in a daily rotation (concentrations such as 0.3, 0.61, 1.21%). The recovery must be plus or minus 25% of known value. The RPD of two check samples must be less than or equal to 20%. Analysis of the washings from the CQC analysis of all three bomb firings for chlorides as a blank and two spikes. The blanks must be less than the method reporting limit. The recoveries for the spikes must be plus or minus 25% of known value. The RPD of the two spikes must be less than or equal to 20%.

pH: Analysis of a 7.0 buffered standard following calibration. The recovery for this standard must be plus or minus 10% of known value in pH units.

Peroxide: Analysis of a standard solution using the test strips. Results are reported as Pass/Fail.

Hg/ Metals: A blank and two spikes are carried through the entire process for metals analysis. CQC "known" consists of a spiking material, acid and deionized water. It is analyzed undigested and is used to calculate spike values. Recoveries for all metals including Mercury must be plus or minus 20% of the "CQC" known value. The RPD for the digested spikes must be less than or equal to 20%.

PCB Aroclors: One standard aroclor is carried through the entire process for PCB analysis. The standard is rotated daily. After integration, concentration of the check standard must be plus or minus 25% of the known value.

2. MQC (Matrix Quality Control) The MQC sample set is composed of a matrix sample and the same matrix sample fortified with a verified concentration of analyte. The fortified solutions may contain an analyte concentration at a minimum of 10 times the MDL and a maximum of 1.5 times the expected ambient concentration of the analyte. The MQC set is run on the actual matrix material analyzed at a frequency of a minimum of once during each analytical data collection period or one per twenty samples, whichever occurs first. The sample analyses subject to the results of the MQC are defined as those samples included in the matrix analytical batch. The purpose of the MQC is to monitor the precision and accuracy of the analytical system for the specific matrix. The average recovery and the relative percent difference for the two fortified matrices will be used to determine the acceptability of the data within each sample set. The ranges of acceptability with regards to MQC recoveries and RPD's are established through a historical review of matrix spiked data as is recommended in Chapter One of SW-846, *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*. A minimum of twenty data points must be used to generate the ranges of acceptability. Ranges are established as the average plus or minus three times the standard deviation of the data set. Alternatively, a range of 75 to 125 % may be used. The MQC samples are processed through the entire analytical train and are used to monitor its matrix dependent performance. Interference causing MQC recoveries outside the range of acceptability are noted. The MQC can quickly and efficiently identify the following problems:

- The efficiency of the sample preparation procedures
- Chemical interference - A secondary use of the MQC is to identify matrix interference and then to modify analytical procedures in order to minimize it.

The MQC is unique for each analysis and can be broken down to the following procedures:

Viscosity: A duplicate sample is analyzed with every analytical batch. The RPD must be equal or less than 20%.

% Water: Two spikes are analyzed with every analytical batch. The RPD for the spikes must be less than or equal to 20%. The recoveries for the spikes must be plus or minus 25% of the actual spike value.

Btu Value: A duplicate sample is analyzed with every analytical batch. The RPD for the original as compared to the duplicate must be less than or equal to 20%.

Specific Gravity: A duplicate sample is analyzed with every analytical batch. The RPD must be less than or equal to 20%.

% Chloride: The bomb washings from the BTU MQC are analyzed for chloride. The washings are two chloride spiked samples. The percent recovery for the spikes must be plus or minus 25%. The RPD of the two spikes must be less than or equal to 20%.

Water Compatibility: A duplicate sample is analyzed with every analytical batch. Results reported as same or different.

Peroxides: A duplicate sample is analyzed with every analytical batch. The results are recorded as present or not present. No RPD or percent recovery is applicable.

pH: A duplicate sample is analyzed with every analytical batch. The RPD must be less than or equal to 20% in pH units.

Hg/ Metals: The undigested spike solution, "MQC known", is analyzed weekly to obtain the known values. Two spikes are analyzed with every analytical batch. Calculations for recovery are based on the weekly known run. Recovery for the spikes should fall within the range of acceptability. When the recoveries are found to be outside the range of acceptability, matrix interference is noted.

PCB Aroclors: Two spikes at a specific concentration are analyzed with every analytical batch. The aroclor spike material is rotated each day between the aroclors. The result for the original analysis is recorded as present or not present. Recoveries for the spikes must be plus or minus 25% of expected value. The RPD for the two spikes must be less than or equal to 20%.

3. IQC (Instrument Quality Control) ICV (Initial Instrumental Calibration Verification Standards) and CCV (Continuing Calibration Verification Standards) pertain to the metal and PCB analysis and are prepared from a secondary source standard. Refer to the individual SOPs for metals and PCB analysis (RL.15-20) for acceptability criteria.

D. Data reduction, validation, and review.

1. Solvent samples: All laboratory notebooks are photocopied at the end of the day to include the entire day's data. These photocopies are placed in a QC packet along with any benchsheets, release forms (results) and computerized data generated in the day. All data are reviewed for accuracy and completion. This review is performed by the QA Specialist. Corrective action is performed as necessary. Records of all corrective action are kept on-site.

2. Kiln Feed and Coal (regulatory tests). The kiln feed and coal are analyzed 18 times a year. Copies of lab notebooks, benchsheets, and computerized data are placed in an individual QC packet. These data are reviewed by the QA Specialist and any corrective actions performed are well documented. The QA Specialist reports the results.

3. Coal (informational tests).

a. Coal belt samples: Copies of the lab notebooks and data printouts are submitted to the QA Specialist for review at the end of the day. The QA Specialist reviews the data and compares the results to the results. Any corrective actions performed are documented.

b. Coal supplier samples: Copies of the lab notebooks and data printouts are submitted to the QA Specialist for review at the end of the day. The QA Specialist reviews the data and reports the results. Any corrective actions performed are documented.

E. 1. Corrective Action. If any quality control measures fall out of the acceptable range, corrective action is initiated and documented. Affected analysis is considered suspect until the problem is resolved and corrective action is finalized. The appropriate corrective action is somewhat dependent on the type of QC failure and on the final usage of the analytical data. Corrective action should be initiated by the analyst, and the final resolution must be approved by the Laboratory Manager or QA Specialist. Corrective actions for QC failures are to be immediately brought to the attention of the Laboratory Manager or QA Specialist as soon as detected. In a case where the specific course of action is not defined or if the cause of the failure cannot be identified and resolved by the analyst, the Laboratory Manager or the QA Specialist must be contacted for guidance.

Any QC failure or analytical problem identified that can affect regulatory limits for analyzed samples will result in all suspect data being rerun after the cause of the failure has been corrected. In some cases where analytical data are not significantly affected by a failure, the data may be reported accompanied by the QC results and QC acceptance limits. If results become suspect due to a QC failure after they have been released, the client must be notified of the problem, and a revised report must be issued. (This follow-up corrective action is

necessary due to the fact that Keystone's analysis is used in a 'real time' manner.)

All corrective actions will be documented. At a minimum, the applicable analytical results and the following information will be attached to the corrective action report.

Identification of the failure
Date and time of the failure
Identification of the analyst reporting the failure
Corrective actions taken
Approval and comments by the Laboratory Manager or Quality Assurance Specialist
Attachments as needed (results of re-analysis and original analysis)
Authorization of the Laboratory Manager or QA Specialist to proceed

Corrective actions for specific failures are outlined in the individual SOPs.

2. Departures from Method/QA Manual

The methods used in the laboratory are approved by the agency [DEP] and outlined in the scope issued annually. Departures from the approved methods are not to be undertaken unless directed by the Laboratory Manager or the QA specialist. Departures from the QA Manual are not to be initiated by anyone except the Laboratory Manager or QA Specialist and must only be used as a means of enacting and documenting a corrective action (see E1). The Laboratory Manager or the QA Specialist may assess each quality control type and are the only individuals authorized to initiate a departure from an approved method or a departure from the quality manual, The departure(s) should ONLY occur in situations which require corrective action to be implemented.

The Laboratory Manager or QA Specialist will review the results in the same manner as all laboratory results. The reason for the departure will be noted and will be attached for authorization by the Lab Manager or QA Specialist. Documentation for all departures and method deviations are the same as documentation for corrective action (see E1).

VII . Method Validation/Initial Demonstration of Capability Procedures

A. Detection Limit Determinations: Method detection limits are determined annually and when a change in method affects the sensitivity of the method. Method detection limits are performed for each method where applicable. Method detection limits are processed through all sample preparation steps. All records of method detection limit determinations are kept on-site.

B. Initial Demonstration of Capability (IDOC): An initial demonstration of capability is completed when there is a change in instrument type, personnel, or method. An initial demonstration of capability includes all sample preparation procedures and analytical steps contained in each method. Most often, the requirement for initial demonstration of capability is mandated by the training of a new employee. All new trainees must complete four sets of acceptable quality control data for applicable tests in order to be qualified to perform the tests unsupervised in the laboratory. Other methods that may be used to meet the requirements for the IDOC include the testing of four aliquots containing the analyte(s) of interest in a clean matrix, calculation of the mean recovery and standard deviation of the mean recovery for a sample population. When it is not possible to determine mean recovery and standard deviation, such as for tests in which results are reported as pass/fail, the technician must be able to replicate consistent results for the QC and/or sample set.

C. Continuing Demonstration of Capability (CDOC): Continuing demonstration of capability is performed through the analysis of round robin samples, unknowns, and proficiency test samples where applicable. CDOC is performed at a minimum of once each year. All raw data and results associated with CDOC samples are kept on-site.

D. In-house methods (industry specific). Many of the tests used by the laboratory are tests that are specific to the industry. IDOC for these methods are typically performed using four quality control samples. Other methods that may be used to meet the requirements for the IDOC of performance-based methods include the testing of four aliquots containing the analyte(s) of interest in a clean matrix, calculation of the mean recovery and standard deviation of the mean recovery for a sample population. When it is not possible to determine mean recovery and standard deviation, such as for tests in which results are reported as pass/fail, the technician must be able to replicate consistent results for the QC and/or sample set.

The in-house methods are the tests in which no proficiency test samples are commercially available; therefore, the CDOC is demonstrated through commercially prepared samples that are not proficiency test samples typically submitted to the laboratory as unknowns. Round robin samples, and/or quality control samples can also be used as CDOC samples.

VIII. Instrument and Equipment Maintenance and Calibration.

A. Instrument and Equipment Maintenance: Maintenance records are maintained for each analytical instrument to document any maintenance performed on-site. Any services provided by an outside vendor are documented by the vendor and records are kept on-site. Performance of minor routine

maintenance may be documented on the opening/closing checklists for laboratory operation. A list of equipment operated in the laboratory can be found in Attachment I.

B. Equipment calibration: Records of all equipment calibrations are kept on file in the office area. Calibrations are typically performed by a contracted vendor and are performed on annual basis. This excludes calibrations performed on a routine basis in accordance with SOPs.

C. Reference Materials and Reagent Traceability:
1. Reference Standards: All reference standards are received with a certificate of analysis (CofA) which is kept on file in the office area of the laboratory. Standards are logged in using the following information:

a. Stock material source
b. Stock material identification and lot number
c. Applicable expiration dates
d. Custom laboratory identification
e. Date of opening

Standards are marked with the received date and the opening date.

The custom laboratory identification number is used for standard traceability. All working standards prepared from stock standards are documented using the following information:

a. The date the standard was prepared
b. Custom laboratory identification
c. The initials of the technician that prepared the standard
d. Verification of the standards accuracy

Standards removed from a container are not placed back in the original container if not used in preparation.

2. Reagent Chemicals: All reagent chemicals are received and logged in using the following information:

a. Stock material source
b. Stock material identification and lot number
c. Applicable expiration dates
d. Custom laboratory identification

Reagents are marked with the received date and the opening date.

Reagents removed from a container are not placed back in the original container if not used in preparation.

All chemicals received with no expiration date will be discarded after ten years from the date of receipt.

Compressed gases are a minimum of commercial grade. Gases used for gas chromatographic analysis are Ultra High Purity (UHP) grade.

D. Calibration of Support Equipment: Support equipment used in the Resource Recovery Laboratory for testing, mixing standard or reagent, and standardizing will be calibrated either quarterly or annually accordingly.

1. Balances: Balances used in the laboratory are calibrated annually by a certified contractor. Quarterly checks will be performed by the QA/QC Manager using N.I.S.T. traceable weights to verify balances retain their calibration. All Daily balance checks (including daily end checks) are performed by the laboratory technicians. All documentation is kept on file in the laboratory.

2. Certified Reference Weights: ASTM class 1 and class 2 type reference weights are recertified once every five years by a certified contractor. Documentation is kept on file in the laboratory office.

3. Calibration of Pipettes: Transfer pipettes used in the laboratory will be checked for accuracy on a quarterly basis. All documentation will be kept on file for reference.

4. Thermometers: Working thermometers used for checking initial temperature of samples will be calibrated annually by a certified contractor. Documentation will be stored on file in the laboratory office.

5. Refrigerators: All refrigerators/freezers used for storing chemicals and standards contain one thermometer immersed in liquid that is appropriate for the refrigerator/freezer. The thermometers are inspected and corrected temperatures are recorded daily. The documentation is kept on file in the laboratory.

E. Glassware cleaning procedures: All glassware used for the purpose of testing, mixing reagents, or mixing standard are cleaned using a variety of laboratory grade cleaning solutions to insure no cross contamination between samples.

All cleaning is dependent on the matrix involved. The laboratory has acetone for breaking down and dissolving organic based matrices; acid wash, Alconox, and Jet Clean or equivalent soap for inorganic material; and a sonic bath and deionized water for final cleaning.

Cleaning thoroughness is monitored by use of blank runs and CQC testing. Since the same laboratory glassware is used throughout an analytical batch, poor cleaning technique can be detected and corrected quickly.

IX. Record Storage and Archiving Procedures: All records are maintained on-site. Recent records are filed and stored temporarily in the laboratory. Files are moved to a secure storage facility located on-site for permanent storage.

In the event that the Keystone Cement Company Resource Recovery Laboratory is closed or has a transfer of ownership, Keystone Cement will maintain all records pertaining to laboratory operations for the required period of five years.

X. Internal Audits and Inspections: Internal audits in the form of proficiency test samples, unknowns, and/or QC samples are conducted once annually and/or when deemed necessary by either the Laboratory Manager or the QA Specialist. Site inspections can be performed by either the Laboratory Manager or the QA Specialist when deemed necessary by either manager.

A. Proficiency Test Samples: Proficiency test samples are performed according to SOP protocols and are treated as typical samples. Proficiency test samples are performed once annually for applicable tests.

XI. Analytical Subcontracting Procedures: In the event that the laboratory cannot perform testing in accordance with the permit, samples may be sent to a contract laboratory certified to perform applicable testing in the State of Pennsylvania. All records obtained from a contract laboratory will be kept on file and stored in the daily and/or weekly QC packets.

XII. Outside Support Services

A. Purchased Supplies. Supplies are purchased from quality suppliers that maintain sufficient inventory to meet the needs of the laboratory. The laboratory maintains two separate suppliers for items that are critical to the process and may be difficult to obtain.

Attachment I

Equipment and Instrument List

Instrument	Manufacturer	Model	Serial Number
Accumet pH meter	Fisher Scientific	AB15	AB92325679
Accumet pH meter	Fisher Scientific	AB15	AB81203408
Aquametry meter and electrode	Barnstead Lab Industries	NA	NA
Automated Mercury Analyzer w/ computer data station, mouse, etc	Leeman Labs Inc	PS200II	1
Automated Mercury Analyzer w/ computer data station, mouse, etc	Leeman Labs Inc	Hydra AA	HA-1083
Automatic Sampler-Tower (1)	Hewlett Packard	7673A	2704A05408
Automatic Sampler-Tower (2)	Hewlett Packard	7673A	2546A02631
Automatic Sampler-Tower (3)	Hewlett Packard	7673A	2704A09786
Automatic Sampler-Tower (4)	Hewlett Packard	7673A	2704A09786
Automatic Sampler-Tray	Hewlett Packard	7673A	2704A08149
Automatic Sampler-Tray	Hewlett Packard	7673A	2718A08832
Autosampler	Cetac (thru Thermo Electron)	ASX-520	030531A520
Autosampler	Perkin Elmer	AS93 plus	93258112901
Calorimeter	Parr	1261	1677
Calorimeter	Parr	6200	M9881
Chiller	Thermo Electron	RTE-7	105321066
Chiller	Thermo Electron	RTE-100	197323104
Chiller (PE ICP)	Poly Science	N0772026	IE1341562
Chloride Titrator	Metrohm	848 Titrino Plus	10304171
Compaq DC5750 computer w/ keyboard, mouse, etc. (workstation, metals lab)	Hewlett Packard	DC5750	MXL7361431
Computer w/ keyboard, mouse, etc. (wet lab workstation)	Dell	Dimension 4550	CVZ0121
Desk Jet 895CXi (wet lab workstation)	Hewlett Packard	C6490A	MY93119J11
Desk Jet 5740, (workstation, metals lab)	Hewlett Packard	C9016F	TH56E1119W
Desk laserjet HP 1022 (intrepid)	Hewlett Packard	Q5912A	CN1321R0V8
Desk Jet HP 990cxi (Hydra AA)	Hewlett Packard	C6455A	MY0CD111F9
Digisense Scanning thermometer	Cole Parmer	92000-00	1351 00
Dosimat (Cl Titrator)	Brinkmann	665	1H9-214
Dot matrix printer (viscometer)	Epson	LX-300 +II	FSQY044400
Dot matrix printer (Mic 1)	Epson	LQ-590	FSQY044400
Dot matrix printer (Mic 2)	Epson	LX-300 +II	G80Y198778
Exchange Unit (Cl Titrator)	Brinkmann	806	1158008
Fisher Stirrers	Fisher Scientific	unk	unk
Gas Chromatograph (GC1)	Hewlett Packard	5890	2413A04955
Gas Chromatograph (GC2)	Hewlett Packard	5890	871523C128/83
GC Automatic Sampler Controller (GC 2)	Hewlett Packard	G1512A	US72102075
GC Automatic Sampler Controller (GC 1)	Hewlett Packard	G1512A	US715016[illegible]

Homogenizer	ESGE	2003-12	0104
Hot Plate	Thermo Scientific	SP131635	C1768110104424
ICAP w/ computer data station, mouse, etc	Thermo Electron	Intrpeid	11121
ICP w/ data station, mouse, etc.	Perkin Elmer	Optima 5300	077C6120902
Isotemp Muffle Furnace	Fisher Scientific	11-550-58	807N0084
Laser Jet PRO 400 (HYDRA)	Hewlett Packard	M401	VN3BN16414
Laser Jet P2035 (GC)	Hewlett Packard	P2035	VNB3B43789
Laser Jet PRO400 (PE ICP)	Hewlett Packard	M401dn	VN3BN06483
MARS microwave	CEM	MARS	MD8826
MARS microwave	CEM	MARS	MD
Microwave (1)	CEM	MDS-2000	YR6057
Microwave (2)	CEM	MDS-2000	YR6263
Microwave (3)	CEM	MDS-2000	YR6576
Printer (Old Cal)	Star	DP8340	2.10071E+11
Printer (New Cal)	Star	SP500	1.5014E+11
Refrigerator	Goldstar	unk	unk
Refrigerator - bomb room	Fisher Scientific	97-935-1	1.43407E+12
Refrigerator - metals prep room	Fisher Scientific	97-935-1	1.43406E+12
Stir plate (pH bomb room)	Fisher Scientific	1151051	10018953
Stir plate (prep room)	Fisher Scientific	11-600-165	101N0049
Titroprocessor (Cl Titrator)	Brinkmann	686	1M3-283
Turbidimeter	Hach	2100AN	9.405E+11
Ultrasonic Cleaner (metals room)	Fisher Scientific	FS30	RTA030601464
Uninterruptible Power Supply	General Electric Company	LP 8-11U	L081U18/0439A004
Vessels (XP) for microwave digestion	CEM	XP-1500 plus	NA
Viscometer (A)	Brookfield Engineering Labs.	DV-II+	RT52296
Viscometer (B)	Brookfield Engineering Labs.	DV-II+	RT50156
Water Cooler	Parr	1552EA	699
Water Handling System	Parr	1563	393
Water Handling System	Parr	6510	08/05/1C
Water Titrator	Metrohm	870 KF Titrino Plus	10304171
Computer w/ keyboard, mouse, etc. (Lab Manager)	HP	COMPAQ 6005	MX6227076P
Computer w/ keyboard, mouse, etc (QA Manager)	Hewlett Packard	DC323A#ABA	MXD31306GZ
Copier	Copystar	CS1810	ZH47022989
Copier/fax/scanner/printer	HP	CM2320	fxiMFP
Label Maker	Dymo	Letratag	NA
Laminator	Universal	84532	97120917
Copier/fax/scanner/printer	HP LASERJET	1536DNFMFP	CNC9C3XCGG

Analytical balance	Mettler Toledo	AB204	1115221720
Analytical balance	Sartorius	CPA1245	25250150
Analytical balance	Ohaus	AR2140	F2151201090910
Balance-top loading	Denver Instruments	XL-1810	87547
Balance-top loading	Fisher Scientific	Accu-4101	14409902

KEYSTONE CEMENT COMPANY

PESTICIDE and HERBICIDE MANAGEMENT IMPLEMENTATION PLAN

I. PURPOSE

To ensure that annual testing and necessary follow-up, as required to comply with this Implementation Plan, of Module 1 approved generators who send manifested shipments with the following secondary waste codes to Keystone, D012 through D017, D020, D031, D037, D041 and D042. Keystone shall implement this "Plan" as follows in accordance with its Hazardous Waste Management Facility Permit.

II. RESPONSIBILITY

It is the responsibility of all Environmental Technicians or trained assignees, Resource Recovery Facility Manager, Maintenance Supervisors, Compliance Manager and Plant Manager, to ensure compliance with this procedure.

III. PROCEDURE

The following procedure applies to waste shipped from an existing module 1 approved generators who have one or more of the following waste codes attached to their approved module 1. The waste codes are D012 through D017, D020, D031, D037, D041 and D042. This Implementation Plan shall be triggered whenever the results of the annual testing exhibit a concentration of the herbicides or pesticides greater than or equal to the attached table trigger values for the following waste codes: D012 (Endrin), D013 (Lindane), D014 (Methoxychlor), D015 (Toxaphene), D016 (2,4-D), D017 (2,4,5 TP Silvex), D020 (Chlorodane), D031 (Heptachlor), D037 (Pentachlorophenol), D041 (2,4,5-Trichlorophenol) and D042 (2,4,6-Trichlorophenol).

Annually (once per calendar year (CY), beginning in CY 2002) Keystone shall obtain analytical data on all active generators that have an approved MOD 1 waste stream with one or more of the waste codes identified in Section I, above. Upon receipt of the data Keystone will evaluate the test data for compliance with its RCRA Part B, Hazardous Waste Storage Permit. If the data is equal to or less than the values in the attached Table, then no further action is required. If the data (or any portion of the data) is greater than the values in the attached Table, then follow-up with the generator is necessary to ensure that the material is from "multiple active ingredient products" and not the result of mismanagement or waste codes not allowed or permitted at Keystone.

Follow-up with generators shall be in writing and shall follow the attached form letter. Upon receipt of the generators signed response it should be reviewed for compliance with the permit and placed on file. If the generators, response, explanation etc. does not conform to Keystone's permit then that particular waste stream will be suspended from shipment to Keystone until the generator can certify materials shipped to Keystone are in compliance with the Permit and the approved MOD 1.

"Compliance with the Permit" means that the particular waste stream is not from the following sources:

- defined at 40 CFR §261.31 as tri-, tetra, and/or pentachlorophenols as waste code F027
- derived from chlorophenols other than 2,4,6-trichlorophenol
- defined at 40 CFR §262.32 as "K" code wastes from the production of specific pesticides, such as wastewater treatment sludges from the production of pesticide chlordane as waste code K032
- defined at 40 CFR §261.33(e) and (f) as "P" and/or "U" wastes as one or more of the ≈133 pesticide active ingredients
- waste regulated under FIFRA when it became a waste

Keystone Cement shall submit a report to the Department following the implementation of this plan. The report shall include all operating record information regarding the waste stream, waste load, the original Module 1 analytical results, the final disposition of the waste and the calculated quantity of herbicide or pesticide present. The Herbicide/Pesticide Management Implementation Plan letters shall be included in the report.

The annual analytical results for generator waste streams that contain the herbicide and pesticide waste codes shall be submitted with the documentation required by Part II Section B.4 (Waste Consistency) above.

New/not previously approved waste streams containing secondary pesticide and herbicide codes will include in the Module 1 application the details on the source of the secondary waste codes. The purpose of this effort will be to identify the source of pesticides/herbicides in order to pre-monitor future Module 1 applicants, the attached questionnaire will also be used for this purpose.

Table 1

Herbicide & Pesticide Management Implementaion Plan - Trigger Value Table

	Range of Detection Limit min (ppm)	Range of Detection Limit max (ppm)	* Trigger Value
Endrin	0.1	2.0	0.50
Lindane	0.05	1.0	0.40
Methoxychlor	0.5	10	10.00
Toxaphene	2.4	48	12.00
2,4-D	2	2000	10.00
2,4,5-TP	0.5	500	400.00
Chlordane	0.5	10	2.50
Heptachlor	0.05	1	0.25
Heptachlor Epoxide	0.05	1	0.25
Pentachloro-phenol	100	1250	500.00
2,4,5-Trichlorophenol	100	1250	500.00
2,4,6-Trichlorophenol	40	500	200.00

* Five times minimum detection limit / From 55FR 11845 or the TCLP whichever is greater.

Herbicide/Pesticide Questionnaire and Certification

	Yes	No
Is your waste defined at 40 CFR §261.31 as tri-, tetra, and/or pentachlorophenols as waste code F027?		
Is your waste derived from chlorophenols other than 2,4,6-trichlorophenol?		
Is your waste defined at 40 CFR §262.32 as "K" code wastes from the production of specific pesticides, such as wastewater treatment sludges from the production of pesticide chlordane as waste code K032?		
Is your waste defined at 40 CFR §261.33(e) and (f) as "P" and/or "U" wastes as one or more of the ≈133 pesticide active ingredients?		
Is or was your waste regulated under FIFRA when it became a waste?		
Is your waste carrying one or more of the characteristic herbicide/pesticide "D" codes from one of the following sources?		
• Household pesticides/herbicides from a household?		
• A Farmer who triple rinses containers in accordance with §262.51?		
• A small quantity generator under §261.5?		
• A RCRA empty container under §261.7		
• Aerial/commercial applicator of these wastes?		

If you answered no to all items on the above table you must completely reveal the source or the basis for the listing of your "D" code(s), which were identified with your shipment to Keystone below:

(Please include attachments as necessary)

Form Letter (Attached to Pesticide and Herbicide Management Implementation Plan)

Certified Mail
Return Receipt Requested

[Insert Date]
[Insert Generator Name]
[Insert Address]

Subejct: **Manifest No. _____**
Received on [month day, year]
[Generator Name]

Dear_____:

Keystone Cement Company (KCC) received approval to store your hazardous waste under the Pennsylvania RCRA Module 1 approval process, as required by our Final Hazardous Waste Storage Permit effective [insert date] I.D. #PAD002389559. Since you have sent manifested waste with one of more of the following waste codes; D012 through D017, D020, D031, D037, D041 and D042, your waste is required to be tested annually for the presence of these compounds which define your waste. If the results of our testing reveal data above Keystone Cement Company's regulatory action level, then we are required to follow-up with you regarding the specific origin of the herbicide/pesticide waste code(s).

Please review the attached certification statement and correctly identify the specific origin of the subject manifested waste with respect to waste codes, D012 through D017, D020, D031, D037, D041 and D042.

Lastly, after completion of the form, please sign and date the form and promptly fax (610-837-2267) and/or mail to Michael L. Luybli, P.O. Box A, Bath, PA 18014-0058.

Sincerely yours,

[Facility environmental manager]

cc: Pennsylvania, Department of Environmental Protection
Attachment (Herbicide/Pesticide Questionnaire and Certification)

Herbicide/Pesticide Questionnaire and Certification (cont.)

Certification Statement

I certify under that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I further certify that no mismanagement of herbicide or pesticide waste is occurring at my site.

SIGNATURE: _____ Date: _____

PRINTED NAME: _____

TITLE: _____

Table 1
Summary of Sampling Study and UTL Analysis

	Laboratory Results Summary				
	Frequency of detection	Min/max of detections	Range of Detection Limit	Upper Tolerance Limit	
		(ppm)	(ppm)	(ppm)	(%)
Endrin	5/49	0.23 - 35.1	0.1 - 2.0	66	0.007%
Lindane	3/49	0.085 - 1.19	0.05 - 1.0	1.9	0.0002%
Methoxychlor	2/49	16.6 - 31.5	0.50 - 10	291	0.029%
Toxaphene	1/49	2.4	2.4 - 48.0	88.6	0.009%
2,4-D	12/49	2.47 - 3850	2 - 2000	3485	0.349%
2,4,5-TP	12/49	0.66 - 523	0.5 - 500	560	0.056%
Chlordane	3/49	1.61 - 20.3	0.5 - 10	20.8	0.002%
Heptachlor	11/49	0.10 - 6.04	0.05 - 1.0	45	0.005%
Heptachlor Epoxide	11/49	0.1 - 83.8	0.05 - 1.0	93	0.009%
Pentachloro-phenol	0/49	-	100 - 1250	1376.6	0.138%
2,4,5-Trichlorophenol	0/49	-	100 - 1250	1376.6	0.138%
2,4,6-Trichlorophenol	0/49	-	40 - 500	550.6	0.055%

KEYSTONE CEMENT COMPANY
REPORT OF A SEVEN MONTH SAMPLING AND ANALYSIS STUDY

For

PESTICIDES and HERBICIDES

Prepared by:

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Executive Summary

On July 25, 2000, Keystone Cement Company (Keystone) submitted a Sampling and Analysis Plan (Plan) to the Pennsylvania Department of Environmental Protection, Land Recycling and Waste Management Program in Wilkes-Barre, Pennsylvania. The purpose of the Sampling and Analysis Plan was to perform a six-month testing program (Study) of certain client waste streams as required by Resource Conservation Recovery Act (RCRA) Modified Permit no. PAD 002 389 559, Part IV E.6. Following submission of the "Plan" Keystone begin its implementation with the first client waste stream analytical results dated September 22, 2000, and the last client waste stream results dated April 17, 2001. Provided in this report is a summary of the data and a statistical manipulation of the data following an upper tolerance limit (UTL) method which is essentially the same method required in 40 CFR § 266 Appendix IX. (See also Statistical Intervals: A Guide for Practitioners, by Gerald J. Hahn and William Q. Meeker (ISBN 0-471-88769-2), and R.D. Gibbons, "Statistical Tolerance Limits for Ground-Water Monitoring", *Ground Water*, v.29 n.4)

1.0 Introduction

This document provides a summary of the six-month herbicide and pesticide study performed by Keystone in accordance with RCRA Permit no. PAD002389559, Part IV E.6. Keystone selected Pace Analytical™ as the independent contract laboratory to have the overall responsibility for implementing the analytical activities described in the July 2000 Plan. Specifically Pace Analytical™ conducted analysis of client waste streams discussed in section 3.0 of the "Plan." In the "Plan" Keystone identified certain MOD 1 approved waste streams which carry the multiple active ingredient product pesticide and/or herbicide characteristic waste codes D012 through D017, D020, D031, D037, D041 and D042. Many of the client waste streams were analyzed more than once, since samples were taken from incoming shipments to the Keystone facility. The sampling frequency was determined by the frequency of shipments arriving at the facility.

2.0 Regulatory Background

On March 29, 1990, the United States Environmental Protection Agency (EPA) published a Final Rule, Hazardous Waste Management System; Identification and Listing of Hazardous Waste; Toxicity Characteristics Revisions; Final Rule at 61 FR 11798. The effect of this rule was to address EPA's concerns over mismanagement of solid wastes, which are characteristically hazardous. Upon careful review, the EPA retained the municipal landfill scenario as the most reasonable worst-case mismanagement scenario (Ref: 61 FR 11806, middle column). Accordingly, EPA based its standards for Toxicity Characteristic (TC) wastes based on mismanagement in a municipal landfill rather than other facilities (e.g. RCRA Permitted TSD's).

3.0 TC Herbicides and Pesticides Wastes

Four groups of pesticide-related wastes are listed as hazardous in 40 CFR §261. The first group, at §261.31 includes certain discarded unused pesticide formulations containing tri-, tetra-, and pentachlorophenols (F027). The F027 listing includes approximately 20 phenoxy pesticides and associated salts and esters. The March 29, 1990, TC Final Rule added 2,4,6-trichlorophenol (D042); however, 2,4,6-trichlorophenol is an active ingredient in pesticide products. Those products are separately regulated as F027 wastes; therefore, they continue to be regulated as acute hazardous wastes at all concentrations, both below and above the TC level. Since Keystone Cement is not permitted to accept F027 wastes, it is not likely that these materials would be mismanaged and subsequently shipped to Keystone.

The second group, at §262.32 consists of "K" wastes derived from the production of certain pesticides such as chlordane (K032). The March 29, 1990, TC Final Rule added chlordane (D020); however, since chlordane is listed, it continues to be regulated both below and above the TC level and was, therefore, not affected by the regulatory levels of TC. Since Keystone does not manage and may not manage K032 under its RCRA

Permit, it is not likely that these materials would be mismanaged and subsequently stored or used at Keystone.

The third group, at §261.33(e) and (f) consists of "U" and "P" wastes. Approximately 133 pesticide-active ingredients are listed as hazardous wastes. These materials (pesticide products) which contain active ingredients or the pure or technical grade are regulated under RCRA and FIFRA when they become wastes. For the majority of the 133 chemicals, the TC rule does not change their status under RCRA, waste pesticides that are either pure, technical grade, or sole active ingredients products continue to be subject to regulation as hazardous at all concentrations under subtitle C. Therefore, since Keystone does not manage and may not manage these "P" and "U" wastes under its RCRA Permit, it is not likely that these materials would be mismanaged and subsequently stored or used at Keystone.

The fourth group includes six pesticide wastes that were regulated prior to March 29, 1990, on a concentration basis (D012 through D017) and the additional six pesticide wastes added by the TC rule (D020, D031, D034, D041, D042, D031 epoxide). This grouping of pesticides regulates "multiple active ingredient products" whether or not they are also listed. The multiple active ingredient formulations added to the subtitle C regulations was acknowledged by EPA at 61 FR 11839 as having "...the principal effects of today's final rule will be felt by commercial applicators, such as aerial applicators and pest control operators who were eligible for the special requirements applicable to farmers...". In making this determination EPA acknowledged that RCRA regulations contain special requirements that effect the extent to which pesticide users are subject to additional RCRA regulations:

- Household pesticide wastes remain exempt from RCRA
- Farmers who triple rinse containers and dispose of the rinseate on their own farm consistent with 40 CFR §262.51 are exempt from RCRA
- Small quantity generators under §261.5 need to only comply with reduced requirements and many "multiple active ingredient products" users are small quantity generators
- Under §261.7, properly emptied containers may be eligible for an exemption from further RCRA requirements. Thus, many pesticide containers are not subject to regulation as a hazardous waste

4.0 Data Manipulation

The data were keyed into a spreadsheet and a statistical approach was selected in order to properly characterize the waste streams as generated (i.e. as arriving at Keystone) prior to any consolidation into storage. Keystone reasonably expects that the generators selected to be studied have herbicide and pesticide compounds that are randomly distributed about a mean. Keystone chose to use an upper tolerance limit (UTL) method which is the same

method required in 40 CFR § 266 Appendix IX. (See also Statistical Intervals: A Guide for Practitioners, by Gerald J. Hahn and William Q. Meeker (ISBN 0-471-88769-2), and R.D. Gibbons, "Statistical Tolerance Limits for Ground-Water Monitoring", *Ground Water*, v.29 n.4). The upper tolerance limit approach was selected in order to develop proposed permit limitations in the event the Pennsylvania DEP decides to specifically limit the permitted waste codes with a numerical permit limitation.

5.0 Upper Tolerance Limit

The herbicide and pesticide detections are assumed to be random within a generators waste material and therefore a probability distribution model is a reasonable tool to describe the data represented by the sample analyses results. The UTL approach (Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, USEPA, Office of Solid Waste, February, 1989) was applied to the data set in several sequential steps, as follows: Step 1 determined whether the data set for a constituent is normally or log normally distributed; step 2 calculated the sample mean; and step 3 calculated the standard deviation. It was then possible to estimate a concentration that will not be exceeded by a high percentage (e.g. 99.9%) of future shipments. That estimated value is known as the upper tolerance limit (UTL). Keystone generated a substantial initial database in order to establish the UTL for the constituents of concern (herbicides and pesticides).

6.0 Statistical Calculations

The data were analyzed in the following manner.

- All samples including those non-detected were utilized. Non-detected concentrations were input at the laboratory detection limit (DL). The non-detected samples provide an important basis for the statistical analysis, as they provide a significant quantity of reference points against which the detected values may be compared.
- The sample mean or average value for each set of constituent data is expressed as:

$$\bar{x} = \frac{x_1 + x_2 + \ldots + x_n}{n}$$

where: x_i = Numerical value of sample point i
n = Number of samples

$\bar{x}$ = Mean of x

The standard deviation, s, is calculated as follows:

$$s = \left[\frac{(x_1 - \bar{x})^2 + (x_2 - \bar{x})^2 + \ldots + (x_n - \bar{x})^2}{(n-1)^{1/2}} \right]^{1/2}$$

- Each constituent was tested for normality of distribution by the value of the coefficient of variation (CV), which is defined as:

  $$CV = s/\bar{x}$$

  If the coefficient of variation is greater than 1, then the data is not considered normally distributed. In these cases, the natural log of the data was calculated. The CV was calculated for the log transformed data and tested for normality in the same manner. The CV results for the log normally transformed data were considered to be within acceptable limits (USEPA, February 1989).

- The UTL for each constituent was calculated as follows:

  Using the equation below, the one-sided UTL (γ=95%;α=0.1%), was calculated in order to have a 95 percent confidence that approximately 99.9 percent of future sample results will fall below the UTL (i.e., there is 95% probability that the "coverage" is 99.9%).

  $$UTL_{(1-\alpha;\gamma)} = \bar{x} + (K_{(1-\alpha;\gamma)})\, s$$

  where

  K = The one-sided tolerance limit factor for probability (or confidence) level γ, and coverage ($1-\alpha$).

A summary of the results of the calculations is presented in Table 1. The detailed results of the calculations are presented in Table 2.

Table 2
Pesticide/Herbicide Study
Upper Tolerance Level Analysis

Generator	Date	Endrin	Lindane	Methoxychlor	Toxaphene	2,4-D	2,4,5-TP	Chlordane	Heptachlor	Heptachlor Epoxide	Pentachloro-phenol	2,4,5-Trichloro-phenol	2,4,6-Trichloro phenol
		(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
No. 1	9/22/00	2.00	1.00	31.50	48.00	2	0.86	0.86	6.04	1.00	500	500	200
No. 2	9/23/00	1.00	0.50	5.00	24.00	2	0.86	5.00	0.50	0.50	500	500	200
No. 3	9/23/00	2.00	1.00	10.00	48.00	2	0.5	10.00	1.00	1.67	500	500	200
No. 4	9/24/00	2.00	1.00	10.00	48.00	10	2.6	10.00	1.00	1.00	500	500	200
No. 5	9/23/00	2.00	1.00	10.00	48.00	15.6	0.571	10.00	1.00	1.00	500	500	200
No. 6	9/23/00	2.00	1.00	10.00	48.00	2	0.5	10.00	1.00	1.00	500	500	200
No. 7	9/22/00	2.00	1.00	10.00	48.00	2	0.5	10.00	1.00	1.00	500	500	200
No. 8	9/23/00	2.00	1.00	10.00	48.00	2	0.5	10.00	1.00	1.00	500	500	200
No. 9	10/3/00	0.10	0.12	0.50	2.40	2	1.98	0.50	0.05	0.05	500	500	200
No. 10	11/15/00	0.50	0.25	2.50	12.00	2	0.817	7.88	0.67	0.25	500	500	200
No. 11	11/5/00	2.00	1.00	16.60	48.00	2	0.5	10.00	1.00	1.00	500	500	200
No. 12	11/9/00	0.50	0.25	2.50	12.00	2	0.5	2.50	0.25	0.25	500	500	200
No. 13	11/10/00	0.50	0.25	2.50	12.00	2	0.5	2.50	0.25	0.25	250	250	100
No. 14	11/10/00	0.50	0.25	2.50	12.00	7.31	0.5	2.50	0.25	0.25	250	250	100
No. 15	11/22/00	0.50	0.25	2.50	12.00	2	1.08	2.50	0.25	0.25	500	500	200
No. 16	11/22/00	0.50	0.25	2.50	12.00	2	0.5	2.50	3.91	1.97	250	250	100
No. 17	11/22/00	0.50	0.25	2.50	12.00	27	0.665	2.50	0.50	0.39	500	500	200
No. 18	11/21/00	0.10	0.05	0.50	2.40	2	0.5	0.50	0.05	0.05	1250	1250	500
No. 19	11/21/00	35.10	1.00	10.00	48.00	2	0.925	10.00	1.47	83.80	500	500	200
No. 20	12/8/00	1.00	0.50	5.00	24.00	2	0.5	5.00	0.50	0.50	500	500	200
No. 21	12/8/00	1.00	0.50	5.00	24.00	2	0.5	5.00	0.50	0.50	500	500	200
No. 22	12/8/00	1.00	0.50	5.00	24.00	4.31	0.5	5.00	0.50	0.50	500	500	200
No. 23	1/2/01	0.26	0.05	0.50	2.40	2000	523	0.50	0.07	0.12	500	500	200
No. 24	1/2/01	1.23	0.05	0.50	2.40	2350	500	0.50	0.05	0.05	500	500	200
No. 25	1/2/01	0.10	0.05	0.50	2.40	3850	500	0.50	0.18	0.05	500	500	200
No. 26	1/8/01	0.23	0.08	0.50	2.40	4.29	0.5	0.50	0.05	0.05	500	500	200
No. 27	1/9/01	0.15	0.05	0.50	2.40	2	0.5	1.61	0.20	0.05	500	500	200
No. 28	1/9/01	0.10	0.05	0.50	2.40	2	0.5	20.30	1.80	0.05	500	500	200
No. 29	1/16/01	0.10	0.05	0.50	2.40	2	0.5	0.50	0.05	0.44	500	500	200
No. 30	1/16/01	0.10	0.05	0.50	2.40	2	0.5	0.50	0.05	0.10	250	250	100
No. 31	1/16/01	0.10	0.05	0.50	2.40	4.29	0.5	0.50	0.05	0.05	500	500	200
No. 32	1/23/01	0.10	0.05	0.50	2.40	2	0.5	0.50	0.05	0.05	500	500	200
No. 33	1/24/01	1.00	0.50	5.00	24.00	2	0.5	5.00	0.50	0.50	500	500	200
No. 34	1/29/01	1.00	0.50	5.00	24.00	2	0.5	5.00	0.50	1.79	100	100	40
No. 35	1/29/01	1.00	0.50	5.00	24.00	2	0.5	5.00	0.50	0.50	500	500	200
No. 36	1/30/01	1.00	0.50	5.00	24.00	3.2	0.5	5.00	0.50	0.50	100	100	40
No. 37	1/28/01	1.00	0.50	5.00	24.00	2	0.5	5.00	0.50	0.50	500	500	200
No. 38	1/30/01	1.00	0.50	5.00	24.00	2	0.5	5.00	0.50	0.50	500	500	200
No. 39	2/7/01	1.00	0.50	5.00	24.00	2	0.5	5.00	0.50	0.50	500	500	200
No. 40	2/16/01	2.00	1.19	10.00	48.00	4	1.57	10.00	1.00	9.20	1250	1250	500
No. 41	3/27/01	2.00	1.00	10.00	48.00	2	0.5	10.00	1.00	1.00	1000	1000	400
No. 42	3/27/01	2.00	1.00	10.00	48.00	2	5	10.00	5.72	1.45	1000	1000	400
No. 43	4/9/01	2.00	1.00	10.00	48.00	2	0.5	10.00	1.00	1.00	125	125	50
No. 44	4/9/01	1.00	0.50	5.00	24.00	2	0.5	5.00	0.50	0.50	125	125	50
No. 45	4/9/01	0.10	0.05	0.50	2.40	2.47	0.5	0.50	0.10	0.19	125	125	50
No. 46	4/13/01	1.00	0.50	5.00	24.00	2	0.5	5.00	0.50	0.50	250	250	100
No. 47	4/14/01	1.00	0.50	5.00	24.00	2	0.5	5.00	0.50	0.50	500	500	200
No. 48	4/12/01	0.50	0.25	2.50	12.00	22.5	0.5	2.50	0.25	0.25	500	500	200
No. 49	4/17/01	1.00	0.50	5.00	24.00	2	0.5	5.00	0.50	0.50	500	500	200
Number of Detects		5	3	2	1	12	12	3	11	11	0	0	0
Number of Samples		49	49	49	49	49	49	49	49	49	49	49	49
Mean	X	1.65	0.48	5.30	22.68	170.92	31.78	5.07	0.81	2.43	486.22	486.22	194.49
Standard Deviation	SD	4.93	0.37	5.44	17.45	690.94	122.62	4.18	1.23	11.94	235.85	235.85	94.34
Coefficient of Variation	SD / X	2.98	0.77	1.03	0.77	4.04	3.86	0.82	1.51	4.91	0.49	0.49	0.49
K Value (α=.001, γ=.95)	3.775		3.775		3.775			3.775			3.775	3.775	3.775
Upper Tolerance Limit			1.9		88.6			20.8			1376.6	1376.6	650.6
# Exceedances			0		0			0			0	0	0

Log-Normally Distributed Data						
	Endrin	Methoxychlor	2,4-D	2,4,5-TP	Heptachlor	Heptachlor Epoxide
	ln(ppm)	ln(ppm)	ln(ppm)	ln(ppm)	ln(ppm)	ln(ppm)
	0.69	3.45	0.69	-0.15	1.80	0.00
	0.00	1.61	0.69	-0.15	-0.69	-0.69
	0.69	2.30	0.69	-0.69	0.00	0.51
	0.69	2.30	2.30	0.96	0.00	0.00
	0.69	2.30	2.75	-0.56	0.00	0.00
	0.69	2.30	0.69	-0.69	0.00	0.00
	0.69	2.30	0.69	-0.69	0.00	0.00
	0.69	2.30	0.69	-0.69	0.00	0.00
	-2.30	-0.69	0.69	0.68	-3.00	-3.00
	-0.69	0.92	0.69	-0.20	-0.40	-1.39
	0.69	2.81	0.69	-0.69	0.00	0.00
	-0.69	0.92	0.69	-0.69	-1.39	-1.39
	-0.69	0.92	0.69	-0.69	-1.39	-1.39
	-0.69	0.92	1.99	-0.69	-1.39	-1.39
	-0.69	0.92	0.69	0.08	-1.39	-1.39
	-0.69	0.92	0.69	-0.69	1.36	0.68
	-0.69	0.92	3.30	-0.41	-0.70	-0.95
	-2.30	-0.69	0.69	-0.69	-3.00	-3.00
	3.56	2.30	0.69	-0.08	0.39	4.43
	0.00	1.61	0.69	-0.69	-0.69	-0.69
	0.00	1.61	0.69	-0.69	-0.69	-0.69
	0.00	1.61	1.46	-0.69	-0.69	-0.69
	-1.35	-0.69	7.60	6.26	-2.66	-2.16
	0.29	-0.69	7.76	6.21	-3.00	-3.00
	-2.30	-0.69	8.26	6.21	-1.85	-3.00
	-1.47	-0.69	1.46	-0.69	-3.00	-3.00
	-1.92	-0.69	0.69	-0.69	-1.60	-3.00
	-2.30	-0.69	0.69	-0.69	0.59	-3.00
	-2.30	-0.69	0.69	-0.69	-3.00	-0.82
	-2.30	-0.69	0.69	-0.69	-3.00	-2.31
	-2.30	-0.69	1.46	-0.69	-3.00	-3.00
	-2.30	-0.69	0.69	-0.69	-3.00	-3.00
	0.00	1.61	0.69	-0.69	-0.69	-0.69
	0.00	1.61	0.69	-0.69	-0.69	0.58
	0.00	1.61	0.69	-0.69	-0.69	-0.69
	0.00	1.61	1.16	-0.69	-0.69	-0.69
	0.00	1.61	0.69	-0.69	-0.69	-0.69
	0.00	1.61	0.69	-0.69	-0.69	-0.69
	0.00	1.61	0.69	-0.69	-0.69	-0.69
	0.69	2.30	1.39	0.45	0.00	2.22
	0.69	2.30	0.69	-0.69	0.00	0.00
	0.69	2.30	0.69	1.61	1.74	0.37
	0.69	2.30	0.69	-0.69	0.00	0.00
	0.00	1.61	0.69	-0.69	-0.69	-0.69
	-2.30	-0.69	0.90	-0.69	-2.31	-1.68
	0.00	1.61	0.69	-0.69	-0.69	-0.69
	0.00	1.61	0.69	-0.69	-0.69	-0.69
	-0.69	0.92	3.11	-0.69	-1.39	-1.39
	0.00	1.61	0.69	-0.69	-0.69	-0.69
	49	49	49	49	49	49
	-0.38	1.10	1.41	-0.07	-0.92	-0.90
	1.21	1.21	1.79	1.69	1.25	1.44
	-3.15	1.10	1.27	-24.8	-1.36	-1.60
	3.775	3.775	3.775	3.775	3.775	3.775
Ln(ppm)	4.2	5.7	8.2	6.3	3.8	4.5
ppm	66.0	290.6	3485	560	44.9	93.1
	0	0	1	0	0	0

Units (ppm)

22.5	Detected concentrations

All other values are the dtection limit for not detected results

The detection limit is used in the UTL calculation

α, γ - "The probability is γ that at least a proportion (1-α) of the distribution will be less than X + KS where X and S are estimators of the mean and standard deviation computed from a random sample of size n" (Bowker and Lieberman, Engineering Statistics, 1972)

K - One-sided tolerance factor

Detailed Data Gathering Discussion

Discussion and Summary of Data gathered following the July 25, 2000, Sampling and Analysis Plan. The headings below following the July 25, 2000, Plan.

7.0 (4.1-4.4) Sampling Procedures

All samples were obtained in accordance with the Keystone Cement Company waste analysis plan (WAP). The samples were collected using a Coliwasa-like device and placed in a 500 mL jar. A minimum of two sample fractions were obtained from the original 500 mL sample and placed in 4-oz glass sample jars with Teflon-lined lids. The 4-oz jars were sealed with chain of custody labels and stored in the freezer until shipment. The 4-oz-samples were then shipped on ice in a cooler along with a chain of custody form via overnight delivery to PACE Analytical Services.

8.0 Analytical Procedures

PACE Analytical Services were selected to perform the analytical portion of this study. They were provided with a copy of the Sampling and Analysis Study for Pesticides and Herbicides document. The data was reviewed and the comments are listed below for your review:

8.1 Analytical Methods

The samples were prepared for analysis using SW-846 3580 (Waste Dilution) and analyzed using methods SW 846 8081/8082 (Pesticides), SW-846 8270 (Semi-volatile Organics), and SW-846 8151 (Herbicides).

8.2 Target Analyte List

The target analyte list for each sample analyzed for this study consists of a minimum of the compounds listed in Table 1 of the Sampling and Analysis Study for Pesticides and Herbicides. In some instances, additional target analytes were reported for some analyses. These analytes were either PCBs or additional semi-volatile compounds and have no relevance to the study.

8.3 SW-846 Method Modification

The results are reported under each SW-846 method. There are no method modification notations. PACE did not contact Keystone Cement Co. with regards to any method modifications.

8.4 Method Detection Limits

It appears that PACE made efforts to meet the Maximum Toxicity Characteristic Limits listed in Table 1 of the Sampling and Analysis Study for Pesticides and Herbicides. This is evident by the varying sample dilutions performed on the samples. The samples are mixtures of organic solvents and materials such as oils and cannot be extracted. Therefore, the majority of the samples must be diluted in order to minimize interferents and to obtain reasonable data. The size of the dilutions made is dependent upon the amount of interferents present in each sample. For the purposes of this discussion, an interferent is any compound that can be detected with the analytical system but is not a target analyte or a standard of any kind. In the case of hazardous waste samples, the concentrations of measured interferents are reduced through he process if dilution; however, this dilution also affects the level of the target analytes that can be detected and raises the detection limits for those same target compounds. Therefore, the method detection limits for the target analytes are sometimes greater than the regulatory limits. The analytical report summary included the levels of dilutions performed on each sample.

8.5 Data Validation and Reporting

PACE used standard format in reporting. The reporting was consistent for all sampling and analysis episodes. Data qualifiers, flags that provide notes for the data, were used to identify or justify the results. A quality control package was included with each set of results.

9.0 Data Quality Objectives

9.1 Accuracy

The accuracy of each individual method was measured using matrix spikes and/or laboratory control samples, LCS (laboratory fortified blanks). Recovery of spikes in a hazardous waste sample is typically difficult due to the complex nature of the sample and limited means for sample clean-up. Therefore, method accuracy can be alternately demonstrated through method control, such as the laboratory control samples. Poor sample spike recoveries are typical in a hazardous waste sample. For this project, PACE demonstrated method accuracy using the LCS when matrix spike recoveries were outside the acceptable limits and visa versa. No bias was used in the summary of the data to correct for low matrix spike recoveries.

Surrogate compounds are also used as an indicator of method accuracy. Surrogates are specified by the reference methods and are chemically similar in nature to the target compounds. Surrogates are spiked into the sample prior to preparation. They are generally used as an indicator for the efficiency of the sample preparation such as method extraction. As with the matrix spikes, the recovery of the surrogate may depend in large upon the sample matrix and the amount of dilution necessary in order to obtain acceptable data. In some cases, the sample may have to be diluted so much that the surrogates are not detectable.

A review of the QC data for the results showed that many of the recoveries for the surrogate compounds were outside of the acceptable limits set by the laboratory. This is to be expected when the sample matrix is considered. However, poor surrogate recovery due to sample dilution or matrix interferences is not necessarily an indicator of target analyte recovery. The surrogates are mainly used to monitor extraction efficiency not chromatographic performance.

9.2 Precision

Precision for method analytes was determined through the analysis of duplicate samples such as the matrix spike and matrix spike duplicate samples, the LCS and the LCS duplicate samples and/or sample duplicates.

9.3 Comparability

All samples were obtained using the same sampling and packaging procedures. All samples were analyzed and reported in a similar manner.

9.4 Completeness

All samples were collected and analyzed.

9.5 Representativeness

The number of samples to be analyzed was determined prior to the start of the project.

9.6 Practical Quantitative Limits (PQLs)

The reference methods used for analysis do not provide PQLs. Instead estimated quantitative limits (EQLs) are provided as guidance for method performance. Again, it is evident that PACE Labs made an effort to detect the target compounds at the lowest level possible given the matrix of the samples. Sample dilutions are noted on each report page.

10.0 Information and Data Summary

A summary of the data generated for each sampling episode was compiled once a month and sent to the environmental manager for continuing evaluation for the program.

One generator, Heritage Environmental, was added to the list for sampling.

Pace Analytical™
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

619973

Page: 1 of 1

Section A — Required Client Information:

Company: Keystone Cement Co
Address: Route 512
Bath PA 18014
Phone: (610) 837 2212 Fax: (610) 571 0145

Section B — Required Client Information:

Report To: Lisa M. Adamovsky
Copy To:
Invoice To: "
P.O. 031303FMA
Project Name:
Project Number:

Client Information (Check quote/contract):
Requested Due Date: *TAT:

* Turn around times less than 14 days subject to laboratory and contractual obligations and may result in a Rush Turnaround Surcharge.
Turn Around Time (TAT) in calendar days.

Section C — To Be Completed by Pace Analytical and Client

Quote Reference:
Project Manager: Karen Brown
Project #:
Profile #:

Section D — Required Client Information:

Valid Matrix Codes

MATRIX	CODE
WATER	WT
SOIL	SL
OIL	OL
WIPE	WP
AIR	AR
TISSUE	TS
OTHER	OT

ITEM #	SAMPLE ID (One character per box. (A–Z, 0–9 / .–) Sample IDs MUST BE UNIQUE)	MATRIX CODE	DATE COLLECTED (mm / dd / yy)	TIME COLLECTED (hh:mm a/p)	# Containers	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Benzene 8270*	8082*	8151*	Remarks / Lab ID
1	40070-1		03-11-03		2									X	X	X	X
2	6069-1		03-10-03		2									X	X	X	X
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	

SHIPMENT METHOD	AIRBILL NO.	SHIPPING DATE	NO. OF COOLERS
Airborne Exp	TA27884322	3/13/03	1

ITEM NUMBER	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	LMAdamovsky / KRK	3/13/03	2:00pm	Airborne	~~3-14-03~~	~~9:35~~
	Airborne	3-13-03	9:35	[illegible]	3-14-03	9:35

SAMPLE CONDITION

Temp in °C	5.6
Received on Ice	(Y)/N
Sealed Cooler	(Y)/N
Samples Intact	(Y)/N

SAMPLE NOTES

* limited target analytes

Cold Packs Not Ice

Additional Comments:

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: DATE Signed: (MM / DD / YY)

SEE REVERSE SIDE FOR INSTRUCTIONS

n COC01 Rev 0601

Pace Analytical™
www.pacelabs.com

1000 Riverbend Blvd. Suite F
St. Rose, LA 70087
Phone: (504) 469-0333
Fax: (504) 469-0555

INVOICE

Number: 20015839
Date: 03/31/2003

Please Remit To:

Pace Analytical Services, Inc.
Box 684056
Milwaukee, WI 53268-4056

Sold To:
Ms. Fiona Adamsky
Keystone Cement Company
P. O. Box A
Route 512
Bath, PA 18014

Client No	Purchase Order No	Project Manager	Terms	Page No
385846/KEYSTONE2	031303FMA	Karen Brown	Due Upon Receipt	1

Client Reference: Waste Samples
Pace Project No: 2017460

Quantity	U/M	Description	Method	Matrix	Price	Total
ANALYTICAL Charges:						
2.00	ea	Semivolatile Organics	EPA 8270	Other	150.00	$ 300.00
2.00	ea	Organochlorine Pesticides 8081	EPA 8081	Other	115.00	$ 230.00
2.00	ea	Chlorinated Herbicides	EPA 8151	Other	140.00	$ 280.00
2.00	ea	GC/MS VOAs Medium Soil	EPA 8260	Other	100.00	$ 200.00
			ANALYTICAL SUBTOTAL:			$ 1010.00
			TOTAL INVOICE AMOUNT:			$ 1010.00

The above charges are for the following samples:

Spl#	Description/Client ID	Received
20142736	40070-1	03/14/03
20142737	B069-1	03/14/03

1.5% MONTHLY FINANCE CHARGE ASSESSED AFTER 30 DAYS.
PLEASE REFER TO INVOICE NUMBER 20015839 WHEN REMITTING.

AN EQUAL OPPORTUNITY EMPLOYER

Determination of Total Iodine in a Waste Fuel Sample

Changes:

Standards and Quality Control: Added The daily check standards must be prepared from two separate source stock standards.

Method Reference: Internal Method

Scope and Application

This method details a procedure for the determination of iodine in a waste fuel sample.

Summary of Method

Iodine concentration is determined in this test method by burning a weighed sample with pure oxygen under controlled conditions in a calibrated calorimeter. The liberated iodide is absorbed in a sodium carbonate solution. Washings obtained from the procedure are used to determine the iodine concentration with chemically treated paper strips. The strips are calibrated as iodine; therefore, sample iodine concentrations are determined through a calculation of the measured iodide concentration following the stated equation:

$$2I^- \rightarrow I_2$$

Iodine concentrations are detemined through comparison of measured color on the test strip to a reference color. The variations in color are slightly subjective; however, clear determinations between the levels on the reference for the test strips are evident. The minimum detection level reported for samples less than 25% water is 1200ppm. The minimum detection level for samples with more than 25 % water is 2400ppm.

Interferences

Oxidizing agents interfere with the test to provide a positive result. Oxidizers used at Keystone Cement Company that will interfere include nitric acid. Chlorine will also

interfere to produce a positive result. Chlorides do not interfere with the test; therefore, any chlorides produced through oxygen combustion of the sample will not interfere with the iodine test.

Potassium iodide solution is light sensitive. Store all standards in amber bottles. Discard any solution that has turned yellow.

Apparatus and Materials

Calorimeter: Including oxygen bomb, bucket, electronic temperature sensing devices, ignition leads, water and stirrer. Consult the manual for the particular calorimeter to obtain a complete parts list.

Ignition wire: Shall be nickel-chromium alloy or platinum.

Gelatin capsule: Used to encapsulate volatile samples.

Analytical Balance: Capable of weighing to +/- 0.0001g

Volumetric Flasks: 50mL, with stoppers. Other sizes may be used.

Funnels: Glass or plastic.

Graduated cylinder: Or other appropriate dispensing device.

Rubber policeman: Normal laboratory variety.

Beakers

LaMotte Iodine Test Papers: or equivalent

Reagents

Deionized (DI) Water

10% Sodium carbonate/sodium bicarbonate solution: Dissolve 50g of Na_2CO_3 and 50g $NaHCO_3$ in deionized water and dilute to 1L.

Mineral Oil

Standards

Potassium Iodide, ACS grade

10% Potassium Iodide Standard (w/v), purchased, ACS or equivalent

10% Potassium Iodide Standard (w/v), weigh 10 g of potassium iodide and dilute to 100mL in volumetric flask with deionozed water

Iodine Standard, USP, 2 % w/v

10,000 ppm Iodide Standard, measure 13.08 mL of the 10% potassium iodide standard (either purchased or prepared in-house) and dilute to 100mL with DI water. Prepare weekly. Alternative: Measure 6.54 mL of the 2% Iodine standard and dilute to 100mL with distilled water. Prepare two standard solutions from two separate sources. One is to be used for the 12 ppm daily check. The second is to be used for the 100 ppm daily check.

Procedure

Sample Preparation for a liquid fuel sample:

Tare the balance. Weigh the empty cup.

Tare the balance again. Weigh the gelatin capsule.

Tare the balance again. Fill the gelatin capsule with approximately .5g of liquid fuel. Weigh the filled gelatin capsule.

Insert an igniter wire into the holder, forming a loop.

Place the sample cup in its holder. Bring the igniter wire into contact with the gelatin capsule.

At this point, add 10mL of the Na_2CO_3 solution to the bomb, wetting the sides.

Place the holder into the bomb. Screw the lid onto the bomb. Close the pressure relief valve.

Pressurize the bomb to 32atm with oxygen.

Fill the bucket with water from the water recirculating system. Place the bucket into the calorimeter.

Place the bomb into the bucket containing the water. Connect the ignition leads. Observe that the bomb is not leaking, which would be indicated by air bubbles coming from anywhere on the bomb.

Close the lid on the calorimeter.

If the test for iodine is not combined with any other test, it is sufficient to ignite the sample in the calorimeter without keying any data into the instrument (*41). If the iodine test is to be combined with the Btu, ash, and chloride determinations, ignite the sample by following the key sequence for the calorimeter. The manual supplied with the calorimeter should give details on this task. Normally, the sequence will include questions on the sample weight, capsule weight, and bomb ID number. For an automated calorimeter, the instrument will keep track of the changes in temperature that occur during ignition of the sample and calculate the BTU content for the sample at the completion of the run.

At the conclusion of the run, disconnect the ignition leads from the bomb and remove the bomb from the bucket.

Dry the outside of the bomb. Let the bomb remain closed for a period of three minutes or more. Vent the bomb to return to atmospheric pressure. Release the pressure at a slow, uniform rate so that the operation requires at least one minute. Open the bomb.

If the ash determination is combined with the iodine sample preparation, remove the sample cup from the holder and place it on a hotplate until dry. Tare the balance. Weigh the dried sample cup.

Iodine Determination:

Rinse off the holder into the bomb with deionized water. Place the sample cup back into the bomb. Scrub the cup and inside of the bomb with a rubber policeman.

Rinse out the bomb into a 50 mL volumetric flask. Take the flask to volume with deionized water. Aliquots from this flask will be used to determine the chloride concentration.

The iodine concentration will be determined using the remaining rinsate. Pour the remaining rinsate into a small beaker. Immerse one inch of the test strip in the solution for 60 seconds. Remove the strip from the solution and compare to the color chart provided with the test strips. Record the concentration of iodine found in solution. Calculate the total iodine concentration using the calculations provided below.

Samples with a very high water content (> 25%) may not combust efficiently. When a sample has > 25% water content, it must be run using 1:1 ratio with mineral oil. Use .25xx gram mineral oil and .25xx gram sample and place into gelatin capsule. The mineral oil and sample mixture are ignited in the calorimeter.

Clean the bomb: Remove any residual fuse wire from the terminals. Using tap water, rinse the interior of the bomb, the sample cup, terminals, and interior surface of the bomb cover. Final rinse all parts with deionized water. Acetone may be used to remove any stubborn deposits.

Quality Control

Daily Initial Test Strip/Method Verification: Analyze a 12 ppm iodine spike prior to sample analysis. Weigh out 0.5 g of mineral oil in a capsule. Follow the procedure outlined above adding 120 uL of the 10,000 ppm iodide standard to the bomb. The result must be approximately 12 ppm.

End Test Strip/Method Verification: Every 20 samples or at the end of the day, analyze a 100 ppm iodine spike. Weigh out 0.5 g of mineral oil in a capsule. Add 1,000 uL of the second 10,000 ppm iodide standard prepared from a second source to the bomb. The result must be 100 ppm.

Measure one sample daily in duplicate. Calculate RPD. The RPD between the sample and duplicate must be less than 20.

Analyze a 12ppm iodine spike on all newly opened containers of test strips

Calculations

Calculation of Iodine Concentration:

$A = (B*C)$

where A = total iodine concentration, ppm
B = measured iodine concentration using the test strip, ppm
C = correction factor, 100 (200 for a sample co-fired with mineral oil)

Iodide concentration = Iodine concentration x 2

Calculation for Relative Percent Dfference(RPD):

$RPD = |D - E|/((D+E)/2) \times 100$

where D = original result
E = duplicate result

MODULE 1 / FORM U PROFILE PREQUALIFICATION
STANDARD OPERATING PROCEDURE

I. PURPOSE

To ensure a system of checks and balances which specifically defines the responsibilities and proper procedural steps associated with gathering the necessary information to produce a 'Prequalified' Module 1 or Form U application for submission to the Pennsylvania Department of Environmental Protection (PADEP) and to ensure the accuracy and quality of the documents contained therein.

II. PARTICIPANTS

A. Keystone HWF Commercial Sales Manager[1] (Commercial Manager), (employee)
B. Generator or 3rd Party broker or TSDF acting on behalf of Generator (Generator) (not an employee or agent of Keystone)
C. Environmental Compliance Manager[1] (ECM), (employee)
D. Laboratory Specialist (LS), (contracted by Keystone)
E. Technical and Compliance Specialist (T&C Specialist), (employee or agent[1])
F. Pennsylvania Licensed Professional Engineer (PE), (employee or contracted by Keystone)
G. Keystone Representative (employee)

The above letter designations are used on the enclosed *Module 1 | Form U Review Flowchart*. See EXHIBIT A.

III. PARTICIPANTS' QUALIFICATIONS AND RESPONSIBILITIES

The following describes the general qualifications and duties of the participants with respect to the Module 1/Form U Profile Prequalification Procedure. Detailed responsibilities of the participants are stated in Section IV. Procedure. As shown in Section IV, the ECM, T&C Specialist, and PE have the authority to reject the Module 1/Form U application due to unresolved technical or completeness issues. No plant

[1] Keystone may, due to employee absence, require other trained and suitable personnel to perform certain employee participant roles under this SOP. Those individuals must be approved by the Keystone Vice President, Environmental Affairs or designee.

management, corporate management, or other personnel have the authority to override a rejection of a Module 1/Form U application.

A. **Keystone HWF Commercial Sales Manager (Commercial Manager)**

The Commercial Sales Manager works with the regional Sales Representatives and the generator. The Commercial Manager's qualifications are training in the applicable requirements of this Procedure.

It shall be the responsibility of this person to work with the generator or Sales Representative and request the conveyance of a generator's representative sample, as described below, and necessary Module 1/Form U information as detailed herein to the LS and ECM, respectively. This person is responsible to maintain the integrity of all information.

B. **Generator or 3rd Party broker or TSDF acting on behalf of Generator (Generator)**

The generator is the source of the waste and has control of the waste stream prior to transport to Keystone. The generator shall be responsible for obtaining a representative sample of the waste in accordance with 40 CFR §264.13, completing the appropriate sections of the Module 1/Form U forms, and providing additional required information for the Module 1/Form U application packet. It shall be the responsibility of the generator to comply with the requirements set forth in the procedures and Module 1/Form U documentation detailed herein. Following the approval of the profile packet by the T&C Specialist, the generator shall certify and notarize the Module 1 Form (as appropriate) or certify the Form U and certify the Kiln Fuels Waste Materials Profile Form. The generator must ensure compliance with 40 CFR §262.11 and §264.13, and must be in good standing with the applicable state environmental department (i.e., has the appropriate permits or approvals to generate and/or transport the waste to an off-site facility, does not have any unresolved violations prohibiting them from removing the waste from their site). The generator is responsible for maintaining the integrity of all information.

C. **Environmental Compliance Manager (ECM)**

The ECM reports to the Keystone Director of Environmental Affairs. The ECM's qualifications are a college degree in environmental science or similar and/or experience with the applicable PADEP regulations.

In general, the ECM manages and distributes the Module 1/Form U application documentation as appropriate according to Section IV Procedure and conducts a completeness review at each step that he/she collects documentation. Also, it shall be the responsibility of the ECM to verify that all personnel have 'Document Integrity Certifications' on file and, subsequent to final Keystone approval by the T&C Specialist and PE, submit the Module 1/Form U application to the PADEP for review. For the submittal, the ECM shall follow the format prescribed in Attachment 2. The ECM is responsible for maintaining the integrity of all information.

D. Laboratory Specialist (LS)

The Laboratory Specialist is employed by an independent, Pennsylvania certified laboratory contracted by Keystone to conduct the analysis of the generator's representative sample.

It shall be the responsibility of the Laboratory Specialist to verify sample integrity through sample chain-of-custody forms, test and analyze the generator's samples utilizing test methods and detection limits prescribed by Keystone's permit, and to produce a written report to Keystone as prescribed by Keystone. The LS is responsible for sending the Laboratory Report and chain of custodies directly to the PE and Keystone ECM. The Laboratory Specialist's report and forms will be checked by the T&C Specialist, as described below. The Laboratory Specialist is responsible to maintain the integrity of its work product.

E. Technical & Compliance (T&C) Specialist

The T&C Specialist reports to the Keystone ECM. The T&C Specialist's qualifications are a college degree in chemistry or similar and/or experience with the applicable PADEP regulations.

It shall be the responsibility of the T&C Specialist to provide a detailed technical review of the Module 1/Form U application by examining the relevant information provided by others regarding a particular waste stream acceptance at Keystone as it relates to their qualifications, training, and field of expertise. The T&C Specialist will provide a report and approval/rejection of the Module 1/Form U application. The T&C Specialist will work directly with the Generator and/or Commercial Manager as appropriate (e.g. as questions arise as documents are reviewed). The T&C Specialist is responsible for maintaining the integrity of all information.

F. **Licensed Professional Engineer**

The PE is a Professional Engineer licensed in the Commonwealth of Pennsylvania and is familiar with the requirements of the Pennsylvania Department of Environmental Protection. The PE may be an employee of Keystone.

The PE will provide a technical review of the T&C Specialist-approved Module 1/Form U packet, and will provide the PE certification of the Module 1 packet or approval of the Form U packet, as appropriate. The PE will be responsible for obtaining, directly from the LS, copies of the sample chain of custody form and the laboratory report. This person must follow the Pennsylvania Code for the Practice of Engineering at all times.

G. **Keystone Representative**

For the purpose of this SOP, the term "Keystone Representative" is used to include the ECM, Commercial Manager, or other personnel designated by the ECM. Tasks may include communication with the LS, generator, T&C Specialist, or PE, as necessary, to facilitate the distribution of information and address questions or concerns within the group, and additional technical review of waste. The Keystone Representative is responsible for maintaining the integrity of all information.

IV. PROCEDURE

This procedure follows the requirements for PADEP Module 1 or Form U Applications, 25 Pa Code §264a.13, 25 Pa Code §265a.13 and Keystone's RCRA Part B Permit. Current versions of the Module 1 Form and Form U should be obtained from the PADEP's website[2]. Module 1 Form must be used for hazardous waste streams and Form U must be used for residual waste streams.

The Keystone Lab performs an initial pre-evaluation to perform compatibility and determine acceptability as a waste fuel prior to commencing the formal approval process. A copy of the results will be maintained by the ECM in Keystone's files.

A. Commercial Manager shall initiate the Module 1/Form U Profile Prequalification procedure with the generator by using the following items:

[2] http://www.depgreenport.state.pa.us/elibrary/GetFolder?FolderID=3937. This website is an example and is subject to change by the PADEP.

i. Instructions to obtain a representative sample(s);
ii. PADEP Module 1 form and instructions (as appropriate);
iii. PADEP Form U and instructions (as appropriate); and
iv. Document Integrity Form.

The sampling instructions are used, in part, to inform the generator of the proper sampling and analytical technique (EPA approved) for obtaining a representative sample and composition data. In addition, the Commercial Manager will request the following items from the generator except where otherwise indicated:

i. Representative sample (send directly to the designated laboratory);
ii. Sample chain-of-custody (send original form to the designated laboratory and a copy to the Keystone ECM);
iii. PADEP Module 1 form with A.2, B.1, B.2.b., B.2.c., B.3., E and F completed or PADEP Form U with C, D.1, D.3., D.4, and F completed;
iv. A description of the Sampling Method (Required for Module 1);
v. Process description and schematic (Required for Module 1 or Form U);
vi. Copy of the Form 25 R source reduction strategy[3]; and
vii. Kiln Fuels Waste Materials Profile Form.

The generator will provide all completed forms and documents directly to the ECM, or to the Commercial Manager, who will forward to the ECM internally.

1. The Commercial Manager may provide the phone number of and advise the generator to contact the T&C Specialist directly with technical questions or guidance with the above requested items.

2. The sample shall be properly labeled and must detail the following on the Chain of Custody:
   i. Date sampled;
   ii. Client name: Keystone Cement Company (KCC);
   iii. Generator name; and
   iv. Sample Identification (e.g., Waste name).

[3] Form 25R is required for generators located in the state of Pennsylvania who meet the residual waste requirements and/or hazardous waste requirements. It is not required for generators from other states or countries. If the generator meets these requirements, then the generator should provide a copy of the most recent Source Reduction Strategy (Form 25R) for the applicable waste stream.

3. The sample, along with the sample chain-of-custody (COC) form which references the information detailed on the sample label, shall be forwarded directly to a Keystone-approved laboratory, with a copy of the COC sent to the Keystone ECM.

4. The generator will submit documents for the items listed in IV.A. to the laboratory or ECM, as indicated (See Exhibit A).

B. Upon receipt of the sample chain of custody and other items from the generator, the Keystone Representative will order a request for analysis to the laboratory.

C. For PADEP-approved Module 1s/Form Us for generators in foreign countries, the ECM will notify the PADEP in writing that Keystone expects to receive waste from a foreign source. The notice will demonstrate that the requirements of 20 PA Code 262a Subchapter H (Transfrontier Shipments of Hazardous Waste for Recovery within the Organization for Economic Cooperation and Development (OECD)) have been met.

D. Upon the order of the Keystone Representative, the laboratory will perform the analysis, specified by Keystone, of the submitted waste stream sample. The analysis will include the entire Module 1 or Form U list of parameters (as appropriate); additional parameters based on the Waste Acceptance Criteria in Keystone's RCRA Part B Permit (Condition I.A, Table 5 of the WAP), Air Quality Program Title V Permit; and site-specific parameters.

E. All data will be reported by the laboratory in the format prescribed by Keystone and shall, at a minimum, include:
   i. Report date;
   ii. Customer name;
   iii. Generator name;
   iv. Waste name;
   v. Sample date;
   vi. Parameter(s);
   vii. Method(s);
   viii. Detection limit(s);
   ix. Keystone permit limit;
   x. Result; and,
   xi. Out of limits qualifier.

F. The LS will be required to compare the quantitative sample results with Keystone Cement Company Waste Acceptance limits and 'red flag' any parameter that fails to meet an established permit limit by placing a notation in the out of limits qualifier column. Additionally, in the event a failure of a permit limit is detected, the laboratory will highlight each page of the entire final report with a watermark (or similar method) stating "REJECT."

G. The final laboratory report will be signed by the LS and mailed or emailed to the PE and ECM. As stated in Step I, the T&C Specialist will verify the information provided by the LS.

H. The ECM or Keystone Representative will complete A.1. of the Module 1 Form or A and B for the Form U Form and prepare a Module 1/Form U packet to be routed to the T&C Specialist. If there is any missing or incomplete information on the generator's portions of the Module 1/Form U Forms, the ECM or Commercial Manager will contact the generator to request the information. The Module 1/Form U packet, at a minimum, must contain:

   i. All of the items requested from the generator in Section IV.A.;
   ii. Laboratory Report; and
   iii. Routing Slip signed by ECM or Commercial Manager.

   Other items of the waste profile packet, such as the T&C Specialist certification, PE certification on the Module 1 form, Keystone certification on Form U, and generator signatures on the Module 1/Form U and Kiln Fuels Waste Materials Profile Form, will be added to the packet in the following steps.

I. The T&C Specialist will perform a detailed technical examination of the information provided. The T&C Specialist will determine if the generator's or LS's various parameters are acceptable or if additional sampling and/or analysis is necessary. As appropriate, the T&C Specialist may enlist the assistance of other Keystone employees or agents, such as the Laboratory Manager and Resource Recovery Manager, for technical review of portions of the documents or data in the Module 1/Form U packet. Also, the T&C Specialist, or his/her associate, may contact the generator or LS directly to clarify technical issues with the information provided. The T&C Specialist will use the findings from his/her review and the information from these experts to produce a summary report that includes, at a minimum:

   i. Name and signature;
   ii. Date;

iii. Conclusion;
- Approved – meets Keystone acceptance criteria:
  - Module 1/Form U information correct compared to analytical data
  - Proper shipping name
  - Proper EPA codes
  - No reactivity or compatibility issues evident
  - Certification that the waste stream is not characteristically hazardous for pesticides and herbicides (D012, D013, D014, D015, D016, D017, D020, D031, D037, D041, and D042)
- Issue identified, specify: must be resolved with generator.
- Rejected, specify reason.

In addition, the T&C Specialist will complete Sections C and D of the Module 1 form and Section E of the Form U. The Module 1/Form U packet summary report, and signed Routing Slip will be routed to the ECM, as appropriate.

J. The Keystone Representative must facilitate the resolution of all issues raised by the T&C Specialist, obtain revised paperwork or additional information as necessary, and obtain new signatures for any revised documents initiated by the generator. If revised documents are provided by the generator, the ECM will prepare a new/revised waste profile packet, Steps I and J will be repeated until the T&C Specialist approves the packet. If issues are not resolved to the satisfaction of the T&C Specialist, the Module 1/Form U application process for that waste stream will be halted and the Module 1/Form U application may be rejected.

K. Upon receipt of the Module 1/Form U packet approved by the T&C Specialist, the ECM will forward the packet (originals only) to the generator. If the Module 1/Form U application was rejected, the ECM will notify the generator that Keystone cannot accept the waste stream.

L. The generator will verify that the documents to be reviewed in the profile / Module 1/Form U packet are originals (where required) and perform a detailed examination of the information. The generator shall certify that the application contents are accurate (PADEP certification statement on the Module 1 form and separate statement for the Form U packet) in the presence of a notary, as appropriate. The generator shall also certify Section K of the Kiln Fuels Waste

Materials Profile Form. Then, the generator shall forward the complete Module 1/Form U Application to the ECM.[4]

M. The ECM will perform an administrative completeness review of the Module 1/Form U Application. If it is a Form U Application, Keystone will certify the Form U in Section G. The ECM will route the T&C Specialist-approved and generator-certified Module 1/Form U packet to the PE for review.

N. The PE will verify that the documents to be reviewed in the Module 1/Form U application are originals and perform a detailed, technical examination of the information to supplement Keystone's review. The PE will specifically compare the analytical data from the LS to the information submitted by the ECM and review the packet with respect to conformance with the requirements of the PADEP. The PE will produce a summary report that includes, at a minimum:

   i. Module 1 required PE certification (as applicable); or
   ii. Acceptance of the Form U application (as applicable); or
   iii. Reject – return unsigned and specify reason.

   The PE will route the summary report that includes the certified/accepted or rejected Module 1/Form U application and signed Routing Slip to the ECM.

O. If approved by the PE, then the ECM will perform a final administrative check of the Module 1/Form U application by verifying that the application is complete, contains only original documents where required, and that the certifications/approvals of the generator, T&C Specialist, PE, and Keystone have been obtained. The ECM will complete the Module 1/Form U Application Checklist and add it to the Module 1/Form U packet. The ECM will put the documents in the format outlined in Attachment 2 and will write a cover letter to serve as a certification by Keystone of the accuracy and completeness of the information in the application. The ECM will ensure that the appropriate payment method is secured for the PADEP's Module 1 processing fee. The ECM will make a copy for Keystone's files. The ECM will maintain the associated Routing Slip in Keystone's files.

P. The ECM will submit the complete Module 1/Form U packet with application fee, via certified mail or courier, hand delivery with proof of delivery, or electronically

[4] The Module 1 form must have original, wet ink signatures, including the PE and Notary seals, from all participants. All other forms may be signed by hand and scanned or may include an electronic signature with a timestamp.

using the PADEP's preferred submission method (e.g., online portal) to the PADEP for state review and approval. The ECM will become the primary contact to address PADEP issues, if any. At the stipulation of the PADEP, the ECM will request additional information and signatures from the participants and will re-submit the application or portion of the application to the PADEP, as necessary.

Q. New Waste Streams. Before accepting new hazardous or residual waste streams from a new or existing generator, a Module 1/Form U must be submitted to the Department by certified mail or courier or electronically as described above. The forms may be hand delivered to the Department; however, the Permittee is responsible for obtaining proof of delivery. If the Permittee can certify in their Kiln Fuels Waste Material Profile Form that the waste stream(s) are not characteristically hazardous for pesticides and herbicides (D012, D013, D014, D015, D016, D017, D020, D031, D037, D041, and D042), then the Module 1/Form U will be reviewed in the following way:

   a. If the Module 1/Form U is not returned within fifteen (15) working days from the date of receipt, then the waste may be accepted for storage.

   b. If at any time after the fifteen (15) working day period it is determined that the waste accepted is not consistent with this Permit, then the Permittee may be subject to applicable enforcement actions under the Act or Regulations.

   If the above-mentioned Permittee certification is not submitted with the Module 1/Form U, then the submittal shall be reviewed within the standard one hundred twenty (120) day review time-frame for new Module 1s/Form Us.

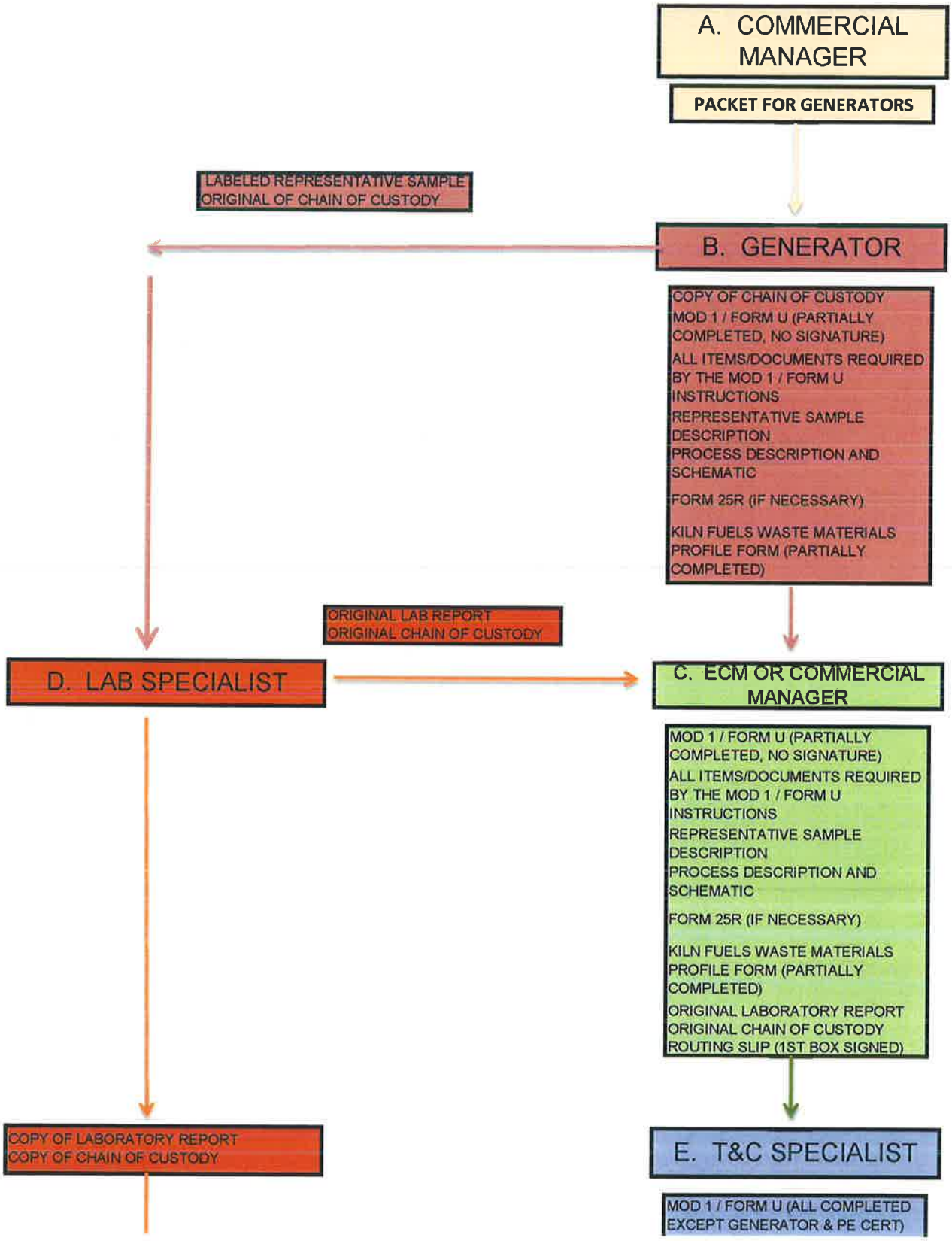
R. Upon PADEP approval, the ECM will maintain on file a copy of the Module 1/Form U approval letter (if available) and provide a copy to all appropriate parties. The ECM will also notify the generator in writing that Keystone has the appropriate permits for, and will accept, the waste the generator is shipping. The ECM will maintain on file a copy of this letter to the generator.

S. If Keystone has been notified or becomes aware of inaccurate or falsified information in the Module 1/Form U application packet submitted to the PADEP (either before or after PADEP approval), the ECM will notify the PADEP of this discovery.

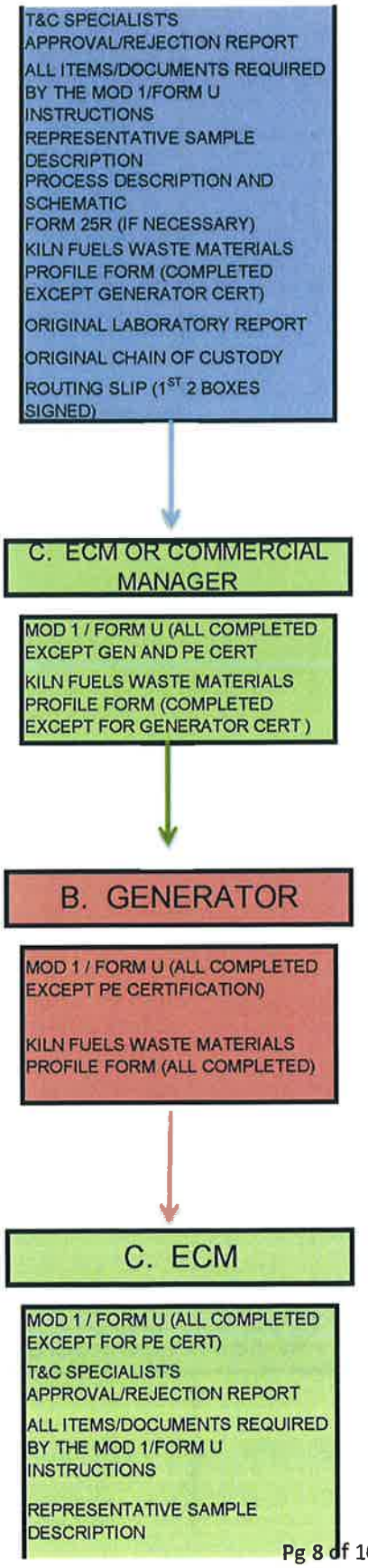
EXHIBIT A

Module 1 | Form U Review Flowchart

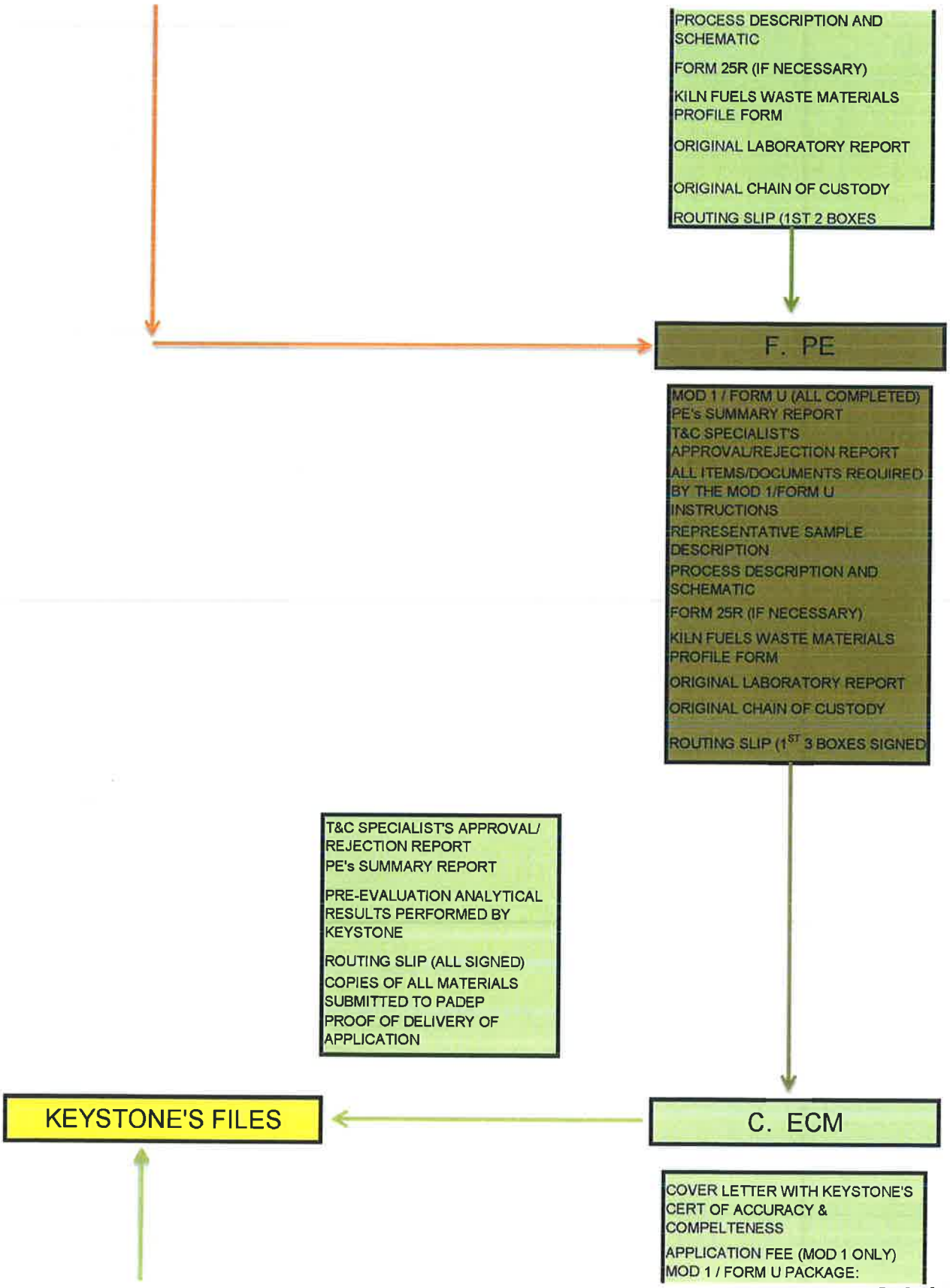
Mod 1 | Form U Review Flowchart



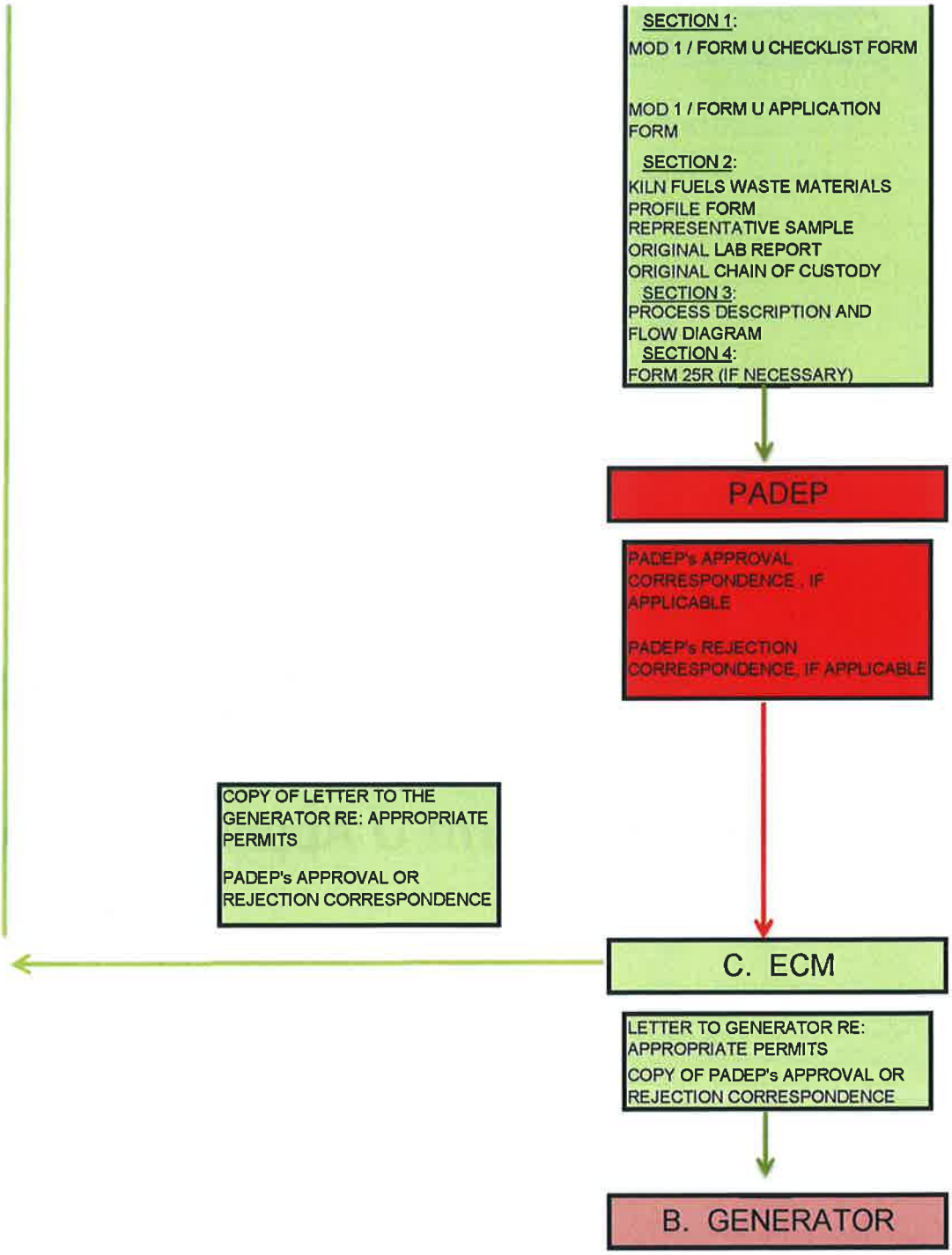
Mod 1 | Form U Review Flowchart



Mod 1 | Form U Review Flowchart



Mod 1 | Form U Review Flowchart



ATTACHMENT 1

Module 1/Form U Application Routing Slip

MODULE 1/FORM U APPLICATION - ROUTING SLIP

Generator Name: _____ Waste Name: _____

Initial Data Collection from Generator: Comments: Statement of Completeness and Accuracy: I certify, from my personal knowledge and/or from my reasonable inquiries of qualified and knowledgeable persons, that the transmitted document, and all attachments to the transmitted document that were prepared by me or under my direction or supervision, are complete and accurate and that they contain, to the best of my knowledge and belief, only accurate data and true information.	By the Commercial Manager or Keystone Representative Signature: Date:
Administrative Completeness Review: Comments: Statement of Completeness and Accuracy: I certify, from my personal knowledge and/or from my reasonable inquiries of qualified and knowledgeable persons, that the transmitted document, and all attachments to the transmitted document that were prepared by me or under my direction or supervision, are complete and accurate and that they contain, to the best of my knowledge and belief, only accurate data and true information.	By the Environmental Compliance Manager Signature: Date:
Technical Compliance Review: Comments: Statement of Completeness and Accuracy: I certify, from my personal knowledge and/or from my reasonable inquiries of qualified and knowledgeable persons, that the transmitted document, and all attachments to the transmitted document that were prepared by me or under my direction or supervision, are complete and accurate and that they contain, to the best of my knowledge and belief, only accurate data and true information.	By the Technical and Compliance Specialist Signature: Date:
PE Review: Comments: Statement of Completeness and Accuracy: I certify, from my personal knowledge and/or from my reasonable inquiries of qualified and knowledgeable persons, that the transmitted document, and all attachments to the transmitted document that were prepared by me or under my direction or supervision, are complete and accurate and that they contain, to the best of my knowledge and belief, only accurate data and true information.	By the Professional Engineer Signature: Date:
Final Review/Certification: Statement of Completeness and Accuracy: I certify, from my personal knowledge and/or from my reasonable inquiries of qualified and knowledgeable persons, that the transmitted document, and all attachments to the transmitted document that were prepared by me or under my direction or supervision, are complete and accurate and that they contain, to the best of my knowledge and belief, only accurate data and true information.	By the ECM Signature: Date:
Date Submitted to PADEP Date Approval Received from PADEP	Date: Date: Approval Number:

ATTACHMENT 2

Module 1/Form U Application Format

Module 1/Form U Application Format

Submittal Cover Letter with Certification of Accuracy and Completeness
Fee Payment for Module 1 (Check)

Section I

1. Module 1 or Form U Checklist Form (as appropriate)
2. Module 1 or Form U Application Form (as appropriate)

Section II

1. Keystone Cement's *Kiln Fuels Waste Materials Profile Form*
    a. Keystone Cement's *Waste Derived Liquid Fuel Acceptance Criteria Certification (Section K)*
    b. Keystone Cement's *Pesticides & Herbicides Certification (Section K)*
2. Representative Sample Description
3. Analytical Results (Laboratory Report and Chain of Custody)

Section III

1. Process Description and Flow Diagram

Section IV

1. Form 25R Source Reduction Strategy (as appropriate)

APPENDIX B
WASTE ANALYSIS PLAN

Waste Analysis Plan

Keystone Cement Company
Bath, Pennsylvania

Revised December 2022

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APPENDICES

Appendix A Example Module 1 Application
Appendix B Generic Module 1 Application for Petroleum Refinery Generators

1.0 INTRODUCTION

Site Description

Keystone Cement Company (Keystone) operates a Portland and masonry cement manufacturing facility in the Borough of Bath, Northampton County, Pennsylvania. The operations are classified under standard industrial code (SIC) 3241 – hydraulic cement manufacturing. The manufacturing facility has been in operation since approximately 1928.

The dry process for the production of Portland cement consists of four major steps: 1) quarrying and crushing, 2) grinding and blending, 3) clinker production, and 4) finish grinding and packaging. Quarried limestone is crushed in a roll crusher and raw material additives are added to establish the proper mix for desired cement type production. Dry feed materials are then further crushed in a raw material grinding mill where the material is then fed to a five stage pre-calcining tower. The material is then processed through the rotary kiln portion of the facility where it is subject to increasing temperatures, thereby being dried, calcined and finally heated to the fusion point of approximately 2,700 degrees F. At this point, clinker is produced. The clinker is discharged to a clinker cooler and then conveyed to bulk storage.

As part of the cement manufacturing process, Keystone utilizes high-energy fuel to heat the cement kiln. This fuel may consist of coal, other non-waste fuel, and liquid hazardous waste fuel. Keystone utilizes high-energy waste fuel to the greatest extent possible as part of the Fuel Substitution Program. The dry process cement kiln utilizes waste fuels in the down-draft calciner, the in-line calciner, as well as the rotary kiln. Some of the high BTU materials are classified as liquid hazardous waste because of their waste solvent content and ignitability origin (waste codes).

Purpose

In order to comply with Resource Conservation and Recovery Act (RCRA) regulations for hazardous waste treatment, storage, and disposal facilities (40 CFR §264), all waste streams must be approved by the Pennsylvania Department of Environmental Protection (DEP) prior to acceptance. These requirements mandate that Keystone develops, maintains on-site, and adheres to a Waste Analysis Plan (WAP) pursuant to 25 Pa Code Section 264a.13 and 40 CFR §270. This document serves as the WAP for the Keystone's Bath, Pennsylvania facility.

Keystone also maintains additional Permit Sections, Operations Plans, and Standard Operating Procedures (SOPs) for specific sampling and analytical procedures. For example, applicable sections of the following documents, plans, and SOPs are relevant to this WAP:

Part B Permit Application Section C
HWF Operation's Plan Section 3: Truck Receipt
HWF Operation's Plan Section 5: Acceptance Determination and Assignment to Storage
SOP WF-01: Sampling of a Bulk Liquid Container
SOP WF-02: Waste Acceptance / Rejection Procedure
SOP WF-04: Storage Tank Sampling
SOP WF-05: Unloading Procedure
SOPs RL-1 through RL-20

Waste Fuel Management Requirements

The cement kiln at the Keystone facility requires fuel with a minimum BTU content (≥ 5,000 BTU/lb) in order to reach the desired temperatures for the cement process. The kiln can fire a variety of non-waste fuels and waste fuels including hazardous waste liquids. Presently, the kiln primarily fires a combination of pulverized bituminous coal, natural gas, and liquid hazardous waste fuel. Table 1 includes a complete list of the approved hazardous wastes that Keystone can use (waste codes) as substitutes for non-waste fuels in manufacturing Portland and masonry cement. Table 2 provides a description of each of the approved hazardous waste codes (including primary and secondary codes).

Keystone accepts liquid hazardous waste fuel to either be stored in one of the facility's four (4) on-site storage tanks or to be directly transferred (i.e., "direct burned") from the incoming waste fuel tanker truck to the kiln. In order for wastes to be accepted for storage in the facility storage tanks, the wastes must be compatible with each other and with the materials of construction and coatings of the storage and handling systems. However, since all of the wastes (i.e.- direct transfer and stored wastes) are also destined to be burned as fuel for energy recovery in Keystone's on-site cement kiln, additional criteria apply to the acceptability of these wastes. Therefore, in order to use any of these liquid hazardous wastes as fuel in the Keystone cement kiln, the waste must meet specific additional physical and chemical requirements and must be approved by the Pennsylvania DEP. The waste fuel requirements include the following[1]:

1. The wastes must be compatible with the storage and handling systems and other previously accepted wastes.

[1] Heated material will meet acceptance criteria but will be handled through direct transfer operation.

2. The wastes cannot contain PCBs greater than 25 ppm (See Table 3 for criteria) or dioxin listed wastes.

3. The wastes must have a minimum acceptable heating value of ≥5,000 BTU/lb.

4. Table 3 provides a summary of analytical methods, analytical parameters, and waste acceptance criteria limits.

Any of the hazardous wastes listed in Table 1 that meet these waste fuel criteria requirements can be accepted and stored at the Keystone facility. As detailed in subsequent portions of this Section of the permit application, Keystone analyzes each load of waste received at the facility to determine whether the waste meets the acceptance criteria outlined above. Once laboratory data confirming the acceptable composition of the waste is available, it is either unloaded into the appropriate storage facilities described elsewhere in this document or may be fired directly (through the previously approved direct burn transfer system) in the kiln if the fuel complies with the criteria detailed in the facility's Hazardous Waste Combustor MACT Feedstream Analysis Plan. Sludges will be mixed and liquefied using waste fuels prior to pumping to the facility storage tanks.

The Keystone facility has also implemented a "Waste Oil Sampling and Analysis Plan" for the acceptance of waste oil at the facility as well as a "CKD Sampling and Analysis Plan" for the sampling of cement kiln dust produced by the cement process. These Plans are incorporated as separate parts of the Keystone permit (please see Appendices I and J).

Fuel Substitution Program

The Fuel Substitution Program involves recycling of organic wastes that are suitable for burning as a primary fuel or as a fuel supplement. Liquid fuels are injected into the hot end of the kiln, and the down-draft calciner using atomized fuel burners. When waste fuels are burned, the feed rate of co-fired coal or other non-waste fuel is adjusted according to energy needs.

All operations are carried out at the controlled-access facility in East Allen Township, Northampton County, Pennsylvania, one mile south of the Borough of Bath. All waste materials are received in bulk shipments.

All hazardous waste areas at the facility are equipped with secondary containment systems. These secondary containment systems provide sufficient volume (100% of largest vessel or tank within the area plus the collected rainfall for a 25-year, 24-hour storm) and are constructed with acceptable materials as to contain any leaks, spills, and accumulated precipitation until the collected material is detected and removed.

Materials that may be included in a typical mix are:

1. Chlorinated solvents
2. Alcohols
3. Ketones
4. Aldehydes
5. Acetates
6. Petroleum oils, sludges, and distillates
7. Aromatic compounds
8. Aliphatic compounds
9. Resins and catalysts
10. Mineral spirits
11. Paint, ink pigments
12. Spent Solvents

2.0 SAMPLING METHODS

This section includes a description of the step-by-step procedures that Keystone follows for reviewing, sampling, analyzing, and accepting hazardous waste fuels delivered to the facility. The general acceptance and sampling procedures involve several steps, as shown on Figure 1 and detailed below. Refer also to Keystone's Standard Operating Procedure (SOP) WF-01 "Sampling a Bulk Container".

2.1 Step 1: Sampling Procedures

Waste shipments will be received under direction of the Keystone Resource Recovery Department, which will also oversee the collection of representative shipment samples in accordance with approved methods specified in EPA's "Samplers and Sampling Procedure for Hazardous Waste Streams" (EPA 600/2-80-018) and "Test Methods for Evaluating Solid Waste, Physical and Chemical Methods" (EPA SW-846). The sampling personnel are trained in WF-01 to ensure compliance with the procedure described therein. Refer to Keystone's site SOPs for details of analytical methods. All collected samples are subject to the analytical methods and Keystone's source-specific sampling policy as summarized in Tables 3 and 4 and discussed below.

2.1.1 Bulk Waste Fuels

Samples of liquids and sludges are collected using a modified COLIWASA technique. The modification consists of a ball valve closing device with an extended handle that reaches the bottom of the tank truck or rail car. A cable running parallel with the tube is attached to the ball valve handle and the top of the tube. The sampling device with the valve in the open position is inserted in the top hatch of the transport vehicle. When the sampling device reaches the bottom of the container, the sampling valve is closed, thus securing a cross-sectional representative sample.

Sludges which are more dense or stiff may require alternate sampling methods such as a scoop or shovel, auger or trier type sampler. If a transport truck, such as a dry bulk solids trailer used to transport sludges, has multiple individual compartments then a representative sample will be collected from each compartment and a composite sample will be generated by the Resource Recovery Lab for analysis using equal volumes of material from each compartment.

2.1.2 Cement Kiln Dust

Grab samples are taken from the ductwork entering the cement kiln dust storage tank. The sampling procedures and location are detailed in the facility's CKD Sampling and Analysis Plan.

2.1.3 Refractory Brick

A representative minimum number of grab samples are collected and composited for analysis by a PADEP certified contracted laboratory for off-site disposal at an approved facility.

2.1.4 Miscellaneous Debris

Grab/wipe samples are collected.

2.2 Step 2: Transfer of Samples

The sampler takes the hazardous waste sample(s) to the on-site lab for the Pre-acceptance and Acceptance Criteria Tests, and for completion of the appropriate records.

2.3 Step 3: Laboratory Analysis

The laboratory will screen each hazardous waste sample for physical characteristics according to the analytical methods outlined in Table 3 and compare these results to the applicable guidelines as listed in the pre-acceptance flow diagram in Figure 1. In addition, each shipment will be screened for the presence of PCBs. The laboratory will note the number of phases present in the representative sample. The laboratory will ensure that the representative sample is sufficiently mixed so that the analytical results will be representative of materials contained in all phases that may be present in the sample (i.e.- sample will be analyzed immediately after being thoroughly mixed to minimize stratification prior to analysis). If the received waste material conforms to the applicable specifications and the DEP Module 1 Application has been approved by the state, then the laboratory will proceed with the General Acceptance procedures. The General Acceptance procedures will be performed as referenced in the flow diagram in Figure 1. Quality Control analysis is performed on the proper completion of the manifest and associated paperwork, including the land disposal restriction (LDR) notification. If the material falls within the acceptance criteria specifications and is in compliance with the regulatory and operational guideline values, the waste material is approved for storage and use as fuel at Keystone. If the

material does not meet the acceptance criteria after following the discrepancy resolution procedures discussed in Section 4.0, the entire load is rejected, re-manifested, and returned to the generator.

Keystone will also perform periodic confirmation testing of metals content for each waste stream as further discussed in Section 4.3 of this WAP. The metals confirmation testing is used to ensure waste feed consistency and confirm agreement with the data included in the generator's Module 1, but is not used for individual shipment acceptance testing.

2.4 Step 4: Recordkeeping

Subsequent to the unloading of the waste shipment, all paperwork shall be properly completed. The appropriate copies of each manifest will be distributed to the generator; transporter; treatment, storage, and disposal (TSD) facility; and state and foreign government agencies after the material has been unloaded.

2.5 Step 5: Procedure to Update Methods

Pursuant to test methods and acceptance procedures, as new equipment is purchased or EPA changes the testing procedures, the updated methods will be placed into Keystone's Standard Operating Procedure Manual.

3.0 DISCREPANCY RESOLUTION

3.1 Acceptance Parameter Discrepancies:

If a sample should fail to satisfy any of the acceptance parameters, the material will be isolated and rerun for the failed acceptance parameter(s) using the original sample. This rerun will show whether an error in analytical technique had caused the first failure.

If the original sample should pass the retest, it shall then be run a third time. If both tests pass, then the material may proceed to unloading.

If the rerun sample fails, the shipment will either be rejected, or, if the generator (when contacted) is confident that the waste is unchanged, a new sample will be taken and analyzed. This decision will be made by the Resource Recovery Department. Failure of this second sample would result in return of the shipment to the generator.

If the rerun passes, a third sample shall be taken. If the third sample fails, the load will be rejected. If it passes, Keystone will accept the material. This will show if an error in sampling caused the first sample failure.

3.2 Shipment Testing Mod 1 Discrepancies:

Samples are taken from each bulk tank shipment and the samples undergo a visual inspection evaluation and fingerprint testing and analysis to confirm that the chemical and physical properties of the waste shipment meet the acceptance criteria detailed in Table 3 of this WAP. In the event that a shipment test results do not meet the criteria detailed in Table 3, the waste material is not accepted for management. For all waste streams meeting the criteria in Table 3, and whose Mod 1 form was approved after June 2006 a review of the incoming shipment visual inspection and acceptance testing is performed as follows:

For all non-TSDF generators, the results of the visual inspection and analyses for the parameters detailed in Table 5 are compared to Module 1 to determine if there is a discrepancy in the nature of the waste. The criteria for identifying a discrepancy in nature of the waste are also listed in Table 5.

When the results of the incoming waste inspection, testing, and evaluation indicate there is a discrepancy between the incoming waste shipment and the corresponding waste identified on the generator's Module 1 (discrepancies detailed in Table 5), the Permittee will contact the generator to determine if there has been a substantive change in the waste material or the process generating the waste. Substantive changes in the waste material or the process generating the waste include any changes in the waste stream that would result in a change in the hazardous characterization (i.e.- new waste codes, etc.) or management practices at Keystone. Any discrepancies detailed in Table 5 are resolved with the generator or the waste is not accepted.

If, after contacting the generator, it is determined that the discrepancy is not a result of a substantive change in the waste or process generating the waste, the permittee will document the discrepancy and may accept the waste material provided that the material complies with the facility's acceptance criteria in Table 3. Documentation of discussions and/or correspondence between the Permittee and the waste generator to resolve the discrepancy shall be included in the operating record. An example discrepancy resolution form is provided as Figure 2 of the WAP. In the event that shipment discrepancies are experienced for the same parameter for any single generator either 1) more than three times in a six-month period for generators shipping 12 shipments or less in that period or 2) for more than 25% of the shipments in a six month period for generators shipping more than 12 shipments in the six month period, the permittee will require that the Module 1 be revised by the generator. The Module 1 will then be submitted to the DEP for inclusion in their files.

In the event that the discrepancy reveals that there has been a substantive change in the waste or the process generating the waste, the permittee will contact the DEP prior to acceptance of the waste stream. Again, all discrepancies will be documented on the form provided as Figure 2. Changes to the Mod 1 to resolve discrepancies as a result of a change in the waste or process generating the waste may only be made with approval of the DEP.

If discovered inconsistencies in the waste characterization cannot be resolved, the waste will not be accepted for management at the facility until the discrepancy is resolved and/or until the waste undergoes full waste characterization in accordance with Module 1 process. This determination will be made within 72 hours after full characterization of the shipment at the facility.

The comparison of the incoming shipment acceptance testing results to the Module 1 may be performed using a computer system where the incoming analysis results are entered into an acceptance program and compared to the Module 1. In the event that the incoming shipment analyses are outside of the ranges detailed on the Module 1, the computer program will alert the user that there is a potential discrepancy for the incoming shipment. Alternatively, the permittee may manually compare the incoming shipment results to a hard-copy of the Module 1. A copy of the Module 1 and supporting analytical data is available for comparison with incoming shipments of the waste. Copies of the original Module 1 and any revisions to the Module 1 will be maintained for each generator in the facility operating record.

3.3 Periodic Metals Confirmation Testing:

To confirm that each generator's waste does not vary from the initial Module 1 testing limits (See Table 3.1), Keystone will perform metals testing on a sample from every tenth shipment of waste for each generator, unless a generator ships greater than ten shipments in a seven day period, at which point the generator's waste will be tested once every seven days. The metals analyses will be grouped based on volatility[2] and compared to the metals concentrations detailed in Table 3.1. Keystone may accept materials into the tank farm and test the shipment samples for metal content after unloading.

In the event that the metals content exceeds the Module 1 testing limits in Table 3.1, Keystone will contact the generator to determine if there has been a substantive change in the waste material or the process generating the waste. In addition, subsequent shipments of waste from that generator will be analyzed for acceptance until it is confirmed from the generator that there has been no substantive change in the waste or process generating the waste and the subsequent shipment analyses confirm that the metals concentrations are once again below those detailed in Table 3.1. Once the shipment review procedures have been completed and Keystone has determined through subsequent testing that the metals concentrations are once again below the Module 1 testing limits, Keystone may resume metals confirmation testing on a once per ten shipment (or once every 7 days as specified above), basis.

[2] Combined Semi-volatile Metals (SVMs – cadmium and lead)
Combined Low-volatile Metals (LVMs – arsenic, beryllium, chromium)

3.4 FAP Testing Discrepancies:

In addition to the periodic confirmatory metals testing, Keystone also analyzes its waste fuel for metals content to demonstrate compliance with the National Emissions Standards for Hazardous Air Pollutants for Hazardous Waste Combustors at 40 CFR Part 63, Subpart EEE (HWC MACT Regulations). In accordance with its HWC MACT Feedstream Analysis Plan (FAP), Keystone may sample and analyze either a blended waste fuel "burn tank" or individual shipment samples for metals content to demonstrate compliance with its kiln metal feed rate limitations under the MACT regulations.

As an additional metals content confirmation, Keystone will compare any burn tank or shipment metals analyses performed under its FAP (again, grouped based on volatility as detailed above) and compare the metals results to the Module 1 testing limits detailed in Table 3.1. In the event that the metals content of a shipment sample exceeds the Module 1 testing limits in Table 3.1, Keystone will contact the generator to determine if there has been a substantive change in the waste material or the process generating the waste and implement the individual shipment metals testing and acceptance procedures as detailed in Section 4.3 above.

In the event that the metals content of a burn tank sample exceeds the Module 1 testing limits in Table 3.1, Keystone will analyze the retain samples for the individual shipments that make up that burn tank to determine which generator's waste stream may have caused the exceedance. Once it is determined which shipment (generator) may have resulted in the exceedance, Keystone will contact the generator to determine if there has been a substantive change in the waste material or the process generating the waste and implement the individual shipment metals testing and acceptance procedures as detailed in Section 4.3 above.

4.0 ADDITIONAL TESTING/INSPECTION PROCEDURES:

4.1 Phase Testing:

For all waste streams, the incoming shipment inspection procedures will include the determination of the number of phases in each waste stream. In the event that the number of phases in the waste stream is greater than the number of phases detailed on the Module 1, the facility will implement the discrepancy resolution procedures detailed in Section 3.0 above as well as the following additional analyses:

i. Determine the percent (by volume) of all phases of separation comprising the waste,
ii. Determine the percent of water content of all phases that are equal to or greater than 25% of the sample by volume, and
iii. For any phase determined in "ii" above and containing 75% or greater water by volume, an analysis for iodine and chloride will be performed.

In the event that the incoming shipment phase inspection is consistent with the Module 1 (less than or equal to the number of phases included on the Module 1), the facility shall note this consistency in the operating record as the reason for not performing the additional analyses detailed above.

4.2 Permit Condition IV.B.3.c:

- Color:

  Part of the incoming shipment inspection procedures will include the notation of color changes. However, it is recognized that TSDF's that blend multiple waste streams and other direct generators such as, but not limited to, waste paint generators, pigment dispersers and batch processes, by their very operations will inevitably have color changes from load to load and therefore these situations would not represent a concern.

- Reduced Pumpability:

  The operator will document, as part of the unloading log, any reduced pumpability issues when the load is attempted to be off-loaded. No analyses for pumpability are required.

5.0 NEW WASTE SOURCES

Keystone's Pre-acceptance Procedure for all new sources of wastes is subdivided into three major steps:

1. Require the generator to have the material analyzed by Keystone or by an independent laboratory, using the analytical techniques that are generally used (see Tables 3 and 3.1).

2. Require the generator to complete a Pennsylvania DEP Module 1 (Keystone's "Waste Data Sheet" shown in Appendix A) and include all applicable documents (SDSs, copies of lab reports, etc.). Alternatively, Keystone may add a generator to an approved Generic DEP Module 1 and request that the generator provide information needed to compare to the Generic DEP Module 1 criteria for determining if the generator's waste is similar to that presented in the Generic Module 1.

3. Conduct formal review of data and accept or reject waste as appropriate.

See Figure 1 for a flow chart of this procedure.

Prior to receiving a sample of a candidate waste, the generator is sent a copy of the DEP Module 1 with instructions for obtaining a sample(s). The instructions are used, in part, to inform the generator of the proper sampling and analytical technique (EPA approved) for obtaining a representative sample and composition data.

Once a sample is received and analyzed, and the generator or supplier completes a DEP Module 1 or provides generator specific information for inclusion in an approved Generic DEP Module 1 the review process begins. First, Keystone will review the DEP Module 1 to determine whether it is complete. Any data gaps or discrepancies will be brought to the attention of the Environmental Manager, who is responsible for their resolution before review can be completed.

Before the waste is approved, the environmental and operational impacts that the waste may have to Keystone are reviewed for acceptability. The waste is compared to other wastes that were successfully managed at the facility by the same methods. Furthermore, a completeness check is performed on all other information submitted and any possible incompatible reactions are identified. A determination is made from an operational perspective, based on engineering principles, if the waste can be properly managed. Also, any unique processing requirements which can affect waste acceptability are identified. A decision is then made to determine if the waste stream is compatible with the process and if the waste can successfully be used within the plant system. In the event that operational changes are required as a result of a pre-qualification

review, changes may be required to the appropriate SOP, as necessary and/or the implementation of SOP WF-06 (Process change) may be required.

Before final approval is given to a generator to ship a new waste, and for Keystone to treat that waste for the first time, the DEP Module 1 (25 Pa. Code 264.13) will be reviewed with PADEP. Such notification will be provided to and approval solicited from PADEP prior to accepting any new waste at the facility.

Alternatively, Keystone may obtain approval from PADEP for a Generic PADEP Module 1 that will cover similar wastes containing similar hazardous constituents from multiple generators. The Generic PADEP Module 1 will include generator specific information for each generator. The Generic PADEP Module 1 application will include criteria for determining the different generator wastes that have similar physical and chemical characteristics and contain similar hazardous constituents. Keystone may add generators to a Generic Module 1 and the generator shall provide Keystone that information needed to determine that the generator's waste meets the Generic Module 1 criteria and the generator specific information required for a PADEP Module 1. Prior to accepting the waste from the generator, Keystone will submit the generator specific information to PADEP for adding the generator to a Generic PADEP Module 1.

6.0 IGNITABLE, REACTIVE, AND INCOMPATIBLE WASTES

Process Considerations:

1. It is the duty of the original shipper (DOT regulations) to ensure that the wastes are compatible with the equipment used for transportation to the site.

2. During the pre-qualification process, any materials potentially incompatible with the facility's equipment are identified and not approved for management at Keystone.

3. The facility does not accept characteristically corrosive material. Therefore, any material determined to be characteristically corrosive during the incoming shipment acceptance testing are not accepted. Any other wastes found to have adverse effects on process equipment, pollution control equipment, or quality of the final product, will not be accepted.

4. From the unloading facility, wastes that are found to be incompatible or reactive with other wastes, but that do not have adverse effects on facility equipment or the final product, may be isolated in the tank farm and fed to the kilns without mixing with other wastes.

5. In the event that a waste stream is re-manifested from the Keystone facility, Keystone will become the shipper of the material and is subject to all shipping/manifesting requirements.

7.0 KILN FEEDRATE MONITORING:

40 CFR §266.100(b) states, in part, that: "... the standards of [part 266] no longer apply when an affected source demonstrates compliance with the maximum achievable control technology (MACT) requirements of part 63, subpart EEE, of this chapter by conducting a comprehensive performance test and submitting to the Administrator a Notification of Compliance under §§ 63.1207(j) and 63.1210(b) of this chapter documenting compliance with the requirements of part 63, subpart EEE, of this chapter."

Keystone conducted its initial Subpart EEE Comprehensive Performance Test (CPT) for its new kiln from May 6-12, 2011 and submitted a Notification of Compliance (NOC) on August 10, 2011.[3]

Therefore, the boiler and industrial furnace permit requirements, including the feedrate monitoring requirements for BIF regulated constituents to the cement kiln (and associated waste fuel feedstream analysis requirements), are no longer applicable to the Keystone Cement facility.

To comply with the feedstream monitoring requirements of the HWC MACT standards, Keystone has developed, and is monitoring under, a Feedstream Analysis Plan (FAP) in accordance with 40 §CFR 63.1209(c)(2). This FAP has been submitted to the PADEP Bureau of Air Quality.

[3] Keystone performed the most recent Confirmatory Performance Test (CPT) in May 2017 and submitted a NOC to the PADEP in August 2017. This NOC documented compliance with the emissions standards and continuous monitoring system requirements, and identified new operating parameter limits established during the CPT.

8.0 KILN GENERATED WASTES

The kiln which is regulated under the EPA RCRA regulations manufactures Portland cement. Because of the firing of hazardous waste fuels in the kiln, the waste dust collected in the furnace's air pollution control equipment, referred to as cement kiln dust (CKD), must be analyzed upon generation. Any kiln generated waste that is determined to be non-hazardous may also be subject to classification as a residual waste. These determinations will be made at the time of generation, but are not within the scope of this plan.

8.1 Kiln Media:

Environmental media are generated by Keystone as part of routine operations and cement production. The environmental media which are generated include the following items:

- CKD
- brick and refractory
- miscellaneous pipes, metal shell, ducts, fans, etc.

The purpose of analyzing the environmental media is to assure that these components, which are generated as part of the routine operation of the portland cement manufacturing facility, are not contaminated by the use of waste derived fuels in the industrial furnace. Before any environmental or process media is designated for disposal, a composition analysis must confirm that contamination does not exist. For purposes of this evaluation, Keystone uses one of two approaches.

Wastes are analyzed for hazardous waste metals using the method of analysis known as the Toxicity Characteristic Leaching Procedure (TCLP). The analytical criteria for this method are defined in 40 CFR Part 261. If the analyzed media do not exceed the hazardous characteristic limits, the material is assumed to be non-hazardous for the inorganic constituents identified in the TCLP protocol. The same approach is used for other environmental media including the brick and refractory and other process media which can be tested according to the TCLP procedure.

In addition to the soluble metals, most of the media is tested against residual organic constituents. Since pesticides and herbicides, PCB contaminated material, and dioxin/furan contaminated material are not accepted, no testing is performed for any of these parameters. Keystone does test for volatile organic compounds and semi-volatile organic compounds as appropriate.

8.2 Cement Kiln Dust

Cement Kiln Dust (CKD) generated by Keystone is removed from the flue gas by the previously described air pollution control systems. A portion of the kiln dust is removed from the system and sold as a product; a portion is returned to the cement kiln; and a portion may be stored as residual waste for a period less than one year prior to selling as a co-product, or disposal at an off-site commercial landfill.

8.3 CKD Sampling and Analyses Procedures

Keystone has established one "CKD Sampling and Analysis Plan" (for the dry kiln process) which details the sampling and analysis requirements for the CKD that is collected in the facility's air pollution control device (and which is not recycled in process as an ingredient in the cement manufacturing process). The CKD Sampling and Analysis Plan is provided in Appendix J and is incorporated by reference here and will be used to demonstrate that discarded CKD passes the kiln residue criteria detailed at 40 CFR Part 266.12(b).

8.4 CKD Product Management Practices

Cement kiln dust is essentially partially processed limestone rock; and, hence, much of the CKD collected is directly recycled in process back to the cement kiln. CKD which is not recycled in the process (Keystone's StableSorb co-product) is transferred from the air pollution control device (APCD) unit by a screw conveyor to an enclosed tank where it is stored in dedicated storage silos to be sold as a secondary product for soil stabilization projects. Movement of the CKD from the interim tank to either of the product storage areas is conducted in either pneumatic cement trailers or haul trucks and involves no placement of the CKD directly on the ground. Additionally, all movement of the CKD at the facility is tracked, quantified, and documented on a daily basis. Any CKD which cannot be recycled or sold will be placed in a DEP permitted landfill.

All CKD generated from the cement kiln each 24 hours while burning hazardous waste is isolated and staged as described above pending analytical confirmation of its non-regulated status. Any material, confirmed through testing, which exhibits hazardous waste characteristics as defined in 40 CFR §266, Subpart H, will be immediately transferred to approved storage/transport containers, properly labeled, properly manifested, and shipped to a secure, permitted hazardous waste landfill.

8.5 Test Methods

A complete list of the analytical methods to be used at the facility is contained in the latest version of the following documents: SW-846; Standard Methods for the Analysis of Water and Waste Water; ASTM Methods (Volume 1-24). Copies of the analytical procedures are maintained in the laboratory.

8.6 Record Keeping

All analytical results, and discrepancy resolution documentation, are kept on file at the facility for a minimum of three (3) years. Accurate statistical records are kept for all QA/QC analysis outlined above.

8.7 Operating Record

Keystone shall keep a written operating record at the facility. The following information shall be recorded, as it becomes available, and maintained in the operating record until closure of the facility:

1. A description and the quantity of each hazardous waste received.
2. Records and results of waste analyses.
3. Copies of LDR notifications from off-site generators per 25 Pa. Code 268.7.

8.8 Reporting Requirements

There are no specific reporting requirements required under the WAP. However, Keystone shall submit all reports as required by the HW Storage Facility Permit. All records, including plans, required under DEP regulation shall be made available at all reasonable times for inspection by the DEP and furnished to the DEP upon request.

TABLES

TABLE 1
WASTE FUEL

D001	D023*	D043*	K030	U004	U112	U194	317****
D004*	D024*	F001	K035	U009	U113	U196***	399****
D005*	D025*	F002	K036	U012	U115	U210***	422****
D006*	D026*	F003	K048	U019	U117	U211***	450****
D007*	D027*	F004	K049	U031	U118***	U213***	474****
D008*	D028*	F005	K050	U037***	U121***	U220	504****
D009*	D029*	F037	K051	U043***	U122***	U226***	509****
D010*	D030*	F038	K052	U044***	U127	U227***	809****
D011*	D031*	K014	K083	U051	U128	U228***	899****
D012*	D032*	K015	K085	U052	U131	U239	
D013*	D033*	K016	K086 **	U055	U140	U359***	
D014*	D034*	K017	K087	U056	U153	208****	
D015*	D035	K018	K156	U057	U154	209****	
D016*	D036*	K019	K169	U070***	U159	303****	
D017*	D037*	K020	K170	U072	U161	308****	
D018	D038*	K022	K171	U075	U162***	310****	
D019*	D039*	K023	K172	U077***	U165***	312****	
D020*	D040*	K025	U001	U078	U169	314****	
D021*	D041*	K026	U002	U080***	U171	315****	
D022*	D042*	K028	U003***	U105	U188	316****	

* Secondary trace contaminants that exhibit hazardous waste characteristics identified in Table 2 and by PA Code Title 25, Section 261 Subchapter C, which incorporates by reference 40 CFR 261 Subchapter C.

**Solvent washings only

*** Secondary waste codes accepted at concentrations as approved during the Mod 1 process.

**** Residual Waste Codes (RWCs) as identified by Pennsylvania. These are not hazardous. The list of RWCs does not preclude Keystone from requesting additional RWCs through the Form U process and not a permit modification per 25 Pa Code §270a.

TABLE 2
WASTE CODE DESCRIPTIONS

D001	Ignitable Waste
D004	Arsenic *
D005	Barium *
D006	Cadmium *
D007	Chromium *
D008	Lead *
D009	Mercury *
D010	Selenium *
D011	Silver *
D012	Endrin *
D013	Lindane *
D014	Methoxychlor *
D015	Toxaphene *
D016	2, 4-D *
D017	2, 4, 5-TP (Silvex) *
D018	Benzene
D019	Carbon tetrachloride *
D020	Chlordane *
D021	Chlorobenzene *
D022	Chloroform *
D023	o-Cresol *
D024	m-Cresol *
D025	p-Cresol *
D026	Cresol *
D027	1,4-Dichlorobenzene *
D028	1,2-Dichloroethane *
D029	1,1-Dichloroethylene *
D030	2,4-Dinitrotoluene *
D031	Heptachlor (and its epoxide) *
D032	Hexachlorobenzene *
D033	Hexachlorobutadiene *
D034	Hexachloroethane *
D035	Methyl ethyl ketone
D036	Nitrobenzene *
D037	Pentachlorophenol *
D038	Pyridine *
D039	Tetrachloroethylene *
D040	Trichloroethylene *
D041	2,4,5-Trichlorophenol *
D042	2,4,6-Trichlorophenol *
D043	Vinyl chloride *
F001	The following spent halogenated solvents used in degreasing: tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons; all spent solvent mixtures/blends used in degreasing containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004 and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

TABLE 2
WASTE CODE DESCRIPTIONS

F002	The following spent halogenated solvents: tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-tri-fluoroethane, orthodichlorobenzene, trichlorofluoromethane, and 1,1,2-trichloro-ethane; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those listed in F001, F004, or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
F003	The following spent non-halogenated solvents: xylene, acetone, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; all spent solvent mixtures/blends containing, before use, one or more of the above halogenated solvents and a total of ten percent or more (by volume) of one or more of those solvents listed in F001, F002, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
F004	The following spent non-halogenated solvents: cresols and cresylic acid, and nitrobenzene; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
F005	The following spent non-halogenated solvents: toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, and 2-nitropropane; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, or F004; and still bottoms from the recovery of these spent solvents and spent solvents mixtures.
F037	Petroleum refinery primary oil/water/solids separation sludge. Any sludge generated from the gravitational separation of oil/water/solids during the storage or treatment of process wastewaters and oily cooling wastewaters from petroleum refineries. Such sludges include, but are not limited to, those generated in oil/water/solids separators; tanks and impoundments; ditches and other conveyances; sumps; and stormwater units receiving dry weather flow.
F038	Petroleum refinery secondary (emulsified) oil/water/solids separation sludge. Any sludge and/or float generated from the physical and/or chemical separation of oil/water/solids in process wastewaters and oily cooling wastewaters from petroleum refineries. Such wastes include, but are not limited to, all sludges and floats generated in: induced air flotation (IAF) units, tanks and impoundments, and all sludges generated in DAF units.
K014	Bottoms from the acetonitrile purification column in the production of acrylonitrile.
K015	Still bottoms from the distillation of benzyl chloride.
K016	Heavy ends or distillation residues from the production of carbon tetrachloride.
K017	Heavy ends (still bottoms) from the purification column in the production of epichlorohydrin.
K018	Heavy ends from the fractionation column in ethyl chloride production.
K019	Heavy ends from the distillation of ethylene dichloride in ethylene dichloride production.
K020	Heavy ends from the distillation of vinyl chloride in vinyl chloride monomer production.
K022	Distillation bottom tars from the production of phenol/acetone from cumene.
K023	Distillation light ends from the production of phthalic anhydride from naphthalene.

TABLE 2
WASTE CODE DESCRIPTIONS

K025	Distillation bottoms from the production of nitrobenzene by the nitration of benzene.
K026	Stripping still tails from the production of methyl ethylpyridines.
K028	Spent catalyst from the hydrochlorinator reactor in the production of 1,1,1-trichloroethane.
K030	Column bottoms or heavy ends from the combined production of trichloroethylene and perchloroethylene
K035	Wastewater treatment sludges generated in the production of creosote.
K036	Still bottoms from toluene reclamation distillation in the production of disulfoton .
K048	Dissolved air floatation (DAF) float from the petroleum refining industry.
K049	Slop oil emulsion solids from the petroleum refining industry.
K050	Heat exchanger bundle cleaning sludge from the petroleum refining industry.
K051	API separator sludge from the petroleum refining industry.
K052	Tank bottoms (leaded) from the petroleum refining industry.
K083	Distillation bottoms from aniline extraction.
K085	Distillation or fractionation column bottoms from the production of chlorobenzenes
K086	Solvent washes and sludges, or from cleaning tubs and equipment used in the formulation of ink from pigments, driers, soaps, and stabilizers containing chromium and lead.
K087	Decanter tank tar sludge from coking operations.
K156	Organic Waste (including heavy ends, still bottoms, light ends, spent solvents, filtrates, and decants) from the production of carbamates and carbumoyl oximes
K169	Crude oil storage tank sediment from petroleum refining operations.
K170	Clarified slurry oil storage tank separation solids from petroleum refining operations.
K171	Spent Hydrotreating catalyst from petroleum refining operations, including guard beds used to desulfurize feeds to other catalytic reactors (this listing does not include inert support media)
K172	Spent Hydrorefining catalyst from petroleum refining operations, including guard beds used to desulfurize feeds to other catalytic reactors (this listing does not include inert support media)
U001	Acetaldehyde
U002	Acetone
U003	Acetonitrile *
U004	Acetophenone
U009	Acrylonitrile
U012	Aniline
U019	Benzene
U031	1-Butanol
U037	Benzene, chloro-; Chlorobenzene *
U043	Ethene, chloro-; Vinyl chloride *
U044	Chloroform *
U051	Creosote
U052	Cresols
U055	Cumene
U056	Cyclohexane
U057	Cyclohexanone
U070	Benzene, 1,2-dichloro-; o-Dichlorobenzene *
U072	p-Dichlorobenzene
U075	Dichlorodifluoromethane

TABLE 2
WASTE CODE DESCRIPTIONS

U077	Ethane, 1,2- dichloro-; Ethylene dichloride *
U078	1,1-Dichloroethylene
U080	Methane, dichloro-; Methylene chloride *
U105	2,4-Dinitrotoluene
U112	Ethyl Acetate
U113	Ethyl Acrylate
U115	Ethylene Oxide
U117	Ethyl Ether
U118	2-Propenoic acid, 2-methyl-, ethyl ester; Ethyl methacrylate *
U121	Methane, trichlorofluoro-; Trichloromonofluoromethane *
U122	Formaldehyde *
U127	Hexachlorobenzene
U128	Hexachlorobutadiene
U131	Hexachloroethane
U140	Isobutyl alcohol
U153	Methanethiol
U154	Methanol
U159	Methyl Ethyl Ketone
U161	Methyl Isobutyl Ketone
U162	2-Propenoic acid, 2-methyl-, methyl ester (I,T); Methyl methacrylate (I,T) *
U165	Naphthalene *
U169	Nitrobenzene
U171	2-Nitropropane
U188	Phenol
U194	1-Propanamine
U196	Pyradine *
U210	Ethene, tetrachloro-; Tetrachloroethylene *
U211	Carbon tetrachloride; Methane, tetrachloro- *
U213	Furan, tetrahydro- (I); Tetrahydrofuran (I) *
U220	Toluene
U226	Ethane, 1,1,1-trichloro-; Methyl chloroform *
U227	1,1,2-Trichloroethane; Ethane, 1,1,2-trichloro- *
U228	Ethene, trichloro-; Trichloroethylene *
U239	Xylene
U359	Ethanol, 2-ethoxy-; Ethylene glycol monoethyl ether *
208	Still Bottoms **
209	Oily Sludge, Petroleum Derived **
303	Combustible Chemicals, Non-Haz **
308	Spent Dyes **
310	Detergents, Cleaning Agents **
312	Pharmaceutical, Biological (Mfg and Lab Wastes) **
314	Alchols (Non-Haz) **
315	Solvents (Non-Aqueous, Non-Haz) **
316	Solvents (Aqueous, Non-Haz) **
317	Glycols/Antifreeze, Machine Coolants **
399	Other Chemical Wastes **
422	Oil/Water Emulsions, Oily Wastewaters **
450	Polymers (Other Than 407, 409) **

TABLE 2
WASTE CODE DESCRIPTIONS

474	Grease **
504	Paints (Liquid) **
509	Waste Oil that is not Hazardous Waste Oil (automotive, mchining, cutting, etc.) **
809	Spent Lubricant Waste (spent oil and gas drilling lubricants, spent plug drilling lubricants) **
899	Other Oil and Gas Wastes – all remaining oil and gas wastes other than those already covered under existing RWCs. Includes containment water. Does not include rainwater that is collected in a containment area that has not been mixed with residual waste. **

*Not a primary waste code, secondary waste contaminate characteristic or code only.

** Residual Waste Codes (RWCs) as identified by Pennsylvania. These are not hazardous. The list of RWCs does not preclude Keystone from requesting additional RWCs through the Form U process and not a permit modification per 25 Pa Code §270a.

Table 3
Keystone Cement Company
Bath, PA
WASTE ACCEPTANCE CRITERIA
SUMMARY OF ANALYTICAL METHODS AND SCREENING LIMITS

Parameter	Test Method[1]	Source	Keystone ID	Limits	Units
% Chloride	9253 (Mod)	SW846	RL.7	3.00	%
PCBs Screen	3620B (Mod)/8000B (Mod)/8082 (Mod)	SW846	RL.18, RL.19, RL.20	25.00	ppm
Btu/lb	5050 (Mod)/ E711 (Mod)	SW846/ASTM	RL.6	≥5000	Btu/lb
Peroxide	Manufacturers Specs	EM QUANT or Equiv.	RL.12	Not Present (<10)[3]	ppm
pH	9045C (Mod)	SW846	RL.14	>2.00 - <12.5	-
Compatibility[7]	D5058 (Mod)	ASTM	RL.9, RL.10, RL.11	Yes	-
Phases [4]	Visual Inspection	N/A	N/A	Consistent with Mod 1 [4]	Number of Phases
Iodine [5]	Keystone SOP	KCC Method	S-1	<2	%

[1] Changes to the analytical methods may be made via the Part IV Section F (SOP Modification) process. Updated methods will be incorporated consistent with the facility's laboratory accreditation.

[2] Keystone collects a sample every incoming shipment.

[3] On site screening level.

[4] The incoming shipment should not indicate a greater number of phases than indicated on the Mod 1 Form. In the event that there are a greater number of phases than indicated on the Mod 1 Form, the generator will be contacted to ensure that the additional phases do not represent a change in the waste or process generating the waste.

[5] Applies waste streams where there is discrepancy in the number of phases is identified during incoming shipment inspection procedures (i.e.- there are a greater number of phases than identified on the Module 1/Form U). Keystone will determine iodine content for any phase containing 25% or greater of the waste sample by volume and containing 75% or greater water content.

[7] Compatibility testing required for materials to be commingled in the facility tank farm and is not required for direct transfer materials.

Table 3.1
Keystone Cement Company
Bath, PA
PERIOD CONFIRMATION TESTING
SUMMARY OF ANALYTICAL METHODS AND MODULE 1 LIMITS

Parameter	Test Method	Source	Keystone ID	Limits [1]	Units
As	3051(Mod)/6010B (Mod) or 7061A (Mod)	SW846	RL.15, RL.16	1120 (combined)[1]	ppm
Be	3051(Mod)/6010B (Mod) or 7090	SW846	RL.15, RL.16		
Cr	3051(Mod)/6010B (Mod) or 7190	SW846	RL.15, RL.16		
Cd	3051(Mod)/6010B (Mod) or 7130	SW846	RL.15, RL.16	3500 (combined)[1]	ppm
Pb	3051(Mod)/6010B (Mod) or 7420	SW846	RL.15, RL.16		
Hg	3051(Mod)/3051A (Mod)/7470A (Mod)/ 7471 A (Mod)	SW846	RL.15, RL.17	10	ppm

[1] Metals testing is only required to be performed on every tenth shipment of waste from each generator. The periodic testing will be used to confirm that the waste stream metals concentrations remain below the limits detailed above.

TABLE 4
Keystone Cement Company
Bath, PA
KILN GENERATED WASTES-
SUMMARY OF ANALYTICAL METHODS

Material: Kiln Residue (CKD, Refractory Lining)

PARAMETER	REFERENCE METHODS[1]	SOURCE	RATIONALE	CRITERIA
TCLP Metals	1311(Mod)/3051(Mod)/6010B(Mod),7470A(Mod.) or 7000 series	SW-846	Regulatory	Note 2
TCLP Organics	1311(Mod)/8260/8270/8015/8260(Mod.)/8270(Mod.)	SW-846	Regulatory	Note 2

[1] Changes to the analytical methods may be made via the Part IV Section F (SOP Modification) process.

[2] CKD generated waste will be sampled in accordance with the CKD Sampling and Analysis Plan and the results will be assessed in accordance with the criteria detailed at 40 CFR Part 266.112(b)(1) or (2). Refrectory lining will be sampled and compred to the TCLP limits at 40 CFR 261.24.

Table 5
Incoming Shipment Discrepancy Review Criteria

Parameter	Discrepancy Criteria if Profile Lists a Range	Discrepancy Review if Profile Lists a Single Value [1]
Btu/lb	Any variance from Module 1 ranges requires discrepancy review	25% variance from Module 1 value requires discrepancy review
% Chloride	Any variance from Module 1 ranges requires discrepancy review	± 1% concentration of chloride variance from Module 1 value requires discrepancy review
pH	Any variance from Module 1 ranges requires discrepancy review	± 2.0 standard units variance from Module 1 value requires discrepancy review
Phases	Greater number of phases in the incoming shipment inspection versus the Module 1 requires discrepancy review. In the event that the incoming shipment inspection reveals a phase discrepancy, the facility must also implement the testing procedures detailed in SOP WF-02, Section II.B.3.	Greater number of phases in the incoming shipment inspection versus the Module 1 requires discrepancy review. In the event that the incoming shipment inspection reveals a phase discrepancy, the facility must also implement the testing procedures detailed in SOP WF-02, Section II.B.3.
Water Content	Any variance from Module 1 ranges requires discrepancy review	Either 25% variance (25% of the listed % water concentration from Module 1 water concentration value) or a variance of greater than 10% water from the listed Module 1 value, whichever is greater, requires discrepancy review

[1] Btu/lb and first water criterion "percent" variances represent variances expressed a percent of the listed Module 1 value. Chloride and the second water variance criteria represent a variance of 1% chloride concentration and 10% water concentration from the listed value.

FIGURES

FIGURE 1
KEYSTONE CEMENT COMPANY
GENERAL ACCEPTANCE PROCEDURES

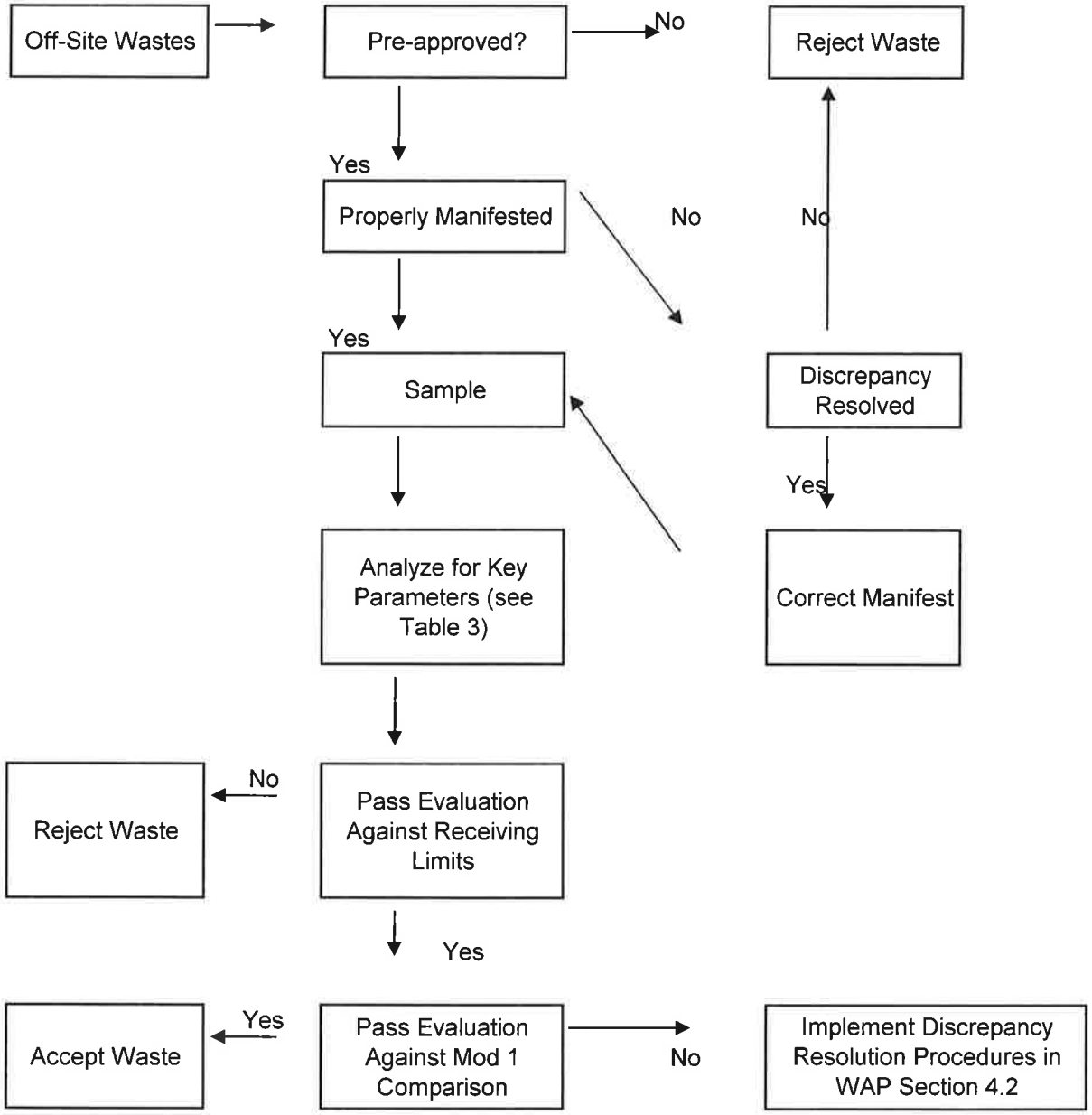

Figure 2
Keystone Cement Company
Incoming Shipment Discrepancy Resolution Document

SECTION 1: General information:

Generator: _____ EPA ID No.: _____
Manifest No: _____ Date Arrived: _____
Profile No.: _____

SECTION 2: Nature of Discrepancy:

Discrepancy Parameter(s) (See WAP Table 3): _____
_____
_____

Description of Discrepancy(ies): _____

_____

_____

Has same discrepancy occurred in excess of the threshold frequencies in WAP Section 4.2 (Y/N): _____

SECTION 3: Discrepancy Resolution:

Generator Contact: _____

Date/Time: _____/_____

Documentation of Discussion: _____

_____

_____

Discrepancy Resolution Method (Check one):

- Administrative Manifest Discrepancy,
  Manifest Revised and Waste Accepted (Attach Fax Copy): _____
- Generator Certifies That Process Generating Waste Has Not Changed
  Significantly (waste accepted w/no Mod 1 revision necessary): _____
- No Process Change, DEP Contacted, Mod 1 Revised, Waste Accepted: _____
- Process Change, Mod 1 Revised with DEP Approval, Waste Accepted: _____
- Process Change, DEP Required Complete Pre-qualification, Waste Rejected: _____
- Resolution Not Achieved, Waste Rejected: _____

Signature of Person Making Acceptance Determination:

_____ Date: _____

APPENDICES

APPENDIX A

EXAMPLE MODULE 1 APPLICATION

KEYSTONE CEMENT COMPANY

Bath, PA

MODULE 1/FORM U PROFILE PREQUALIFICATION FOR NEW WASTE STREAMS

Packet for Generators

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SECTION 1: LIST OF ITEMS REQUESTED BY KEYSTONE CEMENT COMPANY
LIST AND DESCRIPTION OF WASTE CODES ACCEPTED BY KEYSTONE

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SECTION 3: LABORATORY INFORMATION, SAMPLE SIZE AND CHAIN OF CUSTODY FORM

SECTION 4: MODULE 1 FORM AND INSTRUCTIONS | PADEP FORM 25R

SECTION 5: FORM U AND INSTRUCTIONS

SECTION 6: SAMPLE ANALYSIS REQUIREMENTS AND KEYSTONE CEMENT COMPANY'S WASTE ACCEPTANCE LIMITS

SECTION 7: KILN FUELS WASTE MATERIAL PROFILE FORM

SECTION 8: NOTIFICATION OF REGULATED WASTE ACTIVITY FORM

SECTION 9: LIST OF RELEVANT PAGES FROM PART A AND PART B PERMITS

SECTION 10: STATEMENT OF GOOD STANDING FORM

SECTION 11: DOCUMENT INTEGRITY CERTIFICATION FORM

SECTION 12: KEYSTONE CEMENT COMPANY CONTACTS AND ANNUAL RECERTIFICATION INFORMATION

REVISION HISTORY

Note to Generators: The forms included in this document are current as of noted revision date. New forms may have superseded those in this document. You may check the Pennsylvania Department of the Environment (PADEP) website for the latest version, or you may ask the Keystone Cement Company sales representative for assistance.

LIST OF ITEMS REQUESTED BY KEYSTONE CEMENT COMPANY LIST AND DESCRIPTION OF WASTE CODES ACCEPTED BY KEYSTONE

Dear Generator:

Keystone Cement Company accepts hazardous and residual waste liquid fuels in bulk tanker trucks only. Each bulk liquid waste stream must be approved by Keystone Cement Company and the Pennsylvania Department of Environmental Protection (PADEP). Hazardous waste streams require Module 1 forms to be completed; residual waste streams require Form U.

As part of the approval process, please send the items listed on the following page to Keystone Cement Company (except if indicated otherwise) at the following address:

Attn: Scott C. McGoldrick
Keystone Cement Company
P. O. Box A
Route 329
Bath, PA 18014-0058

Email: smcgoldrick@elementia.com
Ph: (610) 837-1881 ext. 3213
Fax: (610) 837-2267

This packet contains the forms, instructions and background information necessary to complete and submit the requested items. Approval is expected within 30 to 45 days from the time the complete information is received.

If you have any questions, please call Scott McGoldrick of Keystone Cement Company at (610) 837-1881, extension 3213.

Sincerely,

KEYSTONE CEMENT COMPANY

Items Required for Approval:

1. Representative Sample: Send **directly to the designated laboratory shown in Section 3** (sampling guidance provided in Section 2 and sample size in Section 3)

2. Chain-of-custody and Representative Sample Description Form: Send **original form to the designated laboratory and a copy to Keystone ECM** (sample chain of custody in Section 3)

3. PADEP Required Documentation:
   a. **Hazardous Waste Fuels**: PADEP Module 1 form with A.2, B.1, B.2.b, B.3, E and F; and PADEP Form 25R (Blank Mod 1 forms provided in Section 4) and required documentation

      OR

   b. **Residual Waste Fuels**: PADEP Form U with C, D.1, D.3, D.4 and F; completed PADEP Form 25R (Blank Form U provided in Section 5 and Blank Form 25R provided in Section 4) and required documentation

4. Generator's Absent Parameter Certification (Blank form provided in Section 6)

5. Kiln Fuels Waste Materials Profile (Blank form provided in Section 7)

6. Facility Regulated Waste Activity Information:
   a. **Regulated Generator**: EPA Identification Number obtained by completing and submitting the RCRA Subtitle C Site Identification Form [*Notification of Regulated Waste Activity* - EPA Form 8700-12]
   (Blank form provided in Section 8]

      OR

   b. **Regulated TSD Facility**: Relevant pages from RCRA Hazardous Waste Part A Permit Application (EPA Form 8700-23) and Part B permits (list of these pages provided in Section 9)

7. Statement of Good Standing Form (Blank form provided in Section 10)

8. Document Integrity Certification Form (Blank form provided in Section 11)

9. Benzene NESHAP Questionnaire (Blank form provided in Section 12)

WASTES APPROVED FOR USE AS FUEL AT KEYSTONE CEMENT COMPANY

Primary Waste Code Summary

D001	K022	K156	U112
D018	K023	K169	U113
D035	K025	K170	U115
F001	K026	U001	U117
F002	K028	U002	U140
F003	K035	U004	U153
F004	K036	U009	U154
F005	K048	U012	U159
K014	K049	U019	U161
K015	K050	U031	U169
K016	K051	U051	U171
K017	K052	U052	U188
K018	K083	U055	U194
K019	K086 *	U056	U220
K020	K087	U057	U239

* Solvent washings only

NOTE:

Each primary waste code listed above may contain secondary trace contaminants which exhibit hazardous waste characteristics identified in PA Code Title 25, Section 261 Subchapter C.

WASTE CODES and DESCRIPTIONS

Comprehensive Summary

D001	Ignitable waste
D004 *	Arsenic
D005 *	Barium
D006 *	Cadmium
D007 *	Chromium
D008 *	Lead
D009 *	Mercury
D010 *	Selenium
D011 *	Silver
D012 *	Endrin
D013 *	Lindane
D014 *	Methoxychlor
D015 *	Toxaphene
D016 *	2, 4-D
D017 *	2, 4, 5-TP (Silvex)
D018	Benzene
D019 *	Carbon tetrachloride
D020 *	Chlordane
D021 *	Chlorobenzene
D022 *	Chloroform
D023 *	o-Cresol
D024 *	m-Cresol
D025 *	p-Cresol
D026 *	Cresol
D027 *	1,4-Dichlorobenzene
D028 *	1,2-Dichloroethane
D029 *	1,1-Dichloroethylene
D030 *	2,4-Dinitrotoluene
D031 *	Heptachlor (and its epoxide)
D032 *	Hexachlorobenzene
D033 *	Hexachlorobutadiene
D034 *	Hexachloroethane
D035	Methyl ethyl ketone
D036 *	Nitrobenzene
D037 *	Pentachlorophenol
D038 *	Pyridine
D039 *	Tetrachloroethylene
D040 *	Trichloroethylene
D041 *	2,4,5-Trichlorophenol
D042 *	2,4,6-Trichlorophenol
D043 *	Vinyl chloride
F001	The following spent halogenated solvents used in degreasing: tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons; all spent solvent mixtures/blends used in degreasing containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

WASTE CODES and DESCRIPTIONS (continued)

F002	The following spent halogenated solvents: tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, orthodichlorobenzene, trichlorofluoromethane, and 1,1,2-trichloroethane; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those listed in F001, F004, or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
F003	The following spent non-halogenated solvents: xylene, acetone, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; all spent solvent mixtures/blends containing, before use, one or more of the above halogenated solvents and a total of ten percent or more (by volume) of one or more of those solvents listed in F001, F002, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
F004	The following spent non-halogenated solvents: cresols and cresylic acid, and nitrobenzene; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
F005	The following spent non-halogenated solvents: toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, and 2-nitropropane; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, or F004; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
K014	Bottoms from the acetonitrile purification column in the production of acrylonitrile
K015	Still bottoms from the distillation of benzyl chloride
K016	Heavy ends or distillation residues from the production of carbon tetrachloride
K017	Heavy ends (still bottoms) from the purification column in the production of epichlorohydrin
K018	Heavy ends from the fractionation column in ethyl chloride production
K019	Heavy ends from the distillation of ethylene dichloride in ethylene dichloride production
K020	Heavy ends from the distillation of vinyl chloride in vinyl chloride monomer production
K022	Distillation bottom tars from the production of phenol/acetone from cumene
K023	Distillation light ends from the production of phthalic anhydride from naphthalene
K025	Distillation bottoms from the production of nitrobenzene by the nitration of benzene
K026	Stripping still tails from the production of methyl ethylpyridines
K028	Spent catalyst from the hydrochlorinator reactor in the production of 1,1,1-trichloroethane
K035	Waste water treatment sludges generated in the production of creosote
K036	Still bottoms from toluene reclamation distillation in the production of disulfoton
K048	Dissolved air floatation (DAF) float from the petroleum refining industry
K049	Slop oil emulsion solids from the petroleum refining industry
K050	Heat exchanger bundle cleaning sludge from the petroleum refining industry
K051	API separator sludge from the petroleum refining industry
K052	Tank bottoms (leaded) from the petroleum refining industry
K083	Distillation bottoms from aniline extraction
K086	Solvent washes and sludges, or from cleaning tubs and equipment used in the formulation of ink from pigments, driers, soaps, and stabilizers containing chromium and lead
K087	Decanter tank tar sludge from coking operations
K156	Organic waste (including heavy ends, still bottoms, light ends, spent solvents, filtrates and decants)
K169	Crude oil storage tank sediment from petroleum refining operations

WASTE CODES and DESCRIPTIONS (continued)

K170	Clarified slurry oil storage tank separation solids from petroleum refining operations
U001	Acetaldehyde
U002	Acetone
U003 **	Acetonitrile
U004	Acetophenone
U009	Acrylonitrile
U012	Aniline
U019	Benzene
U031	1-Butanol
U037 **	Chlorobenzene
U043 **	Vinyl chloride
U044 **	Chloroform
U051	Creosote
U052	Cresols
U055	Cumene
U056	Cyclohexane
U057	Cyclohexanone
U070 **	o-Dichlorobenzene
U077 **	Ethylene dichloride
U080 **	Methylene chloride
U112	Ethyl acetate
U113	Ethyl acrylate
U115	Ethylene oxide
U117	Ethyl ether
U118 **	Ethyl methacrylate
U121 **	Trichloromonofluromethane
U122 **	Formaldehyde
U140	Isobutyl alcohol
U153	Methanethiol
U154	Methanol
U159	Methyl ethyl ketone
U161	Methyl isobutyl ketone
U162 **	Methyl ester; methyl methacrylate
U165 **	Napththalene
U169	Nitrobenzene
U171	2-Nitropropane
U188	Phenol
U194	1-Propanamine
U196 **	Pyridine
U210 **	Tetrachloroethylene
U211 **	Carbon tetrachloride
U213 **	Tetrahydrofuran
U220	Toluene
U226 **	Methyl chloroform
U227 **	1,1,2-Trichloroethane
U228 **	Trichloroethylene
U239	Xylene
U359 **	Ethylene glycol monoethyl ether

NOTES:

* Not a primary waste code, secondary waste contaminate characteristic only. Each primary hazardous code listed above may exhibit a noted secondary hazardous waste characteristic.

** These secondary waste codes may only be accepted at concentrations approved for each individual waste stream via the Module 1 Process, in addition to the general waste acceptance limit for chlorides.

HW DETERMINATION | GUIDANCE FOR REPRESENTATIVE SAMPLING

This section provides general discussion the hazardous waste determination process and associated reference to sampling and test methods in accordance with federal environmental protection standards. Obtaining accurate and representative analytical data that adequately defines the waste being offered for management by Keystone is of the utmost importance and will enable a more timely review of your material for the kiln fuels program. See Section 3 for sample size and sample chain of custody form information.

Excerpt from 40 CFR

§ 262.11: Hazardous waste determination.

A person who generates a solid waste, as defined in 40 CFR 261.2, must determine if that waste is a hazardous waste using the following method:

(a) He should first determine if the waste is excluded from regulation under 40 CFR 261.4.

(b) He must then determine if the waste is listed as a hazardous waste in subpart D of 40 CFR part 261.

NOTE: Even if the waste is listed, the generator still has an opportunity under 40 CFR 260.22 to demonstrate to the Administrator that the waste from his particular facility or operation is not a hazardous waste.

(c) For purposes of compliance with 40 CFR part 268, or if the waste is not listed in subpart D of 40 CFR part 261, the generator must then determine whether the waste is identified in subpart C of 40 CFR part 261 by either:

(1) Testing the waste according to the methods set forth in subpart C of 40 CFR part 261, or according to an equivalent method approved by the Administrator under 40 CFR 260.21; or

(2) Applying knowledge of the hazard characteristic of the waste in light of the materials or the processes used.

(d) If the waste is determined to be hazardous, the generator must refer to parts 261, 264, 265, 266, 268, and 273 of this chapter for possible exclusions or restrictions pertaining to management of the specific waste.[1]

Referenced Resources: [Information presented on next page or via specified hyperlink.]

1. 40 CFR 261 Appendix I – Representative Sampling Methods
2. Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods Please pay particular to the discussion presented in Part III Sampling | Chapter Nine – Sampling Plan.
3. Waste Analysis at Facilities that Generate, Treat, Store, and Dispose of Hazardous Waste: A Guidance Manual

[1] [45 FR 33142, May 19, 1980, as amended at 45 FR 76624, Nov. 19, 1980; 51 FR 40637, Nov. 7, 1986; 55 FR 22684, June 1, 1990; 56 FR 3877, Jan. 31, 1991; 60 FR 25541, May 11, 1995]

TITLE 40 - PROTECTION OF ENVIRONMENT

Part 261 - Identification and Listing of Hazardous Waste

Appendix I - Representative Sampling Methods

The methods and equipment used for sampling waste materials will vary with the form and consistency of the waste materials to be sampled. Samples collected using the sampling protocols listed below, for sampling waste with properties similar to the indicated materials, will be considered by the Agency to be representative of the waste.

Extremely viscous liquid—ASTM Standard D140–70 Crushed or powdered material—ASTM Standard D346–75 Soil or rock-like material—ASTM Standard D420–69 Soil-like material—ASTM Standard D1452–65

Fly Ash-like material—ASTM Standard D2234–76 [ASTM Standards are available from ASTM, 1916 Race St., Philadelphia, PA 19103]

Containerized liquid waste—"COLIWASA."

Liquid waste in pits, ponds, lagoons, and similar reservoirs—"Pond Sampler."

This manual also contains additional information on application of these protocols.

[45 FR 33119, May 19, 1980, as amended at 70 FR 34562, June 14, 2005]

Discussions of the above noted liquid waste sampling methods are available from the U.S. Environmental Protection Agency, Office of Solid Waste, Washington, DC 20460. Copies may be obtained from Solid Waste Information, U.S. Environmental Protection Agency, 26 W. St. Clair St., Cincinnati, Ohio 45268. Hyperlinks to the U.S. EPA SW-846 On-line website, including *Chapter Nine – Sampling Plan* are presented on the proceeding page.

These methods are also described in "Samplers and Sampling Procedures for Hazardous Waste Streams," EPA 600/2-80-018, January 1980.

LABORATORY INFORMATION, SAMPLE SIZE AND CHAIN OF CUSTODY FORM

This section continues the discussion presented in Section 2 – providing specific guidance on the submittal of waste samples to the laboratory used by Keystone to complete the analysis of your material for acceptance.

1. Please follow sampling container size and quantity requirements as detailed on page 2 of this Section. Complete the enclosed chain-of-custody form as instructed below and in accordance with the guidance of the laboratory.

2. Please label the representative samples with the following information:

   a. Date sampled

   b. Customer name: Keystone Cement Company

   c. Generator name

   d. Waste name

3. Please complete Chain of Custody and sign and date in "Relinquished By" section. Complete the lower section, 'Representative Sample Description", sign and date.

4. Please submit the representative samples and chain-of-custody to:

Attn: Marianne Whipkey
Environmental Laboratory Services
1135 Butler Avenue
New Castle, PA 16101

Email: mwhipkey@ELSlaboratories.com
Ph: (724) 652-5770
Fax: (724) 652-3814

5. Please submit a copy of the chain-of-custody to Keystone Cement Company.

ENVIRONMENTAL LABORATORY SERVICES, New Castle, PA | July 20, 2004

Keystone Cement Company Module 1 Analysis Requirements

For Hazardous Waste Fuels Prequalification (sorted according to test methods)

1. **Sampling**
   - 1 x quart glass jar for Physical & Chemical and Total Metals
   - 2 x 40 ml glass vials for Volatiles
   - 1 x 4 oz glass jar for Vapor Pressure
   - 1 x 4 oz glass jar for Semivolatiles (and Dioxins if needed)
   - 1 x 4 oz glass jar for Pesticides/Herbicides (if needed)
2. **Shipping**
   - According to D.O.T. requirements for hazardous materials

Physical & Chemical (17)
pH
Flash Point
Reactive Sulfide
Reactive Cyanide
Heat Value
TOX
PCBs
Viscosity
Total Solids
Total Volatile Solids
Settleable Solids
Vapor Pressure
Percent Water
Percent Chlorine
Peroxide
Specific Gravity
Ash

Total Metals (15)
Arsenic
Barium
Cadmium
Chromium
Lead
Mercury
Selenium
Silver
Copper
Nickel
Zinc
Antimony
Beryllium
Sulfur
Thallium

Volatiles (13)
Benzene
Carbon Tetrachloride
Chlorobenzene
Chloroform
1,4-dichlorobenzene
1,2-dichloroethane
1,1-dichloroethylene
Hexachloroethane
Methyl Ethyl Ketone
Nitrobenzene
Tetrachloroethylene
Trichloroethylene
Vinyl Chloride

Semivolatiles (11)
O-cresol
M-cresol
P-cresol
Cresol
2,4-dinitrotoluene
Hexachlorobenzene
Hexachlorobutadiene
Pentachlorophenol
Pyridine
2,4,5-trichlorophenol
2,4,6-trichlorophenol

Pesticides/herbicides * (8)
Chlordane
2,4-D
Endrin
Heptachlor
Lindane
Methoxychlor
Toxaphene
2,3,4-TP (Silvex)

Dioxins/furans **
Qualitative Scan

NOTES:
* These compounds will not be analyzed for if the generator has signed off that pesticides/herbicides are not present in the waste stream.
** If required, this will be a qualitative scan to determine if dioxins/furans are present. If present, actual concentrations will be estimates at best.

Analysis Request/Environmental Services Chain of Custody

Environmental Laboratory Services, Inc.

(See current form on next page)

Environmental Laboratory Services, Inc.
1135 Butler Avenue New Castle, PA 16101
Phone (724) 652-5770 Fax (724) 652-3814

ANALYSIS REQUEST/ENVIRONMENTAL SERVICES
CHAIN OF CUSTODY

Client: _____
Billing Address: _____
Project Name/#: _____
Project Manager: _____ P.O. #: _____

Sample Identification	Date Collect	Time Collect	Matrix: Grab	Composite	Soil	Water	Other	Total # Containers	Analysis Requested: Physical/Chemical	Total Metals	Volatiles	Semivolatiles	Pesticides/Herb	Dioxins/Furan					Remarks

Method of Shipment:
U.P.S.
Federal Express
E.L.S. Pick Up
Personal Delivery

Turnaround Time Requested: Normal Rush
(Rush TAT is subject to E.L.S. approval & surcharge)

Rush Results Requested By: _____

FAX Fax #: _____

PHONE Phone #: _____

Relinquished By:	Date	Time	Received By:	Date	Time
Relinquished By:	Date	Time	Received By:	Date	Time
Relinquished By:	Date	Time	Received By:	Date	Time
Relinquished By:	Date	Time	Received By:	Date	Time

Representative Sample Description 40 CFR 261 Appendix 1

Containerized Liquid Wastes – The USEPA approved sampling method used to obtain a representative sample of containerized liquid waste is the "coliwasa." All samples submitted for analysis of the waste stream described on the Keystone Profile Form and the Mod 1/Form U Application Form were obtained using the "coliwasa" sampling procedure described in "Test Methods for Evaluation of a Solid Waste, Physical and Chemical Methods."

Please describe the sampling method used to obtain the sample submitted for analysis if the sampling method used was not the "coliwasa" method.

_____

_____

I hereby certify that the sample submitted for analysis was obtained using the "coliwasa" method. If not, the method used is described above and is representative of the waste stream described on the profile form and the Mod 1/Form U:

Signature _____ Date _____

Title _____

MODULE 1 FORM AND INSTRUCTIONS | PADEP FORM 25R

This section details requirements applicable for the review and approval of **HAZARDOUS WASTE FUEL STREAMS ONLY**. Please complete the following PADEP documentation:

1. **PADEP Module 1 Form**

   a. Complete the following sections: A.2, B.1, B.2.b, B.3, E., and F.

   b. Attach: Confidentiality Claim (optional), Description of generation process, Schematic of the process, and Source Reduction Strategy – PADEP Form 25R

   The Generator (including TSDF) must provide certification as noted on page 3 – including required notary seal. Keystone will assist in the document review and certification by a professional engineer registered within the Commonwealth of Pennsylvania.

2. Instructions for Completing the Module 1

3. PADEP Form 25R – *Source Reduction Strategy (SRS)* | A generator who generates more than 1,000 kilograms of hazardous waste in any month of the year is required to prepare a SRS.

2510-PM-BWM0014 6/2005

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Coordination #

MODULE 1
REQUEST FOR APPROVAL TO TREAT, STORE, OR DISPOSE OF A HAZARDOUS WASTE STREAM

Before completing this form, read the step-by-step instructions provided with this form.

Application Fee

Check No. _____

Amount $ _____

DEP USE ONLY

Application or Facility ID# _____

Stamp Date Application Received

SECTION A. FACILITY AND GENERATOR INFORMATION (must be completed by TSD facility)

1. Treatment, Storage, or Disposal Site

   a. Name of Facility Keystone Cement Company

   Address Route 512, P.O. Box A, Bath, PA 18014-0058

   Municipality East Allen Township County Northampton

   b. Identification number | P | A | D | 0 | 0 | 2 | 3 | 8 | 9 | 5 | 5 | 9 | | |

   c. Hazardous waste permit number(s) for treatment, storage or disposal facility to be utilized

   PAD002389559

   d. Facility contact person

   Name Scott C. McGoldrick Title Manager, Environmental Compliance

   Telephone Number 610-837-1881 Ext. 3213

2. Generator of the Waste

   a. Name of company _____

   Mailing address _____

   Location of site if different from mailing address _____

   Municipality _____ County _____

   b. If a subsidiary, name of parent co. _____

   c. Identification number | | | | | | | | | | | | | | |

   d. Company contact person

   Name _____ Title _____

   Telephone Number _____

SECTION B. WASTE DESCRIPTION (Must be completed by generator)

1. General Properties

   a. pH range _____ to _____ (based on analyses or knowledge)

   b. Physical state:

      (1) ☐ liquid waste (EPA Method 9095)

      (2) ☐ solid (EPA Method 9095)

      (3) ☐ gas (ambient temperature and pressure)

   c. Physical appearance:

      Color _____ Odor _____

      Number of solid or liquid phases of separation _____

      Describe each phase of separation.

   d. U.S. DOT proper shipping name UN/NA number, and hazard class (if applicable):

   e. Typical volume of waste to be shipped to treatment, storage, or disposal facility:

      (1) Monthly _____ gal., tons, pounds (circle one)

      (2) Annually _____ gal., tons, pounds (circle one)

   f. Treatment or disposal frequency: _____ times per year; ☐ one time

   g. Current volume to be shipped to treatment, storage or disposal facility

      _____ gal., tons, pounds (circle one)

   h. Describe the hazardous waste according to its description and hazardous waste number in 25 Pa. Code 261a and 40 CFR Part 261.

2. Chemical Analyses – *Please attach the following:*

   a. The results of the analysis of the waste as described in the instructions.

   b. A description of the sampling method.

   c. The substantiation for a confidentiality claim, as described in the instructions, if portions of the information you have submitted are confidential.

3. Process Description and Schematic – *Please attach the following:*

   a. The substantiation for a confidentiality claim as described in the instructions, if portions of the information you have submitted are confidential.

   b. A detailed description of the manufacturing and/or pollution control processes producing the hazardous waste as specified in the instructions.

   c. A schematic of the manufacturing and/or pollution control processes producing the hazardous waste as specified in the instructions.

SECTION C. LINER COMPATIBILITY EVALUATION (must be completed by TSD facility, if applicable)

Attach the results of the liner compatibility evaluation or supporting data as specified in the instructions.

SECTION D. PROPOSED TREATMENT, STORAGE, AND/OR DISPOSAL METHOD

(Must be completed by TSD facility. Use additional sheets if necessary.)

1. Proposed Treatment Method
   Waste derived fuels are burned for energy recovery in the production of Portland Cement

2. Proposed Storage Method and Length of Storage
   Above ground storage tanks. Typical length of storage is 1 to 15 days.

3. Proposed Disposal Method
   Beneficial reuse as a supplemental fuel in a cement kiln.

SECTION E. ALTERNATIVES TO PROPOSED TREATMENT AND/OR DISPOSAL METHOD

(Must be completed by generator. Use additional sheets if necessary.)

1. What Other Treatment, Disposal, Recycle, Reuse, or Reclamation Method(s) Can be Used? Briefly describe viable alternatives to your proposal.

2. Why was the Treatment and/or Disposal Method in Section D Chosen?

SECTION F. SOURCE REDUCTION STRATEGY

(Form 25 R must be completed by generator and attached to this application as specified in the instructions.)

SECTION G. CERTIFICATION OF GENERATOR

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Name of Responsible Official _____ Title _____

Signature _____ Date _____

Taken, sworn, and subscribed before me, this _____ day of _____ A.D. 20_____

Notary Seal

_____

_____

SECTION H. CERTIFICATION OF REGISTERED PROFESSIONAL ENGINEER FOR THE TREATMENT, STORAGE, OR DISPOSAL FACILITY

This is to certify that I have personally reviewed all engineering information contained in the accompanying modules, drawings, specifications, and other documents which are part of this application and that I have found it to be of good engineering quality, true, and correct, and is in conformance with the requirements of the Department of Environmental Protection, and it does not, to the best of my knowledge, withhold information that is pertinent to a determination of compliance with the requirements of the Department.

NOTICE: It is an offense under Pennsylvania Crimes Code to affirm a false statement in documents submitted to the Department.

Name _____

Signature _____

Date _____

Address _____

_____

Phone No. _____

SEAL OF PA REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

INSTRUCTIONS FOR COMPLETING MODULE 1, REQUEST FOR APPROVAL TO TREAT, STORE, OR DISPOSE OF A HAZARDOUS WASTE STREAM

GENERAL INFORMATION

These instructions have been designed to assist the TSD facility and generator in completing Module 1 for a hazardous waste stream.

Read all instructions carefully before completing module and submit only one hazardous waste stream per module.

State Fee. Each Module 1 application must be accompanied by a nonrefundable fee of $300 in the form of a check payable to the "Commonwealth of Pennsylvania".

SECTION A. FACILITY AND GENERATOR INFORMATION

Self explanatory. This section must be completed by TSD facility.

SECTION B. WASTE DESCRIPTION

1. General Properties

c. Describe the color and odor of the waste. (This question is subjective.) For example, gray, solvent odor. Enter number of solid or liquid phases of separation and describe each phase. For example, 2 phases of separation, one solid and one liquid.

d. Provide the proper U.S.DOT shipping name, UN/NA number and hazard class for the waste stream. For example, solvents, waste, n.o.s. (toluene, MEK, butanol). UN 1998, flammable.

h. Describe the waste by its characteristic (40 CFR 261 Subpart C), the nonspecific or specific source lists (40 CFR 261.31 and 261.32), and/or the commercial chemical product or manufacturing chemical intermediate lists (40 CFR 261.33(e) and 261.33(f)). List all the reasons which cause the waste to be hazardous. For example, spent pickle liquor from steel finishing operations, K062, Corrosive (D002), and Toxicity Characteristic (D007).

2. Chemical Analyses

All analyses submitted must specify the method used and any special preparation, deviation from the method, or pertinent observations. A list of accepted methods is available from the Department. The Method of Standard Addition must be employed to take into account interferences in the matrix of the sample. See the current edition of EPA's ***Test Methods for Evaluating Solid Waste*** (SW-846) or ***Standard Methods for Examination of Water and Wastewater.***

The laboratory performing the analysis must employ the quality control procedures described in EPA's ***Test Methods for Evaluating Solid Waste*** (SW-846). The procedures and documentation of the quality control procedures must **be** available for inspection if requested by the Department.

Each analysis sheet must include: ***date of sampling, date of analysis, name of laboratory performing test,*** and ***laboratory contact person*** and ***phone number.*** Analytical determinations should be run on the samples as is, unless otherwise specified in the cited method. Report the analyses in mg/kg on a dry weight basis for solids or in mg/L for liquids, or as otherwise specified in cited method.

No single analytical method is applicable for all waste streams and some modifications may be necessary for unusual waste types. Any modifications, however, must be approved by the Department.

if the sample is of unknown origin or characteristics, contact the appropriate Department regional office prior to analysis.

a. The analysis must include the following list of parameters as specified by facility type unless the generator certifies in writing the absence of the parameter based on his or her knowledge of the manufacturing or pollution control processes:

(1) Parameters for All Facilities:
- i. pH
- ii. Ignitability
- iii. Reactive Sulfide
- iv. Reactive Cyanide
- v. Toxicity Characteristic Leaching Procedure (TCLP) - include all parameters found in 40 CFR 261.24 as well as pH of extract. Report all results in mg/L or as otherwise specified in method.

(2) Additional Parameters for Land Disposal Facilities:
- i. Additional TCLP parameters - copper, nickel, zinc.
- ii. Free Liquids
- iii. PCB's
- iv. Water Leaching Procedure (ASTM Method D3987-85) - COD, Total Solids, Oil and Grease or Petroleum Hydrocarbons, and Ammonia-Nitrogen. Report all results in mg/L or as otherwise specified in method.
- v. Total Solids
- vi. Total Volatile Solids

vii. Total Oil and Grease or Petroleum Hydrocarbons
viii. Any additional requirements required to demonstrate that the waste meets any applicable treatment standard required under 40 CFR 268 and 25 Pa. Code 268a.1.

(3) Additional Parameters for Incinerators, Energy Recovery Facilities and Fuel Blending Facilities:
i. Heat Value (BTU/lb)
ii. Total Organic Halides
iii. PCB's
iv. Viscosity (liquid wastes only)
v. Total Solids
vi. Total Volatile Solids
vii. Settleable Solids
viii. Vapor Pressure
ix. Percent Water
x. Total Analysis for each metal found in 40 CFR 261.24

(4) Additional Parameters for Treatment Facilities and Storage/Recycling Facilities:
i. Total analysis for the parameters found in 40 CFR 261.24.
ii. Total analysis for copper, nickel, zinc.
iii. Other parameters may be necessary due to the nature of the waste treatment/recycling and to comply with conditions of the facility permit.

(5) Additional Parameters for Storage Only Facilities may be necessary due to the nature of the waste and to comply with conditions of the facility permit.

(6) In addition, constituents which could impact the compatibility of residuals from waste with the treatment system, air quality, compatibility to other wastes managed at the facility, or induce harm to facility personnel should be identified and quantitated by the generator. The facility operator or the Department may also require the determination of additional parameters for these reasons.

b. Description of the sampling method - The procedures outlined in Appendix I to 40 CFR Part 261 must be followed when sampling waste streams.

3. Process Description and Schematic - Please attach to this module the following:

a. Confidentiality claim (if any) - Information submitted to the Department in this portion of the module may be claimed as confidential by the applicant. If no claim is made at the time of submission, the Department shall make the information available to the public without further notice.

Claim of confidentiality shall address the following:

(1) The portions of the information claimed to be confidential.

(2) The length of time the information is to remain confidential.

(3) The measures taken to guard undesired disclosure of the information to others.

(4) The extent the information has been disclosed to others and the precautions taken in connection with that disclosure.

(5) A copy of pertinent confidentiality determinations by EPA or any other federal agency.

(6) The nature of the substantial harm to the competitive position by disclosure of the information, the reasons it should be viewed as substantial, and the relationship between the disclosure and the harm.

b. Describe the manufacturing process which produced the waste and any pollution control methods involved. This must include the raw materials used in the process, any intermediate products formed, final products, and any substances added during treatment. For example:

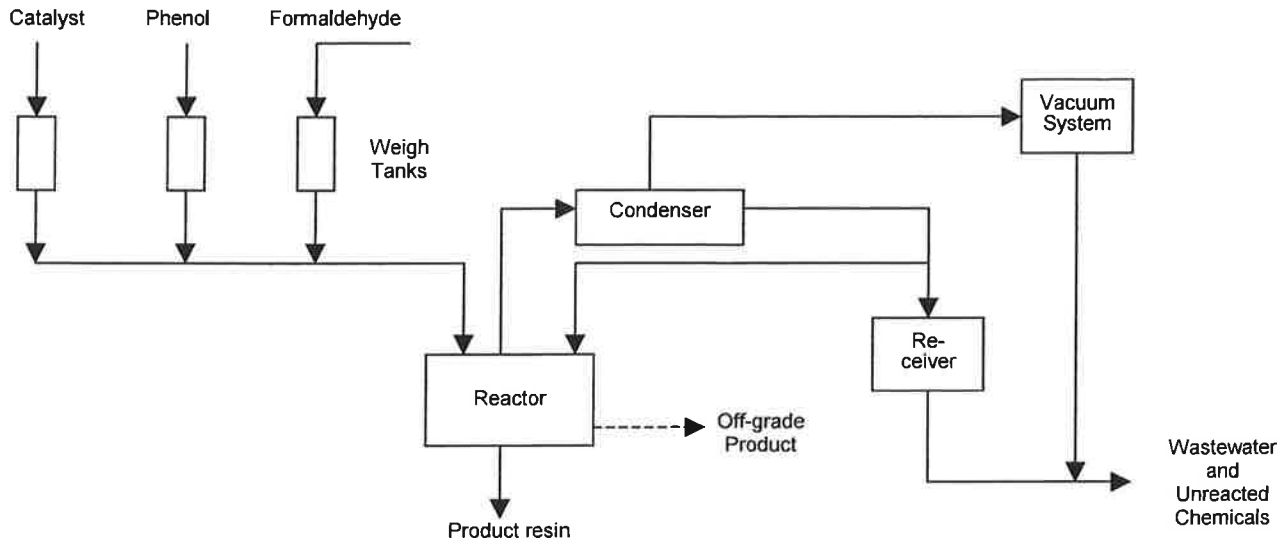
"Resol Resin Manufacture"

"These resins are formed by reacting phenol, or a substituted phenol with formaldehyde which contains an excess of formaldehyde. An alkali (sodium hydroxide) is used to catalyze the polymerization which takes place at a pH between 8 and 11 and at a temperature of 60°C."

"When the desired degree of polymerization has occurred, the kettle is cooled to about 35°C to inhibit further reaction. The caustic may be neutralized in the kettle with sulfuric acid at this time. The water from this distillation forms a concentrated waste of unreacted materials and low molecular weight resin."

"The batch is dumped, and depending on the specific resin, the batch may be washed several times and a vacuum may be used during the dehydration cycle. It is important that molten resin be handled quickly to avoid its setting up to an insoluble, infusible mass, which would become a waste."

c. Provide, on 8½ x 11" size paper, flow schematics of the manufacturing and/or pollution control processes generating the hazardous waste stream starting with the raw materials and ending with the final products. For example:



SECTION C. LINER COMPATIBILITY EVALUATION

Liner compatibility testing - any facility utilizing a liner must conduct an evaluation of the liner compatibility with the waste stream before accepting that waste stream for storage, treatment or disposal in a waste pile, surface impoundment, or landfill, unless the approval to accept the stream is granted in the facility's permit. The evaluation procedure must be approved by the Department prior to its commencement.

The test protocol will vary with the type of liner system and the characteristics of the waste stream. The Department should be contacted for appropriate test protocols. In lieu of actual testing, existing published or documented data on the hazardous waste or waste generated from similar processes proving the liner compatibility may be substituted in some instances.

SECTION D. PROPOSED TREATMENT, STORAGE, OR DISPOSAL METHOD

Use additional sheets of paper if necessary.

1. Proposed Treatment Method - If applicable, briefly describe the method proposed to treat this waste stream. For example, "Solvent removed from waste by solvent recovery apparatus to less than 1% solvent. Recovered solvent is sold to XYZ, Inc. for reclamation. Solids are polymerized and the remaining solvent is driven off by heat."

2. Proposed Storage Method -If applicable, briefly describe the method proposed to store this waste stream and the compatibility with its container, the waste pile liner, or the surface impoundment liner. For example, "Paint waste is placed into 55-gallon steel drums and is proposed to be stored at the XYZ Waste Disposal Company's storage building for 60 days prior to

processing. The paint waste is compatible with its container and the other wastes stored in the immediate vicinity. The proposed location for the paint waste within the building is indicated on the attached drawing."

3. Proposed Disposal Method - If applicable, briefly describe the method proposed to dispose of this waste stream. For example, "Polymerized solids are to be placed in a segregated cell of XYZ Waste Disposal Company with compatible wastes as indicated on the attached drawing. The cell is located at coordinates D-7. The cell design has been approved as part of the facility permit."

SECTION E. ALTERNATIVES TO PROPOSED TREATMENT AND/OR DISPOSAL METHOD

1. What Other Treatment, Disposal, Recycle, Reuse, or Reclaim Method(s) Can be Used? Briefly describe viable alternatives to your proposal.

2. Why was the Treatment, Storage, and/or Disposal Method in Section D Chosen? Briefly describe why the proposed method was chosen. For example, "The proposed method offers the most cost effective means of disposal over a 10 year period. Capital investment of solvent apparatus and polymerization equipment will be off-set by income from sale of recovered solvent and smaller volumes of waste to be disposed."

SECTION F. SOURCE REDUCTION STRATEGY

If the waste is from a generator that generates a total of at least 1,000 kilograms of hazardous waste in any month of the year, a copy of the generator's source reduction strategy must be attached. Prepare a source reduction strategy in accordance with PA DEP's *Source Reduction Strategy Manual* and 25 Pa. Code 262a.100(b).

SECTION G. CERTIFICATION OF GENERATOR

The Application Must be Certified in the Following Manner:

(1) Corporation - A corporate officer must sign the document and the corporate seal must be affixed.

(2) Limited partnerships - A general partner must sign the document.

(3) All other partnerships - A partner must sign the document.

(4) Sole proprietorships - The proprietor.

(5) Municipal, state, or federal authority or agency - An executive officer or ranking elected official responsible for compliance of the authority's or agency's hazardous waste activities and facilities with all applicable regulations.

SECTION H. CERTIFICATION OF REGISTERED PROFESSIONAL ENGINEER FOR TREATMENT, STORAGE, OR DISPOSAL FACILITY

Self explanatory.

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

FORM 25R
SOURCE REDUCTION STRATEGY

For Information contact 717-787-7381 (Residual Waste) or 717-787-6239 (Hazardous Waste). Related environmental information is available electronically via Internet. Access the DEP Web Site at http://www.dep.state.pa.us (choose: Information by Subject/Online Documents Warehouse/Permits and Authorization Packages/ Waste Management/Municipal and Residual Waste or Hazardous Waste)

This form provides guidance on the content and format of the written source reduction strategy (SRS). Supplemental guidance on the comprehensive process of analyzing the processes by which waste is generated and developing and evaluating source reduction options is available from the Department in a separate document, the "Source Reduction Strategy Instructions." The written SRS is intended to summarize the results of a comprehensive internal process of source reduction assessments and decisions. Generally, a separate SRS should be prepared for each type of waste stream generated. The strategy may be prepared on this form or prepared on separate paper using this format.

Source reduction is the reduction or elimination of the quantity or toxicity of residual waste before it is generated. Source reduction may be achieved through changes within the production process, including process modifications, feedstock substitutions, improvements in feedstock purity, shipping and packing modifications, housekeeping and management practices, increases in the efficiency of machinery, and recycling within a process. Please note that source reduction does not include dewatering, compaction, waste reclamation, or the use or reuse of waste. These activities, although they can result in environmental benefit, are of lower priority in the waste management hierarchy and should not be included in the SRS. These processing, use, and reclamation activities are encouraged through the permit-by-rule and beneficial use provisions of the residual waste regulations.

Residual Waste Requirements

A generator who generates more than an average of 2,200 lbs of all residual waste per generating location per month of the previous year is required to prepare a SRS.

Hazardous Waste Requirements

A generator who generates more than 1,000 kilograms of hazardous waste in any month of the year is required to prepare a SRS.

General Requirements

The SRS must be available on-site for inspection and must be submitted:
- with a Form U or Module 1 (for the disposal or processing of waste at a permitted site),
- with a permit application, or
- upon request by the department.

The SRS shall be updated when there is a significant change in the manufacturing process or every five years.

Regulatory References:

Hazardous Waste Regulations
§260a.10 (definition of "source reduction")
§262a.100 (source reduction strategy)
§264.73(b)(9) (Operating Record)
§262.23(a)(1) (Certification)

Residual Waste Regulations
§287.53 (duties of generators: source reduction strategy)
§287.1 (definition of "source reduction")
§287.52(b)(6) (biennial reports)
§287.133 (waste analysis: source reduction strategy)

Municipal Waste Regulations
§271.1 (definition of "source reduction")
§271.612 (Additional Application Requirements)

SRS Options:

1. If you have established a source reduction program and know what action you will take to reduce this waste stream then the general information and Sections A, B, and C should be completed.
2. If you are proposing to do nothing to reduce the quantity or toxicity of waste, then the general information and Sections A, B, and D should be completed.
3. If you have established a program but are still evaluating what you will do, you should complete the general information plus the applicable sections of A, B, C and D. You should present the ongoing source reduction evaluations which will lead to a completed strategy.

FORM 25R

SECTION A. APPLICANT IDENTIFIER

Applicant Name: _____

SECTION B. GENERAL INFORMATION

This section must be completed.

Generator: _____

Contact Person: _____

Phone Number: _____

Mailing Address: _____

_____

_____

_____

_____

Facility Address: _____

(if different from mailing address) _____

Facility SIC Code(s): _____

The information contained in this form is true and correct to the best of my knowledge and belief.

_____

Name of Responsible Official

_____

Signature of Responsible Official

_____

Date

1. Waste stream name and description: ☐ Residual waste ☐ Hazardous waste

2. Describe source reduction actions taken during the past five years. You should quantify any reduction in the weight or toxicity or waste and maintain records to document this reduction. This question is intended to give recognition for past source reduction achievements.

3. State whether you have established a source reduction program. You may include a statement of top management's support or corporate source reduction goals.

FORM 25R

SECTION C.

Complete this section if you have established a source reduction program and are proposing to take action to reduce the quantity or toxicity of this waste.

1. Describe the methods and procedures that you will use to achieve source reduction for this waste.

2. Quantify the projected reduction by weight or toxicity for each technique described in #1. You may use the method of measurement most appropriate for the waste and the generating process. Discussion of several measurement options is contained in the "Source Reduction Strategy Instructions."

3. Specify when each method or procedure described in #1 will be implemented.

Summary of Section C

method or procedure	expected reduction	implementation

FORM 25R

Section D.

Complete this section if you have not established a source reduction program for this waste stream, that is, if you are not proposing to take any action to reduce the quantity or toxicity of the waste.

1. Characterize the waste stream, including source, hazards, chemical analyses, properties, generation rate, management techniques and management costs.

2. Describe all the potential source reduction options that you have considered.

3. Describe in detail how each option was evaluated. Include the specific technical, economic, or other criteria that were used.

FORM 25R

Section D.

4. Explain why each option was not selected.

Summary of Section D

method or procedure	why not selected

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

INSTRUCTIONS FOR SOURCE REDUCTION STRATEGY FORM 25R

GENERAL INFORMATION

The Pennsylvania Department of Environmental Protection (DEP) regulations require generators of residual (25 Pa Code §287.53) and hazardous (25 Pa Code §262a.100) waste to prepare and implement a Source Reduction Strategy (SRS). Generally, the SRS must include the following:

1. A description of the source reduction achieved during the past five years, including a quantification of the results. This is intended to provide recognition for past achievements and provide a background for the activities planned for the future.

2. A statement that a source reduction program has been established. This may include a statement of corporate source reduction goals or of top management's commitment to implementing the program.

3. A description of what will be done to reduce waste, when the action will be done, and what amount of reduction is anticipated. This is intended to be a simple and direct representation of the results of the assessments made within the facility and the decisions reached regarding source reduction actions that will be taken.

If no source reduction action is proposed, the facility is required to submit detailed justification. This must demonstrate that a thorough internal investigation of source reduction opportunities has been completed. This information must include an extensive waste stream characterization, potential source reduction options considered, how each option was evaluated, and why each option was not selected. Sufficient detail must be provided to demonstrate the technical or economic barriers that prohibit reductions. The level of detail required to justify not participating in source reduction is substantially greater than preparing and implementing a source reduction plan.

Who must prepare the Source Reduction Strategy (SRS)?

The residual waste regulations require that anyone who generates an average of more than 2,200 pounds (1000 kg) of residual waste per generating location per month based on generation in the previous year must prepare a SRS (25 Pa Code §287.51(a)).

The hazardous waste regulations require those who generate more than 1000 kg (2,200 lbs) of hazardous waste in any month of the year to prepare a SRS (25 Pa Code §262a.100(e)).

When must the strategy be submitted to the Department?

The SRS must be available for inspection at any time and must be submitted to the Department upon request. The SRS must be submitted to the appropriate DEP regional office with any Form U (request to process or dispose of an industrial waste at a permitted facility) or Module 1 (request to process or dispose of hazardous waste). The SRS must also be submitted with any application for a permit to treat, process, or dispose of either residual or hazardous waste upon request of the facility.

How often must the strategy be updated?

The SRS must be updated every five years unless an alternate schedule is established in writing by the department. The SRS must also be updated any time there is a significant change in the type of waste generated or in the manufacturing process. The update should include the progress achieved during the past five years as well as plans for the next five years.

Is an SRS required for each waste stream?

Generally, a separate SRS is needed for each waste stream. In some cases, it is acceptable to combine several related waste streams that are generated through the same process where the source reduction actions are the same. For

example, one SRS could include plating sludge, spent plating bath solutions, and plating rinse water because they come from the same industrial process line and can be reduced by common means. Another example is in the generation of waste laboratory reagents removed via lab packs. Although there may be 200 different waste reagents, they can all be reduced through common means such as inventory control and a reagent exchange program. Therefore one SRS may be adequate for all 200 waste streams.

I have form 25R for preparing the residual waste SRS, but what form should I use for the hazardous waste SRS?

Form 25R should also be used for the hazardous waste SRS. Be sure to indicate whether the waste is hazardous or residual by checking the appropriate box in Item 1 on the first page (waste stream name and description).

Are research and development facilities exempt from the SRS requirement?

Under residual waste regulations, the department may waive requirements for the SRS at R&D facilities (25 Pa Code §287.53(f)). This would be done on a case-by-case basis if the facility can demonstrate why the SRS does not make sense. However, there may be many opportunities for SRS at these facilities. There is no such waiver available for hazardous waste generated at R&D facilities.

Are regular progress reports required?

Progress in achieving source reduction will be described as part of the biennial report for residual waste generators. Additionally, the SRS itself includes a description of past achievements.

Who can I contact if I have questions filling out Form 25R or desire additional information about source reduction for my industry?

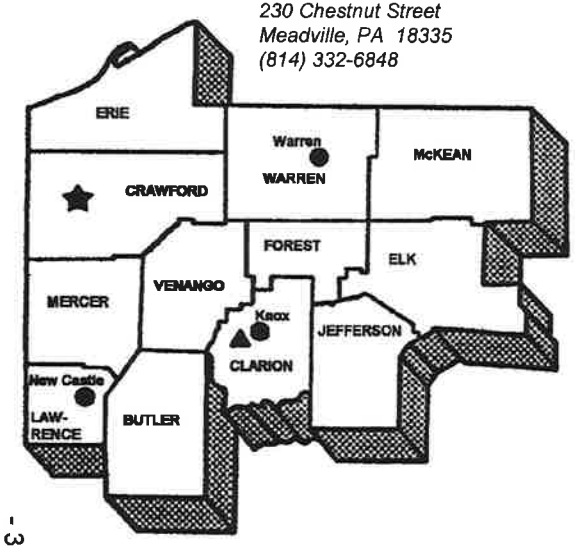
A list of phone numbers for reaching your SRS contacts is provided in Figure 1.

For questions on filling out Form 25R, call your regional SRS contact.

For source reduction technical assistance, call your Regional SRS contact or the Central Office, Hazardous Waste Minimization Program or visit http://www.depweb.state.pa.us/landrecwaste/cwp/view.asp?A=1242&Q=462262.

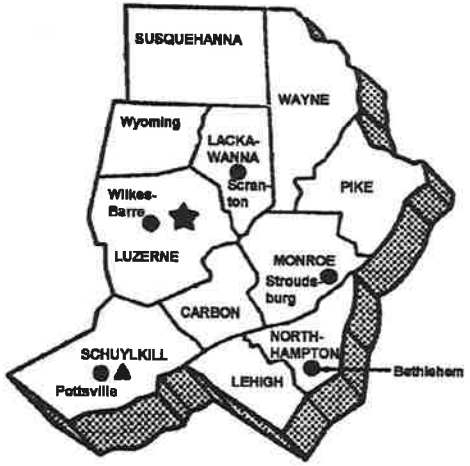
I IRE 1
Source Reduction and Strategy Contacts
Central Office Contacts

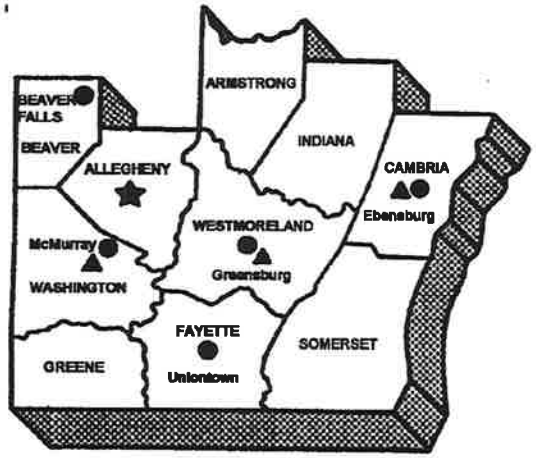
6 *NORTHWET REGION-*
WASTE MANAGEMENT
230 Chestnut Street
Meadville, PA 18335
(814) 332-6848

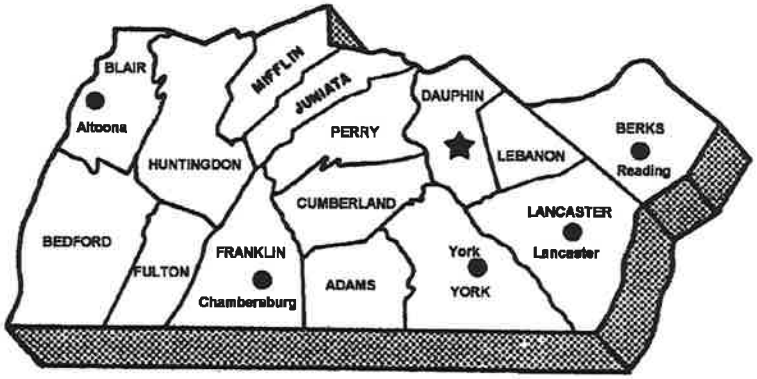


4 *NORTHCENTRAL REGION*
WASTE MANAGEMENT
208 West Third Street, Suite 101
Williamsport, PA 17701-8448
(570) 327-3651

2 *NORTHEAST REGION*
WASTE MANAGEMENT
2 Public Square
Wilkes-Barre, PA 18701-3298
(570) 826-5425







5 *SOUTHWEST REGION*
WASTE MANAGEMENT
400 Waterfront Drive
Pittsburgh, PA 15222
(412) 442-4120

3 *SOUTHCENTRAL REGION*
WASTE MANAGEMENT
909 Elmerton Avenue
Harrisburg, PA 17110
(717) 705-4706

1 *SOUTHEAST REGION*
WASTE MANAGEMENT
2 East Main Street
Norristown, PA 19401-5768
(484) 250-5768

REGULATIONS

The following regulations govern reporting requirements for the SRS program. The information is to be reported on Form 25R.

TITLE 25. ENVIRONMENTAL PROTECTION
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Chapter 260a to 270a
HAZARDOUS WASTE

§260a.1 Definitions.

A term defined in this section replaces the definition of the term in 40 CFR 260.10, or, in situations for which no term exists in 40 CFR 260.10, the term shall be defined in accordance with this section. The substitution of terms in §260a.3 (relating to terminology and citations related to Federal regulations) does not apply to the incorporated definition of "EPA region," "State," "United States," "Administrator" and "Regional Administrator."

Source reduction–The reduction or elimination of the quantity or toxicity of hazardous waste generated. Source reduction may be achieved through changes within the production process, including process modifications, feedstock substitutions, improvements in feedstock purity, shipping and packing modifications, housekeeping and management practices, increases in the efficiency of machinery, and recycling within a process. The term does not include dewatering, compaction, reclamation, treatment, or the use or reuse of waste.

§262a.100 Source Reduction Strategy.

(a) By January 17, 1994, a person or municipality that generates hazardous waste shall prepare a source reduction strategy in accordance with this section. Except as otherwise provided in this article, the strategy shall be signed by the person or municipality that generated the waste, be maintained on the premises where the waste is generated, be available on the premises for inspection by any representative of the Department and be submitted to the Department upon request. The strategy may designate certain production processes as confidential. This confidential information may not be made public without the expressed written consent of the generator. Unauthorized disclosure is subject to appropriate penalties as provided by law.

(b) For each type of waste generated, the strategy shall include:

(1) A description of the source reduction activities conducted by the person or municipality in the 5 years prior to the date that the strategy is required to be prepared. The description shall quantify reductions in the weight or toxicity of waste generated on the premises.

(2) A statement of whether the person or municipality has established a source reduction program. This program shall identify the methods and procedures that the person or municipality will implement to achieve a reduction in the weight or toxicity of waste generated on the premises, quantify the projected reduction in weight or toxicity of waste to be achieved by each method or procedure and specify when each method or procedure will be implemented.

(3) If the person or municipality has not established a source reduction program as described in paragraph (2), it shall develop a strategy including the following:

(i) A waste stream characterization, including source, hazards, chemical analyses, properties, generation rate, management techniques and management costs.

(ii) A description of potential source reduction options.

(iii) A description of how the options were evaluated.

(iv) An explanation of why each option was not selected.

(c) The strategy required by this section shall be updated when either of the following occurs:

(1) There is a significant change in a type of waste generated on the premises or in the manufacturing process, other than a change described in the strategy as a source reduction method.

(2) Every 5 years, unless the Department establishes, in writing, a different period for the person or municipality that generated the waste.

(d) If hazardous waste generated by a person or municipality will be treated, stored or disposed of at a solid waste management facility which has applied to the Department for approval to treat, store or dispose of the waste, the person or municipality that generated the hazardous waste shall submit the source reduction strategy required by this section to the facility upon the request of the facility.

(e) This section does not apply to persons or municipalities that generate a total of less than 1,000 kilograms of hazardous waste in each month of the year.

(f) A person or municipality that generates hazardous waste may reference existing documents it has prepared to meet other waste minimization requirements to comply with this section, including those proposed to comply with 40 CFR 261.41(a)(5)–(7) (relating to biennial report).

TITLE 25. ENVIRONMENTAL PROTECTION
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Chapter 287-299
RESIDUAL WASTE

§287.1 Definitions.

The following words and terms, when used in this article, have the following meaning, unless the context clearly indicates otherwise:

Source reduction–The reduction or elimination of the quantity or toxicity of residual waste generated which may be achieved through changes within the production process, including process modifications, feedstock substitutions, improvements in feedstock purity, shipping and packing modifications, housekeeping and management practices, increases in the efficiency of machinery, and recycling within a process. The term does not include dewatering, compaction, waste reclamation, or the use or reuse of waste.

§287.51 Scope.

(a) A person or municipality that generates more than an average of 2,200 pounds of residual waste per generating location per month based on generation in the previous year shall comply with the biennial report and source reduction strategy requirements under § § 287.52 and 287.53 (relating to biennial report; and source reduction strategy).

§287.52 Biennial Report.

(b)(6) A description of the generator's efforts to implement its source reduction strategy under §287.53 (relating to source reduction strategy) and, to the extent the information is available for years before 1991, a description of changes in the weight or toxicity of waste achieved during the year compared to previous years.

§287.53 Source Reduction Strategy.

(a) A person or municipality subject to this chapter shall prepare a source reduction strategy in accordance with this section. Except as otherwise provided in this article, the strategy shall be maintained on the premise where the waste is generated, shall be available on the premises for inspection by a representative of the Department and be submitted to the Department upon request.

(b) For each type of waste generated, the strategy shall include:

(1) A description of the source reduction activities conducted by the person or municipality in the 5 years prior to the date that the strategy is required to be prepared. The description shall quantify reductions in the weight or toxicity of waste generated on the premises.

(2) A statement of whether the person or municipality has established a source reduction program.

(3) If the person or municipality has not established a source reduction program as described in paragraph (2), the strategy shall identify the methods and procedures that the person or municipality will implement to achieve a reduction in the weight or toxicity of waste generated on the premises, quantify the projected reduction in weight or toxicity of waste to be achieved by each method or procedure and specify when each method or procedure will be implemented.

(4) If the person or municipality has not established a source reduction program as described in paragraph (2), the strategy shall include the following:

(i) A waste stream characterization, including source, hazards, chemical analyses, properties, generation rate, management techniques and management costs.

(ii) A description of potential source reduction options.

(iii) A description of how the options were evaluated.

(iv) An explanation of why each option was not selected.

(c) The strategy required by this section shall be updated when either of the following occurs:

(1) There is a significant change in a type of waste generated on the premises or in the manufacturing process, other than a change described in the strategy as a source reduction method.

(2) Every 5 years, unless the Department establishes, in writing, a different period for the person or municipality that generated the waste.

(d) If residual waste generated by a person or municipality will be processed or disposed of at a solid waste management facility which has applied to the Department for approval to process or dispose of the waste, the person or municipality that generated the residual waste shall submit the source reduction strategy required by this section to the facility upon the request of the facility. If residual waste generated by a person or municipality is processed or disposed of at a solid waste management facility which has received written approval from the Department to process or dispose of the waste, the person or municipality shall submit the source reduction strategy required by this section to the facility whenever the Department requires the person or municipality to update the strategy.

(e) The strategy shall be signed by a responsible official for the facility that generated the waste.

(f) The Department may in writing waive or modify the requirements of this section for research and development activities.

§287.133 Source Reduction Strategy.

An application for the processing or disposal of residual waste shall contain a copy of the source reduction strategy required by §287.53 (relating to source reduction strategy) for each residual waste to be received at the facility.

TITLE 25. ENVIRONMENTAL PROTECTION
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Chapter 271-285
MUNICIPAL WASTE

§271.1 Definitions.

The following words and terms, when used in this article, have the following meaning, unless the context clearly indicates otherwise:

Source reduction–The reduction or elimination of the quantity or toxicity of residual waste generated which may be achieved through changes within the production process, including process modifications, feedstock substitutions, improvements in feedstock purity, shipping and packing modifications, housekeeping and management practices, increases in the efficiency of machinery, and recycling within a process. The term does not include dewatering, compaction, waste reclamation, or the use or reuse of waste.

§271.612 Source Reduction Strategy.

An application for the processing or disposal of residual waste shall contain a copy of the source reduction strategy required by §287.53 (relating to source reduction strategy) for each residual waste to be received at the facility.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

RESIDUAL WASTE CODES (RWC)

COMBUSTION RESIDUES

001 Coal-Derived Bottom Ash
002 Coal-Derived Fly Ash
003 Flue Gas Desulfurization Residue (Fgd)
004 Incinerator Bottom Ash
005 Incinerator Fly Ash
006 Incinerator Mixed Ash
007 Other Ash

METALLURGICAL PROCESS RESIDUES

101 Foundry Sand
102 Slag
103 Refractory Material
104 Grindings, Shavings
105 Ferrous Baghouse Dust
106 Non-Ferrous Baghouse Dust
107 Ferrous Scrap, Including Auto Recycle
108 Non-Ferrous Scrap
109 Sandblast Abrasive And Residue
110 Air Emission Control Dust
111 Lubricating Soaps
112 Mill Scales, Heat Treat Scales
113 Dross, Skims

SLUDGES, SCALES

201 Water Treatment Plant Sludge/Sediment
203 Industrial Wastewater Treatment Sludge/Sediment Including Acid Mine Drainage Sludge
204 Metallurgical Sludge
205 Food Processing Sludge
206 Paint, Coating Sludge And Scale
207 Tank Bottoms
208 Still Bottoms
209 Oily Sludge, Petroleum Derived
210 Air Emission Control Sludge (excluding FGD Sludge and gypsum)
211 Other Industrial Sludge
212 Lime/Cement Kiln Scale, Residue
213 Lime-Stabilized Spent Pickle Liquor
214 Cooling Tower Sediment/Sludge
215 Flue Gas Desulfurization (FGD) sludge (including FGD gypsum)

CHEMICAL WASTES

(Wastewaters Containing Chemicals, Cleaning Agents, Detergents, etc. are reported as 420)

301 Acidic Chemicals (pH<6)
302 Basic Chemicals (pH>8)
303 Combustible Chemicals, Non-Haz
304 Chemical Salts
305 Spent Activated Carbon
306 Surface Coatings (Solid/Semi Solid Paints, Polishes, Adhesives, Inks, Cans Of Hardened Paint)
307 Filter Media/Aids (Diatomaceous Earth, Ion Exchange Resins, Silica Gels)
308 Spent Dyes
310 Detergents, Cleaning Agents
311 Off-Spec Products, Intermediates
312 Pharmaceutical, Biological (Mfg And Lab Wastes)
313 Wax, Paraffin
314 Alcohols (Non-Haz)
315 Solvents (Non-Aqueous, Non-Haz)
316 Solvents (Aqueous, Non-Haz)
317 Glycols/Antifreeze, Machine Coolants
318 Photographic Chemicals (Non-Haz)
320 Spent Plating Baths (Non-Haz)
399 Other Chemical Wastes

GENERIC MANUFACTURING WASTES

401 Leather Wastes
402 Rubber, Elastomer Wastes
403 Wood Wastes (Scrap Lumber, Pallets, Particle Board)
404 Paper, Laminated Paper, Cardboard
405 Textile Wastes (Yarn, Fabric, Fiber, Elastic)
406 Glass Waste (Cullet)
407 Polyethylene, Polystyrene, Polyurethane, Other Non-Halogenated Plastics
408 Glass Reinforced Plastic
409 PVC, Teflon, CPE, Other Halogenated Plastics
410 Electronic Component Wastes (Off-Spec Semiconductors, Circuit Boards)
411 Agricultural Wastes (Fertilizers, Pesticides, Feed, Feed Supplements)
412 Photographic Wastes (Film, Photographic Paper)

RESIDUAL WASTE CODES (RWC)

GENERIC MANUFACTURING WASTES (Continued)

413 Asphalt (Bituminous), Asphalt Shingles
414 Ceramic Waste
415 Linoleum Wastes
416 Thermal Insulation Wastes (Cellulose, Glass, Wool)
417 Wiring, Conduit, Electrical Insulation
418 Sawdust, Wood Shavings/Turnings
419 Empty Containers (Metallic, Non-Metallic Drums, Pails)
420 Process Wastewaters (Non-Haz) (Do Not Report Sanitary Sewage Or Uncontaminated Non-Contact Cooling Water)
421 Contaminated Non-Contact Cooling Waters
422 Oil/Water Emulsions, Oily Wastewaters
423 Landfill Leachate
424 Treated Wood, Railroad Ties
430 Food Waste (Excluding Wastewater Treatment Sludge)
440 Resins
450 Polymers (Other Than 407, 409)
460 Vinyl (Sheet, Upholstery)
470 Spent Filters (Air/Gas)
471 Spent Filters (Aqueous)
472 Spent Filters (Non-Haz Fuel, Oil, Solvent)
473 Paint Filters, Other Cloth/Paper Filters, Supersacs
474 Grease
480 Refractory (Furnace, Boiler) (Other Than 103)
481 Carbon/Graphite Residue/Scrap
482 Baghouse Dust (Other Than 105, 106)
483 Blasting Abrasive/Residue (Other Than 109)
484 Gypsum Plaster Molds, Drywall
499 Other Generic Waste

SPECIAL HANDLING WASTES

501 Asbestos Containing Waste (insulation, brake lining, etc.)
502 PCB containing waste
503 Oil Containing Waste (absorbant, rags)
504 Paints (Liquid)
505 Spent Catalysts
506 Contaminated Soil/Debris/Spill Residue (Non-petroleum) (Dredge Material, Water Intake Debris and Sediment, Coal Mill Rejects)
507 Waste Petroleum Material Contaminated Soil/Debris
508 Virgin Petroleum Fuel Contaminated Soil/Debris
509 Waste Oil That Is Not Hazardous Waste Oil (automotive, machining, cutting, etc.)
510 Waste Tires

INDUSTRIAL EQUIPMENT, MAINTENANCE WASTE/SCRAP

701 Pumps, Piping, Vessels, Instruments, Storage Tanks
702 Scrap From Maintenance And Product Turnaround
703 Batteries (Non-Haz)
704 Grinding Wheels, Sanding Disks, Polishing Belts, Welding Rods, Broken Tools
710 Plant Trash
799 Other Maintenance Waste

NON-COAL MINING, OIL AND GAS, AND OTHER WELL DRILLING WASTES

801 Drilling Fluids, Residuals (other than those under 802-810; includes drill cuttings from monitoring well and drinking water well construction)
802 Brine (natural salt water separated at oil and gas wells)
803 Drilling Fluid Waste (oil and gas drilling mud, other drilling fluids other than fracing fluid and spent lubricant)
804 Fracing Fluid Waste (oil and gas drilling fracturing fluid, flow-back fracturing fluid, flow-back fracturing sand)
807 Basic Sediment (oil and gas production storage impurities, sediment from produced oil at storage tank battery)
808 Servicing Fluid (oil and gas production well maintenance/work over fluids, oil/water-based mud and foam)
809 Spent Lubricant Waste (spent oil and gas drilling lubricants, spent plug drilling lubricants)
810 Drill Cuttings (oil and gas drill cuttings)

MISCELLANEOUS

901 Auto Shredder Fluff
902 Non-Hazardous Residue From Treatment Of Hazardous Waste (other than 203)
999 Other

DO NOT REPORT SANITARY SEWAGE OR UNCONTAMINATED NON-CONTACT COOLING WATERS.

DO NOT REPORT OFFICE, LUNCHROOM, RESTROOM WASTES

DO NOT REPORT CONSTRUCTION/DEMOLITION DEBRIS

FORM U AND INSTRUCTIONS | PADEP FORM 25R

This section details requirements applicable for the review and approval of **RESIDUAL WASTE FUEL STREAMS ONLY**. Please complete the following PADEP documentation:

1. PADEP Form U

    a. Complete the following sections: C, D, and F.

    b. Attach: Land Disposal Restrictions Certification (if applicable), Description of waste sampling method (if applicable), Confidentiality Claim (optional), Description of generation process, Schematic of the process, and Source Reduction Strategy – PADEP Form 25R

2. Instructions for Completing Form U

3. Residual Waste Codes Table | Residual waste is nonhazardous industrial waste. It includes waste material (solid, liquid or gas) produced by industrial, mining and agricultural operations. It excludes certain coal mining wastes and wastes from normal farming activities. Additional guidance / information regarding PADEP Residual Waste Generators may be found on the PADEP website.

4. PADEP Form 25R – *Source Reduction Strategy (SRS)* | A generator who generates more than an average of 2,200 lbs (i.e., 1,000 kilograms) of residual waste per generating location per month of the previous year is required to prepare a SRS. (See Section 4)

2540-PM-BWM0395 Rev. 8/2008
Form

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

FORM U
REQUEST TO PROCESS OR DISPOSE OF RESIDUAL WASTE

This form must be fully and accurately completed. All required information must be typed or legibly printed in the spaces provided. If additional space is necessary, identify each attached sheet as Form U, reference the item number and identify the date prepared. The date on attached sheets needs to match the date noted below.

DEP USE ONLY
Date Received & General Notes

Date Prepared/Revised

SECTION A. LANDFILL CLIENT (LANDFILL OR PROCESSING FACILITY OWNER) INFORMATION

DEP Client ID# **DEP Client Type / Code**

Organization Name or Registered Fictitious Name

SECTION B. LANDFILL SITE (LANDFILL OR PROCESSING FACILITY) INFORMATION

DEP Site ID# **Site Name** **Landfill Permit ID#**

Site Contact Last Name **First Name** **MI** **Suffix**

Site Contact Title **Site Contact Email Address**

SECTION C. GENERATOR CLIENT (GENERATOR OF THE WASTE) INFORMATION

Company Name **DEP Generator ID#**

Company Contact Last Name **First Name** **MI** **Suffix**

Company Mailing Address Line 1 **Company Mailing Address Line 2**

Company Address Last Line – City **State** **Zip+4** **Country**

Company Phone **Ext** **Company Email Address**

Company Contact Last Name **First Name** **MI** **Suffix**

Contact Phone **Ext** **Contact Email Address**

If a Subsidiary, Name of Parent Company

Is the waste generated at the Company Mailing Address (noted above)? ☐ Yes ☐ No
If 'No', describe location of waste generation and storage.

Township **County** **State**

SECTION D. WASTE DESCRIPTION

Residual Waste Code	Residual Waste Code Description	Amount	Unit of Measure	Time Frame
			☐ cu yd ☐ gal ☐ lb ☐ ton	☐ One Time

1. GENERAL PROPERTIES

a. **pH Range** to (based on analyses or knowledge)

b. **Physical State**
☐ Liquid Waste (EPA Method 9095)
☐ Solid (EPA Method 9095)
☐ Gas (ambient temperature & pressure)

c. **Physical Appearance** **Color** _____ **Odor** _____
Number of Solid or Liquid Phases of Separation _____
Describe each phase of separation.

d.	**Attached is information from the generator certifying that a hazardous waste determination has been done and that the waste is not hazardous waste as defined in 40 CFR 261, as incorporated by reference at 25 Pa. Code 261a.1.** **Caution: If 'No', the application form is incomplete.**	☐ Yes	☐ No	
e.	**Is the waste treated hazardous waste?** **If 'Yes', list the hazardous waste code(s) that apply to the hazardous waste before treatment.** **If 'Yes', what treatment option was selected?** **What limit was required to be met by the treatment option?**	☐ Yes	☐ No	
	Provided a copy of the certification required under 40 CFR 268.7(a), as incorporated by reference at 25 Pa. Code 268a.1, that the waste meets all the land disposal restriction requirements, as specified in 40 CFR Part 268, Subpart D (Land Disposal Restrictions-Treatment Standards).	☐ Yes	☐ No	
f.	**Has the waste been delisted as a hazardous waste by DEP or US EPA?**	☐ Yes	☐ No	☐ N/A
g.	**Has the waste been accepted for disposal/processing at another Pennsylvania facility?** **If 'Yes', list the facility permit ID number(s).**	☐ Yes	☐ No	
h.	**Has an application for disposal/processing of the waste at another Pennsylvania facility been submitted?** **If 'Yes', list the facility permit ID number(s).**	☐ Yes	☐ No	

2. Analysis Attachments

a.	**Has a detailed physical, chemical and radiological characterization of the waste and its leachate been conducted?** **If 'No', provide detailed explanation supporting use of generator knowledge in lieu of actual analysis.**	☐ Yes	☐ No	
	If 'Yes', attached is a description of the waste sampling methods in accordance with the waste sampling plan as required in §271.611(a)(3) or §287.132(a)(3) and the *Final Guidance Document on Radioactivity Monitoring at Solid Waste Processing and Disposal Facilities* (Document Number 250-3100-001).	☐ Yes	☐ No	
b.	**Laboratory Accreditation Number**			

3. Process Description & Schematic Attachments

a.	**Attached is a detailed description of the manufacturing and/or pollution control processes producing the waste.** **If 'No', provide explanation.**	☐ Yes	☐ No	
b.	**Attached is a schematic of the manufacturing and/or pollution control processes producing the waste.** **If 'No', provide explanation.**	☐ Yes	☐ No	
c.	**Attached is the substantiation for a confidentiality claim (if portions of the information submitted are confidential).**	☐ Yes	☐ No	☐ N/A

4. Chemical Analysis Waiver

Categories of residual wastes that qualify for the waiving of chemical analysis by the Department are listed below. Check the appropriate box(es) that match the waste proposed to be accepted for disposal.

- ☐ burnt demolition debris
- ☐ cured rubber scrap
- ☐ fabric/cloth/textile/leather wastes (excluding treatment sludges)
- ☐ food wastes (excluding treatment sludges)
- ☐ metal scrap (excluding powdered grindings or if contaminated with fluids or oils)
- ☐ shingle scrap
- ☐ waste plastic (excluding extrusion manufacturing & uncured resins)
- ☐ Other (explain)
- ☐ carpet scraps
- ☐ empty containers (uncontaminated)
- ☐ fiberglass insulation scrap
- ☐ hot drained used oil filters (non-terne plated)
- ☐ sawdust (excluding treated wood)
- ☐ waste paper
- ☐ wood wastes (excluding treated wood)

All waste types not listed above must be approved in writing in the permit by the Department prior to processing or disposal facility acceptance.

SECTION E. PROPOSED PROCESSING, STORAGE AND/OR DISPOSAL METHOD

Will any special handling procedures (besides direct disposal) described in the waste acceptance plan, be used when managing the waste? ☐ Yes ☐ No
If 'Yes', describe.

Is this material re-used for construction or operation of the facility? ☐ Yes ☐ No
If Yes', describe.

SECTION F. SOURCE REDUCTION STRATEGY

Form 25R must be completed by the generator and attached to this application unless waived in the instructions to that form.

Form 25R attached. ☐ Yes ☐ No ☐ Waived

SECTION G. CERTIFICATION OF PROCESSING OR DISPOSAL FACILITY

I hereby certify that the statements of fact contained therein are true and correct to the best of my knowledge, information and belief. This statement and verification is made subject to the penalties of 18 Pa. C.S.A. Section 4904, relating to un-sworn falsification to authorities.

Name of Responsible Official **Title**

Signature **Date**

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

FORM U
REQUEST TO PROCESS OR DISPOSE OF RESIDUAL WASTE
INSTRUCTIONS

GENERAL INFORMATION

To Obtain DEP Application Packages. To expedite the processing of the applicant's request, the Department of Environmental Protection (DEP) asks that you use the most up-to-date application package available. The most recent version of this package can be obtained by contacting the appropriate DEP office, or through our Web site noted below. This package, as well as other Department-wide and/or program-specific permit application form packages are available in Microsoft Word format at this same web location. Applicants can download the appropriate form to a personal computer, complete the form electronically, and print the document for submittal to the Department.

www.depweb.state.pa.us, keyword: Permits.

General Instructions. This package is designed to assist an *existing client with DEP* in completing the application form. Clients that do not currently exist with DEP should complete a Form R, Waste Analyses & Classification Plan. Please type or print clearly when completing the form. If information needed is more than space allows, attach additional sheets as necessary. If a question is not applicable to you or your application, write NA in the appropriate box.

A full application for this application package will consist of completion of this Form U application and submittal of all attachments noted in the application. Caution: Information from the generator certifying that a hazardous waste determination has been done and that the waste is not hazardous waste as defined in 40 CFR 261, as incorporated by reference at 25 Pa. Code 261a.1 must be attached to the submitted application for it to be considered complete.

Date Prepared/Revised. Provide the date the application was prepared and/or revised. When additional sheets are attached to include additional information, identify each attached sheet as Form U, reference the item number and identify the date prepared/revised.

DEFINITIONS

To provide the applicant with a better understanding of terminology, we are including the following definitions.

eFACTS (Environment, Facility, Application, Compliance Tracking System). The Department of Environmental Protection's electronic application system to document and maintain client, site and facility data for purposes of authorizing regulated activities and tracking compliance.

eNotice. DEP has developed a comprehensive environmental compliance information reporting system to give the public access to permitting and compliance information on individual facilities by program and by geographic area. This system is available by logging on to the DEP Web site and selecting eNOTICE.

Client (Responsible Party). A client (also referred to as Applicant) is a person or organization that requests approval from DEP to perform a regulated activity. Client information is documented and assigned an internal DEP Client ID# for tracking purposes.

For this particular application, there are two associated clients. One is the landfill owner and another is the generator of the waste.

Site (Place). A site is a physical location of importance to DEP. A site may include locations where a regulated facility is physically located or where a regulated activity occurs that has the potential to impact the health and safety of the citizens and/or the natural resources of the Commonwealth. A site is not solely defined by geographical location (can span several municipalities and even counties in some cases) but rather by the client/applicant's purpose of doing business. All DEP programs involvement at a physical location of importance to DEP is grouped under one 'entity' – site. This holistic view of site will promote an understanding of the interrelationships of facilities to support pollution prevention; multi-media inspections; a Department-wide view of compliance; and public understanding and access of information. Site information is documented and assigned an internal DEP Site ID# for tracking purposes.

For this particular application, the site is the landfill.

Site-to-Client Relationships. DEP will create internal records to relate (link) each site with all clients associated with the site and/or its facilities.

Authorization. Any DEP approval. For example: permits, plans, approvals, licenses, registrations, certifications, etc. Authorization information is documented and assigned an internal DEP Auth ID# for tracking purposes.

SECTION A.
LANDFILL CLIENT (LANDFILL OR PROCESSING FACILITY OWNER) INFORMATION

DEP Client ID#. A Department-wide unique identification number is assigned by DEP to the client after client information is entered into DEP's computer system (eFACTS). This one number identifies the client regardless of the program with which the client is working. This identification number will be identified on future correspondence from DEP as well as on client information available on our DEP Web site. When interacting with DEP, inclusion of this number will make it easier to process your request in a timely manner. If you know your Client ID#, enter it. If you are a new client to DEP, skip to the next request for information.

DEP Client Type Code. Enter the code that represents the type of client acting as the responsible authority for the permitted activity. The list of Client Type Codes can be found on the 'Codes Client Type' document included with this package and are also available on the DEP Web site under Department-wide General Information/Codes, Contacts & Maps.

Organization Name or Registered Fictitious Name. Clients must provide the name under which they conduct the activity or business in which the permit or other authorization will be issued.

SECTION B. LANDFILL SITE (LANDFILL OR PROCESSING FACILITY) INFORMATION

DEP Site ID#. A Department-wide unique identification number is assigned to the site after site information is entered into DEP's computer system (eFACTS). This one number identifies the site regardless of the program with which the applicant is working. This identification number will be identified on future correspondence from DEP as well as on site information available on our DEP Web site. When interacting with DEP, inclusion of this number will make it easier to process your application in a timely manner. If you know your Site ID#, enter it. If you are identifying a new site to DEP, skip to the next request for information.

Site Name. The name of the site (i.e., landfill) at the specific physical location. Do not use abbreviations, acronyms, etc.

Landfill Permit ID#. Provide the Landfill Permit ID number.

Site Contact Information. Provide the name of the person having overall responsibility for environmental matters at the site. Include the individual's name, title and email address.

SECTION C. GENERATOR CLIENT (GENERATOR OF THE WASTE) INFORMATION

Company Name. Identify the company name. The generator of the waste is a second client associated with this application (the first client being the landfill owner). Include the company's mailing address, phone number and email address. Provide the DEP Generator ID number.

Company Contact. Identify the company's contact and include the contact's phone number and email address.

Subsidiary/Parent Company. If the company identified is a subsidiary, identify the name of the parent company.

Waste Generation & Storage Location. If the waste generated is not at the company's mailing address, describe the location of the waste generation and storage; and provide the township, county, and state.

SECTION D. WASTE DESCRIPTION

Residual Waste. Enter the code that represents the type of residual waste. The list of Residual Waste Codes (RWC) can be found on the 'Codes Residual Waste' document included with this package. Also include the code's description, the amount of waste; the unit of measurement, and the timeframe for disposal/processing. If the timeframe is 'one time' check the box; if other than 'one time' provide the appropriate timeframe.

1. General Properties

a. **pH Range.** Indicate the pH range based on analyses or knowledge.

b. **Physical State.** Check appropriate box to indicate physical state.

c. **Physical Appearance.** Describe the color and odor of the waste. Enter the number of solid and/or liquid phases of separation and describe each phase. For example, two phases: one yellow oily liquid and one gray granular solid.

d. **Hazardous Waste Determination.** Check the appropriate box to indicate if information certifying that a hazardous waste determination has been done and the waste is not hazardous waste as defined in 40 CFR 261, as incorporated by reference at 25 Pa. Code 261a.1.

   Caution: Certification must be supplied with the submitted application in order for the application to be administratively and technically complete.

e. **Treated Hazardous Waste.** Check the appropriate box to indicate if the waste is treated hazardous waste. If 'Yes', list the hazardous waste code(s) that apply to the hazardous waste before treatment. If 'Yes', provide the selected option; and include what limit was required to be met by the treatment option. Check the appropriate box to indicate if you are providing a copy of the certification required under 40 CFR 268.7(a), as incorporated by reference at 25 Pa. Code 268a.1, that the waste meets all the land disposal restriction requirements, as specified in 40 CFR Part 268, Subpart D.

f. **Delisted Hazardous Waste.** Check the appropriate box to indicate if the waste has been de-listed as a hazardous waste by DEP or US EPA.

g. **Waste Accepted at Another PA Facility.** Check the appropriate box to indicate if the waste has been accepted for disposal/processing at another Pennsylvania facility. If 'Yes', list the Facility ID number(s).

h. **Application Submitted for Waste at Another PA Facility.** Check the appropriate box to indicate if an application for disposal/processing of the waste at another Pennsylvania facility has been submitted. If 'Yes', list the Facility ID number(s).

2. Analysis Attachments

a. **Physical & Chemical Characterization.** Check the appropriate box to indicate if a detailed physical and chemical characterization of the waste and its leachate has been conducted. If 'No', provide a detailed explanation supporting the use of generator knowledge in lieu of actual chemical analysis. If 'Yes', check the appropriate box to indicate if a description of the waste sampling method, in accordance with the waste sampling plan as required in §271.611(a)(3) or §287.132(a)(3), is attached.

At this time, the Department is waiving the chemical analysis required in this section for individual residual waste streams generated at a rate of **less** than 2,200 lbs. per month per generating location and are not destined for disposal at Class III residual waste landfills. At its discretion, the Department may decide this waiver is not appropriate for 'specific' waste streams and will notify the generator and/or facility that the chemical analysis of the waste stream is required. This waiver in no way affects the responsibility of the generator under 40 CFR 262.11, as incorporated by reference at 25 Pa. Code 262a.1, to determine whether or not the waste is hazardous waste.

The analytical methodologies used shall be those set forth in the most recent edition of the EPA's Test Methods for Evaluating Solid Waste (SW-846), Methods for Chemical Analysis of Water and Wastes (EPA 600/4-79-020), Standard Methods for the Examination of Water and Wastewater (prepared jointly by the American Public Health Association, American Water Works Association, and Water Environment Federation), or a comparable method subsequently approved by EPA or the Department.

The person taking the samples and the laboratory performing the analysis shall employ the quality assurance/quality control procedures described in the EPA's Test Methods for Evaluating Solid Waste (SW-846) or Handbook for Analytical Quality Control in Water and Wastewater Laboratories (EPA 600/4-79-019).

All analyses submitted must specify the method used and any special preparation, deviation from the method, or pertinent observations. Each analysis sheet must include: *date of sampling, date of analysis, name of laboratory performing test, laboratory accreditation number, laboratory contact person and phone number.* Analytical determinations should be run on the samples, as is, unless otherwise specified in the cited method. Report the analyses in mg/kg on a dry weight basis for solids or in mg/L for liquids, or as otherwise specified in cited method.

No single analytical method is applicable for all waste streams and some modifications may be necessary for unusual waste types. Any modifications, however, must be approved by the Department.

For contaminated soil, the top twelve inches of soil should be removed prior to sampling. Unless otherwise approved by the Department, a minimum of one sample shall be taken for every 250 cubic yards of contaminated soil. Field screening methods may be employed to reduce the number of samples required, provided by the screening method and if pre-approved by the Department. For samples used to determine volatile organics (VOCs), EPA Method 5035 shall be employed on grab samples. Composite sampling shall not be used to determine volatile organics. Attach a map of the spill or cleanup site including a diagram of the sample collection area.

If the sample is of unknown origin or characteristics, contact the appropriate Department regional office prior to analysis.

The analysis must include the following list of parameters as specified by facility type unless generator certifies in writing the absence of the parameter based on his or her knowledge of the manufacturing or pollution control processes:

- Parameters for all facilities:
  - pH
  - Ignitability
  - Reactive Sulfide
  - Reactive Cyanide
  - Toxicity Characteristic Leaching Procedure (TCLP) - include all parameters found in 40 CFR 261.24, as incorporated by reference at 25 Pa. Code 261a.1, as well as pH of extract. Report all results in mg/L or as otherwise specified in method.
- Additional parameters for Class I residual waste and municipal waste disposal facilities:
  - Additional TCLP parameters - copper, nickel, zinc
  - Free Liquids
  - PCBs
  - Water Leaching Procedure (ASTM) Method D3987) - COD, Total Solids, Oil and Grease or Petroleum Hydrocarbons, and Ammonia-Nitrogen. Report all results in mg/L or as otherwise specified in method.
  - Total Solids
  - Total Volatile Solids
  - Total Oil and Grease or Petroleum Hydrocarbons
  - For contaminated soil, TCLP results for other contaminants found in the soil. [Note: if an acidic extraction fluid is inappropriate for a particular parameter(s), a water leaching procedure (ASTM Method D3987) may be used.
- Additional parameters for Class II and Class III residual waste disposal facilities:
  - All additional parameters required for Class I facilities.
  - Additional TCLP parameters - iron, manganese.
  - Phenolics.
  - Additional Water Leaching Procedure parameters - chloride, cyanide, fluoride, nitrate, nitrite, sulfate, total organic halide.
- Other additional parameters for disposal facilities may be necessary due to the nature of the waste or conditions at the disposal facility. Constituents which could exceed the leachate limit for the class of facility, impact the liner, leachate treatment, air quality, compatibility to other wastes disposed at the facility, or induce harm to facility personnel should be identified and quantitated by generator. The facility operator or the Department may also require the determination of additional parameters for these reasons.
- The use of alternate leaching procedures for determining waste acceptability in monofills may be allowed by the Department.

- Additional parameters for processing facilities may be necessary due to the nature of the waste processing and to comply with conditions of the facility permit. In addition, constituents which could impact the process, compatibility of process residuals from waste with treatment system, air quality, compatibility to other wastes processed at the facility, or induce harm to facility personnel should be identified and quantitated by generator. The facility operator or the Department may also require the determination of additional parameters for these reasons.

- If the waste is known or suspected to have radioactivity above normal background levels for that material, the waste may need to be radiologically screened and modeled before disposal or processing. Contact the Regional Solid Waste Manager for additional guidance on analytical and other requirements.

b. Laboratory Accreditation Number. Also provide the Laboratory Accreditation Number.

3. Process Description & Schematic Attachments

a. Manufacturing and/or Pollution Control Processes. Check the appropriate box to indicate if a detailed description of the manufacturing and/or pollution control processes producing the waste is attached. If this documentation is not attached, provide an explanation as to why they are not attached.

- Describe the manufacturing process that produced the waste and any pollution control methods involved. This must include the raw materials used in the process, any intermediate products formed, final products, and any substances added during treatment. For non-hazardous waste, provide sufficient detail to demonstrate the waste is not a listed hazardous waste. For example:

  "Resol Resin Manufacture"

  "These resins are formed by reacting phenol, or a substituted phenol with formaldehyde which contains an excess of formaldehyde. An alkali (sodium hydroxide) is used to catalyze the polymerization which takes place at a pH of between 8 and 11 and at a temperature of 60°C."

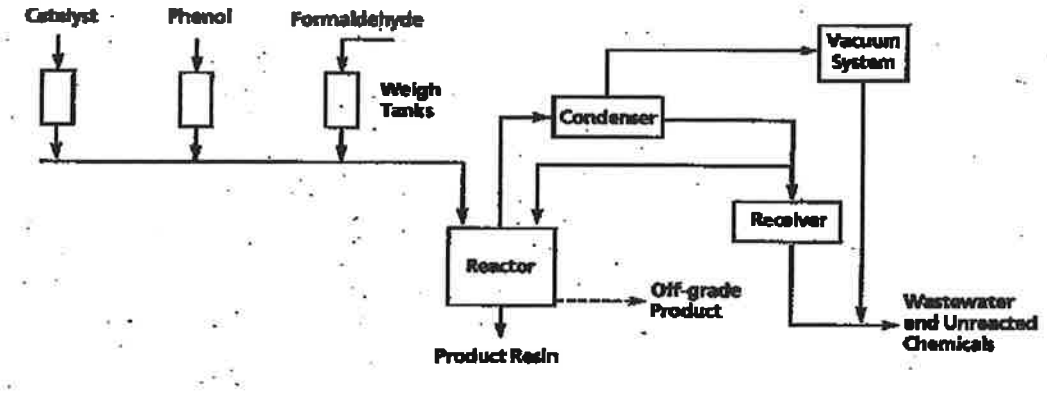
  "When the desired degree of polymerization has occurred, the kettle is cooled to about 35°C to inhibit further reaction. The caustic may be neutralized in the kettle with sulfuric acid at this time. The water from this distillation forms a concentrated waste of unreacted materials and low molecular weight resin."

  "The batch is dumped, and depending on the specific resin, the batch may be washed several times and a vacuum may be used during the dehydration cycle. It is important that molten resin be handled quickly to avoid its setting up to an insoluble, infusible mass which would become a waste."

- For contaminated soil, describe the source of the contamination and type of facility where spill occurred. If manufacturing, indicate the products and raw materials produced, used, or stored in the vicinity of the spill, discharge, or release. If a waste management facility, indicate the wastes processed, treated, disposed, or stored in the vicinity of the spill or release. If the source of contamination was from spills or release of virgin petroleum fuel only, use Form FC-1 instead of this form.

b. Schematic of Manufacturing and/or Pollution Control Processes. Check the appropriate box to indicate if a schematic of the manufacturing and/or pollution control processes producing the waste is attached.

Provide, on 8½ x 11" size paper, flow schematics of the manufacturing and/or pollution control processes generating the waste stream starting with the raw materials and ending with the final products. (See example below.)



c. **Confidentiality Claim.** Check the appropriate box to indicate if the substantiation for a confidentiality claim (if portions of the information submitted are confidential) is attached.

Information submitted to the Department in this portion of the form may be claimed as confidential by the applicant. If no claim is made at the time of submission, the Department shall make the information available to the public without further notice.

Claim of confidentiality shall address the following:

- The portions of the information claimed to be confidential.
- The length of time the information is to remain confidential.
- The measures taken to guard undesired disclosure of the information to others.
- The extent to which the information has been disclosed to others and the precautions taken in connection with that disclosure.
- A copy of pertinent confidentiality determinations by EPA or any other federal agency.
- The nature of the substantial harm to the competitive position by disclosure of the information, the reasons it should be viewed as substantial, and the relationship between the disclosure and the harm.

4. Chemical Analysis Waiver

Waiving of Chemical Analysis. Categories of residual wastes that qualify for the waiving of chemical analysis by the Department are listed on the form. Check the appropriate box(es) that match the waste proposed to be accepted for disposal. All waste types not listed on the form must be approved (in writing) in the permit by the Department prior to processing or disposal facility acceptance.

The Department may waive chemical analysis requirements for categories of residual wastes. Wastes which have the potential to be hazardous or may adversely impact liner system or leachate treatability do not qualify for this waiver.

Check the appropriate box(es) that matches the waste from the list provided. Typically, the qualifying residual wastes will include wood wastes, fabric/cloth/textile/leather wastes, waste paper, waste plastics, carpet wastes, etc.

In addition, other residual wastes may be considered and approved provided adequate documentation and justification are submitted to the Department by the processing or disposal facility operator and approved in the permit. A petition for such a waiver should include a demonstration to the Department's satisfaction, if additional analysis of a waste is not necessary, to determine that the waste can be received at the facility without adversely affecting the effectiveness of waste processing operations and established emission and wastewater discharge limits.

SECTION E. PROPOSED PROCESSING, STORAGE AND/OR DISPOSAL METHOD

Special Handling Procedures. Check the appropriate box to indicate if any special handling procedures (besides direct disposal) described in the waste acceptance plan will be used when managing the waste.

If 'Yes', briefly describe the method proposed to **process** this waste stream. For example, "Solvent removed from waste by solvent recovery apparatus to less than 1% solvent. Recovered solvent is sold to XYZ, Inc. for reclamation. Solids are polymerized and the remaining solvent is driven off by heat."

If 'Yes', briefly describe the method proposed to **store** this waste stream and its compatibility with the storage container, the waste pile liner, or the surface impoundment liner. For example, "Paint waste is placed into 55 gal. steel drums and is proposed to be stored at the XYZ Waste Disposal Company's storage building for 60 days prior to processing. The paint waste is compatible with its container and the other wastes stored in the immediate vicinity. The proposed location for the paint waste within the building is indicated on the attached drawing."

If 'Yes', briefly describe the method proposed to **dispose** of this waste stream. For example, "Polymerized solids are to be placed in a segregated cell of XYZ Waste Disposal Company with compatible wastes as indicated on the attached drawing. The cell is located at coordinates D-7. The cell design has been approved as part of the facility permit."

Material Re-Used. Check the appropriate box to indicate if this material is re-used for construction or operation of the facility. If 'Yes', briefly describe a viable alternative to your proposal.

SECTION F. SOURCE REDUCTION STRATEGY

Form 25R, Source Reduction Strategy. Form 25R must be completed by the generator and attached to this application unless waived in the instructions to that form. Check the appropriate box to indicate if a completed Form 25R is attached; or has been waived.

SECTION G. CERTIFICATION OF PROCESSING OR DISPOSAL FACILITY

The application must be certified in the following manner:

- *Corporation.* A corporate officer must sign the document and the corporate seal must be affixed.
- *Limited Partnerships.* A general partner must sign the document.
- *All Other Partnerships.* A partner must sign the document.
- *Sole Proprietorships.* The proprietor must sign the document.

- *Municipal, State, or Federal Authority or Agency.* An executive officer or ranking elected official responsible for compliance of the authority's or agency's waste activities and facilities with all applicable regulations must sign the document.

- The *general manager* or *chief operator* of the facility must sign the document.

APPLICANT'S CHECKLIST

To assure your application is complete, we are providing a convenient checklist of what may need to be attached to the application as well as who to contact for additional information. This checklist is optional and need not be returned with the completed application.

DEP OFFICES

Department-wide general information to assist the client with appropriate DEP contact information for regional, central, and district mining offices and the counties they serve can be found on the 'Contacts & DEP Offices' document included with this package. This information is also available on the DEP Web site under Department-wide General Information/Codes, Contacts & Maps.

SAMPLE ANALYSIS REQUIREMENTS AND KEYSTONE CEMENT COMPANY'S WASTE ACCEPTANCE LIMITS

1. **Sample Analysis Requirements Table** (hazardous and residual waste streams)

    a. Please indicate on the attached form which parameters are absent in the waste stream based on your knowledge of the manufacturing or pollution control processes (mark an X in the 'Certified Not Present' column).

    b. Please sign the form in the space provided.

Module 1 / Form U Sample Analysis Requirements
and
Keystone Cement Company's Waste Acceptance Limits

Generator's Absent Parameter Certification

Parameter	Check Certified Not Present	Test Result (Total Analysis/TCLP)	Toxicity Characteristic Regulatory Limit (TCLP)	Keystone Cement Waste Acceptance Limit (Total Analysis)
pH			>2.0, <12.5	>2.0, <12.5
Ignitability, Flash Point			>140° F	
Reactive sulfide			Not reactive	
Reactive cyanide			Not reactive	
Arsenic*			<5.00 mg/l	≤1,120 mg/kg (combined)
Beryllium			N/A	
Chromium*			<5.00 mg/l	
Barium*			<100.00 mg/l	
Benzene*			<0.50 mg/l	
Cadmium*			<1.00 mg/l	≤3,500 mg/kg (combined)
Lead*			<5.00 mg/l	
Carbon tetrachloride*			<0.50 mg/l	
Chlordane*			<0.03 mg/l	
Chlorobenzene*			<100 mg/l	
Chloroform*			<6.00 mg/l	
O-cresol*			<200.00 mg/l	
M-cresol*			<200.00 mg/l	
P-cresol*			<200.00 mg/l	
Cresol*			<200.00 mg/l	
2,4-D*			<10.00 mg/l	
1,4-dichlorobenzene*			<7.50 mg/l	
1,2-dichloroethane*			<0.50 mg/l	
1,1-dichloroethylene*			<0.70 mg/l	
2,4-dinitrotoluene*			<0.13 mg/l	
Endrin*			<0.02 mg/l	
Heptachlor*			<0.008 mg/l	
Hexachlorobenzene*			<0.13 mg/l	
Hexachlorobutadiene*			<0.50 mg/l	
Hexachloroethane*			<3.00 mg/l	
Lindane*			<0.40 mg/l	
Mercury*			<0.20 mg/l	≤10 mg/kg
Methoxychlor*			<10.0 mg/l	
Methyl ethyl ketone*			<200.00 mg/l	
Nitrobenzene*			<2.00 mg/l	
Pentachlorophenol*			<100.00 mg/l	
Pyridine*			<5.00 mg/l	
Selenium*			<1.00 mg/l	
Silver*			<5.00 mg/l	
Tetrachloroethylene*			<0.70 mg/l	
Toxaphene*			<0.50 mg/l	
Trichloroethylene*			<0.50 mg/l	
2,4,5-trichlorophenol*			<400.00 mg/l	
2,4,6-trichlorophenol*			<2.00 mg/l	
2,3,4-TP (Silvex)*			<1.00 mg/l	
Vinyl chloride*			<0.20 mg/l	
pH of extract*				
Copper*				
Zinc*				
Heat value				≥5,000 BTUs/lb
Total organic halides				
PCBs				Not present (a)
Viscosity @ 60° F				<7,000 cps
Viscosity @ 35° F				<12,000 cps

Module 1 / Form U Sample Analysis Requirements
and
Keystone Cement Company's Waste Acceptance Limits

Generator's Absent Parameter Certification

Parameter	Check Certified Not Present	Test Result (Total Analysis/TCLP)	Toxicity Characteristic Regulatory Limit (TCLP)	Keystone Cement Waste Acceptance Limit (Total Analysis)
Total solids				
Total volatile solids				
Settleable solids				
Vapor pressure				
Percent water				
Antimony				
Thallium				
Percent Chloride				≤3.00 %
Peroxide				Not present (b)
Specific gravity @ 60° F (±2)				0.600-1.200
Compatibility				Yes
Dioxins/furans (c)				Not present
Herbicides and Pesticides (d)				Not present

Notes:

Analysis is required for all parameters unless certified not present.

* Requires TCLP Analysis. Please note, where the waste contains less than 0.5 percent filterable solids, the waste itself, after filtering using using the methodology outlined in Method 1311, is considered to be the extract.

(a) Not present, Parameter should not be detected by analysis with a detection limit of 40 ppm

(b) Not present, Parameter should not be detected by analysis with a detection limit of 10 ppm

(c) Defined as in 40CFR 260.10: Dioxins and furans (D/F) means tetra, penta, hexa, hepta, and octa-chlorinated dibenzo dioxins and furans.

(d) Herbicides and Pesticides that are not acceptable at Keystone include tri-, tetra-, and pentachlorophenols (waste code F027); wastes from the production of certain pesticides such as chlordane (waste code K032); and P and U wastes defined in 40 CFR §261.33(e) and (f).

By signing below, I certify based on my knowledge of the manufacturing or pollution control processes, that the parameters indicated as Certified Not Present are absent from the waste stream under consideration. Therefore, analysis for these parameters is not necessary.

Signature

Printed (or typed) name and title

Date

KILN FUELS WASTE MATERIAL PROFILE FORM

1. **Kiln Fuels Waste Materials Profile Form**

    a. Complete the entire form – do not leave information blank.
    Circle the specific waste codes that are appropriate to the waste stream as characterized and for which you seek approval. Additional information may be required based on the scope/number of approved waste codes.

    b. Please attach Material Safety Data Sheets for the waste stream or components of the waste stream, if applicable.

Keystone Cement Company

KILN FUELS WASTE MATERIAL PROFILE FORM

PLEASE TYPE OR PRINT IN INK

Customer Number ____
Profile Number ____

Hazardous Fuel ☐ Non-Hazardous Fuel ☐ Recertification ☐
Check Appropriate Box

Sales Representative ____

A. GENERAL INFORMATION

1. Generator Name: ____
2. Generator USEPA ID: ____
3. Facility Address: ____
4. Generator State ID: ____
5. Zip Code: ____
6. Technical Contact: ____
7. Title: ____
8. Phone: ( ) ____-____

B. MAIL INVOICES TO

1. ☐ Generating Facility (A, above) or
2. Company Name: ____
3. Phone: ( ) ____-____
4. Facility Address: ____
5. Zip Code: ____
6. Business Contract: ____
7. Title: ____

C. 1. NAME OF WASTE ____

2. PROCESS GENERATING WASTE ____

D. PHYSICAL CHARACTERISTICS OF WASTE

Color:	2. Does the waste have a strong incidental odor?	3: Layers:	4. Specific Gravity Range:
____	☐ No ☐ Yes If known, describe: ____	☐ Multilayered ☐ Single Phased	____

5. ph: ☐ <2 ☐ 2-5 ☐ 5-9 ☐ 9-12.5 ☐ >12.5

6. BTUs/lb (1,000's) ☐ 8-10 ☐ 10-15 ☐ >15

7. Liquid Flash Point: ☐ <70° F ☐ 70-90° F ☐ 100-140° F ☐ >140-199° F ☐ ≥200° F ☐ None ☐ Closed Cup ☐ Open Cup

E. CHEMICAL COMPOSITION

1. LIST COMPOUNDS PRESENT (ATTACH ADDITIONAL SHEETS IF NECESSARY)

	CAS #	RANGE MIN. -	MAX.		RMP?
				%	☐
____	____	____	____	%	☐
____	____	____	____	%	☐
____	____	____	____	%	☐
____	____	____	____	%	☐
____	____	____	____	%	☐
____	____	____	____	%	☐
____	____	____	____	%	☐
____	____	____	____	%	☐
____	____	____	____	%	☐
____	____	____	____	%	☐
____	____	____	____	%	☐
		TOTAL:	____	%	☐

2. Indicate if the waste contains any of the following:
RMP Chemicals (listed in 40 CFR 68.130)* ☐ Yes ☐ No
PCBs ☐ Yes ☐ No ____
Reactive Cyanides ☐ Yes ☐ No ____
Reactive Sulfides ☐ Yes ☐ No ____
Pesticides/Herbicides (DO12-17, D020, D031) ☐Yes ☐No ____

ESTIMATED RANGE
Ash ____ %
____ Chlorine %
Sulfur ____ %
Na ____ %
K ____ %

F. OTHER HAZARDOUS CHARACTERISTICS

Indicate if this waste is any of the following:
- ☐ DIOXIN Listed Waste
- ☐ RCRA Reactive
- ☐ Water Reactive
- ☐ Explosive
- ☐ Shock Sensitive
- ☐ Pyrophoric
- ☐ Formaldehyde
- ☐ Radioactive
- ☐ Infectious
- ☐ Corrosive to Steel
- ☐ This Waste is Subject to NESHAPS (Benzene) Subpart FF
- ☐ Contains constituents which may evolve hazardous products of decomposition
- ☐ None of the above

If the waste subject to the land ban meets the Treatment standards, check here: ☐ and supply analytical results where applicable. Supply the Land Disposal Restriction form.

e waste contains any RMP chemical, please list the expected maximum concentration of each RMP chemical and check the RMP box in Section E.

☐ Additional Page(s) Attached

KILN FUELS WASTE MATERIAL PROFILE FORM (Continued)

Waste Profile Number _____

G. ADDITIONAL PROPERTIES

1. Is this waste a pumpable liquid? ☐ Yes ☐ No
2. Describe Viscosity: ☐ Low (Solvent) ☐ Medium (No. 2 Oil) ☐ High (No. 6 Oil)
3. Can this waste be heated to improve flow? ☐ Yes ☐ No
4. Is this waste soluble in water? ☐ Yes ☐ No
5. Particle Size: Will the solid portion of this waste pass through a 1/8 inch screen ☐ Yes ☐ No

H. TRANSPORTATION INFORMATION

1. Is this a DOT Hazardous Material? ☐ Yes ☐ No
2. Anticipated Annual Volume/Units _____
3. Proper Shipping Name: _____
4. Additional Description: (_____)
5. Hazard Class: _____
6. Packaging Group: _____
7. I.D. # _____
8. Method of shipment: ☐ Bulk truck ☐ Bulk Rail Car Other: _____
9. CERCLA Reportable Quantity (RQ): _____
10. RQ Units (lb./kg): _____
11. USEPA Hazardous Waste? ☐ Yes ☐ No
12. USEPA Hazardous Waste Number(s): _____
13. State Hazardous Waste? ☐ Yes ☐ No
14. State Hazardous Waste Number(s): _____
15. The following lists are approved hazardous waste code numbers that Keystone Cement Company is permitted to store and use as fuel. Circle which of the hazardous waste code numbers describes the waste detailed on this and all attached documents. A description of hazardous waste code numbers can be found in 25 Pa. Code 261a and 40 CFR Part 261.

ary Hazardous Waste Code Numbers:

D001	D018	D035	F001	F002	F003
F004	F005	K014	K015	K016	K017
K018	K019	K020	K022	K023	K025
K026	K028	K035	K036	K048	K049
K050	K051	K052	K083	K086 (Solvent washings only)	
K087	K156	K169	K170	U001	U002
U004	U009	U012	U019	U031	U051
U052	U055	U056	U057	U112	U113
U115	U117	U140	U153	U154	U169
U161	U169	U171	U188	U194	U220
U239					

Each primary hazardous waste code listed above may exhibit the following secondary hazardous waste code(s) for characteristics or commercial chemical products, manufacturing chemical intermediates, or off-specification commercial products.

Secondary Hazardous Waste Code Numbers:

D004	D005	D006	D007	D008	D009
D010	D011	D019	D021	D022	D023
D024	D025	D026	D027	D028	D029
D030	D032	D033	D034	D036	D038
D039	D040	D043	U003	U037	U043
U044	U070	U077	U080	U118	U121
U122	U162	U165	U196	U210	U211
U213	U226	U227	U228	U359	

These secondary U-coded wastes may only be accepted in accordance with the waste acceptance limit for chlorides found in Section J.

In addition to the secondary hazardous waste code numbers listed above, Keystone Cement Company is also permitted to store and use waste as fuel exhibiting the following Herbicide and Pesticide hazardous waste code numbers. Please note that a prolonged Module 1 application process and additional on-site waste screening will apply for wastes exhibiting any of the herbicide and pesticide hazardous waste code numbers listed below.

Secondary Herbicide and Pesticide Waste Code Numbers:*

[illegible]	D013	D014	D015	D016	D017
	D031	D037	D041	D042	

*If the waste derived fuel does not contain any of the listed herbicide and pesticide hazardous waste code numbers, the herbicide and pesticide certification must be completed in section K.

KILN FUELS WASTE MATERIAL PROFILE FORM (Continued)

Waste Profile Number _____

I. SPECIAL HANDLING INFORMATION

☐ Additional Page(s) Attached

J. KEYSTONE CEMENT COMPANY - WASTE DERIVED LIQUID FUEL ACCEPTANCE CRITERIA CERTIFICATION

Parameter	Acceptance Limit	Keystone Cement Lab ID	Test Method	Test Method[1]
% Chloride (Cl)	≤3.00%	RL. 7	SW846	9253 (Mod)
PCBs Screen[2]	Not Present	RL. 18, RL. 19, RL. 20	SW846	3620B (Mod) / 8000 (Mod) / 8082 (Mod)
Heat Content [Fuel Value]	≥ 5,000 Btu/Lb.	RL. 6	SW846 | ASTM	5050 (Mod) / E711 (MOD)
Peroxide	Not Present (<10 ppm)[3]	RL. 12	Manufacturer Specs	EM Quant. Strips [or equivalent]
pH	2.0 to 12.5 pH	RL. 14	SW846	9045C (Mod)
Viscosity (CPS)	< 7,000 cps @ 60°F ± 2°, 4/1-9/30 < 12,000 cps @ 35°F ± 2°, 10/1-3/31	RL. 13	Manufacturer Specs	Brookfield Viscometer [or equivalent]
Compatibility	Yes	RL. 9, RL. 10, RL. 11	ASTM	5058 (Mod)
Phases[4]	Consistent with Mod 1 Approval	Not Applicable	Visual Inspection	Number of Phases
Iodine[5]	< 2%	S-1	Keystone SOP	--
5.1 | Periodic Metals Confirmation Testing[6]				
Arsenic (As)	≤1,120 ppm (combined)	RL. 15, RL. 16	SW846	3051/6010B (Mod) or 7061A (Mod)
Beryllium (Be)				3051/6010B (Mod) or 7090
Chromium (Cr)				3051/6010B (Mod) or 7091
Cadmium (Cd)	≤3,500 ppm (combined)	RL. 15, RL. 16	SW846	3051/6010B (Mod) or 7130
Lead (Pb)				3051/6010B (Mod) or 7420
Mercury (Hg)	≤10 ppm	RL. 15, RL. 17	SW846	3051(Mod) / 3015A(Mod) 7470A(Mod) / 7471A(Mod)

NOTES:

(1) Changes to the analytical methods may be made via the Part IV Section F (SOP Modification) Process. Updated methods will be incorporated consistent with the facility's laboratory accreditation.

(2) PCBs will be screened at the facility with a maximum detection level of 40 ppm. Waste acceptance at pre-qualification (Module 1) represents "not present" as defined as "quantifiable levels of PCBs" at 40 CFR Part 761.3 (i.e., -2 ppm)

(3) On-site screening level.

(4) The incoming shipment should not indicate a greater number of phases than indicated on the Module 1 Form. In the event that there are a greater number of phases than indicated on the Mod 1, the generator will be contacted to ensure that the additional phases do not represent a change in the waste or process generating the waste.

(5) Applies to waste streams where there is a discrepancy in the number of phases identified during an incoming shipment inspection procedure (i.e., -there are a greater number of phases than identified in the Module 1/Form U). Keystone will determine iodine content for any phases containing 25% or greater of the waste sample by volume and containing 75% or greater water content.

(6) Metals testing is only required to be performed on every tenth shipment from each generator. The periodic testing will be used to confirm that the waste stream metals concentrations remain below the limits detailed above. However, the testing is not required to be performed prior to individual shipment acceptance and unloading.

K. GENERATOR'S CERTIFICATION

I herby certify that the information submitted in this and all attached documents provide a true and accurate description of this waste and satisfies all regulatory requirements. Any sample submitted is representative of the waste and has been obtained by a method defined in 40 CFR 261, Appendix I or by an equivalent method. All relevant information in my possession regarding known or suspected hazards has been disclosed. I certify waste derived liquid fuel shipped to Keystone Cement Company does not contain materials contaminated with PCBs, peroxides, and dioxin/furans, nor does it exhibit any hazardous waste code numbers not included in Section H. Furthermore, I have reviewed the waste derived fuel acceptance criteria for Keystone Cement Company, located in Section J, and I understand materials which do not meet the permit limits defined will not be accepted.

SIGNATURE _____ Printed (or typed) name and title _____ Date _____

I certify the waste derived liquid fuel shipped to Keystone Cement Company does not contain herbicides or pesticides identified as follows:

D012 – Endrin
D013 – Lindane
D014 – Methoxychlor
D015 – Toxaphene
D016 – 2,4 D
D017 – 2,4,5 TP Silvex

D020 - Chlorodane
D031 - Heptachlor
D037 - Pentachlorophenol
D041 – 2,4,5 Trichlorophenol
D042 – 2,4,6 Trichlorophenol

SIGNATURE _____ Printed (or typed) name and title _____ Date _____

NOTIFICATION OF REGULATED WASTE ACTIVITY FORM

1. **For Regulated Generators:** Provide proof that an EPA Identification Number has been secured for your facility. If not, obtain by completing and submitting the RCRA Subtitle C Site Identification Form [*Notification of Regulated Waste Activity* - EPA Form 8700-12]

    a. If needed, refer to the USEPA website for instructions and assistance with this form via the hyperlink above. A copy of the blank form is enclosed.

OMB# 2050-0024; Expires 12/31/2014

ID MPLETED RM TO: The Appropriate State or Regional Office.	United States Environmental Protection Agency **RCRA SUBTITLE C SITE IDENTIFICATION FORM**

1. Reason for Submittal MARK ALL BOX(ES) THAT APPLY	**Reason for Submittal:** ☐ To provide an Initial Notification (first time submitting site identification information / to obtain an EPA ID number for this location) ☐ To provide a Subsequent Notification (to update site identification information for this location) ☐ As a component of a First RCRA Hazardous Waste Part A Permit Application ☐ As a component of a Revised RCRA Hazardous Waste Part A Permit Application (Amendment #_____) ☐ As a component of the Hazardous Waste Report (If marked, see sub-bullet below) ☐ Site was a TSD facility and/or generator of ≥1,000 kg of hazardous waste, >1 kg of acute hazardous waste, or >100 kg of acute hazardous waste spill cleanup in one or more months of the report year (or State equivalent LQG regulations)
2. Site EPA ID Number	**EPA ID Number** |_|_|_|_|_|_|_|_|_|_|_|_|
3. Site Name	**Name:**
4. Site Location Information	**Street Address:** **City, Town, or Village:** / **County:** **State:** / **Country:** / **Zip Code:**
5. Site Land Type	☐ Private ☐ County ☐ District ☐ Federal ☐ Tribal ☐ Municipal ☐ State ☐ Other
NAICS Code(s) for the Site (at least 5-digit codes)	**A.** |_|_|_|_|_|_| **C.** |_|_|_|_|_|_| **B.** |_|_|_|_|_|_| **D.** |_|_|_|_|_|_|
7. Site Mailing Address	**Street or P.O. Box:** **City, Town, or Village:** **State:** / **Country:** / **Zip Code:**
8. Site Contact Person	**First Name:** / **MI:** / **Last:** **Title:** **Street or P.O. Box:** **City, Town or Village:** **State:** / **Country:** / **Zip Code:** **Email:** **Phone:** / **Ext.:** / **Fax:**
9. Legal Owner and Operator of the Site	**A. Name of Site's Legal Owner:** / **Date Became Owner:** **Owner Type:** ☐ Private ☐ County ☐ District ☐ Federal ☐ Tribal ☐ Municipal ☐ State ☐ Other **Street or P.O. Box:** **City, Town, or Village:** / **Phone:** **State:** / **Country:** / **Zip Code:** **B. Name of Site's Operator:** / **Date Became Operator:** **Operator Type:** ☐ Private ☐ County ☐ District ☐ Federal ☐ Tribal ☐ Municipal ☐ State ☐ Other

A ID Number | | | | | | | | | | | | OMB#: 2050-0024; Expires 12/31/2014

Type of Regulated Waste Activity (at your site)
Mark "Yes" or "No" for all current activities (as of the date submitting the form); complete any additional boxes as instructed.

A. Hazardous Waste Activities; Complete all parts 1-10.

Y☐ N☐ **1. Generator of Hazardous Waste**
If "Yes", mark only one of the following – a, b, or c.

☐ a. LQG: Generates, in any calendar month, 1,000 kg/mo (2,200 lbs./mo.) or more of hazardous waste; **or** Generates, in any calendar month, or accumulates at any time, more than 1 kg/mo (2.2 lbs./mo) of acute hazardous waste; **or** Generates, in any calendar month, **or** accumulates at any time, more than 100 kg/mo (220 lbs./mo) of acute hazardous spill cleanup material.

☐ b. SQG: 100 to 1,000 kg/mo (220 – 2,200 lbs./mo) of non-acute hazardous waste.

☐ c. CESQG: Less than 100 kg/mo (220 lbs./mo) of non-acute hazardous waste.

If "Yes" above, indicate other generator activities in 2-4.

Y☐ N☐ **2. Short-Term Generator** (generate from a short-term or one-time event and not from on-going processes). If "Yes", provide an explanation in the Comments section.

☐ N☐ **3. United States Importer of Hazardous Waste**

Y☐ N☐ **4. Mixed Waste (hazardous and radioactive) Generator**

Y☐ N☐ **5. Transporter of Hazardous Waste**
If "Yes", mark all that apply.

☐ a. Transporter

☐ b. Transfer Facility (at your site)

Y☐ N☐ **6. Treater, Storer, or Disposer of Hazardous Waste** Note: A hazardous waste Part B permit is required for these activities.

Y☐ N☐ **7. Recycler of Hazardous Waste**

Y☐ N☐ **8. Exempt Boiler and/or Industrial Furnace**
If "Yes", mark all that apply.

☐ a. Small Quantity On-site Burner Exemption

☐ b. Smelting, Melting, and Refining Furnace Exemption

Y☐ N☐ **9. Underground Injection Control**

Y☐ N☐ **10. Receives Hazardous Waste from Off-site**

B. Universal Waste Activities; Complete all parts 1-2.

Y☐ N☐ **1. Large Quantity Handler of Universal Waste (you accumulate 5,000 kg or more) [refer to your State regulations to determine what is regulated]. Indicate types of universal waste managed at your site. If "Yes", mark all that apply.**

a. Batteries ☐
b. Pesticides ☐
c. Mercury containing equipment ☐
d. Lamps ☐
e. Other (specify) _____ ☐
f. Other (specify) _____ ☐
g. Other (specify) _____ ☐

Y☐ N☐ **2. Destination Facility for Universal Waste**
Note: A hazardous waste permit may be required for this activity.

C. Used Oil Activities; Complete all parts 1-4.

Y☐ N☐ **1. Used Oil Transporter**
If "Yes", mark all that apply.

☐ a. Transporter

☐ b. Transfer Facility (at your site)

Y☐ N☐ **2. Used Oil Processor and/or Re-refiner**
If "Yes", mark all that apply.

☐ a. Processor

☐ b. Re-refiner

Y☐ N☐ **3. Off-Specification Used Oil Burner**

Y☐ N☐ **4. Used Oil Fuel Marketer**
If "Yes", mark all that apply.

☐ a. Marketer Who Directs Shipment of Off-Specification Used Oil to Off-Specification Used Oil Burner

☐ b. Marketer Who First Claims the Used Oil Meets the Specifications

Eligible Academic Entities with Laboratories—Notification for opting into or withdrawing from managing laboratory hazardous wastes pursuant to 40 CFR Part 262 Subpart K

❖ You can **ONLY** Opt into Subpart K if:

- you are at least one of the following: a college or university; a teaching hospital that is owned by or has a formal affiliation agreement with a college or university; or a non-profit research institute that is owned by or has a formal affiliation agreement with a college or university; AND
- you have checked with your State to determine if 40 CFR Part 262 Subpart K is effective in your state

Y☐ N☐ 1. Opting into or currently operating under 40 CFR Part 262 Subpart K for the management of hazardous wastes in laboratories **See the item-by-item instructions for definitions of types of eligible academic entities. Mark all that apply:**

☐ a. College or University

☐ b. Teaching Hospital that is owned by or has a formal written affiliation agreement with a college or university

☐ c. Non-profit Institute that is owned by or has a formal written affiliation agreement with a college or university

Y☐ N☐ 2. Withdrawing from 40 CFR Part 262 Subpart K for the management of hazardous wastes in laboratories

11. Description of Hazardous Waste

A. Waste Codes for Federally Regulated Hazardous Wastes. Please list the waste codes of the Federal hazardous wastes handled at your site. List them in the order they are presented in the regulations (e.g., D001, D003, F007, U112). Use an additional page if more spaces are needed.

B. Waste Codes for State-Regulated (i.e., non-Federal) Hazardous Wastes. Please list the waste codes of the State-Regulated hazardous wastes handled at your site. List them in the order they are presented in the regulations. Use an additional page if more spaces are needed.

12. Notification of Hazardous Secondary Material (HSM) Activity

Y☐ N☐ Are you notifying under 40 CFR 260.42 that you will begin managing, are managing, or will stop managing hazardous secondary material under 40 CFR 261.2(a)(2)(ii), 40 CFR 261.4(a)(23), (24), or (25)?

If "Yes", you must fill out the Addendum to the Site Identification Form: Notification for Managing Hazardous Secondary Material.

13. Comments

14. Certification. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations. For the RCRA Hazardous Waste Part A Permit Application, all owner(s) and operator(s) must sign (see 40 CFR 270.10(b) and 270.11).

Signature of legal owner, operator, or an authorized representative	Name and Official Title (type or print)	Date Signed (mm/dd/yyyy)

EPA ID Number | | | | | | | | | | | | OMB#: 2050-0024; Expires 12/31/2014

ADDENDUM TO THE SITE IDENTIFICATION FORM:
NOTIFICATION OF HAZARDOUS SECONDARY MATERIAL ACTIVITY

ONLY fill out this form if:

- You are located in a State that allows you to manage excluded hazardous secondary material (HSM) under 40 CFR 261.2(a)(2)(ii), 261.4(a)(23), (24), or (25) (or state equivalent). See http://www.epa.gov/epawaste/hazard/dsw/statespf.htm for a list of eligible states; **AND**
- You are or will be managing excluded HSM in compliance with 40 CFR 261.2(a)(2)(ii), 261.4(a)(23), (24), or (25) (or state equivalent) **or** you have stopped managing excluded HSM in compliance with the exclusion(s) and do not expect to manage any amount of excluded HSM under the exclusion(s) for at least one year. Do not include any information regarding your hazardous waste activities in this section.

1. Indicate reason for notification. Include dates where requested.

☐ Facility will begin managing excluded HSM as of _____ (mm/dd/yyyy).

☐ Facility is still managing excluded HSM/re-notifying as required by March 1 of each even-numbered year.

☐ Facility has stopped managing excluded HSM as of _____ (mm/dd/yyyy) and is notifying as required.

2. Description of excluded HSM activity. Please list the appropriate codes and quantities in **short tons** to describe your excluded HSM activity ONLY (do not include any information regarding your hazardous wastes). Use additional pages if more space is needed.

a. **Facility code** (answer using codes listed in the Code List section of the instructions)	b. **Waste code(s) for HSM**	c. **Estimated short tons of excluded HSM to be managed annually**	d. **Actual short tons of excluded HSM that was managed during the most recent odd-numbered year**	e. **Land-based unit code** (answer using codes listed in the Code List section of the instructions)

3. Facility has financial assurance pursuant to 40 CFR 261.4(a)(24)(vi). (Financial assurance is required for reclaimers and intermediate facilities managing excluded HSM under 40 CFR 261.4(a)(24) and (25))

☐ N☐ Does this facility have financial assurance pursuant to 40 CFR 261.4(a)(24)(vi)?

United States
Environmental Protection
Agency

December 2011

Notification of RCRA Subtitle C Activity

Instructions and Form

EPA Form 8700-12

(OMB #2050-0024; Expires 12/31/2014)

Office of Resource Conservation and Recovery (ORCR)
(5303P)
Washington, DC 20460

Notification of Subtitle C Activity
Instructions and Form

Section 3010 of Subtitle C of Resource Conservation and Recovery Act (RCRA) requires any person who generates, transports, or recycles regulated wastes or who owns or operates a facility for the treatment, storage, or disposal of regulated wastes to notify EPA of their activities, including the location and general description of the activities and the regulated wastes handled. Respondents must submit the information required in the Notification of Subtitle C Activity Instructions and Form booklet by completing the RCRA Subtitle C Site Identification Form [EPA Form 8700-12]. As required by statue, EPA promulgated regulations to implement these notification requirements at 40 CFR Parts 260, 261, 262, 263, 264, 265, 266, 270, 273, and 279. EPA needs this information to determine the universe of persons who generate, handle, and manage these regulated wastes; assign EPA Identification Numbers; and ensure that these regulated wastes are managed in a way that protects human health and the environment as required by RCRA. This is mandatory reporting by the respondents.

EPA enters notification information submitted by respondents into RCRAInfo, the EPA national database, and assigns EPA Identification Numbers. EPA uses this information to identify the universe of regulated waste generators, handlers, and managers and their specific regulated waste activities. EPA also uses the information for tracking and for a variety of enforcement and inspection purposes. Finally, EPA uses this information to ensure that regulated waste is managed properly, that statutory provisions are upheld, and that regulations are adhered to by facility owners or operators.

Section 3007(b) or RCRA and 40 CFR Part 2, Subpart B, which defines EPA's general policy on public disclosure of information, both contain provisions for confidentiality. However, the Agency does not anticipate that businesses will assert a claim of confidentiality covering all or part of the Notification or Subtitle C Activity. If such a claim were asserted, EPA must and will treat the information in accordance with the regulations cited above. EPA also will assure that this information collection complies with the Privacy Act of 1974 and OMB Circular 108.

Estimated Burden: The annual public reporting and recordkeeping burden for the Notification of Regulated Waste Activity is estimated to average 2 hours per response for the initial notification, and 1 hour per response for any subsequent notifications.

To comment on EPA 's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques, EPA has established a public docket for this ICR under Docket ID Number EPA-HQ-RCRA-2011-0280, which is available for online viewing at www.regulations.gov, or in person viewing at the RCRA Docket in the EPA Docket Center (EPA/DC), EPA West, Room B102, 1301 Constitution Avenue, NW, Washington, D.C. The EPA Docket Center Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Reading Room is (202) 566-1744, and the telephone number for the RCRA Docket is (202) 566-0270. An electronic version of the public docket is available at www.regulations.gov. This site can be used to submit or view public comments, access the index listing of the contents of the public docket, and to access those documents in the public docket that are available electronically. When in the system, select "search," then key in the Docket ID Number identified above. Also, you can send comments to the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street, NW, Washington, D.C. 20503, Attention: Desk Officer for EPA. Please include the EPA Docket ID Number EPA-HQ-RCRA-2011-0280 and OMB Control Number 2050-0024 in any correspondence.

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THE NOTIFICATION OF RCRA SUBTITLE C ACTIVITIES

Introduction

This booklet is designed to help you determine if you are subject to requirements under the *Resource Conservation and Recovery Act* (RCRA) for notifying the U.S. Environmental Protection Agency (EPA) of your regulated waste activities. Regulated wastes are hazardous wastes as defined by 40 CFR Part 261, universal wastes as defined by 40 CFR Part 263, and used oil as defined by 40 CFR Part 279. Furthermore, if you are managing hazardous secondary material under 40 CFR 261.2(a)(2)(ii), 40 CFR 261.4(a)(23), (24), or (25) you also must notify under 40 CFR 260.42 using the RCRA Subtitle C Site Identification Form and Addendum to the Site Identification Form. The instructions contained in this booklet will assist you in obtaining an EPA Identification Number by completing and submitting the RCRA Subtitle C Site Identification Form (Site ID Form) [EPA Form 8700-12] for Initial Notifications or in revising your Site ID Form if you are required to submit a Subsequent Notification. RCRA is a Federal law. If you are regulated but do not comply with the RCRA notification requirements, you may be subject to civil penalties.

NOTE	• Although this booklet contains information and instructions for completing a Notification of RCRA Subtitle C Activity, it should not be considered a substitute for the regulations in Title 40 of the Code of Federal Regulations (40 CFR). Rather, this booklet serves as a supplement to the regulations and provides additional information not contained in 40 CFR. As a handler of regulated wastes, you are responsible for learning and complying with all requirements that apply to you and your regulated waste activities. • In addition, remember that this booklet and the regulations in 40 CFR address only the Federal hazardous waste program. Many States may have notification requirements that differ from the Federal requirements; those States may use the Site ID Form or they may use a similar State form that requires information not requested in the EPA form. Again, it is your responsibility to make sure that you have completed and submitted all forms required under the Federal or your State program.

What's New

Below are a list of changes to the Notification of RCRA Subtitle C Activity Instructions and Forms.

1. **Revised wording of Box 10.D (Academic Labs) and the Addendum to the Site ID form (Hazardous Secondary Material)** Wording changes implemented to both the Site ID form and instructions to help minimize confusion for reporting under these rules.

2. **Clarified "Short-term Generator"** Added examples, further instruction, and a definition for short-term generator.

3. **Revised note for Treater, Storer, or Disposer of Hazardous Waste** The note under Box 10.A.6 in the Site ID form now reads "Note: A hazardous waste Part B permit is required for these activities."

Where To Get Help

We realize that the regulations are complex. Although we are not providing reprints of the 40 CFR regulations in this booklet, copies of the Federal regulations are available from EPA (see below). We have listed the addresses and phone numbers of the contacts in each State who can answer your questions and help you understand the Federal and State requirements that apply to you. This contact list is located at: http://www.epa.gov/osw/inforesources/data/form8700/contact.pdf.

In addition to these contacts, there are several other sources available to help with your questions and provide information on EPA regulations:

RCRA Frequently Asked Questions. This allows users to find answers to commonly asked questions that cover a wide range of RCRA issues and topics. Find at: http://waste.supportportal.com/ics/support/default.asp?deptID=23023.

RCRA Online. The RCRA Online database is designed to enable users to locate documents, including publications and other outreach materials that cover a wide range of RCRA issues and topics. Find at: http://www.epa.gov/rcraonline.

RCRA Regulations. The Federal regulations can be found at: http://www.gpo.gov/fdsys/.

Compliance Assistance Centers. The Environmental Protection Agency (EPA) has sponsored partnerships with industry, academic institutions, environmental groups, and other agencies to launch sector-specific Compliance Assistance Centers (Centers). Each Center addresses real world issues in understandable language for you to understand Federal environmental requirements and how to save money through pollution prevention techniques. Visit the Compliance Assistance Centers at: http://www.assistancecenters.net.

EPA National Compliance Assistance Clearinghouse. The Compliance Assistance Clearinghouse is a comprehensive source of compliance assistance information and resources. Use links to Federal, State, local, and other compliance assistance providers to find the tools you need. Visit the Compliance Assistance Clearinghouse at: http://www.epa.gov/compliance/assistance/index.html.

EPA Small Business Ombudsman Office – 1-800-368-5888.

Your Trade Association

Initial Notifications

If you do not currently have an EPA Identification Number and you handle regulated waste or hazardous secondary material, you must submit an initial notification. Please refer to information contained in pages 4-7 of this booklet to help you determine whether you handle a regulated waste, whether any exemptions or exclusions apply to you, and how you should file the Notification of RCRA Subtitle C Activity. Circumstances under which you should submit an initial notification include:

1. If you generate, transport, treat, store, or dispose of hazardous waste. Refer to pages 4-5 for further information and a description of exclusions or exemptions; or

2. If you recycle hazardous wastes. (Recyclable materials are defined as hazardous wastes that are recycled). The recycling process itself is exempt from regulation, but you must notify EPA and obtain an EPA Identification Number prior to recycling recyclable materials. Refer to pages 4-5 for further information and a description of exemptions; or

3. If you are a large quantity handler of universal waste. Refer to page 5 for further information and a description of exemptions. (Notification is required for people who have not previously notified EPA of their hazardous waste activities or who have not already sent a notification to EPA as required by 40 CFR Part 273.32); or

4. If you transport, process, or re-refine used oil; burn off-specification used oil for energy recovery; or market used oil. Refer to page 6 for further information and for a description of exemptions. (Notification is required for people who have not previously notified EPA of their hazardous waste activities or have not notified under 40 CFR Part 279 or under 40 CFR Part 266, Subpart E, which was replaced by 40 CFR Part 279.)

5. If you are an eligible academic entity opting into 40 CFR Part 262 Subpart K for managing laboratory hazardous wastes **AND** you have never before submitted site identification information, you must submit this form to notify the appropriate State or EPA Regional Office of your activities. Note: You <u>must</u> check with your State to determine if you are eligible to manage laboratory hazardous waste pursuant to 40 CFR Part 262 Subpart K in order for you to notify.

6. If you will begin managing hazardous secondary material under 40 CFR 261.2(a)(2)(ii), 40 CFR 261.4(a)(23), (24), or (25) you must submit this form, pursuant to 40 CFR 260.42, to notify the appropriate State or EPA Regional Office of your activities. Note: You <u>must</u> check with your State to determine if you are eligible to manage hazardous secondary material under these exclusions in order for you to notify.

7. If your business moves to another location and you are still conducting activities regulated under Subtitle C.

Subsequent Notifications

Even if you have submitted an initial notification and have received an EPA Identification Number, you may be required to submit a subsequent notification. Please refer to pages 4-8 of this booklet for information on when and how to complete a subsequent notification. In general, you should submit a subsequent notification under the following circumstances:

1. If the contact for your site changes.

2. If the ownership of your site changes.

3. If an additional owner has been added or replaced since you submitted your last notification.

4. If the type of RCRA Subtitle C activity you conduct changes.

5. If you have previously submitted site identification information and are an eligible academic entity opting into or withdrawing from 40 CFR Part 262 Subpart K for managing laboratory hazardous wastes, you must use this form. Note: You must check with your State to determine if you are eligible to manage laboratory hazardous waste pursuant to 40 CFR Part 262 Subpart K in order for you to notify.

6. If you are managing or will stop managing hazardous secondary material under 40 CFR 261.2(a)(2)(ii), 40 CFR 261.4(a)(23), (24), or (25), you are required to re-notify by March 1 of each even-numbered year pursuant to CFR 260.42.

DETERMINING IF YOU MUST NOTIFY

How to Determine if You Must Notify EPA of Your RCRA Subtitle C Activities

All persons who generate, transport, recycle, treat, store, or dispose of hazardous waste are required to notify EPA (or their State agency if the State is authorized to operate its own hazardous waste program) of their hazardous waste activities. Furthermore, if you are managing hazardous secondary material under 40 CFR 261.2(a)(2)(ii), 40 CFR 261.4(a)(23), (24), or (25) you also must notify using the RCRA Subtitle C Site Identification Form and Addendum to the Site Identification Form. These persons must obtain an EPA Identification Number unless their solid waste has been excluded from regulation or their hazardous waste has been exempted as outlined below. These respective notification requirements are found in 40 CFR Parts 260, 261, 262, 263, 264, 265, and 266.

In addition to the discussion below, you will need to refer to 40 CFR Part 261 to help you determine if the waste you handle is both a solid waste and a hazardous waste that is regulated under RCRA. If you need help making this determination after reading these instructions, contact the agency listed for your State. The list of contact names, addresses, telephone numbers, and e-mail address is located at: http://www.epa.gov/osw/inforesources/data/form8700/contact.pdf.

NOTE	Under the Hazardous Waste Import Regulations, 40 CFR Part 262.60, *foreign generators should not apply for an EPA Identification Number.* These regulations state that when filling out a U.S. manifest, you must include the name and address of the foreign generator, and the name, address, and EPA Identification Number of the importer. Please contact the U.S. firms involved with your shipments and determine which firm will serve as the U.S. Importer.

To determine if you handle a solid waste that is also a hazardous waste and regulated under RCRA, ask yourself the following questions:

A. Do I Handle a Solid Waste?
40 CFR 261.2 defines "solid waste" as any discarded material that is not excluded under Part 261.4(a) or that is not excluded by variance granted under Part 260.30 and 260.31. A discarded material is any material which is:

- Abandoned, as explained in Part 261.2(b); or
- Recycled, as explained in Part 261.2(c); or
- Considered inherently waste-like as explained in Part 261.2(d); or
- A military munition identified as a solid waste in Part 266.202.

B. Has My Solid Waste Been Excluded from the Regulations under Part 261.4?
The list of general exclusions can be found in 40 CFR 261.4. If the solid waste that you handle has been excluded, either by rule or special variance, then you do not need to notify EPA for that solid waste unless otherwise stated in the regulations. If your solid waste was

not excluded from regulation, you need to determine if it is a hazardous waste that EPA regulates. EPA regulates a solid waste as hazardous waste in two ways:

- By specifically listing the solid waste as a hazardous waste and assigning it a unique EPA Hazardous Waste Code Number; or

- By regulating it because it possesses any of four hazardous waste characteristics and assigning it a generic EPA Hazardous Waste Code Number.

C. Is My Solid Waste Specifically Listed as a Hazardous Waste?
Parts 261.30 through 261.33 identify certain solid wastes that EPA has specifically listed as hazardous. Persons who handle listed hazardous waste are subject to regulation and must notify EPA of their hazardous waste activities unless they are exempted as discussed below. Refer to these regulations to see if your solid waste is included as a "listed hazardous waste." If you are handling a newly regulated hazardous waste and have already notified EPA prior to that hazardous waste being regulated **and already have an EPA Identification Number**, you do not need to submit a subsequent notification for that newly regulated hazardous waste.

D. Does My Solid Waste Possess a Hazardous Characteristic?
Even if your solid waste is not specifically listed as a hazardous waste, it may still be hazardous because it exhibits certain hazardous characteristics. These characteristics are:

- Ignitability
- Corrosivity
- Reactivity
- Toxicity

Parts 261.20 through 261.24 explain each of the characteristics and outline the testing procedures you should use to determine if your solid waste meets these characteristics. Persons who handle characteristic hazardous waste that is regulated must notify EPA of their activities unless they are exempted, as discussed below. If you are handling a newly regulated hazardous waste and have already notified EPA prior to that hazardous waste being regulated **and already have an EPA Identification Number**, you do not need to submit a subsequent notification for that newly regulated hazardous waste.

E. Has My Hazardous Waste Been Exempted from the Regulations under Parts 261.5 and 261.6(a)(3)?
Parts 261.5 and 261.6(a)(3) list certain hazardous wastes that are not subject to RCRA regulation. If the hazardous waste that you handle has been exempted, then you do not need to notify EPA for that hazardous waste.

How to Determine if You Must Notify EPA of Your Universal Waste Activities

Under 40 CFR Part 273, Subpart C, Large Quantity Handlers of Universal Waste (LQHUW) who accumulate a total of 5,000 kilograms or more of universal wastes at any time are required to notify EPA (or their State agency if the State is authorized to operate its own universal waste program) of their universal waste activities and obtain an EPA Identification Number, unless they have previously notified EPA of their hazardous waste activities. Large Quantity Handlers of Universal Waste must notify EPA of their universal waste activities and obtain an EPA Identification Number before meeting or exceeding the

5,000 kilogram storage limit. Small Quantity Handlers of Universal Waste are exempt from these notification requirements.

NOTE	Please refer to the regulations in 40 CFR Part 273 to ensure that you are aware of all the requirements that apply to your universal waste handling activities.

How to Determine if You Must Notify EPA of Your Used Oil Management Activities

Under 40 CFR Part 279, Subparts E, F, G, and H, respectively, persons who transport used oil; process or re-refine used oil; burn off-specification used oil for energy recovery; or market used oil fuel, are required to notify EPA (or their State agency if the State is authorized to operate its own used oil program) and obtain an EPA Identification Number, unless they are exempt as outlined below. Off-specification used oil may be burned for energy recovery in an industrial furnace, boiler, or hazardous waste incinerator subject to regulation under Subpart O of 40 CFR Part 264 or 265.

Used oil transporters; used oil processors/re-refiners; off-specification used oil burners; and used oil fuel marketers who have not previously notified EPA of their hazardous waste activities or notified under 40 CFR Part 266, Subpart E (replaced by Part 279) must notify EPA to identify their used oil management activities.

NOTE	Please refer to the regulations in 40 CFR Part 279 to ensure that you are aware of all the requirements that apply to your used oil management activities.

Who is Exempt from Used Oil Notification Requirements?

A. **Persons who burn on-specification used oil fuel.** Used oil that is to be burned for energy recovery and that meets the specification provided under Part 279.11 is exempt from the regulations. **However, the person who first claims that the used oil meets the specification is subject to notification as a used oil fuel marketer and certain other requirements (see Part 279, Subpart H).** The burner of fuel that meets the specification in Part 279.11 is not required to notify.

B. **Used oil generators** are not required to notify EPA.

C. **Used oil generators operating used oil-fired space heaters.** Persons who burn only used oil that they generate (or used oil received from household do-it-yourself used oil changers) in used oil-fired space heaters are exempt from the notification requirement provided that the device is vented to the outdoors and the device is not designed to have a capacity greater than 0.5 million BTU/hour.

How to Determine if You Must Notify EPA of Your Subpart K Laboratory Hazardous Waste Activities

Subpart K is an alternative set of generator requirements for managing laboratory hazardous waste at eligible academic entities. Generators that are eligible academic entities with laboratories may elect to opt into 40 CFR Part 262 Subpart K and manage their laboratory hazardous waste under Subpart K in lieu of 40 CFR 262.34(c)(or 40 CFR 261.5 for CESQGs). In order for eligible academic entities (see definition) to opt into Subpart K or subsequently withdraw from Subpart K, they must use the Site ID Form to notify the appropriate State or EPA Regional Office. Refer to 40 CFR 262.203 and 262.204. Note: You must check with your State to determine if you are eligible to manage laboratory hazardous waste pursuant to 40 CFR Part 262 Subpart K and for any state-specific requirements.

How to Determine if You Must Notify EPA of Your Hazardous Secondary Material Activities

40 CFR 261.2(a)(2)(ii), 40 CFR 261.4(a)(23), (24), and (25) exclude certain hazardous secondary material being reclaimed from the RCRA Subtitle C definition of solid waste, provided certain requirements and conditions are met. Hazardous secondary material is secondary material (e.g., spent material, by-product, or sludge) that, when discarded, would be identified as hazardous waste under 40 CFR 261.

Facilities that will begin managing, are still managing, or will stop managing hazardous secondary material under these regulations must notify under 40 CFR 260.42 using the Site ID Form and the Addendum to the Site ID Form. Note: You must check with your State to determine if you are eligible to manage hazardous secondary material under 40 CFR 261.2(a)(2)(ii), 40 CFR 261.4(a)(23), (24), or (25).

How Many Forms Should I File?

A person who is subject to the hazardous waste, universal waste, or used oil management regulations under RCRA should submit one notification (Site ID Form) per RCRA site. If you manage academic laboratory waste under Subpart K or hazardous secondary material under 40 CFR 261.2(a)(2)(ii), 40 CFR 261.4(a)(23), (24), or (25) you should submit one notification per site using the Site ID Form and, if appropriate, the Addendum to the Site ID Form. If you conduct any regulated waste activity or hazardous secondary material at more than one RCRA site, you must submit a separate notification for each RCRA site using the Site ID Form.

If you only transport regulated wastes and do not generate, treat, store, or dispose of hazardous wastes; do not qualify as a large quantity handler of universal wastes; or do not process/re-refine used oil, burn off-specification used oil fuel, or market used oil fuel, you may submit one notification that covers all activities your company conducts. This notification should be sent to the appropriate State or Regional Office (http://www.epa.gov/osw/inforesources/data/form8700/contact.pdf) that serves the State where your company has its headquarters or principal place of business. However, if you are a transporter who also engages in one or more of the regulated waste activities listed above, you must submit a separate notification for each RCRA site using the Site ID Form.

Can I Request That This Information Be Kept Confidential?

All information you submit in an initial or subsequent notification can be released to the public, according to the Freedom of Information Act, unless it is determined to be confidential by EPA pursuant to 40 CFR Part 2. Since notification information is very general, EPA believes it is unlikely that any information in your notification could quality to be protected from release. However, you may make a claim of confidentiality by printing the word "CONFIDENTIAL" on all pages of the RCRA Subtitle C Site Identification Form and on any attachments. EPA will take action on the confidentiality claims in accordance with 40 CFR Part 2.

Where Should I Send My Completed Form?

We have provided an up-to-date list of the address for your State or EPA Regional Office where you should send your completed RCRA Subtitle C Site Identification Form. The contact list can be found at: http://www.epa.gov/osw/inforesources/data/form8700/contact.pdf. This list contains contact names, addresses, phone numbers and e-mail addresses that you can use to obtain additional information.

Many States use the form included at the end of this booklet; some also require additional information. The other States require that you complete and submit a State-specific form. Information about which form to use is included with the contact list located at the web page noted above. Even if you use the included form, you should check with your State to determine if you need to submit additional information. Also, contact your State if you have any questions about your submission.

After your completed Site ID Form for a notification is received and processed, you will be sent a written acknowledgement that will include your EPA Identification Number. **You must use this number on all communications with EPA regarding your regulated waste and hazardous secondary material activities for this site.**

Item-by-Item Instructions for Notification of RCRA Subtitle C Activity Using the RCRA Subtitle C Site Identification Form

Please be sure to review the instructions carefully and complete all items on the form. After you have submitted the Site ID Form once, your State may allow you to attach a copy of your most recently submitted form. If so, circle item numbers for which any information has changed. Then enter the new information (and circle the item numbers) on the Site ID Form included in this booklet and provide the required signatures (no photocopied signatures) in Item 14 – Certification.

INSTRUCTIONS FOR FILLING OUT THE RCRA SUBTITLE C SITE IDENTIFICATION (SITE ID) FORM

Who Must Submit This Form

All sites required to submit any of the following must submit the RCRA Subtitle C Site Identification (Site ID) Form:

- Initial Notification of Regulated Waste Activity
- Subsequent Notification of Regulated Waste Activity
- First RCRA Hazardous Waste Part A Permit Application
- Revised RCRA Hazardous Waste Part A Permit Application
- Hazardous Waste Report
- Notification for eligible academic entities opting into or withdrawing from managing laboratory hazardous wastes pursuant to 40 CFR Part 262 Subpart K (if in an eligible State)
- Notification for facilities managing hazardous secondary material pursuant to 40 CFR 260.42 (if in an eligible State)

Some States have requirements in addition to, or that are different from the Federal requirements. To obtain the appropriate forms or ask questions, refer to a list of contacts at: http://www.epa.gov/epawaste/inforesources/data/form8700/contact.pdf. The list will tell you whether the Federal form or a State form is used, who to contact, and where to mail the completed form.

Purpose of This Form

The Site ID Form provides site-specific information about your facility and is used to obtain an EPA Identification Number. The Site ID form also provides updated information for items that have changed at your site and verifies the information for those items that remain unchanged.

How to Fill Out This Form

Complete the following Site ID Form items, as applicable to your facility:

- Item 1 – your reason for submitting the form
- Item 2 – your site's EPA Identification Number
- Item 3 – the name of your site
- Item 4 – the physical location of your site
- Item 5 – the land type of your site
- Item 6 – the North American Industry Classification System (NAICS) code(s) for your site
- Item 7 – the mailing address for your site
- Item 8 – name, title, address, phone number, fax, and e-mail of a contact person at your site
- Item 9 – name, address, and phone number of the legal owner(s) and name of the operator(s) of your site
- Item 10 – your site's regulated waste activities (enter all that apply)
- Item 11 – the description of hazardous waste

- Item 12 – your site's hazardous secondary material activity, if you manage any
- Item 13 – additional comments on Items 1 – 12
- Item 14 – certification that the information you provided throughout the form is truthful, accurate and complete
- Addendum to the Site Identification Form – notification of hazardous secondary material activity

Type or print, in black ink, all items except the Signature box in Item 14. In Item 14, provide the required ink signatures. Signatures must be original. Stamped or photocopied signatures are not acceptable. Enter your site's EPA Identification Number in the top left-hand corner on all pages of the form; for an Initial Notification for this site, leave the EPA Identification Number blank. Use Item 13 – Comments to clarify or provide additional information for any entry. When entering information in the comments section, enter the item number and box letter to which the comment refers. If you must use additional sheets for comments, enter your site's EPA Identification Number in the top left-hand corner of each sheet.

Item-By-Item Instructions

Item 1 – Reason for Submittal

Reason for Submittal: Place an "X" in the appropriate box(es) to indicate whether this form is your Initial Notification (i.e., this is your first time submitting site identification information / to obtain an EPA Identification Number for this location); a Subsequent Notification (to update your site identification information); a component of a First or a Revised Hazardous Waste Part A Permit Application; or a component of the Hazardous Waste Report.

- **To provide an Initial Notification (first time submitting site identification information / to obtain an EPA Identification Number for this location).**
    - If your waste activity is regulated under Subtitle C of the Resource Conservation and Recovery Act (RCRA) and the rules promulgated pursuant to the Act (specifically 40 CFR Parts 260-299), you must submit this form to notify the appropriate State or EPA Regional Office of your regulated waste activities and obtain an EPA Identification Number.
    - If you are an eligible academic entity opting into 40 CFR 262 Subpart K for managing laboratory hazardous wastes **AND** you have never before submitted site identification information, you must submit this form to notify the appropriate State or EPA Regional Office of your activities. Note: You must check with your State to determine if you are eligible to manage laboratory hazardous waste pursuant to 40 CFR Part 262 Subpart K in order for you to notify.
    - If you will begin managing hazardous secondary material under 40 CFR 261.2(a)(2)(ii), 40 CFR 261.4(a)(23), (24), or (25) **AND** you have never before submitted site identification information, you must submit this form, pursuant to 40 CFR 260.42, to notify the appropriate State or EPA Regional Office of your activities. Note: You must check with your State to determine if you are eligible to manage hazardous secondary material under these exclusions in order for you to notify.
- **To provide a Subsequent Notification (to update site identification information for this location).**
    - You must use this form to submit a subsequent notification if your site already has an EPA Identification Number and you wish to change information (e.g., generator status, new site contact person, new owner, new mailing address, new regulated waste activity, etc.).
    - If you have previously submitted site identification information and are an eligible academic entity opting into or withdrawing from 40 CFR Part 262 Subpart K for managing laboratory hazardous wastes, you must use this form. Note: You must check with your State to determine if you are eligible to manage laboratory hazardous waste pursuant to 40 CFR Part 262 Subpart K in order for you to notify.
    - If you have previously submitted site identification information and are notifying (or re-notifying) that you will begin managing, are managing, or have stopped managing hazardous secondary material under 40 CFR 261.2(a)(2)(ii), 40 CFR 261.4(a)(23), (24),

or (25), you must submit this form, pursuant to 40 CFR 260.42, to notify the appropriate State or Regional Office of your activities. Note: You must check with your State to determine if you are eligible to manage hazardous secondary material under these exclusions in order for you to notify.

- **As a component of a First RCRA Hazardous Waste Part A Permit Application.** If your site is planning to treat, store, or dispose of hazardous waste on-site in a unit that is not exempt from obtaining a hazardous waste permit, you must submit this form as part of the Part A Permit Application. Also, if the activity at this site (treatment, storage, or disposal) became newly regulated under RCRA Subtitle C and the rules promulgated pursuant to the Act (specifically 40 CFR Parts 260-299), you must submit this form as part of the Part A Permit Application.

- **As a component of a Revised RCRA Hazardous Waste Part A Permit Application.** If you must submit a revised Part A Permit Application to reflect changes that have occurred at your site, you must submit this form as part of your revised Part A Permit Application. Examples of site changes requiring a revised Part A Permit Application include managing new wastes not identified in the first submission of the form or changes to existing waste treatment processes. When submitting a revised Part A Permit Application, please include the Amendment number in the appropriate space.

- **As a component of the Hazardous Waste Report. (If marked, see sub-bullet below).** If you are required to submit a Hazardous Waste Report indicating the amount of hazardous waste you generate, treat, recycle, dispose, ship off-site, or receive from off-site, you must fill out this form. A Site ID Form submitted with a Hazardous Waste Report is equivalent to a Subsequent Notification.

    - **Site was a TSD facility and/or generator of ≥ 1,000 kg of hazardous waste, > 1 kg of acute hazardous waste, or > 100 kg of acute hazardous waste spill cleanup in one or more months of the report year (or State equivalent LQG regulations).** The purpose of this check box is to distinguish between sites that meet the criteria and are required to file a report versus those who file voluntarily or by State-only requirement but were not a TSD facility or a Large Quantity Generator (LQG) during the report year. Sites required to file the report should place an "X" in this box while non-LQG/TSD sites should not. For more information about who must file a report, refer to Who Must File the Hazardous Waste Report.

Item 2 – Site EPA ID Number

Provide your EPA Identification Number in Item 2 **for this site**. The first two characters of the EPA ID Number must be a valid state postal code. Be sure to include your EPA Identification Number at the top of all pages of the form (as well as on any attachments to the Site ID Form).

NOTE	If this is your Initial Notification for this site, leave the EPA Identification Number blank and proceed to Item 3.

Item 3 and 4 – Site Name and Location

Provide the legal name of your site and a complete location address. Please note that the address you give for Item 4, Site Location, must be a physical address, not a post office box or route number. Only foreign hazardous waste transporters, with their headquarters located outside the U.S., may provide a Site Location Country outside of the U.S.

NOTE	A new EPA Identification Number is **required** if you change the location of your site.

Item 5 – Site Land Type

Place an "X" in the box that **best describes** the land type of your site. Select only one type: Private, County, District, Federal, Tribal (see below), Municipal, State, or Other. If your site's Land Type could be described as Municipal **and** another Land Type, such as County, District, or Tribal, do not place an "X" in Municipal. Instead, choose the other appropriate Land Type. (For example, if your site's Land Type is both Municipal and County, you would place an "X" in the box for County.) You may explain this in Item 13 – Comments.

> **Tribal** – A member of one of the tribes/entities on the list of federally recognized American Indian tribes and Alaskan Native entities located at: http://www.epa.gov/tribal/whereyoulive/tribes-a-z.htm.

Item 6 – North American Industry Classification System (NAICS) Code(s)

Box A must be completed. Completing Boxes B-D is recommended, if applicable.

Box A Provide the North American Industry Classification System (NAICS) code that best describes your site's primary business production process for your products or services. Referencing the latest NAICS codes, use the 6-digit code (most specific description) if available for your business; if not, use the 5-digit code; do not enter any four (4) or less digit codes.

Boxes B – D List other NAICS codes that describe the other business production processes for your site. Referencing the latest NAICS codes, use the 6-digit code (most specific description) if available for your business; if not, use the 5-digit code; do not enter any four (4) or less digit codes.

Check with your accounting or business staff to determine your NAICS code(s); the NAICS code is used in tax reporting and other business reports. You can obtain additional information about NAICS codes at http://www.census.gov/eos/www/naics.

Item 7 – Site Mailing Address

Please enter the Site Mailing Address. If the Mailing Address and the Location of Site (Item 4) are the same, you can enter "Same as Item 4" in the box for Item 7.

Item 8 – Site Contact Person

Enter the name, title, business address, telephone number, extension, fax number, and e-mail address of the individual who should be contacted regarding the information submitted in the Site ID Form. A Subsequent Notification is recommended when the Site Contact Person changes. **Do not** enter other contact persons here; if there are other persons, who may be contacted about this submission, list them and their other contact information in Item 13. If the person completing the Hazardous Waste Report is not the primary site RCRA hazardous waste contact, enter the primary site RCRA hazardous waste contact here and add the contact information for the person completing the Hazardous Waste Report in Item 13 – Comments.

Note: This is NOT the Facility Permit Contact information. The Facility Permit Contact information should be entered on the RCRA Hazardous Waste Part A Permit Application.

Item 9 – Legal Owner and Operator of the Site

This section should be used to indicate all owners and operators of this site.

A. **Name of Site's Legal Owner:** Provide the name of your site's legal owner(s). This includes owner(s) of the building(s) and land. Please review these definitions:

> **Owner** – The person who owns a RCRA site or part of a RCRA site. Note: This includes the owner(s) of the building(s) and/or land. This may be an individual, company, or business name. See **Person**.
>
> **Person** – An individual, trust, firm, joint stock company, Federal Agency, corporation, (including a government corporation), partnership, association, State, municipality, commission, political subdivision of a State, or any interstate body.

Date Became an Owner: Indicate the date on which the above entity became the owner of your site. Enter dates as in this example: For April 22, 2011, enter 04/22/2011. This is a required field and a date must be reported.

Owner Type: Place an "X" in the box that **best describes** the owner type for your site. Select only one type: Private, County, District, Federal, Tribal (see below), Municipal, State, or Other. If your site's Owner Type could be described as Municipal **and** another Owner Type, such as County, District, or Tribal, do not place an "X" in Municipal. Instead, choose the other appropriate Owner Type. (For example, if your site's Owner Type is both Municipal and County, you would place an "X" in the box for County.). You may explain this in Item 13 – Comments.

> **Tribal** – A member of one of the tribes/entities on the list of federally recognized American Indian tribes and Alaskan Native entities located at: http://www.epa.gov/tribal/whereyoulive/tribes-a-z.htm.

Legal Owner Address: Enter the address of the legal owner. If the address and the Location of Site (Item 4) are the same, you can enter "Same as Item 4" in the box for Item 9.

Use the Comments section in Item 13 to list any additional owners, their names, the dates they became owners, owner type, mailing address, and which owner(s), if any, are no longer

owners since your last submission of this form. If necessary, attach a separate sheet of paper. Remember to enter your site's EPA Identification Number in the top left-hand corner of each sheet.

B. Name of Site's Operator. Provide the name of your site's operator. Please review these definitions.

> **Operator** – The person responsible for the overall operation of a RCRA site. Note: This is the legal entity which controls the RCRA site operation rather than the plant or site manager. This is usually a company or business name, but may be an individual. See **Person**.
>
> **Person** – An individual, trust, firm, joint stock company, Federal Agency, corporation, (including a government corporation), partnership, association, State, municipality, commission, political subdivision of a State, or any interstate body.

Date Became an Operator: Indicate the date on which the above entity became the operator of your site. Enter dates as in this example: For April 22, 2011, enter 04/22/2011. This is a required field and a date must be reported.

Operator Type: Place an "X" in the box that **best describes** the operator type for your site. Select only one type: Private, County, District, Federal, Tribal (see below), Municipal, State, or Other. If your site's Operator Type could be described as Municipal **and** another Operator Type, such as County, District, or Tribal, do not place an "X" in Municipal. Instead, choose the other appropriate Operator Type. (For example, if your site's Operator Type is both Municipal and County, you would place an "X" in the box for County.) You may explain this in Item 13 – Comments.

> **Tribal** – A member of one of the tribes/entities on the list of federally recognized American Indian tribes and Alaskan Native entities located at: http://www.epa.gov/tribal/whereyoulive/tribes-a-z.htm.

Use the Comments section in Item 13 to list any additional operators, their names, the dates they became operators, operator type, mailing address, and which operator(s), if any, are no longer operators since your last submission of this form. If necessary, attach a separate sheet of paper. Remember to enter your site's EPA Identification Number in the top left-hand corner of each sheet.

NOTE	A subsequent notification is recommended when the owner or operator of a site changes. Because an EPA Identification Number is site-specific, the new owner will keep the existing EPA Identification Number for that location. If your business moves to another location, the owner or operator must notify the State or EPA Regional Office of this change. Since your business has changed locations, a new EPA Identification Number will be assigned.

Item 10 – Type of Regulated Waste Activity

Mark box "Yes" or box "No" as appropriate for all **current** activities (**as of the date submitting the form**) at this site; complete any additional boxes as instructed. **Current** activities mean activities that are in effect when the form is submitted or those that the site plans to begin after EPA Identification Number assignment. The information you provide in Item 10 will be considered current as of the date you certify the form. If the site is no longer a generator as of the date you certify the form, you should mark the "No" (not a generator) box for Generator of Hazardous Waste.

NOTE	You must report your current regulated waste activities as of the date of submitting the Site ID Form. For the Hazardous Waste Report, your current status may be different than your status during the reporting year.

A. Hazardous Waste Activities (Complete all parts 1 through 10):

NOTE	Listed below are the Federal generator status definitions. If, however, the State where your site is located has definitions different from the Federal definitions, you must use the State definitions.

1. **Generator of Hazardous Waste (at your site):** If you generate a hazardous waste that is listed in 40 CFR 261.31 through 261.33 or identified by one or more hazardous waste characteristic(s) contained in 40 CFR 261.21 through 261.24, place an "X" in the appropriate box for the quantity of hazardous waste that is generated per calendar month. The regulations for hazardous waste generators are found in 40 CFR Part 262. (http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&tpl=%2Findex.tpl.) Consult these regulations and your State for details about how the regulations apply to your situation. Below is a brief description of the three types of hazardous waste generators.

   If "Yes", place an "X" in only one of the following – a, b, or c.

   a. **LQG: Large Quantity Generator**
   This site is a Large Quantity Generator if the site meets **any** of the following criteria:
      i) Generates, in any calendar month, 1,000 kg (2,200 lbs.) or more of non-acute RCRA hazardous waste; **or**
      ii) Generates, in any calendar month, or accumulates at any time, more than 1 kg (2.2 lbs) of RCRA acute hazardous waste; **or**
      iii) Generates, in any calendar month, or accumulates at any time, more than 100 kg (220 lbs.) of spill cleanup material contaminated with RCRA acute hazardous waste.

NOTE	If, in addition to being an LQG, you recycle hazardous wastes at your site, mark both this box and Item 10.A.4. Hazardous secondary material managed under 40 CFR 261.2(a)(2)(ii), 40 CFR 261.4(a)(23), (24), or (25) DOES NOT count towards your generator status. However, you must check with your State to determine if you are eligible to manage hazardous secondary material under these exclusions.

b. SQG: Small Quantity Generator

This site is a Small Quantity Generator if the site meets **all** of the following criteria:

i) Generates, in any calendar month, 100 kg (220 lbs.) but less than 1,000 kg (2,200 lbs.) of RCRA hazardous waste; **and**

ii) Does not generate, in any calendar month, or accumulate at any time, more than 1 kg (2.2 lbs.) of acute hazardous waste; **and**

iii) Does not generate more than 100 kg (220 lbs.) of material from the cleanup of a spill of acute hazardous waste.

OR, the site is Small Quantity Generator if the site:

i) Meets i) and iii) of the Conditionally Exempt Small Quantity Generator criteria (see below), but

ii) Is storing more than 1,000 kg (2,200 lbs.) of RCRA hazardous waste on-site. If the site accumulates, at any time, more than 1,000 kg (2,200 lbs.) of RCRA hazardous waste, the site must apply for an EPA ID Number using this form.

c. CESQG: Conditionally Exempt Small Quantity Generator

This site is a CESQG if the site does all of the following:

i) Generates no more than 100 kg (220 lbs.) of RCRA hazardous waste in any calendar month; **and**

ii) Does not accumulate, at any time, more than 1,000 kg (2,200 lbs) of RCRA hazardous waste; **and**

iii) Does not generate, in any calendar month, or accumulate at any time, more than 1 kg (2.2 lbs.) of acute hazardous waste and no more than 100 kg (220 lbs.) of material from the cleanup of a spill of acute hazardous waste.

NOTE	If you generate acute hazardous wastes listed in 40 CFR 261.31, 261.32, or 261.33(e), please refer to 40 CFR 261.5(e) to determine the circumstances under which you must notify the EPA.

If you marked "Yes" above, indicate your other generator activities. Mark "Yes" or "No" for the other hazardous waste activities listed below that may occur at this site. **Complete all parts 2-10.**

2. **Short-Term Generators**
   Mark "Yes" if the site is currently generating hazardous waste only as the result of a one-time, non-recurring, temporary event that is not related to normal production processes. In other words, short-term generators produce hazardous waste from a particular activity for a limited time and then cease conducting that activity. Short-term generators would not be considered episodic generators because episodic generators have the potential to generate on a regular basis (for example, a facility that fluctuates from SQG to LQG in one month is not a short-term generator). Examples of short-term generators include: 1) one-time highway bridge waste generation; 2) underground storage tank removals; 3) generation of off-spec or out-of-date chemicals at a site that normally doesn't generate hazardous waste; 4) remediation or spill clean-up at sites with no previous RCRA ID; and 5) site or production process decommissions by a new operator. If you mark "Yes", you must provide an explanation of your short-term generation event in Item 13 - Comments.

3. **United States Importer of Hazardous Waste**
   Mark "Yes" if you import hazardous waste from a foreign country into the United States. Refer to 40 CFR 262.60 for additional information.

4. **Mixed Waste Generator**
   Mark "Yes" if you are a generator of mixed waste (waste that is both hazardous and radioactive). RCRA defines "mixed waste" as waste that contains both hazardous waste and source, special nuclear, or by-product material subject to the Atomic Energy Act (AEA), RCRA Section 1004(41), 42 U.S.C. 6903 (63 FR 17414; April 9, 1998). See the Definitions section.

5. **Transporter of Hazardous Waste:** If "Yes", place an "X" in all that apply.

   a. **Transporter**
      You transport hazardous waste within the United States. The Federal regulations for hazardous waste transporters are found in 40 CFR Part 263.

   b. **Transfer Facility (at your site)**
      You are a hazardous waste transfer facility, at your site, if you hold manifested hazardous waste(s) at your site for a period of ten (10) days or less while the waste is in transit. The Federal regulations for hazardous waste transfer facilities are found in 40 CFR Part 263.12.

6. **Treater, Storer, or Disposer of Hazardous Waste (at your site):** If you treat, store, or dispose of hazardous waste, mark "Yes". A RCRA Hazardous Waste Part B Permit is **required** for this activity. Contact the appropriate office for your State for more information. The Federal regulations for owners and operators of permitted treatment, storage, and disposal facilities (TSDFs) are found in 40 CFR Parts 264, 265, 266, and 270.

   Mark "No" if any of the following conditions are true for your facility:

   1. This facility does not receive hazardous waste from other generators and ships all waste off-site for management within the regulatory timeframe.

2. This facility is only involved with on-going post-closure activities, corrective actions under HSWA, or a consent order under a non-traditional permit or without a RCRA permit being required.

3. Receives waste from off-site but does not store greater than 10 days before re-shipping (i.e., transfer facility).

NOTE	If your site is a destination facility for universal wastes in addition to being a treatment, storage, or disposal facility for other RCRA hazardous wastes, mark "Yes" for both this box **and** Item 10.B.2.

7. **Recycler of Hazardous Waste (at your site):** If you recycle regulated hazardous wastes (recyclable materials) at your site, mark "Yes". The Federal regulations for owners and operators of sites that recycle hazardous waste are found in 40 CFR 261.6. You also may be subject to other Federal and State regulations; in some cases a permit is required.

NOTE	If your site, in addition to being a recycling site for hazardous waste, is a treater, storer, or disposer of hazardous waste, mark "Yes" for both this box **and** Item 10.A.6. If your site is a destination facility for universal wastes in addition to being a recycling site for other RCRA hazardous wastes, mark "Yes" for both this box **and** Item 10.B.2.

8. **Exempt Boiler and/or Industrial Furnace (at your site):** If "Yes", place an "X" in all that apply.

   a. Small Quantity On-Site Burner Exemption
   You burn small quantities of hazardous waste in an on-site boiler or industrial furnace in accordance with the conditions in 40 CFR 266.108, place an "X" in the box to indicate that you qualify for the Small Quantity On-Site Burner Exemption.

   b. Smelting, Melting, and Refining Furnace Exemption
   You process hazardous wastes in a smelting, melting, or refining furnace solely for metals recovery, as described in 40 CFR 266.100(d), or to recover economically significant amounts of precious metals, as described in 40 CFR 266.100(g), or if you process hazardous wastes in a lead recovery furnace to recover lead, as described in 40 CFR 266,100(h), place an "X" in the box to indicate that you qualify for the Smelting, Melting, and Refining Furnace Exemption.

9. **Underground Injection Control (at your site):** If you generate, treat, store, or dispose of hazardous waste and place the waste or its residuals into an underground injection well (e.g., a Class I well) located at your site, mark "Yes". The Federal

regulations for owners and operators of underground injection wells are found in 40 CFR Part 148.

10. **Receives Hazardous Waste From Off-site (at your site):** If you received hazardous waste from another site, whether this waste was received as a commercial transaction or waste received from a restricted group of off-site generators, mark "Yes".

In addition to the above, mark "Yes" or "No" for the other regulated waste activities listed below that may occur at this site. Complete Items B, C, and D as appropriate.

B. **Universal Waste Activities (at your site):** Refer to your State-specific requirements and definitions for universal waste. Also, refer to 40 CFR 261.9 and 40 CFR Part 273 for the Federal regulations covering universal waste. **Complete parts 1 and 2.**

1. **Large Quantity Handler of Universal Waste (LQHUW):** You are an LQHUW if you accumulate a total of 5,000 kg or more total of universal wastes (batteries, pesticides, mercury-containing equipment, or lamps - calculated collectively) at any time. This designation is retained through the end of the calendar year in which the 5,000 kg limit is met or exceeded. If "Yes", place an "X" in the appropriate box(es) to indicate the type(s) of universal wastes managed at your site. If your State has other additional universal wastes, indicate what they are by placing an "X" in the corresponding box(es) (10.B.1.e, f, or g.).

2. **Destination Facility for Universal Waste:** Mark "Yes" if you treat, dispose, or recycle universal wastes on-site. A hazardous waste permit is required if you treat or dispose of universal wastes; a permit may be required if you recycle universal wastes.

NOTE	If your site, in addition to being a destination facility for universal wastes, is also a treatment, storage, or disposal facility for RCRA hazardous wastes, mark "Yes" for both this box **and** Item 10.A.6. In addition, if your site recycles RCRA hazardous wastes, mark "Yes" for both this box **and** Item 10.A.7.

C. **Used Oil Activities:** Mark the appropriate box(es) to indicate which used oil management activities are taking place at this site. The Federal regulations for used oil management are found in 40 CFR Part 279. **Complete all parts 1 through 4.**

1. **Used Oil Transporter:** If "Yes", place an "X" in all that apply.

a. **Transporter**
You transport used oil within the United States. The Federal regulations for used oil transporters are found in 40 CFR Part 279.40-47.

b. **Transfer Facility (at your site)**
You own or operate a used oil transfer facility. The Federal regulations for used oil transfer facilities are found in 40 CFR Part 279.40-47.

2. **Used Oil Processor and/or Re-refiner (at your site):** If "Yes", place an "X" in all that apply.

   a. **Processor**
   You process used oil. The Federal regulations for processors of used oil are found in 40 CFR Part 279.50-59.

   b. **Re-Refiner**
   You refine used oil. The Federal regulations for re-refiners of used oil are found in 40 CFR Part 279.50-59.

3. **Off-Specification Used Oil Burner (at your site):** You burn off-specification used oil fuel, mark "Yes" to indicate this used oil management activity.

4. **Used Oil Fuel Marketer (at your site):** If "Yes", place an "X" in all that apply.

   a. **Marketer Who Directs Shipment of Off-Specification Used Oil to Off-Specification Used Oil Burners**
   You are a marketer who directs shipment of off-specification used oil to off-specification used oil burners. The Federal regulations for off-specification used oil are found in 40 CFR Part 279.70-75.

   b. **Marketer Who First Claims the Used Oil Meets the Specification**
   You are the first to claim that used oil meets the used oil specification established in 40 CFR 279.11.

NOTE	If either of these boxes is marked, you must also notify (or have previously notified) as a used oil transporter (10.C.1), used oil processor/re-refiner (10.C.2.), or off-specification used oil fuel burner (10.C.3), unless you are a used oil generator. (Used oil generators are not required to notify.)

D. Eligible Academic Entities with Laboratories – Notification for opting into or withdrawing from managing laboratory hazardous wastes pursuant to 40 CFR Part 262 Subpart K: Note: Fill out Box D ONLY if you are at least one of the following: a college or university; a teaching hospital that is owned by or has a formal written affiliation agreement with a college or university; or a non-profit research institute that is owned by or has a formal written affiliation agreement with a college or university; AND you have checked with your State to determine if 40 CFR Part 262 Subpart K is effective in your state and for any state-specific requirements. (See EPA's website for more information about these regulations: http://www.epa.gov/wastes/hazard/generation/labwaste/implementation.htm.)

Subpart K is an optional alternative set of requirements for eligible academic entities with laboratories. Certain generators (i.e., eligible academic entities defined under (1) below) are eligible to operate under Subpart K for management of their hazardous wastes in laboratories in lieu of 40 CFR 262.34(c) (or 40 CFR 261.5 for CESQGs). Eligible academic entities with laboratories that generate hazardous waste that elect to opt into Subpart K, are currently

operating under Subpart K, or subsequently withdraw from Subpart K must complete this section to meet the notification requirements of this Subpart. Refer to 40 CFR 262.203 and 262.204.

NOTE	Eligible academic entities with laboratories must complete a separate Site ID Form for each site (i.e., EPA ID number) that is managing hazardous waste under Subpart K. All laboratories with the same EPA ID number will be regulated under this Subpart. If eligible academic entities with laboratories withdraw from Subpart K, all laboratories with the same EPA ID number associated with the withdrawal from Subpart K will be regulated under 40 CFR 262.34(c) requirements (or 40 CFR 261.5 for CESQGs).

1. **Opting Into or Currently Operating Under 40 CFR Part 262 Subpart K for the Management of Hazardous Wastes in Laboratories:** Mark "Yes" for this box if you are an eligible academic entity and you elect to opt into or are currently operating under 40 CFR Part 262 Subpart K for the hazardous wastes generated in your laboratories. If you mark "Yes" for this box, you must place an "X" in at least one of the following to indicate your type of eligible academic entity. Place an "X" in all that apply:

    a. **College or University.** You are an eligible college or university if you are a private or public, post-secondary, degree-granting, academic institution, that is accredited by an accrediting agency listed annually by the U.S. Department of Education.

    b. **Teaching Hospital that is owned by or has a formal written affiliation agreement with a college or university:** You are an eligible teaching hospital if you are a hospital that trains students to become physicians, nurses, or other health personnel and is either: (1) owned by a college or university, or (2) has a master affiliation agreement and program letter of agreement, as defined by the Accreditation Council for Graduate Medical Education, with an accredited medical program or medical school.

    c. **Non-profit Institute that is owned by or has a formal written affiliation agreement with a college or university:** You are an eligible non-profit institute if you are an organization that conducts research as its primary function and files as a non-profit organization under the tax code of 26 U.S.C. 501(c)(3) and is either: (1) owned by a college or university, or (2) has a formal written affiliation agreement with a college or university that establishes a relationship between institutions for the purposes of research and/or education and is signed by authorized representatives from each institution. A relationship on a project-by-project or grant-by-grant basis is not considered a formal written affiliation agreement.

2. **Withdrawing from 40 CFR Part 262 Subpart K for the Management of Hazardous Wastes in Laboratories:** Mark "Yes" for this box if you have previously elected to opt into 40 CFR Part 262 Subpart K and are now withdrawing from participation in this optional set of alternative requirements for hazardous waste generation in laboratories. Withdrawing generators will automatically revert to regulation under 40 CFR 262.34 (c)

requirements (or 40 CFR 261.5 for CESQGs). If marking "Yes" for this box, please include comments in Section 13 that explain your reasons for withdrawing from Subpart K.

Item 11 – Description of Hazardous Wastes

Complete this item if you marked **"Yes"** for any activity **1 (a-c), 6, 7, or 8** in **Item 10.A** You will need to refer to 40 CFR Part 261 to complete this item. Part 261 identifies those solid wastes which the EPA defines as hazardous and regulates under RCRA. If you need help completing this section, please contact your State Office.

A. **Waste Codes for Federally Regulated Hazardous Wastes:** Please list the waste codes of the Federal hazardous wastes (described in 40 CFR Part 261) handled at your site. List them in the order they are presented in the regulations using the appropriate 4-digit code(s) (e.g., D001, D003, F007, U112).

NOTE	EPA Hazardous Waste Codes. If you handle more hazardous wastes than will fit under Item 11.A, please continue under Item 13 – Comments or on an extra sheet. Remember to include your EPA Identification Number on the top of each page. If you handle a large number of codes, you may copy the list in this booklet and mark the ones that you handle. Attach any additional sheets to the Site ID Form. Remember to include your EPA Identification Number on the top of each page.

B. **Waste Codes for State-Regulated (i.e., non-Federal) Hazardous Wastes:** If you manage State-regulated hazardous wastes that have a State waste code, enter the appropriate code(s) in the box(es) provided. Please list the waste codes of the State-regulated hazardous wastes handled at your site in the order they are presented in the regulations.

NOTE	State Hazardous Waste Code. If you handle more hazardous wastes than will fit under Item 11.b, please continue under Item 13 – Comments or on an extra sheet. Remember to include your EPA Identification Number on the top of each page.

Item 12 – Notification of Hazardous Secondary Material (HSM) Activity

Mark "Yes" if you are notifying under 40 CFR 260.42 that you will begin managing, are still managing, or will stop managing hazardous secondary material under 40 CFR 261.2(a)(2)(ii), 40 CFR 261.4(a)(23), (24), or (25). Mark "No" if you are not notifying under 40 CFR 260.42. Note: You must check with your State to determine if you are eligible to manage hazardous secondary material under these regulations.

NOTE	If you mark "Yes", you must fill out the Addendum to the Site ID Form: Notification of Hazardous Secondary Material Activity. See instructions for this Addendum after Item 14.

Item 13 – Comments

Use this section as needed to provide additional information for Items 1 through 12. Include the item number and box letter (if any) for each comment you make. You may attach additional sheets if needed. Remember to include your EPA Identification Number on the top of each page.

Item 14 – Certification

This certification must be signed and dated by the owner(s), operator(s), responsible official(s), or authorized representative(s) of the site. (See 40 CFR 270.11 for more information on signatories in general. See also 40 CFR 270.10(b) for additional Hazardous Waste Part A Permit Application signatory specifics.) An "authorized representative" is a person responsible for the overall operation of the site (i.e., a plant manager or superintendent, or a person of equal responsibility).

NOTE	All Site ID Form submissions must include this certification to be complete.

ADDENDUM TO THE SITE IDENTIFICATION FORM: NOTIFICATION OF HAZARDOUS SECONDARY MATERIAL ACTIVITY

You Must Fill Out This Section If:

- You are located in a State that allows you to manage excluded hazardous secondary material under 40 CFR 261.2(a)(2)(ii), 261.4(a)(23), (24), or (25). See http://www.epa.gov/epawaste/hazard/dsw/statespf.htm for a list of eligible states; **AND**
- You will begin managing, are still managing, or will stop managing excluded hazardous secondary material under 40 CFR 261.2(a)(2)(ii), 40 CFR 261.4(a)(23), (24), or (25) and must notify the appropriate State or Regional Office of your activities, pursuant to 40 CFR 260.42. These regulations exclude certain hazardous secondary material being reclaimed from the RCRA Subtitle C definition of solid waste provided certain requirements and conditions are met. See EPA's website for more information about these regulations: http://www.epa.gov/epawaste/hazard/dsw/rulemaking.htm#2008.

Complete all parts 1-3.

NOTE	You must be managing excluded hazardous secondary material in compliance with 40 CFR 261.2(a)(2)(ii), 261.4(a)(23), (24), and/or (25) (or state equivalent). Do not include any information regarding your hazardous wastes in this section. See 73 FR 64668 or http://www.epa.gov/epawaste/hazard/dsw/impresource.htm for more information on these exclusions. You must submit a completed Site ID Form, including this Addendum, prior to operating under the exclusion(s) and by March 1 of each even-numbered year thereafter to your regulatory authority using the Site ID Form as pursuant to 40 CFR 260.42. Persons who must satisfy this notification requirement can submit this information at the same time as their Biennial Report (which is also due by March 1 of each even-numbered year). If you stop managing hazardous secondary material in accordance with the exclusion(s) and do not expect to manage any amount of hazardous secondary material under the exclusion(s) for at least one year, you must also submit a completed Site ID Form, including this Addendum, within thirty (30) days pursuant to 40 CFR 260.42. Remember to include your EPA Identification Number on the top of each page.

Item 1 – Indicate Reason for Notification (include dates where requested):

Place an "X" in the box for the reason that applies to you:

- **Facility will begin managing excluded hazardous secondary material as of (mm/dd/yyyy):** Place an "X" in this box if you are notifying that you will begin managing hazardous secondary material under the exclusion(s).
  - Facilities must notify prior to operating under the exclusion(s).

- If placing an "X" in this box, list the date (mm/dd/yyyy) when you will begin managing hazardous secondary material under 40 CFR 261.2(a)(2)(ii), 40 CFR 261.4(a)(23), (24), or (25). Note: If the facility had previously notified that it will stop managing hazardous secondary material in the past but will now begin anew, list the next planned start date.

- **Facility is still managing excluded hazardous secondary material/re-notifying as required by March 1 of each even-numbered year:** Place an "X" in this box if you are re-notifying that you are still managing hazardous secondary material under the exclusion(s). Note: you must have previously notified that you began managing hazardous secondary materials in order to check this box.

  - Facilities must notify by March 1st of each even-numbered year.

  - If placing an "X" in this box, you do not have to list a date.

- **Facility has stopped managing excluded hazardous secondary material as of (mm/dd/yyyy) and is notifying as required:** Place an "X" in this box if you are notifying that you have stopped managing hazardous secondary material under the exclusion(s) and do not expect to manage any amount of hazardous secondary material for at least one year (pursuant to 40 CFR 260.42(b)). List the date when you stopped managing hazardous secondary material. Enter the date in "mm/dd/yyyy" format.

  - Facilities must notify within 30 days of when they stopped managing hazardous secondary material. You are considered to have stopped managing hazardous secondary material if: 1) you stop managing hazardous secondary material completely (e.g., you cease operations); 2) you choose to manage the hazardous secondary material as hazardous waste; 3) you undergo closure and request release from financial assurance per 40 CFR 261.143(h); or 4) you temporarily suspend management of hazardous secondary material for at least one year.

  - Only place an "X" in this box if you have stopped managing all hazardous secondary material under the exclusion(s). For example, if your facility only stopped managing one hazardous secondary material, but continued to manage another hazardous secondary material, you would leave this box blank since your facility continues to manage some amount of hazardous secondary material.

  - If you submit a notification that you have stopped managing hazardous secondary material, you do not need to renotify (unless you choose to manage hazardous secondary material again, in which case you would have to submit a notification prior to managing). After submitting a stop notification, you can leave the Addendum blank for subsequent submissions, including any subsequent biennial report submissions.

Item 2 – Description of Excluded Hazardous Secondary Material (HSM) Activity

In the table provided on the Addendum to the Site ID Form, list your appropriate facility code, each waste code for the hazardous secondary material you manage, the estimated and actual quantities in short tons for each hazardous secondary material, and the appropriate land-based unit code for how you mange the

hazardous secondary material. Do not include any information regarding your hazardous wastes in this section. See examples below on how to answer this question.

a. **Facility Code:** Using the facility codes, found in the Code List section of these instructions, enter the appropriate 2-digit code(s) that correctly describes your facility. If more than one code applies to your facility, enter each 2-digit code on a separate row. Each hazardous secondary material should be reported by facility code.

b. **Waste Codes(s) for HSM:** Use the box provided to enter the appropriate 4-digit hazardous waste code(s) that would apply to your hazardous secondary material if you managed it as hazardous waste (i.e., the waste code(s) that would apply if you did not manage your material in accordance with 40 CFR 261.2(a)(2)(ii), 40 CFR 261.4(a)(23),(24), or (25)).

NOTE	If you list more codes or manage more hazardous secondary material than will fit in the table under Item 2, please continue under Item 13 – Comments, or on an extra sheet. Remember to include your EPA ID number on the top of each page.

c. **Estimated Short Tons of Excluded HSM to be Managed Annually:** In the box provided, enter your estimated tonnage (using short tons) of hazardous secondary material you expect to manage annually. Convert all physical quantities (e.g., gallons, cubic yards, kilograms, metric tons, etc.) to short tons (1 short ton = 2,000 pounds) and round to the nearest ton (no decimals). Note: Your estimated tonnage should be for the entire amount of hazardous secondary material to be reclaimed (NOT just the quantity of constituent or product reclaimed).

d. **Actual Short Tons of Excluded HSM Managed During the Most Recent Odd-Numbered Year:** Report the tonnage (using short tons) of each hazardous secondary material you actually managed during the most recent odd-numbered year. For example, if you are submitting this notification on February 20, 2012, enter the amount you actually managed during 2011 (i.e., the tonnage you managed from January 1, 2011 to December 31, 2011). Convert all physical quantities (e.g., gallons, cubic yards, kilograms, metric tons, etc.) to short tons (1 short ton = 2,000 pounds) and round to the nearest ton (no decimals). Note: Your actual tonnage should be for the entire amount of hazardous secondary material that was sent for reclamation (NOT just the quantity of constituent or product reclaimed). If this is your initial notification, enter "0".

e. **Land-Based Unit Code:** Using the land-based unit codes, found in the Code List section of these instructions, enter in the 2-digit code that best describes the land-based unit you use or will use to manage the hazardous secondary material. If you do not use any land-based units, enter "NA". If you use the code "OT" (Other), please describe your land-based unit in Item 13 – Comments. If more than one land-based unit code applies to a hazardous secondary material, list it separately using another row.

Examples for Reporting Hazardous Secondary Material Activity:

EXAMPLE 1: A pharmaceutical manufacturer generates spent solvents that are characteristic for ignitability (D001). The manufacturer plans to manage spent solvents under 40 CFR 261.2(a)(2)(ii) and 261.4(a)(24) by sending some amount to a reclaimer within its own company and the rest off-site to a reclamation facility within the United States. The manufacturer will not manage any spent solvents in a land-based unit. Following the regulations, the manufacturer submits an initial notification prior to managing its spent solvents under the exclusions. The facility would report its hazardous secondary material activity as follows:

a. Facility code (answer using codes listed in the Code List section of the instructions)	**b. Waste Code(s) for hazardous secondary material (HSM)**	**c. Estimated short tons of HSM to be managed annually**	**d. Actual short tons of HSM that was managed during the most recent odd-numbered year**	**e. Land-based unit code** (answer using codes listed in the Code List section of the instructions)
02	D001	15	0	NA
06	D001	40	0	NA

EXAMPLE 2: A steel manufacturer generates electric arc furnace dust and spent pickle liquor from one of its steel operations. The manufacturer sends electric arc furnace dust (K061) off-site to a reclamation facility within the U.S. and reclaims spent pickle liquor (K062) on-site. Neither hazardous secondary material is managed in a land-based unit. The steel manufacturer has managed both hazardous secondary material under 40 CFR 261.2(a)(2)(ii) and 261.4(a)(24) for a number of years and it is now time to re-notify. The facility would report its hazardous secondary material activity as follows:

a. Facility code (answer using codes listed in the Code List section of the instructions)	**b. Waste Code(s) for hazardous secondary material (HSM)**	**c. Estimated short tons of HSM to be managed annually**	**d. Actual short tons of HSM that was managed during the most recent odd-numbered year**	**e. Land-based unit code** (answer using codes listed in the Code List section of the instructions)
01	K062	60	52	NA
06	K061	20,000	22,468	NA

EXAMPLE 3: A reclamation facility has been receiving and reclaiming spent solvents under 40 CFR 261.2(a)(2)(ii) and 261.4(a)(24) for a number of years. The facility receives and reclaims spent solvents from multiple hazardous secondary material generators, some of which are within the same company. No spent solvents are managed in a land-based unit. It is now time to re-notify. The facility would report its hazardous secondary material activity as follows:

a. Facility code (answer using codes listed in the Code List section of the instructions)	**b. Waste Code(s) for hazardous secondary material (HSM)**	**c. Estimated short tons of HSM to be managed annually**	**d. Actual short tons of HSM that was managed during the most recent odd-numbered year**	**e. Land-based unit code** (answer using codes listed in the Code List section of the instructions)
03	D001;F002;F003;F005	6,000	7,533	NA
03	D001;D038;F002;F003	1,500	918	NA
07	D001;F002;F003;F005	3,000	3,509	NA
07	D001;D038;F002;F003	1,000	523	NA

EXAMPLE 4: A smelting operation generates furnace bricks that are characteristic for chromium (D007) and sends them off-site for reclamation. Before shipping the bricks off-site, the facility manages some of the bricks in a containment building and the rest in a pile on the land. The facility has been managing the bricks under 40 CFR 261.4(a)(24) for a number of years and must now re-notify. The facility would report its activity as follows:

a. Facility code (answer using codes listed in the Code List section of the instructions)	**b. Waste Code(s) for hazardous secondary material (HSM)**	**c. Estimated short tons of HSM to be managed annually**	**d. Actual short tons of HSM that was managed during the most recent odd-numbered year**	**e. Land-based unit code** (answer using codes listed in the Code List section of the instructions)
06	D007	200	235	NA
06	D007	115	126	PL

EXAMPLE 5: An intermediate facility has been managing wastewater treatment sludges from electroplating operations (F006) for the past seven years but, due to company consolidation, it will soon shut down. In accordance with 40 CFR 260.42, the facility notifies that it will stop managing hazardous secondary material. The facility would report its activity as follows:

a. Facility code (answer using codes listed in the Code List section of the instructions)	**b. Waste Code(s) for hazardous secondary material (HSM)**	**c. Estimated short tons of HSM to be managed annually**	**d. Actual short tons of HSM that was managed during the most recent odd-numbered year**	**e. Land-based unit code** (answer using codes listed in the Code List section of the instructions)
08	F006	0	5,034	NA

Item 3 – Facility has Financial Assurance Pursuant to 40 CFR 261.4(a)(24)(vi)

Financial assurance is required for reclaimers (07, 11) and intermediate (08) facilities managing hazardous secondary material under 40 CFR 261.4(a)(24) and (25). See EPA's website for more information about these regulations: http://www.epa.gov/epawaste/hazard/dsw/impresource.htm.

- Mark "Yes", if you have financial assurance pursuant to 40 CFR 261.4(a)(24)(vi) AND you use at least one facility code that is 07, 08, or 11 in Item 2.a above. For example, the facilities in Examples 3 and 5 above are required to have financial assurance because the facility codes are 07 and 08, respectively.

- Mark "No", if you do NOT have financial assurance pursuant to 40 CFR 261.4(a)(24)(vi). Note: Reclaimers (07, 11) and intermediate (08) facilities must have financial assurance in order to manage hazardous secondary material under 40 CFR 261.4(a)(24) and (25). Answering "No" to this question may mean you are in violation of these regulations if you report facility codes 07, 08, or 11. For example, the facilities in Examples 1, 2, and 4 above are not required to have financial assurance because these facilities did not report facility codes of 07, 08, or 11.

Notification of RCRA Subtitle C Activity

OTHER REFERENCE INFORMATION

AND

CODE LISTS

EXCLUDED WASTES

This section presents a partial list of excluded materials and wastes. This list includes materials excluded from the definition of solid waste in 40 CFR 261.4(a) and solid wastes excluded from the definition of hazardous waste in 40 CFR 261.4(b). In addition, it also includes specific solid waste samples that are excluded from the definition of hazardous waste in 40 CFR 261.4(d)-(f). Finally, this list includes specific hazardous wastes, as described in 40 CFR 261.4(c), that are exempted from certain RCRA Subtitle C regulations.

Agricultural Waste Fertilizer
§261.4(b)(2)

Analytical Samples
§261.4(d)

Arsenic Treated Wood and Wood Products
§261.4(b)(9)

Cement Kiln Dust
§261.4(b)(8)

Coking By-products
§261.4(a)(10)

Comparable/Syn gas Fuels
§261.4(a)(16)

Domestic Sewage
§261.4(a)(1)

Dredged Material
§261.4(g)

Drilling Fluid
§261.4(b)(5)

Excluded Scrap Metal Being Recycled
§261.4(a)(13)

Exported Wastes
§262.56

Fossil Fuel Emission Control Waste
§261.4(b)(4)

Hazardous Secondary Material Generated and Reclaimed Under the Control of the Generator
40 CFR 261.2(a)(2)(ii)
40 CFR 261.4(a)(23)

Hazardous Secondary Material Transferred Off-site for Reclamation
40 CFR 261.4(a)(24)
40 CFR 261.4(a)(25)

Household Waste
§261.4(b)(1)(i)-(ii)

HTMR Condenser Residue
§261.4(a)(11)

In situ Mining Materials
§261.4(a)(5)

Irrigation Return Flows
§261.4(a)(3)

Kraft Mill Steam Stripper Condensates
§261.4(a)(15)

Leachate
§261.4(b)(15)

Mining and Mineral Process Wastes
§261.4(b)(7)

Mining Overburden
§261.4(b)(3)

Nuclear Material
§261.4(a)(4)

Oil Filters
§261.4(b)(13)

Petrochemical Recovered Oil
§261.4(a)(18)

Petroleum-contaminated Media and Debris
§261.4(b)(10)

Petroleum Refining
§261.4(a)(12)

Pulping Liquor
§261.4(a)(6)

Refrigerants
§261.4(b)(12)

Secondary Material Returned to Original Process
§261.4(a)(8)

Secondary Material from Mineral Processing
§261.4(a)(17)

Shredded Circuit Boards Being Recycled
§261.4(a)(14)

Spent Caustics from Petroleum Refining
§261.4(a)(19)

Spent Wood Preserving Solutions and Wastewaters
§261.4(a)(9)

Sulfuric Acid
§261.4(a)(7)

Treatability Study Samples
§261.4(e)

Treatability Studies at Laboratories and Testing Facilities
§261.4(f)

Trivalent Chromium Waste
§261.4(b)(6)

Used Oil Distillation Bottoms
§261.4(b)(14)

Wastes Generated in Storage Tanks, Transport Vehicles, Pipelines, or Manufacturing Process Units
§261.4(c)

Wastewater Point Source Discharge
§261.4(a)(2)

DEFINITIONS

This section contains definitions of terms helpful for completing the form. For terms defined in the Code of Federal Regulations (CFR), the appropriate citation is provided.

Accumulation

A site that does not hold RCRA Interim Status or a RCRA permit may accumulate hazardous waste for a short period of time before shipping it off-site. The waste must be accumulated in either tanks or containers; it may not be accumulated in surface impoundments.

Generators of more than 1,000 kg (2,200 lbs) of hazardous waste per month may accumulate their waste for up to 90 days before shipping it off-site. Generators of 100 kg (220 lbs) to 1,000 kg (2,200 lbs) of hazardous waste per month may accumulate their waste for up to 180 days before shipping it off-site. If the nearest treatment, storage, disposal, or recycling facility to which they can send their waste is more than 200 miles away, they may accumulate their waste for 270 days. See 40 CFR 262.34.

Act or RCRA

The Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended by the Hazardous and Solid Waste Amendments of 1984, 42 U.S.C. Section 6901 *et seq.*

Acute Hazardous Waste

Any hazardous waste with an EPA hazardous waste code beginning with the letter "P" (40 CFR 261.33(e)) or any of the following "F" codes: F020, F021, F022, F023, F026, and F027 (40 CFR 261.31). These wastes are subject to stringent quantity standards for accumulation and generation (40 CFR 261.5(e)).

Authorized Representative

The person responsible for the overall operation of the site or an operational unit (i.e., part of a site), e.g., superintendent or plant manager, or person of equivalent responsibility.

Authorized State

A State that has obtained authorization from the EPA to direct its own RCRA program.

Boiler

An enclosed device using controlled flame combustion and having the following characteristics:

1. The unit has physical provisions for recovering and exporting energy in the form of steam, heated fluids, or heated gases;
2. The unit's combustion chamber and primary energy recovery section(s) are of integral design (i.e., they are physically formed into one manufactured or assembled unit);
3. The unit continuously maintains an energy recovery efficiency of at least 60 percent, calculated in terms of the recovered energy compared with the thermal value of the fuel;
4. The unit exports and utilizes at least 75 percent of the recovered energy, calculated on an annual basis (excluding recovered heat used internally in the same unit, for example, to preheat fuel or combustion air or drive fans or feedwater pumps); or
5. The unit is one which the Regional Administrator has determined, on a case-by-case basis, to be a boiler, after considering the standards in 40 CFR 260.32

By-product Material

A by-product material is (1) any radioactive material (except special nuclear material) yielded in or made radioactive by exposure to the radiation incident to the process of producing or utilizing special nuclear material; and (2) the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content (defined in the Atomic Energy Act of 1954).

Code of Federal Regulations (CFR)

Codification of the general and permanent rules published in the Federal Register by the Executive departments and agencies of the Federal Government. The Code is divided into 50 titles which represent broad areas subject to Federal regulation. Each title is divided into chapters that usually bear the name of the issuing agency. Each chapter is further subdivided into parts covering specific regulatory areas. The CFR title applicable for the Hazardous Waste Report is "40," as in "40 CFR 262.34."

Conditionally Exempt Small Quantity Generator (CESQG) of Hazardous Waste

A generator that meets the following criteria:
In every month during the year, the site did **all** of the following:

1. Generates no more than 100 kg (220 lbs.) of RCRA hazardous waste in any calendar month; **and**

2. Did not accumulate, at any time, more than 1,000 kg (2,200 lbs.) of RCRA hazardous waste; **and**

3. Did not generate, in any calendar month, or accumulate at any time, more than 1 kg (2.2 lbs.) of acute hazardous waste, **and** no more than 100 kg (220 lbs.) of material from the cleanup of a spill of acute hazardous waste.

Confidential Business Information (CBI)

Information a facility does not wish to make available to the general public for competitive business reasons. Confidential Business Information (CBI) may be claimed for certain information in your submittal. A claim may be made in accordance with 40 CFR Part 2, Subpart B.

Delisted Waste

Site-specific wastes excluded from regulation under 40 CFR 260.20 and 260.22. A waste at a particular generating site may be excluded by petitioning the EPA Administrator for a regulatory amendment. These wastes are listed in Appendix IX of 40 CFR Part 261.

Disposal

The discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including ground waters.

Eligible Academic Entity

A college or university, or a non-profit research institute that is owned by or has a formal written affiliation with a college or university, or a teaching hospital that is owned by or has a formal written affiliation with a college or university pursuant to 40 CFR Part 262 Subpart K (See 40 CFR 262.200).

Environmental Protection Agency (EPA)	EPA, also called U.S. EPA, means the United States Environmental Protection Agency. Some State environmental authorities may be called the EPA also, as in "Illinois EPA."
EPA Identification (ID) Number	The number assigned by the EPA to each hazardous waste generator, hazardous waste transporter, and treatment, storage, or disposal facility; United States importer of hazardous waste; mixed waste (hazardous and radioactive) generator; recycler of hazardous waste; exempt boiler and/or industrial furnace burning or processing hazardous waste; large quantity handler of or destination facility for universal wastes; disposer of hazardous waste with an underground injection permit; used oil transporter, used oil processor/re-refiner, off-specification used oil fuel burner, used oil fuel marketer; eligible academic entity managing laboratory hazardous waste under Subpart K; or site undergoing corrective action. Additionally, facilities that must notify using the Site ID Form and Addendum to the Site ID Form that they are managing hazardous secondary material will also be assigned an EPA ID number.
Excluded Wastes	Wastes excluded from the definition of solid or hazardous waste under 40 CFR 261.3 and 261.4. For a partial listing, see the "Other Reference Information" section of this booklet.
Hazardous Waste	A hazardous waste as defined in 40 CFR 261.3.
Hazardous Secondary Material (HSM)	A secondary material (e.g., spent material, by-product, or sludge) that, when discarded, would be identified as hazardous waste under 40 CFR Part 261. Facilities managing hazardous secondary material under 40 CFR 261.2(a)(2)(ii), 40 CFR 261.4(a)(23), (24), or (25) must complete the Addendum to the Site Identification Form: Notification for Managing Hazardous Secondary Material. You must check with your State to determine if you are eligible to manage hazardous secondary material under these exclusions (see also http://www.epa.gov/epawaste/hazard/dsw/statespf.htm).
Hazardous Waste Generator	Any person, by site, whose act or process produces hazardous waste identified or listed in 40 CFR Part 261.
Hazardous Waste Number or Code, EPA	The number (or code) assigned by the EPA to each hazardous waste listed in 40 CFR Part 261, Subpart D and to each characteristic identified in 40 CFR Part 261, Subpart C. The codes consist of one letter (D, F, P, U, or K) and three numbers. For a list of EPA hazardous waste codes see the "Other Reference Information" section of this booklet.
Hazardous Waste Number or Code, State	The number (or code) assigned by the State to each hazardous waste listed in the State regulations. Obtain a list of the States waste codes from your State.
Hazardous Waste Storage	The holding of hazardous waste for a temporary period, at the end of which the hazardous waste is treated, disposed of, or stored elsewhere.

Hazardous Waste Transfer Facility	Refer to "Transfer Facility" definition.
Hazardous Waste Transporter	Refer to "Transporter" definition.
Hazardous Waste Treatment	Any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such hazardous waste, or so as to recover energy or material resources from the hazardous waste, or so as to render such hazardous waste nonhazardous, or less hazardous; safer to transport, store or dispose of; or amenable for recovery, amenable for storage, or reduced in volume. Such term includes any activity or processing designed to change the physical form or composition of hazardous waste so as to render it nonhazardous.
Incineration	Burning of certain types of solid, liquid, or gaseous materials; or a treatment technology involving destruction of waste by controlled burning at high temperatures (e.g., burning sludge to remove the water and reduce the remaining residues to a safe, non-burnable ash that can be disposed safely on land, in some waters, or in underground locations).
Industrial Furnace	Any of the following enclosed devices that are integral components of manufacturing processes and that use thermal treatment to accomplish recovery of materials or energy: cement kilns; lime kilns; aggregate kilns; phosphate kilns; coke ovens; blast furnaces; smelting, melting and refining furnaces; titanium dioxide chloride process oxidation reactors; methane reforming furnaces; pulping liquor recovery furnaces; combustion devices used in the recovery of sulfur values from spent sulfuric acid; halogen acid furnaces, as defined under industrial furnace in 40 CFR 260.10; and such other devices as the Administrator may add to this list.
Interim (Permit) Status	Period during which the owner/operator of an existing TSD facility is treated as having been issued a RCRA permit even though he/she has not yet received a final determination. An existing facility should have automatically qualified for interim status if the owner/operator filed both timely "notification" and the first part (Part A) of the RCRA permit application. Interim status continues until a final determination is made to issue or deny the permit. Owner/operator of new facilities cannot by definition qualify for interim status; rather, they need a RCRA permit prior to beginning construction of a hazardous waste management facility.
Large Quantity Generator (LQG) of Hazardous Waste	A generator that meets **any** of the following criteria: 1. Generates, in a calendar month, 1,000 kg (2,200 lbs.) or more of non-acute RCRA hazardous waste; **or** 2. Generates, in a calendar month, or accumulates at any time, more than 1 kg (2.2 lbs.) of RCRA acute hazardous waste; **or** 3. Generates, in a calendar month, or accumulates at any time, more than 100 kg (220 lbs.) of spill cleanup material contaminated with RCRA acute hazardous waste.

Large Quantity Handler of Universal Waste (LQHUW)	A universal waste handler (as defined in 40 CFR 273.9) who accumulates 5,000 kg or more total of universal wastes (batteries, pesticides, mercury-containing equipment, or lamps – calculated collectively) at any time. This designation is retained through the end of the calendar year in which the 5,000 kg limit is met or exceeded.
Management, or Hazardous Waste Management	Systematic control of the collection, source separation, storage, transportation, processing, treatment, recovery, or disposal of hazardous waste (40 CFR 260.10).
Manifest, Uniform Hazardous Waste	The shipment document EPA form 8700-22 and, if necessary, Form 8700-22A, originated and signed by a generator in accordance with the instructions included in the appendix to 40 CFR Part 262. The "cradle-to-grave" paperwork must accompany a shipment of hazardous waste as it moves from the generator to the transporter and eventually to the hazardous waste management facility.
Mixed Waste	Waste that contains both hazardous and source, special nuclear, or by-product material subject to the Atomic Energy Act (AEA), RCRA section 1004(41), 42 U.S.C. 6903 (63 FR 17414; April 9, 1998).
Municipality	A city, village, town, borough, county, parish, district, association, Indian tribe or authorized Indian tribal organization, designated and approved management agency under Section 208 of the Clean Water Act, or any other public body created by or under State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes.
Off-site Facility	A hazardous waste treatment, storage, disposal, or recycling area located at a place away from the generating site.
Off-Specification Used Oil Burner	A site where used oil not meeting the specification requirements in 40 CFR 279.11 (off-specification used oil) is burned for energy recovery in devices identified in Section 279.61(a).
Off-Specification Used Oil Fuel	Used oil fuel that does not meet the specification provided under 40 CFR 279.11.
On-site Facility	A hazardous waste treatment, storage, disposal, or recycling area located on the generating site.
On-Specification Used Oil Fuel	Used oil fuel that meets the specification provided under 40 CFR 279.11.
Operator	The person responsible for the overall operation of a RCRA site. Note: This is the legal entity which controls the RCRA site operation rather than the plant or site manager. This is usually a company or business name, not an individual. See **Person**.
Owner	The person who owns a RCRA site or part of a RCRA site. Note: This includes the owner(s) of the building(s) and/or land. This may be an individual, company, or business name. See **Person**.

Person	An individual, trust, firm, joint stock company, Federal Agency, corporation (including a government corporation), partnership, association, State, municipality, commission, political subdivision of a State, or any interstate body.
Resource Conservation and Recovery Act (RCRA)	The Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act (RCRA) (40 CFR 270.2). It is the Federal statute that regulates the generation, treatment, storage, disposal, recycling, and/or transportation of solid and hazardous waste.
RCRA Interim (Permit) Status	Refer to "Interim (Permit) Status" definition.
RCRA Permit	A complete RCRA permit is comprised of an operating permit for hazardous waste treatment, storage, and disposal, and a corrective action permit addressing releases from solid waste management unit (SWMUs). To apply for a permit, a site must file a two-part application (Part A and Part B). A facility is not considered to have a complete RCRA permit until both parts have been issued.
RCRA Subtitle C Site (RCRA Site or Site)	The physical plant or location at which one or more of the following regulated waste activities occurs: the generation, transportation, treatment, storage, or disposal of hazardous wastes; recycling of hazardous wastes; United States importer of hazardous waste; mixed waste (hazardous and radioactive) generator; exempt boiler and/or industrial furnace burning or processing hazardous waste; large quantity handler of or destination facility for universal wastes; disposing hazardous waste with an underground injection permit; the transportation (and temporary storage during transportation), processing/re-refining, burning, or marketing of used oil; eligible academic entity managing laboratory hazardous waste under Subpart K; facility managing hazardous secondary material being reclaimed that must comply with certain requirements and conditions; or undergoing corrective action. A site may consist of several treatment, storage, or disposal operational units. For entities that only transport regulated wastes, the term site refers to the headquarters of that entity's operations.
Recycling	Use, reuse, or reclamation of a material (40 CFR 261.1(c)(7)). "Reclamation" is the processing or regeneration of a material to recover a usable product (e.g., recovery of lead values from spent batteries, regeneration of spent solvents) (40 CFR 261.1(c)(4)). A material is "used or reused" if it is either: (1) employed as an ingredient (including use as an intermediate) in an industrial process to make a product (e.g., distillation bottoms from one process used as feedstock in another process) (40 CFR 261.1(c)(5)). However, a material will not satisfy this condition if distinct components of the material are recovered as separate end products (as when metals are recovered from metal-containing secondary material); or (2) employed in a particular function or application as an effective substitute for a commercial product (e.g., spent pickle liquor used as phosphorous precipitant and sludge conditioner in wastewater treatment).

Small Quantity Generator (SQG) of Hazardous Waste

A generator that meets **all** the following criteria:

1. Generates, in any calendar month, more than 100 kg (220 lbs.) but less than 1,000 kg (2,200 lbs.) of RCRA hazardous waste; **and**

2. Does not generate, in any calendar month, or accumulates at any time, more than 1 kg (2.2 lbs.) of acute hazardous waste **and**

3. Does not generate more than 100 kg (220 lbs.) of material from the cleanup of a spill of acute hazardous waste.

OR, a site is a Small Quantity Generator if the site:

1. Meets 1) and 3) of the Conditionally Exempt Small Quantity Generator criteria (see definition), but

2. Is storing more than 1,000 kg (2,200 lbs.) of RCRA hazardous waste on-site. If the site accumulates, at any time, more than 1,000 kg (2,200 lbs.) of RCRA hazardous waste, the site must apply for an EPA ID Number using this form.

Small Quantity On-Site Burner Exemption

The persons who burn small quantities of hazardous waste in an on-site boiler or industrial furnace, in accordance with 40 CFR 266.108, are conditionally exempt from regulation for that activity.

Smelting, Melting, and Refining Furnace Exemption

Under 40 CFR 266.100(c), owners or operators of smelting, melting, and refining furnaces that process hazardous wastes solely for metals recovery are conditionally exempt from regulation, except for 40 CFR 266.101 and 266.112, provided they comply with limited requirements set forth in Section 266.100(c). Similarly, 40 CFR 266.100(f) provides that owners or operators of smelting, melting and refining furnaces that process hazardous wastes for the recovery of precious metals are conditionally exempt from regulation, except for 40 CFR 266.112, provided they comply with limited requirements specified in Section 266.100(f).

Solid Waste

Any garbage, refuse, or sludge, or other materials not excluded under 40 CFR 261.4(a). Exclusions include, for example, domestic sewage and any mixture of other wastes that pass through a sewer system to a publicly owned treatment works (POTWs); industrial wastewater discharges that are point source discharges subject to regulation under the Clean Water Act; irrigation return flows; nuclear materials defined by the Atomic Energy Act; and in situ mining materials (see the "Other Reference Information" section of this booklet.). Wastewaters being collected, stored, or treated before discharge and sludges generated by wastewater treatment are not excluded. The EPA defines hazardous waste as a subset of solid waste.

Source Material

As defined by the Atomic Energy Act of 1954: (1) Uranium, thorium, or any other material determined by the Nuclear Regulatory Commission pursuant to the provisions of Section 2091 of this title to be source material; or (2) ores containing one or more of the foregoing materials in such concentration as the Commission may by regulation determine from time to time.

Special Nuclear Material As defined by the Atomic Energy Act of 1954: (1) plutonium, uranium enriched in the isotope 233 or in the isotope 235, and any other material which the Nuclear Regulatory Commission, pursuant to the provisions of Section 2071 of this title, determines to be special nuclear material, but does not include source material; or (2) any material artificially enriched by any of the foregoing, but does not include source material.

Subpart K An alternative set of generator requirements for managing laboratory hazardous waste at eligible academic entities. Generators that are eligible academic entities with laboratories may elect to opt into 40 CFR Part 262 Subpart K and manage their laboratory hazardous waste under Subpart K in lieu of 40 CFR 262.34(c) (or 40 CFR 261.5 for CESQGs). In order for eligible academic entities (see definition) to opt into Subpart K or subsequently withdraw from Subpart K, they must use the Site ID Form to notify the appropriate State or EPA Regional Office. Refer to 40 CFR 262.203 and 262.204. Note: You must check with your State to determine if you are eligible to manage laboratory hazardous waste pursuant to 40 CFR Part 262 Subpart K and for any state-specific requirements.

Tolling Tolling arrangements describe a particular type of recycling contract between two companies. Specifically, the "tolling" company certifies that it has a contract with a manufacturer to produce a product, and that manufacturing process generates a residual material that can be recycled by the tolling company. If the tolling company certifies that the contract specifies that the tolling company owns and has responsibility for the recyclable material once it is generated, and the material is returned to the tolling company for reclamation, and subsequently recycled, the material is excluded from regulation (under 40 CFR 261.2(a)(2)(ii) or 261.4(a)(23)), provided certain requirements are met.

Transfer Facility Any transportation-related facility including loading docks, parking areas, storage areas, and other similar areas where shipments of hazardous waste are held for 10 days or less during the normal course of transportation (40 CFR 260.10 and 40 CFR 263.12).

Transporter A person engaged in the off-site transportation of hazardous waste by air, rail, highway, or water.

Underground Injection Control The subsurface emplacement of fluids through a bored, drilled or driven well; or through a dug well, where the depth of the dug well is greater than the largest surface dimension. Underground injection wells are regulated under both the Safe Drinking Water Act and the Resource Conservation and Recovery Act (see 40 CFR Part 148).

United States Importer Any person who imports hazardous waste from a foreign country into the United States. This does not include hazardous waste shipped from a foreign Department of Defense site, Maquiladora, United States territory or protectorate.

Universal Waste	Any of the following hazardous wastes that are managed under the universal waste requirements of 40 CFR Part 273: batteries, pesticides, mercury-containing equipment, and lamps. Some States may have State-specific universal wastes defined as well.
Used Oil	Any oil that has been refined from crude oil, or any synthetic oil, that has been used, and as a result of such use, is contaminated by physical or chemical impurities.
Used Oil Fuel Marketer	Any person who conducts either of the following activities: 1. Directs a shipment of off-specification used oil from their site to an off-specification used oil burner; or 2. First claims that used oil that is to be burned for energy recovery meets the used oil fuel specifications set forth in 40 CFR 279.11.
Used Oil Management Activities	For the purposes of the Site ID Form, includes used oil transportation; used oil processing and re-refining; burning off-specification used oil fuel; and used oil fuel marketing.
Used Oil Processing	Chemical or physical operations designed to produce from used oil, or to make used oil more amenable for production of, fuel oils, lubricants, or other used oil-derived products. Processing includes, but is not limited to: blending used oil with virgin petroleum products, blending used oils to meet the fuel specification, filtration, simple distillation, chemical or physical separation, and re-refining.
Used Oil Processor	A site that processes on- specification or off-specification used oil.
Used Oil Re-Refiner	A site that produces lubricating oils and greases, industrial fuel, asphalt extender, gasoline, and other products from on- specification or off-specification used oil.
Used Oil Transfer Facility	Any transportation-related facility, including loading docks, parking areas, storage areas, and other areas where shipments of used oil are held for more than 24 hours during the normal course of transportation and not longer than 35 days. Transfer facilities that store used oil for more than 35 days are subject to regulation under 40 CFR Part 279, Subpart F.
Used Oil Transporter	Any person who transports used oil, any person who collects used oil from more than one generator and transports the collected oil, and owners and operators of used oil transfer facilities. Used oil transporters may consolidate or aggregate loads of used oil for purposes of transportation but, with the following exception, may not process used oil. Used oil transporters may conduct incidental processing operations that occur in the normal course of used oil transportation (e.g., settling and water separation), but that are not designed to produce (or make more amenable for production of) used oil-derived products or used oil fuel.

EPA HAZARDOUS WASTE CODES

A list of all the hazardous waste codes is shown below. See the regulations for details.

CHARACTERISTICS OF HAZARDOUS WASTE *(SEE 40 CFR 261.24)* – **DXXX**

HAZARDOUS WASTE FROM NON-SPECIFIC SOURCES *(SEE 40 CFR 261.31)* – **FXXX**

HAZARDOUS WASTE FROM SPECIFIC SOURCES *(SEE 40 CFR 261.32)* - **KXXX**

DISCARDED COMMERCIAL CHEMICAL PRODUCTS, OFF-SPECIFICATION SPECIES, CONTAINER RESIDUALS, AND SPILL RESIDUES THEREOF – ACUTE HAZARDOUS WASTE *(SEE 40 CFR 261.33)* – **PXXX**

DISCARDED COMMERCIAL CHEMICAL PRODUCTS, OFF-SPECIFICATION SPECIES, CONTAINER RESIDUES, AND SPILL RESIDUES THEREOF – TOXIC WASTES *(SEE 40 CFR 261.33)* - **UXXX**

D001	F001	K001	K047	K123	P001	P050	P106	U001	U048	U095	U143	U189	U247
D002	F002	K002	K048	K124	P002	P051	P108	U002	U049	U096	U144	U190	U248
D003	F003	K003	K049	K125	P003	P054	P109	U003	U050	U097	U145	U191	U249
D004	F004	K004	K050	K126	P004	P056	P110	U004	U051	U098	U146	U192	U271
D005	F005	K005	K051	K131	P005	P057	P111	U005	U052	U099	U147	U193	U278
D006	F006	K006	K052	K132	P006	P058	P112	U006	U053	U101	U148	U194	U279
D007	F007	K007	K060	K136	P007	P059	P113	U007	U055	U102	U149	U196	U280
D008	F008	K008	K061	K141	P008	P060	P114	U008	U056	U103	U150	U197	U328
D009	F009	K009	K062	K142	P009	P062	P115	U009	U057	U105	U151	U200	U353
D010	F010	K010	K069	K143	P010	P063	P116	U010	U058	U106	U152	U201	U359
D011	F011	K011	K071	K144	P011	P064	P118	U011	U059	U107	U153	U202	U364
D012	F012	K013	K073	K145	P012	P065	P119	U012	U060	U108	U154	U203	U367
D013	F019	K014	K083	K147	P013	P066	P120	U014	U061	U109	U155	U204	U372
D014	F020	K015	K084	K148	P014	P067	P121	U015	U062	U110	U156	U205	U373
D015	F021	K016	K085	K149	P015	P068	P122	U016	U063	U111	U157	U206	U387
D016	F022	K017	K086	K150	P016	P069	P123	U017	U064	U112	U158	U207	U389
D017	F023	K018	K087	K151	P017	P070	P127	U018	U066	U113	U159	U208	U394
D018	F024	K019	K088	K156	P018	P071	P128	U019	U067	U114	U160	U209	U395
D019	F025	K020	K093	K157	P020	P072	P185	U020	U068	U115	U161	U210	U404
D020	F026	K021	K094	K158	P021	P073	P188	U021	U069	U116	U162	U211	U409
D021	F027	K022	K095	K159	P022	P074	P189	U022	U070	U117	U163	U213	U410
D022	F028	K023	K096	K161	P023	P075	P190	U023	U071	U118	U164	U214	U411
D023	F032	K024	K097	K169	P024	P076	P191	U024	U072	U119	U165	U215	
D024	F034	K025	K098	K170	P026	P077	P192	U025	U073	U120	U166	U216	
D025	F035	K026	K099	K171	P027	P078	P194	U026	U074	U121	U167	U217	
D026	F037	K027	K100	K172	P028	P081	P196	U027	U075	U122	U168	U218	
D027	F038	K028	K100	K174	P029	P082	P197	U028	U076	U123	U169	U219	
D028	F039	K029	K101	K175	P030	P084	P198	U029	U077	U124	U170	U220	
D029		K030	K102	K176	P031	P085	P199	U030	U078	U125	U171	U221	
D030		K031	K103	K177	P033	P087	P201	U031	U079	U126	U172	U222	
D031		K032	K104	K178	P034	P088	P202	U032	U080	U127	U173	U223	
D032		K033	K105	K181	P036	P089	P203	U033	U081	U128	U174	U225	
D033		K034	K106		P037	P092	P204	U034	U082	U129	U176	U226	
D034		K035	K107		P038	P093	P205	U035	U083	U130	U177	U227	
D035		K036	K108		P039	P094		U036	U084	U131	U178	U228	
D036		K037	K109		P040	P095		U037	U085	U132	U179	U234	
D037		K038	K110		P041	P096		U038	U086	U133	U180	U235	
D038		K039	K111		P042	P097		U039	U087	U134	U181	U236	
D039		K040	K112		P043	P098		U041	U088	U135	U182	U237	
D040		K041	K113		P044	P099		U042	U089	U136	U183	U238	
D041		K042	K114		P045	P101		U043	U090	U137	U184	U239	
D042		K043	K115		P046	P102		U044	U091	U138	U185	U240	
D043		K044	K116		P047	P103		U045	U092	U140	U186	U243	
		K045	K117		P048	P104		U046	U093	U141	U187	U244	
		K046	K118		P049	P105		U047	U094	U142	U188	U246	

HSM FACILITY CODES

Facility codes describe the specific regulation a facility uses to manage its hazardous secondary material (HSM) and the type of activity the facility performs under that regulation (e.g., generator, reclaimer). Review the groups and pick the appropriate code. If more than one facility code applies to you, enter each code on a separate row under Item 2 of the Addendum to the Site ID Form.

Under Control of the Generator Exclusion (40 CFR 261.2(a)(2)(ii) or 261.4(a)(23))	
Code	**Facility Code Description**
01	**HSM Generator reclaiming HSM "on-site"**: This code applies if you generate and reclaim hazardous secondary material at your generating facility. *See also paragraph (1) in the Federal definition of "Hazardous secondary material generated and reclaimed under the control of the generator" in 40 CFR Part 260.10*
02	**HSM Generator transferring HSM to reclaimer within the "same company":** This code applies if you generate hazardous secondary material and send the material for reclamation to a different facility that is either controlled by you or controlled by the same person that controls your generating facility. *See also paragraph (2) in the Federal definition of "Hazardous secondary material generated and reclaimed under the control of the generator" in 40 CFR Part 260.10.*
03	**Reclaimer receiving HSM from HSM generator within the "same company":** This code applies if you receive and reclaim hazardous secondary material from a different facility that either controls you or is controlled by the same person that controls you. *See also paragraph (2) in the Federal definition of "Hazardous secondary material generated and reclaimed under the control of the generator" in 40 CFR Part 260.10.*
04	**Tolling Contractor reclaiming HSM pursuant to a tolling contract:** This code applies if you are a tolling contractor that reclaims hazardous secondary material pursuant to a written contract with a toll manufacturer. *See also paragraph (3) in the Federal definition of "Hazardous secondary material generated and reclaimed under the control of the generator" in 40 CFR Part 260.10.*
05	**Toll Manufacturer managing HSM pursuant to a tolling contract:** This code applies if you generate and send hazardous secondary material for reclamation to a tolling contractor pursuant to a written contract. *See also paragraph (3) in the Federal definition of "Hazardous secondary material generated and reclaimed under the control of the generator" in 40 CFR Part 260.10.*

Transfer-based Exclusion (40 CFR 261.4(a)(24))	
Code	**Facility Code Description**
06	**HSM Generator transferring HSM off-site to a domestic reclamation facility:** This code applies if you generate and send hazardous secondary material for reclamation to an off-site domestic reclamation facility.
07	**Reclaimer receiving HSM from off-site:** This code applies if you reclaim hazardous secondary material received from an off-site domestic hazardous secondary material generator or other domestic facility.
08	**Intermediate facility:** This code applies if you receive hazardous secondary material from an off-site domestic hazardous secondary material generator or another domestic facility and you store it for more than ten days. This code does not apply if you generate or reclaim the hazardous secondary material.

Imports/Exports (40 CFR 261.4(a)(24) or (25))	
Code	**Facility Code Description**
09	**HSM Generator exporting HSM off-site to a foreign reclamation facility:** This code applies if you generate and export hazardous secondary material for reclamation to a foreign reclamation facility.
10	**HSM Generator importing HSM from a foreign entity to send to another domestic reclamation facility:** This code applies if you import hazardous secondary material from a foreign entity and send the material for reclamation to a domestic reclamation facility.
11	**HSM Generator <u>AND</u> Reclaimer of imported HSM:** This code applies if you import hazardous secondary material from a foreign entity and reclaim the material at your facility.

HSM LAND-BASED UNIT CODES

A 2-digit code that best describes the land-based unit you use or will use to manage the hazardous secondary material.

Code	Land-based Unit Code Description
NA	Do not use land-based units to manage hazardous secondary material.
SI	Use surface impoundment(s) to manage hazardous secondary material. A surface impoundment is a natural topographic depression, man-made excavation or diked area formed primarily of earthen materials (although it may be lined with man-made materials), which is designed to hold an accumulation of liquid hazardous secondary materials or materials containing free liquids and which is not an injection well.
PL	Use pile(s) to manage hazardous secondary material. Pile means any non-containerized accumulation of solid, nonflowing hazardous secondary material that is used for storage and is not a containment building.
OT	Use other land-based unit(s) to manage hazardous secondary material.

OMB# 2050-0024; Expires 12/31/2014

ND MPLETED ORM TO: The Appropriate State or Regional Office.	United States Environmental Protection Agency **RCRA SUBTITLE C SITE IDENTIFICATION FORM**

1. Reason for Submittal MARK ALL BOX(ES) THAT APPLY	**Reason for Submittal:** ☐ To provide an Initial Notification (first time submitting site identification information / to obtain an EPA ID number for this location) ☐ To provide a Subsequent Notification (to update site identification information for this location) ☐ As a component of a First RCRA Hazardous Waste Part A Permit Application ☐ As a component of a Revised RCRA Hazardous Waste Part A Permit Application (Amendment #_____) ☐ As a component of the Hazardous Waste Report (If marked, see sub-bullet below) ☐ Site was a TSD facility and/or generator of ≥1,000 kg of hazardous waste, >1 kg of acute hazardous waste, or >100 kg of acute hazardous waste spill cleanup in one or more months of the report year (or State equivalent LQG regulations)
2. Site EPA ID Number	**EPA ID Number** |_|_|_|_|_|_|_|_|_|_|_|_|
3. Site Name	**Name:**
4. Site Location Information	**Street Address:** **City, Town, or Village:** / **County:** **State:** / **Country:** / **Zip Code:**
Site Land Type	☐ Private ☐ County ☐ District ☐ Federal ☐ Tribal ☐ Municipal ☐ State ☐ Other
NAICS Code(s) for the Site (at least 5-digit codes)	**A.** |_|_|_|_|_|_| **C.** |_|_|_|_|_|_| **B.** |_|_|_|_|_|_| **D.** |_|_|_|_|_|_|
7. Site Mailing Address	**Street or P.O. Box:** **City, Town, or Village:** **State:** / **Country:** / **Zip Code:**
8. Site Contact Person	**First Name:** / **MI:** / **Last:** **Title:** **Street or P.O. Box:** **City, Town or Village:** **State:** / **Country:** / **Zip Code:** **Email:** **Phone:** / **Ext.:** / **Fax:**
9. Legal Owner and Operator of the Site	**A. Name of Site's Legal Owner:** / **Date Became Owner:** **Owner Type:** ☐ Private ☐ County ☐ District ☐ Federal ☐ Tribal ☐ Municipal ☐ State ☐ Other **Street or P.O. Box:** **City, Town, or Village:** / **Phone:** **State:** / **Country:** / **Zip Code:** **B. Name of Site's Operator:** / **Date Became Operator:** **Operator Type:** ☐ Private ☐ County ☐ District ☐ Federal ☐ Tribal ☐ Municipal ☐ State ☐ Other

A ID Number | | | | | | | | | | | | OMB#: 2050-0024; Expires 12/31/2014

Type of Regulated Waste Activity (at your site)
Mark "Yes" or "No" for all current activities (as of the date submitting the form); complete any additional boxes as instructed.

A. Hazardous Waste Activities; Complete all parts 1-10.

Y☐ N☐ **1. Generator of Hazardous Waste**
If "Yes", mark only one of the following – a, b, or c.

☐ a. LQG: Generates, in any calendar month, 1,000 kg/mo (2,200 lbs./mo.) or more of hazardous waste; **or** Generates, in any calendar month, or accumulates at any time, more than 1 kg/mo (2.2 lbs./mo) of acute hazardous waste; **or** Generates, in any calendar month, **or** accumulates at any time, more than 100 kg/mo (220 lbs./mo) of acute hazardous spill cleanup material.

☐ b. SQG: 100 to 1,000 kg/mo (220 – 2,200 lbs./mo) of non-acute hazardous waste.

☐ c. CESQG: Less than 100 kg/mo (220 lbs./mo) of non-acute hazardous waste.

If "Yes" above, indicate other generator activities in 2-4.

Y☐ N☐ **2. Short-Term Generator** (generate from a short-term or one-time event and not from on-going processes). If "Yes", provide an explanation in the Comments section.

N☐ **3. United States Importer of Hazardous Waste**

Y☐ N☐ **4. Mixed Waste (hazardous and radioactive) Generator**

Y☐ N☐ **5. Transporter of Hazardous Waste**
If "Yes", mark all that apply.

☐ a. Transporter

☐ b. Transfer Facility (at your site)

Y☐ N☐ **6. Treater, Storer, or Disposer of Hazardous Waste** Note: A hazardous waste Part B permit is required for these activities.

Y☐ N☐ **7. Recycler of Hazardous Waste**

Y☐ N☐ **8. Exempt Boiler and/or Industrial Furnace**
If "Yes", mark all that apply.

☐ a. Small Quantity On-site Burner Exemption

☐ b. Smelting, Melting, and Refining Furnace Exemption

Y☐ N☐ **9. Underground Injection Control**

Y☐ N☐ **10. Receives Hazardous Waste from Off-site**

B. Universal Waste Activities; Complete all parts 1-2.

Y☐ N☐ **1. Large Quantity Handler of Universal Waste (you accumulate 5,000 kg or more) [refer to your State regulations to determine what is regulated]. Indicate types of universal waste managed at your site. If "Yes", mark all that apply.**

a. Batteries ☐
b. Pesticides ☐
c. Mercury containing equipment ☐
d. Lamps ☐
e. Other (specify) _____ ☐
f. Other (specify) _____ ☐
g. Other (specify) _____ ☐

Y☐ N☐ **2. Destination Facility for Universal Waste**
Note: A hazardous waste permit may be required for this activity.

C. Used Oil Activities; Complete all parts 1-4.

Y☐ N☐ **1. Used Oil Transporter**
If "Yes", mark all that apply.

☐ a. Transporter

☐ b. Transfer Facility (at your site)

Y☐ N☐ **2. Used Oil Processor and/or Re-refiner**
If "Yes", mark all that apply.

☐ a. Processor

☐ b. Re-refiner

Y☐ N☐ **3. Off-Specification Used Oil Burner**

Y☐ N☐ **4. Used Oil Fuel Marketer**
If "Yes", mark all that apply.

☐ a. Marketer Who Directs Shipment of Off-Specification Used Oil to Off-Specification Used Oil Burner

☐ b. Marketer Who First Claims the Used Oil Meets the Specifications

Eligible Academic Entities with Laboratories—Notification for opting into or withdrawing from managing laboratory hazardous wastes pursuant to 40 CFR Part 262 Subpart K

❖ You can **ONLY** Opt into Subpart K if:

- you are at least one of the following: a college or university; a teaching hospital that is owned by or has a formal affiliation agreement with a college or university; or a non-profit research institute that is owned by or has a formal affiliation agreement with a college or university; AND
- you have checked with your State to determine if 40 CFR Part 262 Subpart K is effective in your state

Y☐ N☐ 1. Opting into or currently operating under 40 CFR Part 262 Subpart K for the management of hazardous wastes in laboratories **See the item-by-item instructions for definitions of types of eligible academic entities. Mark all that apply:**

☐ a. College or University

☐ b. Teaching Hospital that is owned by or has a formal written affiliation agreement with a college or university

☐ c. Non-profit Institute that is owned by or has a formal written affiliation agreement with a college or university

Y☐ N☐ 2. Withdrawing from 40 CFR Part 262 Subpart K for the management of hazardous wastes in laboratories

11. Description of Hazardous Waste

A. Waste Codes for Federally Regulated Hazardous Wastes. Please list the waste codes of the Federal hazardous wastes handled at your site. List them in the order they are presented in the regulations (e.g., D001, D003, F007, U112). Use an additional page if more spaces are needed.

B. Waste Codes for State-Regulated (i.e., non-Federal) Hazardous Wastes. Please list the waste codes of the State-Regulated hazardous wastes handled at your site. List them in the order they are presented in the regulations. Use an additional page if more spaces are needed.

12. Notification of Hazardous Secondary Material (HSM) Activity

Y☐ N☐ Are you notifying under 40 CFR 260.42 that you will begin managing, are managing, or will stop managing hazardous secondary material under 40 CFR 261.2(a)(2)(ii), 40 CFR 261.4(a)(23), (24), or (25)?

If "Yes", you must fill out the Addendum to the Site Identification Form: Notification for Managing Hazardous Secondary Material.

13. Comments

14. Certification. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations. For the RCRA Hazardous Waste Part A Permit Application, all owner(s) and operator(s) must sign (see 40 CFR 270.10(b) and 270.11).

Signature of legal owner, operator, or an authorized representative	Name and Official Title (type or print)	Date Signed (mm/dd/yyyy)

EPA ID Number | | | | | | | | | | | | OMB#: 2050-0024; Expires 12/31/2014

ADDENDUM TO THE SITE IDENTIFICATION FORM:
NOTIFICATION OF HAZARDOUS SECONDARY MATERIAL ACTIVITY

ONLY fill out this form if:

- You are located in a State that allows you to manage excluded hazardous secondary material (HSM) under 40 CFR 261.2(a)(2)(ii), 261.4(a)(23), (24), or (25) (or state equivalent). See http://www.epa.gov/epawaste/hazard/dsw/statespf.htm for a list of eligible states; **AND**
- You are or will be managing excluded HSM in compliance with 40 CFR 261.2(a)(2)(ii), 261.4(a)(23), (24), or (25) (or state equivalent) **or** you have stopped managing excluded HSM in compliance with the exclusion(s) and do not expect to manage any amount of excluded HSM under the exclusion(s) for at least one year. Do not include any information regarding your hazardous waste activities in this section.

1. Indicate reason for notification. Include dates where requested.

☐ Facility will begin managing excluded HSM as of _____ (mm/dd/yyyy).

☐ Facility is still managing excluded HSM/re-notifying as required by March 1 of each even-numbered year.

☐ Facility has stopped managing excluded HSM as of _____ (mm/dd/yyyy) and is notifying as required.

2. Description of excluded HSM activity. Please list the appropriate codes and quantities in **short tons** to describe your excluded HSM activity ONLY (do not include any information regarding your hazardous wastes). Use additional pages if more space is needed.

a. **Facility code** (answer using codes listed in the Code List section of the instructions)	b. **Waste code(s) for HSM**	c. **Estimated short tons of excluded HSM to be managed annually**	d. **Actual short tons of excluded HSM that was managed during the most recent odd-numbered year**	e. **Land-based unit code** (answer using codes listed in the Code List section of the instructions)

3. Facility has financial assurance pursuant to 40 CFR 261.4(a)(24)(vi). (Financial assurance is required for reclaimers and intermediate facilities managing excluded HSM under 40 CFR 261.4(a)(24) and (25))

☐ Y ☐ N Does this facility have financial assurance pursuant to 40 CFR 261.4(a)(24)(vi)?

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LIST OF RELEVANT PAGES FROM PART A AND PART B PERMITS

1. **For Treatment, Storage and Disposal (TSD) Facilities:** Please forward the pages of your RCRA Part A / Part B Permits showing the following information:

    - Facility identification
    - Signature of regulatory agency
    - Issue date and expiration date
    - Waste management activities/processes permitted
    - Waste types (i.e., waste codes) permitted

STATEMENT OF GOOD STANDING FORM

1. **Statement of Good Standing Form**

    a. Please insert the facility/generator name within the statement.

    b. Please sign the form in the space provided and returned as noted within the *Items Required for Approval* checklist.

Statement of Good Standing

By signing below, I certify based on my knowledge, _____
(Facility / Generator name)

is in good standing with the applicable state environmental agency, has appropriate permits to generate and ship the type of waste being sampled, and does not have any outstanding environmental compliance issues that would prohibit them from sending their waste to Keystone Cement Company.

_____	_____
Name (please print)	*Title*
_____	_____
Signature	*Date*

DOCUMENT INTEGRITY CERTIFICATION FORM

In agreement with the requirements set forth within Keystone's operating permit, a system of checks and balances has been established to define the responsibilities and proper procedural steps associated with gather necessary information to produce a 'prequalified' Module 1 / Form U Application. The information provided as requested by this packet, including this certification of document integrity, are required by the PADEP to ensure the accuracy and quality of documents contained within your waste fuels program application.

1. **Document Integrity Certification Form**

    a. Please sign the form in the space provided and returned as noted within the *Items Required for Approval* checklist.

DOCUMENT INTEGRITY CERTIFICATION

(Generator and Laboratory Specialist)

I acknowledge that the documents related to Module 1 / Form U applications I have agreed to compile, complete, and/or review on behalf of Keystone Cement Company will be reviewed by the Pennsylvania Department of Environmental Protection (PADEP) to render decisions regarding permit modifications to Keystone Cement Company's Hazardous Waste Storage Permit PAD002389559. I hereby certify to provide true, accurate, and complete information to the best of my ability.

I further certify that I will not knowingly falsify or tamper with any of the Module 1 / Form U application related documents. In the event I become aware of any errors or gain knowledge that documents have been falsified, I shall provide immediate notification to Keystone Cement Company.

I am aware that there may be significant penalties for submitting false information to the PADEP.

Also, I certify that I have followed the requirements of 40 CFR §262.11 and §264.13 when obtaining and/or analyzing the generator's representative sample(s).

This certification does not imply that I have taken over permit responsibilities for Keystone Cement Company.

_____ _____

Signature: on behalf of:(Company Name)

_____

Print Name

_____

Date

KEYSTONE CEMENT COMPANY CONTACTS AND ANNUAL RECERTIFICATION INFORMATION

1. Keystone Cement Company Contacts

As noted in Section 11, Keystone maintains a system of checks and balances to ensure the integrity of the waste fuels approvals process. The established Standard Operating Procedure (SOP) for *Module 1/Form U Profile Prequalification* details the roles and responsibilities of a number of key participants, which includes the Generator. Keystone personnel current on staff and having responsibilities within the approvals process include:

Sale Representative / Coordinator

Pete Kinikles
Keystone Cement Company
KRR Sales Manager

(404) 307-4106 Work
pkinikles@elementia.com

P.O. Box A, Route 329
Bath, PA 18014-0058

Manager, Environmental Compliance

Scott C. McGoldrick
Keystone Cement Company
Manager, Environmental Compliance

(610) 837-1881 x3213 Work
smcgoldrick@elementia.com

P.O. Box A, Route 329
Bath, PA 18014-0058

Resource Recovery Manager

Mechella Saba
Keystone Cement Company
Fuels Lab Supervisor

(610) 837-1881 x2212 Work
msaba@elementia.com

P.O. Box A, Route 329
Bath, PA 18014-0058

Although not specifically mentioned here-in, other personnel including laboratory, technical compliance, and independent professionals are also involved in the review of new waste streams.

2. Following approval of the generator's waste stream for disposal at Keystone Cement Company, the generator will be required to annually recertify that the waste stream has not changed and complete a Benzene NESHAP Questionnaire. An example of the letter and an actual Benzene NESHAP questionnaire are attached.

    a. Example Letter with Generator Certification

    b. Please complete the **Benzene NESHAP Questionnaire** and sign in the space provided.

KEYSTONE CEMENT COMPANY

P.O. BOX A, BATH, PA 18014-0058 TELEPHONE (610) 837-1881

<Date>

Contact Name
XYZ Corp (Generator Company)
111 Main Street
Anytown, PA 10101

RE: MODULE 1 /FORM U APPLICATION ANNUAL RECERTIFICATION
ID NUMBER: MN-123

Dear Contact Name:

As a condition of Hazardous Waste Permit PAD002389559 issued to Keystone Cement Company by the Pennsylvania Department of Environmental Protection, annual recertification of approved Module 1/Form U applications is required. Also required is an annual Benzene Neshap Questionnaire. Attached is a Benzene form for your completion.

Please sign the certification below if the waste stream described in the approved Module 1/Form U application identified above has not changed and that the process generating the waste has not changed. If the waste stream has changed or the process generating the waste stream has changed, a new application must be submitted for approval. Send the signed certification and Benzene Questionnaire, via fax, to the attention Diana Borger at 610-837-2267.

GENERATOR CERTIFICATION: I certify the above-identified waste stream has not changed. The information submitted in the Module 1/Form U application is representative of the waste stream, is a true and accurate description of the waste, and satisfies all applicable regulatory requirements. All relevant information in my possession regarding known or suspected hazards has been disclosed.

Name and Title_____

Signature: _____Date:_____

Please call with any questions.

Sincerely,

Customer Service Coordinator
Enclosure

ADMINISTRATION
RT. 329, BATH, PA 18014-0058
FAX 610-837-2267

PLANT & RECEIVING
RT. 512, BATH, PA 18014-0058
FAX 610-837-2291

KEYSTONE CEMENT COMPANY
BENZENE NESHAP QUESTIONNAIRE

Generator: _____ Profile No.:_____

Description of Waste: _____

1. Is the waste generated by any of the following types of industries?

   A. Petroleum Refineries (SIC 2911)
   B. Chemical Manufacturing Plants (SIC 2800-2899)
   C. Coke By-Product Recovery Plants (SIC 3312)
   D. Treatment, Storage and Disposal Facilities handling benzene wastes from A, B, or C above (SIC 4953, 4959, 9511, 4214)

   Yes _____ Which SIC Code? _____ No _____

2. Does the current Waste Profile indicate the presence of benzene in this waste or is the waste described by one or more of the following waste codes: D018, F005, U019, F024, F037, F038, K085, K104, K105, and K141-K147?

   Yes _____ (Circle waste code) No _____

3. Will any shipments of this waste contain greater than 10% water? Yes _____ No _____

4. What is the benzene concentration range in this waste?

   Minimum value: _____ Maximum Value*: _____ ppm or % (Circle one)
   *Note: The maximum value should represent the maximum possible benzene concentration in any shipment.

   4.1 Are these concentrations based on knowledge or past data? Knowledge _____ Past Data _____

   4.2 If concentrations are based on "knowledge," please provide a description of basis of knowledge:

   _____

   4.3 If concentrations are based on "test data," please provide date test data obtained: _____

   4.4 Has process changed since date of concentration determination? Yes _____ No _____

5. If you answered yes to item 1 and 2 above, what is your facility's Total Annual Benzene (TAB) in mega-grams (10^6 grams) per year?

   _____ Mg/yr

6. Is this waste subject to the Benzene Waste Operations NESHAP control requirements (per 40 CFR 61.342(b))?

   Yes _____ No _____

GENERATOR CERTIFICATION:
I hereby certify that all information submitted in this document is true, accurate and complete to the best of my knowledge and belief. In addition, I also certify that the upper range benzene concentration provided in response to question 4 above represents the maximum potential benzene concentration in any shipment of this waste stream that will be sent to Keystone Cement Company.

Signature: _____ Title: _____

Print Name: _____ Date: _____

REVISION HISTORY

Revision Date	Revision # | Version	Description of Modifications | Contents
September 2008	Current Revision - Original Issue	As approved in communications with PADEP – basis of this document.
July 2012	A	Updated section formatting and addition of some additional text introducing content within each section (where appropriate) | Specific modifications include: • Section 2 – addition of excerpt from 40 CFR §262.11. • Section 2 – inclusion of additional reference to EPA SW-846 guidance and related materials (*Waste Analysis at Facilities that Generate, Treat, Store, and Dispose of Hazardous Waste)* | Including hyperlinks • Section 4 | 5 – inclusion of additional explanation with regarding to the SRS and residual waste codes (as required by PADEP) • Section 8 – inclusion of current version of *Notification of Regulated Waste Activity* form | Including hyperlinks • Section 11 - inclusion of additional explanation with regarding document integrity requirements. • Section 12 - inclusion of updated information for current Keystone Cement personnel with key responsibilities in the waste approval process. Creation of bookmarked PDF document with section breaks to improve presentation and access to information.
February 2015	C	Removed old revision of profile document. Referenced as separate document. Updated company contacts to include current GCPV emails.
May 2017	D	Updated contact information as needed throughout document: • Section 1 - updated contact information. • Section 7 – Deletion of the notation of a fill able form; Directing questions to Okey, & Kaboly • Section 12 - inclusion of updated information for current Keystone Cement personnel with key responsibilities in the waste approval process.

APPENDIX B

GENERIC MODULE 1 APPLICATION FOR PETROLEUM REFINERY GENERATORS

KEYSTONE CEMENT COMPANY

Bath, PA

APPENDIX B
GENERIC MODULE 1/FORM U

Petroleum Refinery Generators Waste Codes F037, F038, K048, K049, K050, K051, K052, K169, K170, K171, and K172

INTRODUCTION

As part of the Resource Conservation and Recovery Act (RCRA) Part B Permit Renewal Application (permit renewal application), Keystone Cement Company (Keystone) is providing two (2) Generic Module 1 Forms to the Pennsylvania Department of Environmental Protection for approval. Both Generic Module 1 applications include all generators who produce cleanout liquid and sludge material from petroleum refineries from which Keystone may accept wastes for energy recovery utilization. Keystone's RCRA Permit No. PAD0023896559 was issued by the Pennsylvania Department of Environmental Protection (PADEP) on July 9, 2009 and expires July 9, 2019. A permit renewal application was submitted on August 3, 2018, which was at least 180 days prior to permit expiration.

Applicable waste codes accepted for energy recovery under these Generic Module 1's include waste streams from petroleum refineries and include F037, F038, K048, K049, K050, K051, K052, K169, K170, K171, and K172. Additional approved waste codes can be added if a generator confirms that the process generating the waste material has not changed. Within this permit renewal application, Keystone is requesting approval of four waste codes listed above (F037, F038, K171, K172).

One Generic Module 1 application is included for the petroleum refinery cleanout materials that contain ≥51% solids. These petroleum refinery cleanout materials are described as slurried oil sediments, slurry oil tank bottoms, and sludges from tank bottoms. The other Generic Module 1 application is included for the petroleum refinery cleanout materials that contain ≥51% liquids. These petroleum refinery cleanout materials are described as tank bottom liquid sludges. Each Generic Module 1 application includes the following attachments:

- Attachment 1 – List of Generators;
- Attachment 2 – Description of All Accepted Wastes;
- Attachment 3 – Chemical Analyses and Description of Waste Sampling Method; and
- Attachment 4 – Description and Schematic of Manufacturing Processes and/or Pollution Control Methods for All Accepted Wastes.

Prior to acceptance of the first load from an approved generator, Keystone will provide a copy of the generator certification form to the DEP.

Should additional generators be added to the approved Generic Module 1's, Keystone will confirm that their waste meets the requirements of the approval. Once confirmed, Keystone will provide written notification to the Department of the addition of the new generator at least 15 days prior to acceptance of the waste.

GENERATOR REQUEST AND DEPARTMENT APPROVAL FOR INCLUSION IN GENERIC MODULE 1

Subsequent to approval, should a new generator need to be added to one or both of the Generic Module 1 Approvals, each new generator must complete an informational packet for review and approval by Keystone (Attachment 5). This documentation will be submitted to the Department for approval 15 days prior to accepting any waste. It will then be kept on file at Keystone as part of the generator's operating record. Please note that in accordance with waste receipt regulations, should Keystone not receive a written or verbal approval from the Department within 15 days, Keystone will consider the waste approved for acceptance. Items requested by Keystone for inclusion in the information packet are:

- Representative Sample: Sent directly to a designated laboratory and collected per specific guidance outlined in Sections 2 and 3 of packet;
- Chain-of-custody and Representative Sample Description Form: Original sent to the designated laboratory with a copy sent to Keystone;
- PADEP Module 1 Form with applicable information to include in Generic Module 1 Form;
- PADEP Form 25R and required documentation;
- Generator's Absent Parameter Certification;
- Kiln Fuels Waste Materials Profile;
- Facility Regulated Waste Activity Information;
- Statement of Good Standing Form;
- Document Integrity Certification Form;
- Benzene NESHAP Questionnaire;
- Applicable Waste Codes and Description; and
- Certification of Generator Form.

In the instance that the generator provided information does not meet the requirements of the approved Generic Module 1, Keystone will reject the addition of the generator to the approval.

GENERIC MODULE 1 FORM
PETROLEUM REFINERY CLEANOUT SLUDGES

2510-PM-BWM0014 6/2005

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Coordination #

MODULE 1
REQUEST FOR APPROVAL TO TREAT, STORE, OR DISPOSE OF A HAZARDOUS WASTE STREAM

Before completing this form, read the step-by-step instructions provided with this form.

Application Fee

Check No. 108290

Amount $ 1,500.00

DEP USE ONLY

Application or Facility ID# _____

Stamp Date Application Received

SECTION A. FACILITY AND GENERATOR INFORMATION (must be completed by TSD facility)

1. Treatment, Storage, or Disposal Site

   a. Name of Facility Keystone Cement Company

   Address Route 512, P.O. Box A, Bath, PA 18014-0058

   Municipality East Allen Township County Northampton

   b. Identification number P A D 0 0 2 3 8 9 9 5 5 9

   c. Hazardous waste permit number(s) for treatment, storage or disposal facility to be utilized

   PAD002389559

   d. Facility contact person

   Name Karen M. Livezey Title Manager, Environmental Compliance

   Telephone Number 610-837-1881 Ext. 8313

2. Generator of the Waste

   a. Name of company See Attachment 1

   Mailing address _____

   Location of site if different from mailing address _____

   Municipality _____ County _____

   b. If a subsidiary, name of parent co. _____

   c. Identification number _____

   d. Company contact person

   Name _____ Title _____

   Telephone Number _____

SECTION B. WASTE DESCRIPTION (Must be completed by generator)

1. General Properties

a. pH range 4.5 to 10.3 (based on analyses or knowledge)

b. Physical state:

(1) liquid waste (EPA Method 9095) – YES

(2) solid (EPA Method 9095) - YES

(3) gas (ambient temperature and pressure)

c. Physical appearance:

Color Black Odor Petroleum

Number of solid or liquid phases of separation RANGE: ≤49% liquid, ≥51% solid

Describe each phase of separation. Petroleum refinery cleanout materials, slurried oil sediments, slurry oil tank bottoms, and sludges from tank bottoms.

d. U.S. DOT proper shipping name UN/NA number, and hazard class (if applicable):

HW solid N.O.S.

HW liquid N.O.S.

Please note that shipping name(s) may vary based on generator.

e. Typical volume of waste to be shipped to treatment, storage, or disposal facility:

(1) Monthly 859,085 **gal.**, tons, pounds (circle one)

(2) Annually 10,309,000 **gal.**, tons, pounds (circle one)

f. Treatment or disposal frequency: 1,300 times per year; one time

g. Current volume to be shipped to treatment, storage or disposal facility

TBD **gal.**, tons, pounds (circle one)

h. Describe the hazardous waste according to its description and hazardous waste number in 25 Pa. Code 261a and 40 CFR Part 261.

See Attachment 2

2. Chemical Analyses – *Please attach the following:*

   a. The results of the analysis of the waste as described in the instructions. See Attachment 3

   b. A description of the sampling method. See Attachment 3

   c. The substantiation for a confidentiality claim, as described in the instructions, if portions of the information you have submitted are confidential. Not Applicable

3. Process Description and Schematic – *Please attach the following:*

   a. The substantiation for a confidentiality claim as described in the instructions, if portions of the information you have submitted are confidential. Not Applicable

   b. A detailed description of the manufacturing and/or pollution control processes producing the hazardous waste as specified in the instructions. Attachments 2 and 4

   c. A schematic of the manufacturing and/or pollution control processes producing the hazardous waste as specified in the instructions.

      Attachment 4

SECTION C. LINER COMPATIBILITY EVALUATION (must be completed by TSD facility, if applicable) Not Applicable

Attach the results of the liner compatibility evaluation or supporting data as specified in the instructions.

SECTION D. PROPOSED TREATMENT, STORAGE, AND/OR DISPOSAL METHOD
(Must be completed by TSD facility. Use additional sheets if necessary.)

1. Proposed Treatment Method
   Waste derived fuels are burned for energy recovery in the production of Portland cement.

2. Proposed Storage Method and Length of Storage
   Above ground storage tanks. Typical length of storage is 1 to 15 days.

3. Proposed Disposal Method

   Beneficial reuse as a supplemental fuel in a cement kiln.

SECTION E. ALTERNATIVES TO PROPOSED TREATMENT AND/OR DISPOSAL METHOD
(Must be completed by generator. Use additional sheets if necessary.)

1. What Other Treatment, Disposal, Recycle, Reuse, or Reclamation Method(s) Can be Used? Briefly describe viable alternatives to your proposal.

   RCRA thermal incineration or deactivation and thermal adsorption

   Why was the Treatment and/or Disposal Method in Section D Chosen?

   Energy Recovery

SECTION F. SOURCE REDUCTION STRATEGY N/A
(Form 25 R must be completed by generator and attached to this application as specified in the instructions.)

SECTION G. CERTIFICATION OF GENERATOR

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Name of Responsible Official_____ Title_____

Signature_____ Date _____

Taken, sworn, and subscribed before me, this_____day of_____A.D. 20_____

Notary Seal

_____

_____

SECTION H. CERTIFICATION OF REGISTERED PROFESSIONAL ENGINEER FOR THE TREATMENT, STORAGE, OR DISPOSAL FACILITY

This is to certify that I have personally reviewed all engineering information contained in the accompanying modules, drawings, specifications, and other documents which are part of this application and that I have found it to be of good engineering quality, true, and correct, and is in conformance with the requirements of the Department of Environmental Protection, and it does not, to the best of my knowledge, withhold information that is pertinent to a determination of compliance with the requirements of the Department.

NOTICE: It is an offense under Pennsylvania Crimes Code to affirm a false statement in documents submitted to the Department.

Name Stephen P. Holt, P.E.

Signature Stephen P. Holt

Date 12/20/2022

Address 654 Judge Street, Harleyville, SC 29488

Phone No. (803) 496-2281

ATTACHMENT 1:
List of All Generators

Attachment 1
Generators of the Waste

Name of Company	Mailing Address	City	EPA ID	State	Country	Zip Code
American Refining - Bradford	77 N KENDALL AVE	BRADFORD	PAD000780171	PA	US	16701
Andeavor - St Paul Park	301 ST PAUL PARK RD	St Paul Park	MND006162820	MN	US	55071
BP - Husky Toledo	4001 CEDAR POINT RD	Toledo	OHD005057542	OH	US	43616
BP - Whiting	2815 Indianapolis Blvd	Whiting	IND984894667	IN	US	46394
Citgo - Lemont	135TH & NEW AVE	LEMONT	ILD041550567	IL	US	60439
Ergon - Newell	9995 OHIO RIVER BLVD. ROUTE 2 SOUTH	NEWELL	WVR000010058	WV	US	26050
ExxonMobil - Joliet	Arsenal Rd & I-55	Joliet	ILD064403199	IL	US	60410
Flint Hills - Pine Bend	13775 CLARK RD	ROSEMOUNT	MND000686071	MN	US	55068
Husky - Lima	1150 S METCALF ST	Lima	OHR000032151	OH	US	45804
Husky - Superior	2407 STINSON AVE	SUPERIOR	WID006194336	WI	US	54880
Marathon - Canton	2408 GAMBRINUS AVE SW	CANTON	OHD048107049	OH	US	44706234
Marathon - Detroit	1300 S FORT ST	DETROIT	MID005506357	MI	US	48217
Monroe Energy - Trainer	4101 Post Road	TRAINER	PAR000531657	PA	US	19061
PBF - Delaware City	4550 Wrangle Hill Road	Delaware City	DEN201000006	DE	US	19706
PBF - Paulsboro	800 Billingsport Road	Paulsboro	NJD002342426	NJ	US	08066
PBF - Toledo	1819 Woodville Road	Oregon	OHD046511	OH	US	43616
PES - Philadelphia	3144 Passyunk Avenue	Philadelphia	PAD049791098	PA	US	19145
Phillips 66 - Bayway	1400 Park Avenue	Linden	NJD986645984	NJ	US	07036
United Refining - Warren	15 BRADLEY ST	WARREN	PAD002105179	PA	US	16365
Andeavor - Anacortes	W MARCH PT RD	Anacortes	WAD009275082	WA	US	98221
Andeavor - Dickinson	3815 116th Ave. S.W.	Dickinson	NDR000011817	ND	US	58601
Andeavor - Kenai	1601 TIDEWATER ROAD	ANCHORAGE	AKD055503825	AK	US	99501
Andeavor - Los Angeles	2101 E. PACIFIC COAST HIGHWAY	Wilmington	CAD041520644	CA	US	90744
Andeavor - Mandan	900 OLD RED TRAIL NE	Mandan	NDD006175467	ND	US	58554
Andeavor - Martinez	150 Solano Way	Pacheco	CAR000091488	CA	US	94553
Andeavor - Salt Lake City	474 WEST 900 NORTH	Salt Lake City	UTD000826362	UT	US	84103
Antelope Refining - Douglas	2070 HIGHWAY 59	Douglas	WYR000210658	WY	US	82633
Big West Oil - Salt Lake City	333 WEST CENTER ST	NORTH SALT LAKE	UTD045267127	UT	US	84054280
BP - Cherry Point	4519 GRANDVIEW RD	BLAINE	WAD069548154	WA	US	98230-
Calumet - Great Falls	1900 10TH ST NE	GREAT FALLS	MTD000475194	MT	US	59404
Chevron - El Segundo	324 W. El Segundo BLVD	El Segundo	CAD983669292	CA	US	90245
Chevron - Kapolei	91-480 MALAKOLE STREET	KAPOLEI	HIT160010005	HI	US	96707
Chevron - Richmond	841 CHEVRON WAY	RICHMOND	CAD009114919	CA	US	94801
Chevron - Salt Lake City	685 SOUTH CHEVRON WAY	NORTH SALT LAKE	UTD092029768	UT	US	84054
CHS - Laurel	803 US HIGHWAY 212 S	LAUREL	MTD986071454	MT	US	59044
ExxonMobil - Billings	700 Exxonmobil Rd	Billings	MTD010380574	MT	US	59101
Greka Energy - Santa Maria Refinery	1660 SINTON	Santa Maria	CAD008361883	CA	US	93454
Holly Frontier - Cheyenne	2700 EAST 5TH STREET	CHEYENNE	WYD051843613	WY	US	82003
Holly Frontier - West Bountiful	393 SOUTH 800 WEST	WEST BOUNTIFUL	UTD009090580	UT	US	84087
Kern Oil - Bakersfield	7724 EAST PANAMA LANE	BAKERSFIELD	CAD990724916	CA	US	93307
Par Pacific - Kapolei	91-325 Komohana St	Kapolei	HID056786395	HI	US	96707
Par Pacific - Newcastle	10 Stampede Road	Newcastle	WYD043705102	WY	US	82701
PBF - Torrance	3700 W 190th St	Torrance	CAD008354052	CA	US	90504
Phillips 66 - Billings	401 S 23rd St	Billings	MTD986069599	MT	US	59101
Phillips 66 - Carson Los Angeles	1520 E Sepulveda Blvd	Carson	CAD983658220	CA	US	90745
Phillips 66 - Ferndale	3901 UNICK RD	Ferndale	WAD009250366	WA	US	98248
Phillips 66 - Rodeo San Francisco	1380 SAN PABLO AVE	RODEO	CAR000215228	CA	US	94572
Phillips 66 - Santa Maria/Arroyo Grande	2555 WILLOW RD	ARROYO GRANDE	CAT080010796	CA	US	93420
Phillips 66 - Wilmington Los Angeles	1660 WEST ANAHEIM ST.	WILMINGTON	CAR000215517	CA	US	90744
San Joaquin Refining - Bakersfield	3500 Shell St	Bakersfield	CAD990806317	CA	US	93308
Shell - Martinez	3485 PACHECO BOULEVARD	MARTINEZ	CAD009164021	CA	US	94553
Shell - Puget Sound	8505 S TEXAS RD	Anacortes	WAD009276197	WA	US	98221
Silver Eagle Refining - Evanston	2990 COUNTY ROAD 180	EVANSTON	WYD988869269	WY	US	82930
Silver Eagle Refining - Woods Cross	2355 SOUTH 1100 WEST	WOODS CROSS	UTD063314975	UT	US	84087
Sinclair Refining - Rawlins	5700 E HIGHWAY 20/26	Casper	WYD048743009	WY	US	82609
Suncor - Commerce City	5801 BRIGHTON BLVD	Commerce City	COT090011420	CO	US	80022
Torrance Logistics - Cerritos	12851 E. 166th Street	Cerritos	CAT000623538	CA	US	90703
US Oil - Tacoma	3001 MARSHALL AVE	TACOMA	WAD009252719	WA	US	98421
Valero - Benicia	3400 EAST SECOND	BENICIA	CAD063001770	CA	US	94510
Valero - Wilmington	2402 EAST ANAHEIM STREET	WILMINGTON	CAD066647066	CA	US	90744
World Energy - Paramount	14700 DOWNEY AVENUE	PARAMOUNT	CAD008371098	CA	US	90723
World Oil Refining - South Gate	9302 GARFIELD AVE	South Gate	CAD008345464	CA	US	90280
Irving Oil - St John	340 Loch Lomond Rd	Saint John	FCCANADA	NB	Canada	E2J 3Z6
CountryMark - Mt Vernon	1200 REFINERY RD	MOUNT VERNON	IND044908663	IN	US	47620
Marathon - Robinson	100 MARATHON AVE P O BOX 1200	ROBINSON	ILD005476882	IL	US	62454

Attachment 1
Generators of the Waste

Phillips 66 - Wood River	900 S Central Ave	Roxana	ILR000077115	IL	US	62084
Valero - Memphis	543 W MALLORY	MEMPHIS	TND007026958	TN	US	38109
Alon - Big Springs	200 REFINERY RD	BIG SPRING	TXD008013468	TX	US	79720
Andeavor - El Paso	6500 TROWBRIDGE DR	EL PASO	TXR000027979	TX	US	79905
Andeavor - Gallup	92 GIANT CROSSING ROAD	GALLUP	NMD000333211	NM	US	87301
Calumet - San Antonio	7811 S PRESA ST	SAN ANTONIO	TXD049754047	TX	US	78223
Citgo - Corpus Christi	4809 UP RIVER RD	CORPUS CHRISTI	TXD000750877	TX	US	78407
CVR - Coffeyville	400 N LINDEN ST	COFFEYVILLE	KSD007138605	KS	US	67337
CVR - Wynnewood	906 SOUTH POWELL	WYNNEWOOD	OKD000396549	OK	US	73098
ExxonMobil - Baton Rouge	4045 Scenic Highway	BATON ROUGE	LAD062662887	LA	US	70805
ExxonMobil - Baytown	2800 DECKER DR	BAYTOWN	TXD000782698	TX	US	77520
ExxonMobil - Beaumont	1795 BURT ST	BEAUMONT	TXD990797714	TX	US	77701
Flint Hills - Corpus Christi	1700 NUECES BAY BLVD	CORPUS CHRISTI	TXD066447376	TX	US	78407
Holly Frontier - Artesia	501 EAST MAIN STREET	ARTESIA	NMD048918817	NM	US	88210
Holly Frontier - El Dorado	1401 S DOUGLAS RD	EL DORADO	KSD007233422	KS	US	67042
Holly Frontier - Tulsa	902 w 25th Street	Tulsa	OKD990750960	OK	US	74017
Marathon - Catlettsburg	11631 US ROUTE 23	CATLETTSBURG	KYD041376138	KY	US	41129
Marathon - Texas City	502 10TH ST S	TEXAS CITY	TXD008079501	TX	US	77590
NCRA - McPherson	2000 S Main st	McPherson	KSD007145956	KS	US	67460
Phillips 66 - Borger	Spur 119 N	Borger	TXD980626774	TX	US	79008
Phillips 66 - Ponca City	1000 S Pine St.	Ponca City	OKD007233836	OK	US	74601
Phillips 66 - Sweeny	8189 Old FM 524	Old Ocean	TXD048210645	TX	US	77463
Valero - Ardmore	ONE VALERO WAY	ARDMORE	OKD057705972	OK	US	73401
Valero - Corpus Christi	5900 UP RIVER RD	CORPUS CHRISTI	TXD074604166	TX	US	78407
Valero - McKee	6701 FM 119	SUNRAY	TXD059685339	TX	US	79086
Valero - Three Rivers	301 LE ROY ST	THREE RIVERS	TXD990709966	TX	US	78071
Calcasieu Refining - Lake Charles	4359 West Tank Farm Road	LAKE CHARLES	LAD099393225	LA	US	70605
Calumet - Cotton Valley	1756 OLD HWY 7	COTTON VALLEY	LAD000225805	LA	US	71018
Calumet - Princeton	10234 LA-177	Princeton	LAD985200930	LA	US	71067
Calumet - Shreveport	3333 Midway Ave.	Shreveport	LAD008052334	LA	US	71109
Chevron - Pascagoula	250 INDUSTRIAL ROAD	Pascagoula	MSD054179403	MS	US	39581
Citgo - Lake Charles	4401 HWY 108	Lake Charles	LAD008080350	LA	US	70602
Delek - El Dorado	1000 MCHENRY	EL DORADO	ARD000021998	AR	US	71730
Delek - Krotz Springs	HWY 105-S 356 S. LEVEE RD.	KROTZ SPRINGS	LAD081407850	LA	US	70750
Delek - Tyler	1702 E COMMERCE ST	TYLER	TXD007333800	TX	US	75702
Ergon - Vicksburg	2611 HAINING RD	VICKSBURG	MSD098595317	MS	US	39183
Goodway - Atmore	4745 Ross Road	Atmore		AL	US	36502
Hunt Southland - Rogerslacy	177 HANEY ROAD	SANDERSVILLE	MSD079467536	MS	US	39477
Hunt - Tuscaloosa	1855 FAIRLAWN RD	TUSCALOOSA	ALD004009320	AL	US	35401
Lyondellbasell - Houston	12000 Lawndale	Houston	TXD082688979	TX	US	77017
Marathon - Garyville	4663 Airline Highway	GARYVILLE	LAD081999724	LA	US	70051
Motiva - Port Arthur	2555 Savannah Ave	PORT ARTHUR	TXD008097529	TX	US	77640
Pasadena Refining System - Pasadena	111 RED BLUFF RD	Pasadena	TXD008091290	TX	US	77506
PBF - Chalmette	500 W. St. Bernard HWY.	Chalmette	LAD008179707	LA	US	70043
Pelican - Lake Charles	4646 Highway 3059 Oldtown Road	Lake Charles	LAD092476126	LA	US	70611
Phillips 66 - Belle Chasse	15551 HWY. 23	Belle Chasse	LAD056024391	LA	US	70037
Phillips 66 - Westlake	2200 Old Spanish Trail	Westlake	LAD990683716	LA	US	70669
Placid Refining - Port Allen	1940 LA-1	Port Allen	LAD053783353	LA	US	70767
Shell - Convent	10700 LA-44	Convent	LAD065485146	LA	US	70723
Shell - Deer Park	5900 Hwy. 225 @ Center	DEER PARK	TXD067285973	TX	US	77536
Shell - Norco	15536 RIVER ROAD	NORCO	LAD008186579	LA	US	70079
Shell - Saraland	400 Industrial Pkwy	Saraland	ALD020852422	AL	US	36571
South Hampton - Silsbee	7752 West FM 418	Silsbee	TXD062120340	TX	US	77656
Total - Port Arthur	7600 32ND ST	Groves	TXD065099160	TX	US	77619
Valero - Houston	9701 MANCHESTER ST	HOUSTON	TXD053624193	TX	US	77012
Valero - Meraux	2500 E. ST. BERNARD HWY.	MERAUX	LAD008058471	LA	US	70075
Valero - Port Arthur	1801 South Gulfway Drive	Port Arthur	TXD008090409	TX	US	77640
Valero - St. Charles	14902 River Road	Norco	LAD000225862	LA	US	70079
Valero - Texas City	1301 LOOP 197 S	TEXAS CITY	TXD000792937	TX	US	77590
Continental - Somerset	501 REFINERY ROAD	SOMERSET	KYD089227227	KY	US	42501
Cross Oil - Smackover	484 E. SIXTH STREET	SMACKOVER	ARD990869737	AR	US	71762

ATTACHMENT 2:
Description of All Accepted Wastes

PADEP GENERIC MODULE 1 FORM
SECTION B, Nos. 1h and 3b – Waste Code Description

Applicable Waste Codes

The listing associated with this Generic Module 1 apply to specific sludge waste streams from petroleum refineries. The petroleum refining process typically creates large quantities of contaminated wastewater. Before this wastewater can be discharged to a river or sewer, it must be treated to remove oil, solid material, and chemical pollutants. Gravity provides a simple way of separating these pollutants from refinery wastewaters. Over time, solids and heavier pollutants precipitate from wastewaters to form a sludge. Other less dense pollutants accumulate on the surface of wastewaters, forming a material known as float. These gravitational separation processes can be encouraged through chemical or mechanical means. The following waste code descriptions are being included with this Generic Module 1 Application:

F037	Petroleum refinery primary oil/water/solids separation sludge. Any sludge generated from the gravitational separation of oil/water/solids during the storage or treatment of process wastewaters and oily cooling wastewaters from petroleum refineries. Such sludges include, but are not limited to, those generated in oil/water/solids separators; tanks and impoundments; ditches and other conveyances; sumps; and stormwater units receiving dry weather flow.
F038	Petroleum refinery secondary (emulsified) oil/water/solids separation sludge. Any sludge and/or float generated from the physical and/or chemical separation of oil/water/solids in process wastewaters and oily cooling wastewaters from petroleum refineries. Such wastes include, but are not limited to, all sludges and floats generated in: induced air flotation (IAF) units, tanks and impoundments, and all sludges generated in DAF units.
K048	Dissolved air floatation (DAF) float from the petroleum refining industry.
K049	Slop oil emulsion solids from the petroleum refining industry.
K050	Heat exchanger bundle cleaning sludge from the petroleum refining industry.
K051	API separator sludge from the petroleum refining industry.
K052	Tank bottoms (leaded) from the petroleum refining industry.
K169	Crude oil storage tank sediment from petroleum refining operations.
K170	Clarified slurry oil storage tank separation solids from petroleum refining operations.
K171	Spent Hydrotreating catalyst from petroleum refining operations, including guard beds used to desulfurize feeds to other catalytic reactors (this listing does not include inert support media)
K172	Spent Hydrorefining catalyst from petroleum refining operations, including guard beds used to desulfurize feeds to other catalytic reactors (this listing does not include inert support media)

Additional waste codes can be added if a generator confirms that the process generating the waste material has not changed. Keystone may accept that material in accordance with the Generic Module 1 if Keystone is permitted to accept that particular waste code at its facility.

ATTACHMENT 3:
Chemical Analyses and Description of Waste Sampling Method

Generic Module 1 Analytical Parameter Ranges

Parameter	Acceptance Range (Total Analysis/TCLP) [e]	Keystone Cement Waste Acceptance Limit (Total Analysis)
pH	>4.5, <10.3 SU [3]	>2.0, <12.5 SU
Ignitability, Flash Point	< 140 °F [4]	
Reactive sulfide	Not characteristically reactive [4]	
Reactive cyanide	Not characteristically reactive [4]	
Arsenic*	25 - 185 ppm [3]	≤1,120 mg/kg (combined)
Beryllium	0.0 - 19.38 ppm [1]	
Chromium*	0.0 - 986.80 ppm [1]	
Barium*	≤1,651 ppm [2]	
Benzene*	<100,000 ppm [5]	
Cadmium*	0.0 - 990.93 ppm [1]	≤3,500 mg/kg (combined)
Lead*	0.0 - 1910.40 ppm [1]	
Carbon tetrachloride*	<93.8 ppm [2]	
Chlordane*	<0.99 ppm [2]	
Chlorobenzene*	<2.5 ppm [3]	
Chloroform*	<9.8 ppm [2]	
O-cresol*	0.0473 ppm [3]	
M-cresol*	0.0681 ppm [3]	
P-cresol*		
Cresol*	<200.00 ppm [4]	
2,4-D* (acetic acid)	<10.0 ppm [4]	
1,4-dichlorobenzene*	<4.9 ppm [2]	
1,2-dichloroethane*	<2.5 ppm [3]	
1,1-dichloroethylene*	<2.5 ppm [3]	
2,4-dinitrotoluene*	<1.9 ppm [2]	
Endrin*	<0.02 ppm [4]	
Heptachlor*	<0.008 ppm [4]	
Hexachlorobenzene*	<0.1 ppm [3]	
Hexachlorobutadiene*	<2.5 ppm [3]	
Hexachloroethane*	<5.8 ppm [2]	
Lindane*	<0.40 ppm [4]	
Mercury*	0.0 - 9.97 ppm [1]	≤10 mg/kg
Methoxychlor*	<10.0 ppm [4]	
Methyl ethyl ketone*	<25 ppm [3]	
Nitrobenzene*	<1,534.4 ppm [2]	
Pentachlorophenol*	<0.1 ppm [3]	
Pyridine*	<0.1 ppm [3]	
Selenium*	<4 - <19.2 ppm [3]	
Silver*	<8.06 ppm [2]	
Tetrachloroethylene*	<2.5 ppm [3]	
Toxaphene*	<0.50 ppm [4]	
Trichloroethylene*	<2.5 ppm [3]	

2,4,5-trichlorophenol*	<400.00 ppm (4)	
2,4,6-trichlorophenol*	<2.00 ppm (4)	
2,3,4-TP (Silvex)*	<1.00 ppm (4)	
Vinyl chloride*	<30.7 ppm (2)	
Copper*	<211.6 ppm (2)	
Nickel*	75 - 1,000 ppm (3)	≤1000 mg/kg
Zinc*	<1350.7 ppm (2)	
Heat value	≥5,000 - 20,000 BTU/lb (1)	≥5,000 BTU/lb
PCBs	Not present (3) **(a)**	Not present (a)
Total solids	51% - 100% (3)	
Percent water	0 - 70% (1)	
Antimony	<422.25 ppm (2)	
Thallium	<31.61 ppm (2)	
Percent Chloride	≤3.00 % (1)	≤3.00 %
Peroxide	No (1)	Not present (b)
Specific gravity @ 60° F (±2)	0.04 - 1.12 (1)	0.600-1.200
Compatibility	Yes (1)	Yes
Dioxins/furans (c)	Must meet WAP Acceptance Limit	Not present
Herbicides and Pesticides (d)	Must meet WAP Acceptance Limit	Not present

Notes:

Analysis is required for all parameters unless certified not present.

* Requires TCLP Analysis. Please note, where the waste contains less than 0.5 percent filterable solids, the waste itself, after filtering using the methodology outlined in Method 1311, is considered to be the extract.

(a) Not present, Parameter should not be detected by analysis with a detection limit of 40 ppm

(b) Not present, Parameter should not be detected by analysis with a detection limit of 10 ppm

(c) Defined as in 40CFR 260.10: Dioxins and furans (D/F) means tetra, penta, hexa, hepta, and octa-chlorinated dibenzo dioxins and furans.

(d) Herbicides and Pesticides that are not acceptable at Keystone include tri-, tetra-, and pentachlorophenols (waste code F027); wastes from the production of certain pesticides such as chlordane (waste code K032); and P and U wastes defined in 40 CFR §261.33(e) and (f).

(e) Acceptance Range Based on:

1) Keystone analytical of all accepted loads from January 2010 - July 2018;
2) Keystone CY 2017 limits based on profiles and quarterly composite sampling;
3) Analytical reports provided by a sampling of Generic Module 1 generators;
4) Toxicity Characteristic Regulatory Limits;
5) Benzene NESHAP waste by definition.

N/A: Not Applicable

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

[Prior to Acceptance, each generator will certify that their waste meets the requirements of this Generic Module 1]

Signature Printed (or typed) name and title

Date

ASH GROVE CEMENT COMPANY
CHEM-FUEL QUALIFICATION

GENERATOR Blanchard Refining Co., LLC	**BILLING INFORMATION**	**LAB NUMBER** CF141186
FACILITY ADDRESS 2401 5th Ave South	**COMPANY** Sumter Transport Co. STC	**CHEM-FUEL TYPE** M-Blend
City / **ST ZIP** Texas City / TX 77590	**BILLING ADDRESS** 170 S Lafayette Blvd.	**SAMPLE SURVEY RECEIPT DATE** 3/28/2014
Federal EPA ID# TXD 008 080 533	**City** / **ST** / **ZIP** Sumter / SC / 29150	**COMPLETION DATE** 4/2/2014
SIC CODE 2911	**Contact** Brian Wilson	

VOLATILE ORGANICS
(Relative Area Percent)
GC/MSD-FID
5 MAJOR CONSTITUENTS:

Naphthalene, 1,2-Dimethyl-	5.66 %
Naphthalene, 2-Methyl-	5.39 %
Naphthalene, 1,4-Dimethyl-	5.29 %
Naphthalene, 1,6,7-Trimethyl-	5.28 %
Naphthalene, 2,3,6-Trimethyl-	3.71 %
	%
	%
	%
	%

HEAT OF COMBUSTION

BTU/lb	6,120	Btu/lb
Density	9.91	lb/gal
Chlorine	0.1	%(w/w)
pH	8.2	50%
Solids	100	%
Water	9.6	%
Radioactivity	<MBG	
Comp/Stability	OK	
Sulfides	<5	ppm
Cyanides	<0.1	ppm

TOTAL METALS

As	25	ppm
Sb	<4	ppm
Ba	470	ppm
Be	0.7	ppm
Cd	1	ppm
Cr	151	ppm
Pb	52	ppm
Hg	0.9	ppm
Ni	2240	ppm
Ag	<4	ppm
Se	<4	ppm
Tl	<4	ppm

PCBS

Aroclors <40 ppm

Comments:

Solid material to be blended with Ash Grove LWDF.
44.0% Ash
74.1 lbs/cu. ft.

PROCESSOR POINT OF CONTACT
Brandon Tyroch

TITLE
Env. Professional

PHONE NUMBER
(409) 945-1170

PROCESS/WASTE FUEL DESCRIPTION

Centrifuged storm water tank solids

Chemist's Signature

4-2-14
Completion Date

Ash Grove Cement Company hereby warrants tht the waste stream represented by the survey and sample submitted is acceptable at the Ash Grove facilities marked below, and that said facility has the appropriate permit(s) and can accept this waste as long as all hazards associated with it have been fairly disclosed on the survey and the composition of the waste does not change so as to render the attached survey and sample submitted to Ash Grove Cement Company nonrepresentative.

✓ Conditional approval (See attached). PLEASE NOTE THIS APPROVAL NUMBER ON ALL SHIPMENT MANIFESTS.
Based on material not meeting all specifications - Ash, Aluminum, and silica.

__ Chanute, KS ✓ Foreman, AR

William F. Dugan
Signature

4-24-14
Date

AG1854
Chem-Fuel Approval Number

ASH GROVE CEMENT COMPANY
CHEM-FUEL QUALIFICATION

GENERATOR Blanchard Refining Co., LLC	**BILLING INFORMATION**	**LAB NUMBER** CF141186
FACILITY ADDRESS 2401 5th Ave South	**COMPANY** Sumter Transport Co. STC	**CHEM-FUEL TYPE** M-Blend
City / **ST** / **ZIP** Texas City / TX / 77590	**BILLING ADDRESS** 170 S Lafayette Blvd.	**SAMPLE SURVEY RECEIPT DATE** 3/28/2014
Federal EPA ID# TXD 008 080 533	**City** / **ST** / **ZIP** Sumter / SC / 29150	**COMPLETION DATE** 4/2/2014
SIC CODE 2911	**Contact** Brian Wilson	

VOLATILE ORGANICS
(Relative Area Percent)
GC/MSD-FID
5 MAJOR CONSTITUENTS:

Naphthalene, 1,2-Dimethyl-	5.66	%
Naphthalene, 2-Methyl-	5.39	%
Naphthalene, 1,4-Dimethyl-	5.29	%
Naphthalene, 1,6,7-Trimethyl-	5.28	%
Naphthalene, 2,3,6-Trimethyl-	3.71	%
		%
		%
		%
		%

HEAT OF COMBUSTION

BTU/lb	6,120	Btu/lb
Density	9.91	lb/gal
Chlorine	0.1	%(w/w)
pH	8.2	50%
Solids	100	%
Water	9.6	%
Radioactivity	<MBG	
Comp/Stability	OK	
Sulfides	<5	ppm
Cyanides	<0.1	ppm

TOTAL METALS

As	25	ppm
Sb	<4	ppm
Ba	470	ppm
Be	0.7	ppm
Cd	1	ppm
Cr	151	ppm
Pb	52	ppm
Hg	0.9	ppm
Ni	2240	ppm
Ag	<4	ppm
Se	<4	ppm
Tl	<4	ppm

PCBS
Aroclors <40 ppm

Comments:
Solid material to be blended with Ash Grove LWDF.
44.0% Ash
74.1 lbs/cu. ft.

PROCESSOR POINT OF CONTACT
Brandon Tyroch

TITLE
Env. Professional

PHONE NUMBER
(409) 945-1170

PROCESS/WASTE FUEL DESCRIPTION
Centrifuged storm water tank solids

Chemist's Signature

4/23/2014
Completion Date

Ash Grove Cement Company hereby warrants tht the waste stream represented by the survey and sample submitted is acceptable at the Ash Grove facilities marked below, and that said facility has the appropriate permit(s) and can accept this waste as long as all hazards associated with it have been fairly disclosed on the survey and the composition of the waste does not change so as to render the attached survey and sample submitted to Ash Grove Cement Company nonrepresentative.

__ **Conditional approval (See attached). PLEASE NOTE THIS APPROVAL NUMBER ON ALL SHIPMENT MANIFESTS.**

__ **Chanute, KS** __ **Foreman, AR**

Signature	**Date**	AG1854 **Chem-Fuel Approval Number**

ASH GROVE CEMENT COMPANY CHEM-FUEL® SURVEY

A CUSTOMER INFORMATION

FACILITY ADDRESS (Manifest Address)	BILLING ADDRESS ☐ Third Party or Broker
Company Name: **Delek Refining, Ltd.**	Company Name: **Delek Refining, Ltd.**
Street: **1702 East Commerce Street**	Street or PO Box: **425 McMurrey Drive**
City: **Tyler** State: **TX** Zip: **75702**	City: **Tyler** State: TX Zip: **75702**

Nature of Business: **Petroleum Refining**

Federal EPA No. **TXD007333800** SIC Code(s) **2911 or** NAICS Code(s)

B CHEM-FUEL® INFORMATION

Chem-Fuel® Description: **Slurry Oil Tank Bottoms**

Process Description: **Petroleum Refining**

Benzene NESHAP Notification Required
☐ YES ☒ NO

C PHYSICAL DESCRIPTION

Physical State ☐ Liquid ☐ Semi-solid ☒ Solid

Color **Black** pH **8**

Layers ☒ One ☐ Two ☐ Three

Viscosity @ Temperature cP @ °F

D CHEM-FUEL® COMPOSITION (vol %)

	Min	Max	Typical
Slurry Oil	**40**	**60**	**50**
Spent Catalyst	**30**	**50**	**40**
Water	**5**	**15**	**10**
Nonvolatile Material			
Settled Solids			

E CHEM-FUEL® VOLUME and FREQUENCY

Estimated Volume: **500,000** ☒ One Time ☐ Weekly ☐ Monthly ☐ Quarterly ☐ Yearly

F RESTRICTED, PROHIBITED OR SPECIAL SUBSTANCES

Check all of the following substances which may be in the Chem-Fuel®	Identify if present	Amount	Units
☐ Materials used exclusively as pesticides, herbicides, insecticides, etc.			
☐ OSHA carcinogens above exclusion levels			
☐ Toxic components with OSHA PEL or ACGIH TLV <2ppm or 8 mg/m^3			
☐ Toxic metals			
☐ TSCA regulated substances (PCB, PBB)			
☐ Reactive components (sulfides, cyanides, shock sensitives, pyrophorics)			
☐ Water reactive components (isocyanates, acid chlorides, anhydrides, etc.)			
☐ Biological hazards (infectious agents, etc.)			
☐ None of the above ☐ Special handling required			

G DOT HAZARDOUS MATERIAL DESCRIPTION

Proper DOT Shipping Name: Hazardous waste, solid, n.o.s.

Hazard Class: **9** Number: **NA3077** PG #: **III**

RQ: Yes☒ No☐ ERG #: **171**

☐ Not a DOT Hazardous Material

H EPA HAZARDOUS WASTE CODES

Primary Waste Codes listed on manifest:

☐ ☐ **K170** ☐ ____ ☐ ____ ☐ ____ ☐ ____

Other: ☐ ____ ☐ ____ ☐ ____ ☐ ____ ☐ ____ ☐ ____

☒ See attachment

☐ Not an EPA Hazardous Waste

I CUSTOMER CERTIFICATION - *To be completed after technical pre-approval and must be included with sample.*

To the best of my knowledge, this is an accurate description and the sample submitted is representative of the Chem-Fuel®.

Name: **August A. Hartung** Title: **Supervisor of Water, Waste & Remediation**

Signature: August A. Hartung Date: 8-6-15 Phone: **903-579-3408**

Comments:

ASH GROVE CEMENT COMPANY
CHEM-FUEL QUALIFICATION

GENERATOR Diamond Shamrock Refining Co., LP	**BILLING INFORMATION**	**LAB NUMBER** CF155215
FACILITY ADDRESS 6701 FM 119	**COMPANY** Sumter Transport Co. STC	**CHEM-FUEL TYPE** MSHWDF
City / **ST** / **ZIP** Sunray / TX / 79086	**BILLING ADDRESS** P.O. Box 1060	**SAMPLE SURVEY RECEIPT DATE** 9/11/2015
Federal EPA ID# TXD 059 685 339	**City** / **ST** / **ZIP** Sumter / SC / 29151	**COMPLETION DATE** 9/24/2015
SIC CODE 2911	**Contact**	

VOLATILE ORGANICS
(Relative Area Percent)
GC/MSD-FID
5 MAJOR CONSTITUENTS:

Naphthalene, 1,4,6-Trimethyl-	9.33	%
Naphthalene, 1-(2-Propenyl)-	9.12	%
Naphthalene, 1,4,5-Trimethyl-	8.26	%
Naphthalene, 1,7-Dimethyl-	8.25	%
Naphthalene, 2-Methyl-		%
1-Propyl-	7.65	%
		%
		%
		%

HEAT OF COMBUSTION

BTU/lb	6,660	Btu/lb
Density	11.93	lb/gal
Chlorine	0.1	%(w/w)
pH	5.8	50%
Solids	100	%
Water	15.6	%
Radioactivity	<MBG	
Comp/Stability	OK	
Sulfides	<5	ppm
Cyanides	<0.1	ppm

TOTAL METALS

As	26	ppm
Sb	<4	ppm
Ba	275	ppm
Be	0.2	ppm
Cd	0.7	ppm
Cr	72	ppm
Pb	41	ppm
Hg	1.9	ppm
Ni	78	ppm
Ag	<4	ppm
Se	<4	ppm
Tl	<4	ppm

Comments:
Ash 43.3%
Benzene NESHAP

PCBS
Aroclors <20 ppm

PROCESSOR POINT OF CONTACT
Chris Cromeens
TITLE
Sr. Environmental Engineer
PHONE NUMBER
(806) 935-1353

PROCESS/WASTE FUEL DESCRIPTION
K170 Centrifuge Solids
Clarified slurry oil tank bottoms

Chemist's Signature: [signature]
Completion Date: 9-24-15

Ash Grove Cement Company hereby warrants tht the waste stream represented by the survey and sample submitted is acceptable at the Ash Grove facilities marked below, and that said facility has the appropriate permit(s) and can accept this waste as long as all hazards associated with it have been fairly disclosed on the survey and the composition of the waste does not change so as to render the attached survey and sample submitted to Ash Grove Cement Company nonrepresentative.

✓ Conditional approval (See attached). PLEASE NOTE THIS APPROVAL NUMBER ON ALL SHIPMENT MANIFESTS.
Based on ↑ ash and potassium above spec limits

__ Chanute, KS __ Foreman, AR

Signature: [signature]
Date: 9-25-15
Chem-Fuel Approval Number: AG1948

ANALYTICAL ENVIRONMENTAL LABORATORIES

NELAP Accredited
Certificate T104704280-08-TX

Analytical Report

1028801

For

Delek Refining, Ltd.
Gus Hartung
P.O. Box 840
Tyler, TX 75710

Tuesday, July 14, 2015

Approved by _____

~~Don~~ Crozier, ~~Laboratory~~ Manager
Kent Technical

WRC 7/14/15

8310 S. Broadway | Tyler, TX 75703 | www.info@aeltyler.com
P: 903-509-8700 | F: 903-509-8811

The analysis, opinions or interpretations contained in this report have been prepared in the client's interest and are based upon observations of materials provided by the client and express the best judgement of Analytical Environmental Laboratories. Analytical Environmental Laboratories makes no other representation or warranty, expressed or implied, regarding this report.

Job Number 1028801	Customer: Delek Refining, Ltd.	Attn: Gus Hartung

Date Sampled:	05/29/2015	Laboratory ID:	1028801-1
Time Sampled:	9:00 AM	Date Received:	05/29/2015
Project Name:	Slurry Oil TK BTTMS (TK 11)	Time Received:	12:06 PM
Project Number:		Matrix:	Solid
Sample Description	Slurry Oil TK BTTMS		
Sample Type:	Grab	Receiving Flags	***

Analysis	Result	Unit	MQL	Flag	Test Method	QA	Date	Tech
TCLP Extraction Date	6/3/15	Date			SW-846 1311	1077315	6/3/15	JEW
3010 Digestion Date	6/4/15	Date			SW-846 3010A	1077321	6/4/15	JEW
3050B Digestion Date	7/7/15	Date			SW-846 3050B Mod	1077873	7/7/15	KRC
Arsenic (As), TCLP	<0.200	mg/l	0.200	BD	SW-846 6010C	1077522	6/9/15	BLC
Arsenic (As), Total	114	mg/kg	9.62	BD	SW-846 6010C	1077872	7/14/15	BLC
Barium (Ba), TCLP	0.0570	mg/l	0.0200	BQ,RB2	SW-846 6010C	1077527	6/9/15	BLC
Barium (Ba), Total	49.4	mg/kg	1.92	BD,SR	SW-846 6010C	1077866	7/14/15	BLC
Cadmium (Cd), TCLP	<0.0400	mg/l	0.0400	BD	SW-846 6010C	1077359	6/9/15	BLC
Cadmium (Cd), Total	<1.92	mg/kg	1.92		SW-846 6010C	1077867	7/14/15	BLC
Chromium (Cr), TCLP	<0.0200	mg/l	0.0200		SW-846 6010C	1077533	6/9/15	BLC
Chromium (Cr), Total	12.0	mg/kg	1.92		SW-846 6010C	1077868	7/14/15	BLC
Lead (Pb), TCLP	<0.200	mg/l	0.200	BD	SW-846 6010C	1077360	6/9/15	BLC
Lead (Pb), Total	72.8	mg/kg	9.62	BD	SW-846 6010C	1077869	7/14/15	BLC
Mercury (Hg), TCLP	<0.000400	mg/l	0.000400		SW-846 7470AMod	1077349	6/9/15	MPL
Mercury (Hg), Total	<0.00714	mg/kg	0.00714		SW-846 7471BMod	1077353	6/9/15	MPL
Selenium (Se), TCLP	<0.200	mg/l	0.200	BD	SW-846 6010C	1077534	6/9/15	BLC
Selenium (Se), Total	<19.2	mg/kg	19.2	BD	SW-846 6010C	1077870	7/14/15	BLC
Silver (Ag), TCLP	<0.0250	mg/l	0.0250	BD	SW-846 6010C	1077847	7/10/15	BLC
Silver (Ag), Total	<1.20	mg/kg	1.20	BD,SR	SW-846 6010C	1077871	7/14/15	BLC
Liquid-Liquid Extraction for Semivolatiles (3510C)	6/9/15	Date			SW-846 3510C	1077363	6/9/15	LJO
8260C Volatiles (Solid)								
1,1,1,2-Tetrachloroethane	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
1,1,1-Trichloroethane	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
1,1,2,2-Tetrachloroethane	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
1,1,2-Trichloroethane	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
1,1-Dichloroethane	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
1,1-Dichloroethene	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
1,1-Dichloropropene	<2500	µg/kg	2500	RB1	SW-846 8260C	1077586	6/1/15	HLS
1,2,3-Trichlorobenzene	<2500	µg/kg	2500	BD,LF	SW-846 8260C	1077586	6/1/15	HLS
1,2,3-Trichloropropane	<998	µg/kg	998	RB2	SW-846 8260C	1077586	6/1/15	HLS
1,2,4-Trichlorobenzene	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
1,2,4-Trimethylbenzene	37600	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
1,2-Dibromo-3-chloropropane	<2500	µg/kg	2500	LF	SW-846 8260C	1077586	6/1/15	HLS
1,2-Dibromoethane	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS

Job Number 1028801	Customer: Delek Refining, Ltd.	Attn: Gus Hartung

Date Sampled:	05/29/2015	Laboratory ID:	1028801-1
Time Sampled:	9:00 AM	Date Received:	05/29/2015
Project Name:	Slurry Oil TK BTTMS (TK 11)	Time Received:	12:06 PM
Project Number:		Matrix:	Solid
Sample Description	Slurry Oil TK BTTMS		
Sample Type:	Grab	Receiving Flags	***

Analysis	Result	Unit	MQL	Flag	Test Method	QA	Date	Tech
8260C Volatiles (Solid)								
1,2-Dichlorobenzene	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
1,2-Dichloroethane	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
1,2-Dichloropropane	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
1,3,5-Trimethylbenzene	9730	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
1,3-Dichlorobenzene	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
1,3-Dichloropropane	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
1,4-Dichlorobenzene	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
2,2-Dichloropropane	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
2-Butanone (MEK)	<25000	µg/kg	25000	BD	SW-846 8260C	1077586	6/1/15	HLS
2-Chloroethyl vinyl ether	<998	µg/kg	998		SW-846 8260C	1077586	6/1/15	HLS
2-Chlorotoluene	3000	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
2-Hexanone	4870	µg/kg	2500	BD	SW-846 8260C	1077586	6/1/15	HLS
4-Chlorotoluene	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
4-Isopropyltoluene	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
4-Methyl-2-pentanone (MIBK)	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
Acetone	<25000	µg/kg	25000	SM	SW-846 8260C	1077586	6/1/15	HLS
Benzene	2710	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
Bromobenzene	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
Bromochloromethane	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
Bromodichloromethane	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
Bromoform	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
Bromomethane	<2500	µg/kg	2500	LF	SW-846 8260C	1077586	6/1/15	HLS
Carbon disulfide	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
Carbon tetrachloride	<2500	µg/kg	2500	RB1	SW-846 8260C	1077586	6/1/15	HLS
Chlorobenzene	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
Chloroethane	<2500	µg/kg	2500	LF	SW-846 8260C	1077586	6/1/15	HLS
Chloroform	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
Chloromethane	<2500	µg/kg	2500	BD	SW-846 8260C	1077586	6/1/15	HLS
cis-1,2-Dichloroethene	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
cis-1,3-Dichloropropene	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
Dibromochloromethane	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
Dibromomethane	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
Dichlorodifluoromethane	<2500	µg/kg	2500	M,RB1,L	SW-846 8260C	1077586	6/1/15	HLS
Ethylbenzene	8990	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
Hexachlorobutadiene	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS

Job Number 1028801	Customer: Delek Refining, Ltd.	Attn: Gus Hartung

Date Sampled:	05/29/2015	Laboratory ID:	1028801-1
Time Sampled:	9:00 AM	Date Received:	05/29/2015
Project Name:	Slurry Oil TK BTTMS (TK 11)	Time Received:	12:06 PM
Project Number:		Matrix:	Solid
Sample Description	Slurry Oil TK BTTMS		
Sample Type:	Grab	Receiving Flags	***

Analysis	Result	Unit	MQL	Flag	Test Method	QA	Date	Tech
8260C Volatiles (Solid)								
Isopropylbenzene	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
m&p-Xylene	42600	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
Methyl-t-butyl ether (MtBE)	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
Methylene Chloride	<2500	µg/kg	2500	RB1	SW-846 8260C	1077586	6/1/15	HLS
n-Butylbenzene	4820	µg/kg	2500	BD	SW-846 8260C	1077586	6/1/15	HLS
n-Propylbenzene	3950	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
Naphthalene	15500	µg/kg	2500	BD	SW-846 8260C	1077586	6/1/15	HLS
o-Xylene	15400	µg/kg	2500	BD	SW-846 8260C	1077586	6/1/15	HLS
sec-Butylbenzene	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
Styrene	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
tert-Butylbenzene	5230	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
Tetrachloroethene	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
Toluene	26300	µg/kg	2500	BD	SW-846 8260C	1077586	6/1/15	HLS
trans-1,2-Dichloroethene	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
trans-1,3-Dichloropropene	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
Trichloroethene	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
Trichlorofluoromethane	<2500	µg/kg	2500	RB1	SW-846 8260C	1077586	6/1/15	HLS
Vinyl acetate	<2500	µg/kg	2500		SW-846 8260C	1077586	6/1/15	HLS
Vinyl chloride	<2500	µg/kg	2500	RB1	SW-846 8260C	1077586	6/1/15	HLS
8260C Volatiles (TCLP)								
1,1-Dichloroethene	<250	µg/l	250	TT	SW-846 8260C	1077272	6/1/15	HLS
1,2-Dichloroethane	<250	µg/l	250	TT	SW-846 8260C	1077272	6/1/15	HLS
2-Butanone (MEK)	<2500	µg/l	2500	ID,RB1,T	SW-846 8260C	1077272	6/1/15	HLS
Benzene	271	µg/l	250	TT	SW-846 8260C	1077272	6/1/15	HLS
Carbon tetrachloride	<250	µg/l	250	RB1,TT	SW-846 8260C	1077272	6/1/15	HLS
Chlorobenzene	<250	µg/l	250	TT	SW-846 8260C	1077272	6/1/15	HLS
Chloroform	<250	µg/l	250	TT	SW-846 8260C	1077272	6/1/15	HLS
Tetrachloroethene	<250	µg/l	250	TT	SW-846 8260C	1077272	6/1/15	HLS
Trichloroethene	<250	µg/l	250	TT	SW-846 8260C	1077272	6/1/15	HLS
Vinyl chloride	<99.8	µg/l	99.8	RB1,TT	SW-846 8260C	1077272	6/1/15	HLS
8270D Semivolatiles (TCLP)								
1,4-Dichlorobenzene	<10.0	µg/l	10.0	BQ,**	SW-846 8270D	1077852	6/9/15	HLS
2,4,5-Trichlorophenol	<10.0	µg/l	10.0	**	SW-846 8270D	1077852	6/9/15	HLS
2,4,6-Trichlorophenol	<10.0	µg/l	10.0	**	SW-846 8270D	1077852	6/9/15	HLS
2,4-Dinitrotoluene	<10.0	µg/l	10.0	**	SW-846 8270D	1077852	6/9/15	HLS

Job Number 1028801	Customer: Delek Refining, Ltd.	Attn: Gus Hartung

Date Sampled:	05/29/2015	Laboratory ID:	1028801-1
Time Sampled:	9:00 AM	Date Received:	05/29/2015
Project Name:	Slurry Oil TK BTTMS (TK 11)	Time Received:	12:06 PM
Project Number:		Matrix:	Solid
Sample Description	Slurry Oil TK BTTMS		
Sample Type:	Grab	Receiving Flags	***

Analysis	Result	Unit	MQL	Flag	Test Method	QA	Date	Tech
8270D Semivolatiles (TCLP)								
Hexachlorobenzene	<10.0	µg/l	10.0	**	SW-846 8270D	1077852	6/9/15	HLS
Hexachlorobutadiene	<10.0	µg/l	10.0	**	SW-846 8270D	1077852	6/9/15	HLS
Hexachloroethane	<10.0	µg/l	10.0	LF,**	SW-846 8270D	1077852	6/9/15	HLS
m&p-Cresol (3&4-Methylphenol)	68.1	µg/l	10.0	**	SW-846 8270D	1077852	6/9/15	HLS
Nitrobenzene	<10.0	µg/l	10.0	**	SW-846 8270D	1077852	6/9/15	HLS
o-Cresol (2-Methylphenol)	47.3	µg/l	10.0	**	SW-846 8270D	1077852	6/9/15	HLS
Pentachlorophenol	<10.0	µg/l	10.0	**	SW-846 8270D	1077852	6/9/15	HLS
Pyridine	<10.0	µg/l	10.0	BQ,RB2,**	SW-846 8270D	1077852	6/9/15	HLS

Any tests indicated with "*" next to result are not included in current NELAC fields of accreditation.

Sample Receiving Comments:
***Farm Out %Ash and Semi-Volitales

Sample Flag Definitions:
*** = Refer to Sample Receiving Comments for further information on this sample.

1028801 Delek Refining, Ltd. Attn: Gus Hartung

Parameter	Analysis Type	Analysis I.D.	Analyzed Value	Duplicate Value	RPD	True Value	STD %Rec.	Original Value	Spike Added	MS %Rec	MSD %Rec	% Rec. L-H	RPD	flag
			Analysis	Duplicate/MSD RPD		Standard Recoveries		MS/MSD Recoveries				Control Limits		
					Date/Time Analyzed: 6/9/2015 11:39:00 AM					QA Batch Number: 1077349				
					Analysis Method: SW-846 7470AMod					Analyst: MPL				
Mercury (Hg), TCLP	Blank	EXT 1 BLK R8393	<0.000400											
Mercury (Hg), TCLP	Preparation Blank	RBLK 6/8 R8406	<0.000200											
Mercury (Hg), TCLP	CCB	CCB2 R8406	<0.0000800											
Mercury (Hg), TCLP	CCB	CCB3 R8406	<0.0000800											
Mercury (Hg), TCLP	CCB	CCB4 R8406	<0.0000800											
Mercury (Hg), TCLP	ICV Standard	QCS S34046	0.000763			0.000800	95.4					95-105		
Mercury (Hg), TCLP	CCV Standard	IPC2 S34043	0.000827			0.000800	103					90-110		
Mercury (Hg), TCLP	CCV Standard	IPC3 S34043	0.000817			0.000800	102					90-110		
Mercury (Hg), TCLP	CCV Standard	IPC4 S34043	0.000817			0.000800	102					90-110		
Mercury (Hg), TCLP	LCS	LCS 6/8	0.00207			0.00200	103					85-115		
Mercury (Hg), TCLP	Duplicate	LCSD 6/8	0.00207	0.00205	0.971								20	
Mercury (Hg), TCLP	MS/MSD	1028796-1C	0.00206	0.00202	1.96			<0.000200	0.00200	103	101	70-130	20	
					Date/Time Analyzed: 6/9/2015 6:03:00 PM					QA Batch Number: 1077353				
					Analysis Method: SW-846 7471BMod					Analyst: MPL				
Mercury (Hg), Total	Preparation Blank	RBLK 6/9 R8413	<0.00656											
Mercury (Hg), Total	CCB	CCB1 R8412	<0.0000800											
Mercury (Hg), Total	CCB	CCB2 R8412	<0.0000800											
Mercury (Hg), Total	CCB	CCB3 R8412	<0.0000800											
Mercury (Hg), Total	ICV Standard	QCS S34049	0.000777			0.000800	97.1					95-105		
Mercury (Hg), Total	CCV Standard	Initial IPC S33836	0.000812			0.000800	101					90-110		
Mercury (Hg), Total	CCV Standard	IPC2 S33836	0.00084			0.000800	105					90-110		
Mercury (Hg), Total	CCV Standard	IPC3 S33836	0.000813			0.000800	102					90-110		
Mercury (Hg), Total	LCS	LCS 6/9	0.0695			0.0656	106					85-115		
Mercury (Hg), Total	Duplicate	LCSD 6/9	0.0695	0.0685	1.45								20	
Mercury (Hg), Total	MS/MSD	1028801-1A	0.0688	0.0660	4.15			<0.00714	0.0714	96.4	92.4	70-130	20	
					Date/Time Analyzed: 6/9/2015 8:12:00 PM					QA Batch Number: 1077359				
					Analysis Method: SW-846 6010C					Analyst: BLC				
	The absolute values of all blanks read between MDL & MQL.													
Cadmium (Cd), TCLP	Blank	ICSA1 S34006	<0.0200											BD
Cadmium (Cd), TCLP	Blank	ICSA2 S34006	<0.0200											BD
Cadmium (Cd), TCLP	Blank	ICSA3 S34006	<0.0200											BD
Cadmium (Cd), TCLP	Blank	ICSA4 S34006	<0.0200											BD
Cadmium (Cd), TCLP	Blank	ICSA5 S34006	<0.0200											BD

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Parameter	Analysis Type	Analysis I.D.	Analysis: Analyzed Value	Duplicate/MSD RPD: Duplicate Value	RPD	Standard Recoveries: True Value	STD %Rec.	MS/MSD Recoveries: Original Value	Spike Added	MS %Rec	MSD %Rec	Control Limits: % Rec. L-H	RPD	flag
Cadmium (Cd), TCLP	Preparation Blank	ExtBlk1 R8393	<0.0200											BD
Cadmium (Cd), TCLP	Preparation Blank	ExtBlk2 R8402	<0.0200											BD
Cadmium (Cd), TCLP	Preparation Blank	Rblk B 06_04_15	<0.0200											BD
Cadmium (Cd), TCLP	CCB	CCB1 R8404	<0.0200											BD
Cadmium (Cd), TCLP	CCB	CCB2 R8404	<0.0200											BD
Cadmium (Cd), TCLP	CCB	CCB3 R8404	<0.0200											BD
Cadmium (Cd), TCLP	CCB	CCB4 R8404	<0.0200											BD
Cadmium (Cd), TCLP	CCB	CCB5 R8404	<0.0200											BD
Cadmium (Cd), TCLP	ICV Standard	ICV S34053	1.02			1.00	102					90-110		
Cadmium (Cd), TCLP	CCV Standard	CCV1 S34008	2.01			2.00	100					90-110		
Cadmium (Cd), TCLP	CCV Standard	CCV2 S34008	2.01			2.00	100					90-110		
Cadmium (Cd), TCLP	CCV Standard	CCV3 S34008	2			2.00	100					90-110		
Cadmium (Cd), TCLP	CCV Standard	CCV4 S34008	2.01			2.00	100					90-110		
Cadmium (Cd), TCLP	CCV Standard	CCV5 S34008	2.02			2.00	101					90-110		
Cadmium (Cd), TCLP	SIC Standard	ICSAB1 S34007	0.0988			0.100	98.8					80-120		
Cadmium (Cd), TCLP	SIC Standard	ICSAB2 S34007	0.0996			0.100	99.6					80-120		
Cadmium (Cd), TCLP	SIC Standard	ICSAB3 S34007	0.098			0.100	98.0					80-120		
Cadmium (Cd), TCLP	SIC Standard	ICSAB4 S34007	0.0995			0.100	99.5					80-120		
Cadmium (Cd), TCLP	SIC Standard	ICSAB5 S34007	0.1			0.100	100					80-120		
Cadmium (Cd), TCLP	LCS	LCS B 06_04_15	1.06			1.00	106					80-120		
Cadmium (Cd), TCLP	Duplicate	LCSD B 06_04_15	1.06	1.04	1.90	1.00	106						20	
Cadmium (Cd), TCLP	MS/MSD	1028813-1A MS	2.18	2.20	0.913			0.0888	2.00	105	106	75-125	20	
Cadmium (Cd), TCLP	MS/MSD	1028813-1A PDS	2.20					0.0888	2.00	106		80-120	20	
Cadmium (Cd), TCLP	MS/MSD	1028816-1A MS	2.10	2.10	0.00			0.0412	2.00	103	103	75-125	20	
Cadmium (Cd), TCLP	MS/MSD	1028816-1A PDS	2.08					0.0412	2.00	102		80-120	20	

Date/Time Analyzed: 6/9/2015 8:12:00 PM **QA Batch Number: 1077360**
Analysis Method: SW-846 6010C **Analyst: BLC**

The absolute values of ICSA 2, 4, 6, ExtBlk2, and CCB 2-4, 6 read between MDL & MQL.

Lead (Pb), TCLP	Blank	ICSA1 S34006	<0.100											
Lead (Pb), TCLP	Blank	ICSA2 S34006	<0.100											BD
Lead (Pb), TCLP	Blank	ICSA3 S34006	<0.100											

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	Analysis			Duplicate/MSD RPD		Standard Recoveries		MS/MSD Recoveries				Control Limits		
Parameter	Analysis Type	Analysis I.D.	Analyzed Value	Duplicate Value	RPD	True Value	STD %Rec.	Original Value	Spike Added	MS %Rec	MSD %Rec	% Rec. L-H	RPD	flag
Lead (Pb), TCLP	Blank	ICSA4 S34006	<0.100											BD
Lead (Pb), TCLP	Blank	ICSA5 S34006	<0.100											
Lead (Pb), TCLP	Blank	ICSA6 S34006	<0.100											BD
Lead (Pb), TCLP	Preparation Blank	ExtBlk1 R8393	<0.100											
Lead (Pb), TCLP	Preparation Blank	ExtBlk2 R8402	<0.100											BD
Lead (Pb), TCLP	Preparation Blank	Rblk B 06_04_15	<0.100											
Lead (Pb), TCLP	CCB	CCB1 R8404	<0.100											
Lead (Pb), TCLP	CCB	CCB2 R8404	<0.100											BD
Lead (Pb), TCLP	CCB	CCB3 R8404	<0.100											BD
Lead (Pb), TCLP	CCB	CCB4 R8404	<0.100											BD
Lead (Pb), TCLP	CCB	CCB5 R8404	<0.100											
Lead (Pb), TCLP	CCB	CCB6 R8404	<0.100											BD
Lead (Pb), TCLP	ICV Standard	ICV S34053	0.985			1.00	98.5					90-110		
Lead (Pb), TCLP	CCV Standard	CCV1 S34008	2.01			2.00	100					90-110		
Lead (Pb), TCLP	CCV Standard	CCV2 S34008	2.01			2.00	100					90-110		
Lead (Pb), TCLP	CCV Standard	CCV3 S34008	2			2.00	100					90-110		
Lead (Pb), TCLP	CCV Standard	CCV4 S34008	2			2.00	100					90-110		
Lead (Pb), TCLP	CCV Standard	CCV5 S34008	2.01			2.00	100					90-110		
Lead (Pb), TCLP	CCV Standard	CCV6 S34008	2.01			2.00	100					90-110		
Lead (Pb), TCLP	SIC Standard	ICSAB1 S34007	0.207			0.200	103					80-120		
Lead (Pb), TCLP	SIC Standard	ICSAB2 S34007	0.205			0.200	102					80-120		
Lead (Pb), TCLP	SIC Standard	ICSAB3 S34007	0.204			0.200	102					80-120		
Lead (Pb), TCLP	SIC Standard	ICSAB4 S34007	0.212			0.200	106					80-120		
Lead (Pb), TCLP	SIC Standard	ICSAB5 S34007	0.213			0.200	107					80-120		
Lead (Pb), TCLP	SIC Standard	ICSAB6 S34007	0.211			0.200	106					80-120		
Lead (Pb), TCLP	LCS	LCS B 06_04_15	1.02			1.00	102					80-120		
Lead (Pb), TCLP	Duplicate	LCSD B 06_04_15	1.02	0.996	2.38	1.00	102						20	
Lead (Pb), TCLP	MS/MSD	1028813-1A MS	24.6	24.0	2.47			21.4	2.00	160	130	75-125	20	
Lead (Pb), TCLP	MS/MSD	1028813-1A PDS	23.2					21.4	2.00	90.0		80-120	20	
Lead (Pb), TCLP	MS/MSD	1028816-1A MS	31.6	26.2	18.7			29.6	2.00	100		75-125	20	
Lead (Pb), TCLP	MS/MSD	1028816-1A PDS	31.2					29.6	2.00	80.0		80-120	20	

Date/Time Analyzed: 6/9/2015 8:12:00 PM **QA Batch Number: 1077522**
Analysis Method: SW-846 6010C **Analyst: BLC**

The absolute value of ICSA 4 read between MDL & MQL.

Arsenic (As), TCLP	Blank	ICSA2 S34006	<0.100											
Arsenic (As), TCLP	Blank	ICSA3 S34006	<0.100											

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	Analysis			Duplicate/MSD RPD		Standard Recoveries		MS/MSD Recoveries				Control Limits		
Parameter	Analysis Type	Analysis I.D.	Analyzed Value	Duplicate Value	RPD	True Value	STD %Rec.	Original Value	Spike Added	MS %Rec	MSD %Rec	% Rec. L-H	RPD	flag
Arsenic (As), TCLP	Blank	ICSA4 S34006	<0.100											BD
Arsenic (As), TCLP	Blank	ICSA5 S34006	<0.100											
Arsenic (As), TCLP	Preparation Blank	ExtBlk1 R8393	<0.100											
Arsenic (As), TCLP	Preparation Blank	ExtBlk2 R8402	<0.100											
Arsenic (As), TCLP	Preparation Blank	Rblk B 06_04_15	<0.100											
Arsenic (As), TCLP	CCB	CCB2 R8404	<0.100											
Arsenic (As), TCLP	CCB	CCB3 R8404	<0.100											
Arsenic (As), TCLP	CCB	CCB4 R8404	<0.100											
Arsenic (As), TCLP	CCB	CCB5 R8404	<0.100											
Arsenic (As), TCLP	ICV Standard	ICV S34053	1.03			1.00	103					90-110		
Arsenic (As), TCLP	CCV Standard	CCV2 S34008	2.02			2.00	101					90-110		
Arsenic (As), TCLP	CCV Standard	CCV3 S34008	2.04			2.00	102					90-110		
Arsenic (As), TCLP	CCV Standard	CCV4 S34008	2.03			2.00	101					90-110		
Arsenic (As), TCLP	CCV Standard	CCV5 S34008	2.03			2.00	101					90-110		
Arsenic (As), TCLP	SIC Standard	ICSAB2 S34007	0.193			0.200	96.5					80-120		
Arsenic (As), TCLP	SIC Standard	ICSAB3 S34007	0.192			0.200	96.0					80-120		
Arsenic (As), TCLP	SIC Standard	ICSAB4 S34007	0.203			0.200	101					80-120		
Arsenic (As), TCLP	SIC Standard	ICSAB5 S34007	0.194			0.200	97.0					80-120		
Arsenic (As), TCLP	LCS	LCS B 06_04_15	1.06			1.00	106					80-120		
Arsenic (As), TCLP	Duplicate	LCSD B 06_04_15	1.06	1.04	1.90	1.00	106						20	
Arsenic (As), TCLP	MS/MSD	1028813-1A MS	2.16	2.18	0.922			<0.200	2.00	108	109	75-125	20	
Arsenic (As), TCLP	MS/MSD	1028813-1A PDS	2.18					<0.200	2.00	109		80-120	20	
Arsenic (As), TCLP	MS/MSD	1028816-1A MS	2.12	2.14	0.939			<0.200	2.00	106	107	75-125	20	
Arsenic (As), TCLP	MS/MSD	1028816-1A PDS	2.12					<0.200	2.00	106		80-120	20	

Date/Time Analyzed: 6/9/2015 8:12:00 PM **QA Batch Number: 1077527**
Analysis Method: SW-846 6010C **Analyst: BLC**

ExtBlk 1 and 2 read above MQL. The absolute values of ICSA 2 and Rblk read between MDL & MQL.

Barium (Ba), TCLP	Blank	ICSA2 S34006	<0.0100											BD
Barium (Ba), TCLP	Blank	ICSA3 S34006	<0.0100											
Barium (Ba), TCLP	Blank	ICSA4 S34006	<0.0100											
Barium (Ba), TCLP	Blank	ICSA5 S34006	<0.0100											
Barium (Ba), TCLP	Preparation Blank	ExtBlk1 R8393	0.0231											Q,RB
Barium (Ba), TCLP	Preparation Blank	ExtBlk2 R8402	0.031											Q,RB
Barium (Ba), TCLP	Preparation Blank	Rblk B 06_04_15	<0.0100											BD
Barium (Ba), TCLP	CCB	CCB2 R8404	<0.0100											
Barium (Ba), TCLP	CCB	CCB3 R8404	<0.0100											

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Parameter	Analysis Type	Analysis I.D.	Analysis Analyzed Value	Duplicate/MSD RPD Duplicate Value	RPD	Standard Recoveries True Value	STD %Rec.	MS/MSD Recoveries Original Value	Spike Added	MS %Rec	MSD %Rec	Control Limits % Rec. L-H	RPD	flag
Barium (Ba), TCLP	CCB	CCB4 R8404	<0.0100											
Barium (Ba), TCLP	CCB	CCB5 R8404	<0.0100											
Barium (Ba), TCLP	ICV Standard	ICV S34053	1.02			1.00	102					90-110		
Barium (Ba), TCLP	CCV Standard	CCV2 S34008	2			2.00	100					90-110		
Barium (Ba), TCLP	CCV Standard	CCV3 S34008	2			2.00	100					90-110		
Barium (Ba), TCLP	CCV Standard	CCV4 S34008	2			2.00	100					90-110		
Barium (Ba), TCLP	CCV Standard	CCV5 S34008	2			2.00	100					90-110		
Barium (Ba), TCLP	SIC Standard	ICSAB2 S34007	0.0985			0.100	98.5					80-120		
Barium (Ba), TCLP	SIC Standard	ICSAB3 S34007	0.0978			0.100	97.8					80-120		
Barium (Ba), TCLP	SIC Standard	ICSAB4 S34007	0.0991			0.100	99.1					80-120		
Barium (Ba), TCLP	SIC Standard	ICSAB5 S34007	0.0987			0.100	98.7					80-120		
Barium (Ba), TCLP	LCS	LCS B 06_04_15	1.06			1.00	106					80-120		
Barium (Ba), TCLP	Duplicate	LCSD B 06_04_15	1.06	1.05	0.948	1.00	106						20	
Barium (Ba), TCLP	MS/MSD	1028813-1A MS	2.78	2.82	1.43			0.714	2.00	103	105	75-125	20	
Barium (Ba), TCLP	MS/MSD	1028813-1A PDS	2.78					0.714	2.00	103		80-120	20	
Barium (Ba), TCLP	MS/MSD	1028816-1A MS	2.58	2.48	3.95			0.484	2.00	105	99.8	75-125	20	
Barium (Ba), TCLP	MS/MSD	1028816-1A PDS	2.54					0.484	2.00	103		80-120	20	

Date/Time Analyzed: 6/9/2015 8:12:00 PM **QA Batch Number: 1077533**
Analysis Method: SW-846 6010C **Analyst: BLC**

Chromium (Cr), TCLP	Blank	ICSA2 S34006	<0.0100											
Chromium (Cr), TCLP	Blank	ICSA3 S34006	<0.0100											
Chromium (Cr), TCLP	Blank	ICSA4 S34006	<0.0100											
Chromium (Cr), TCLP	Blank	ICSA5 S34006	<0.0100											
Chromium (Cr), TCLP	Preparation Blank	ExtBlk1 R8393	<0.0100											
Chromium (Cr), TCLP	Preparation Blank	ExtBlk2 R8402	<0.0100											
Chromium (Cr), TCLP	Preparation Blank	Rblk B 06_04_15	<0.0100											
Chromium (Cr), TCLP	CCB	CCB2 R8404	<0.0100											
Chromium (Cr), TCLP	CCB	CCB3 R8404	<0.0100											
Chromium (Cr), TCLP	CCB	CCB4 R8404	<0.0100											
Chromium (Cr), TCLP	CCB	CCB5 R8404	<0.0100											
Chromium (Cr), TCLP	ICV Standard	ICV S34053	1			1.00	100					90-110		
Chromium (Cr), TCLP	CCV Standard	CCV2 S34008	2.01			2.00	100					90-110		
Chromium (Cr), TCLP	CCV Standard	CCV3 S34008	2			2.00	100					90-110		

	Analysis		Duplicate/MSD RPD			Standard Recoveries		MS/MSD Recoveries				Control Limits		
Parameter	Analysis Type	Analysis I.D.	Analyzed Value	Duplicate Value	RPD	True Value	STD %Rec.	Original Value	Spike Added	MS %Rec	MSD %Rec	% Rec. L-H	RPD	flag
Chromium (Cr), TCLP	CCV Standard	CCV4 S34008	2.01			2.00	100					90-110		
Chromium (Cr), TCLP	CCV Standard	CCV5 S34008	2.04			2.00	102					90-110		
Chromium (Cr), TCLP	SIC Standard	ICSAB2 S34007	0.0978			0.100	97.8					80-120		
Chromium (Cr), TCLP	SIC Standard	ICSAB3 S34007	0.0986			0.100	98.6					80-120		
Chromium (Cr), TCLP	SIC Standard	ICSAB4 S34007	0.103			0.100	103					80-120		
Chromium (Cr), TCLP	SIC Standard	ICSAB5 S34007	0.102			0.100	102					80-120		
Chromium (Cr), TCLP	LCS	LCS B 06_04_15	1.05			1.00	105					80-120		
Chromium (Cr), TCLP	Duplicate	LCSD B 06_04_15	1.05	1.03	1.92	1.00	105						20	
Chromium (Cr), TCLP	MS/MSD	1028813-1A MS	2.10	2.12	0.948			<0.0200	2.00	105	106	75-125	20	
Chromium (Cr), TCLP	MS/MSD	1028813-1A PDS	2.12					<0.0200	2.00	106		80-120	20	
Chromium (Cr), TCLP	MS/MSD	1028816-1A MS	2.12	2.10	0.948			0.0418	2.00	104	103	75-125	20	
Chromium (Cr), TCLP	MS/MSD	1028816-1A PDS	2.08					0.0418	2.00	102		80-120	20	

Date/Time Analyzed: 6/9/2015 8:12:00 PM **QA Batch Number: 1077534**
Analysis Method: SW-846 6010C **Analyst: BLC**

ICSA 3, ExtBlk 1, Rblk, and CCB 2, 4 read between MDL & MQL.

Selenium (Se), TCLP	Blank	ICSA2 S34006	<0.100										
Selenium (Se), TCLP	Blank	ICSA3 S34006	<0.100										BD
Selenium (Se), TCLP	Blank	ICSA4 S34006	<0.100										
Selenium (Se), TCLP	Blank	ICSA5 S34006	<0.100										
Selenium (Se), TCLP	Preparation Blank	ExtBlk1 R8393	<0.100										BD
Selenium (Se), TCLP	Preparation Blank	ExtBlk2 R8402	<0.100										
Selenium (Se), TCLP	Preparation Blank	Rblk B 06_04_15	<0.100										BD
Selenium (Se), TCLP	CCB	CCB2 R8404	<0.100										BD
Selenium (Se), TCLP	CCB	CCB3 R8404	<0.100										
Selenium (Se), TCLP	CCB	CCB4 R8404	<0.100										BD
Selenium (Se), TCLP	CCB	CCB5 R8404	<0.100										
Selenium (Se), TCLP	ICV Standard	ICV S34053	1.01			1.00	101					90-110	
Selenium (Se), TCLP	CCV Standard	CCV2 S34008	2.02			2.00	101					90-110	
Selenium (Se), TCLP	CCV Standard	CCV3 S34008	2.04			2.00	102					90-110	
Selenium (Se), TCLP	CCV Standard	CCV4 S34008	2.04			2.00	102					90-110	
Selenium (Se), TCLP	CCV Standard	CCV5 S34008	2.04			2.00	102					90-110	

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Parameter	Analysis Type	Analysis I.D.	Analyzed Value	Duplicate Value	RPD	True Value	STD %Rec.	Original Value	Spike Added	MS %Rec	MSD %Rec	% Rec. L-H	RPD	flag
			Analysis	Duplicate/MSD RPD		Standard Recoveries		MS/MSD Recoveries				Control Limits		
Selenium (Se), TCLP	SIC Standard	ICSAB2 S34007	0.219			0.200	110					80-120		
Selenium (Se), TCLP	SIC Standard	ICSAB3 S34007	0.217			0.200	109					80-120		
Selenium (Se), TCLP	SIC Standard	ICSAB4 S34007	0.223			0.200	112					80-120		
Selenium (Se), TCLP	SIC Standard	ICSAB5 S34007	0.22			0.200	110					80-120		
Selenium (Se), TCLP	LCS	LCS B 06_04_15	1.07			1.00	107					80-120		
Selenium (Se), TCLP	Duplicate	LCSD B 06_04_15	1.07	1.04	2.84	1.00	107						20	
Selenium (Se), TCLP	MS/MSD	1028813-1A MS	2.22	2.24	0.897			<0.200	2.00	111	112	75-125	20	
Selenium (Se), TCLP	MS/MSD	1028813-1A PDS	2.22					<0.200	2.00	111		80-120	20	
Selenium (Se), TCLP	MS/MSD	1028816-1A MS	2.32	2.26	2.62			<0.200	2.00	116	113	75-125	20	
Selenium (Se), TCLP	MS/MSD	1028816-1A PDS	2.28					<0.200	2.00	114		80-120	20	

Date/Time Analyzed: 7/10/2015 11:05:00 AM **QA Batch Number: 1077847**
Analysis Method: SW-846 6010C **Analyst: BLC**

The absolute values of ICSA 3-6 read between MDL & MQL.

Silver (Ag), TCLP	Blank	ICSA3 S34320	<0.0125											BD
Silver (Ag), TCLP	Blank	ICSA4 S34320	<0.0125											BD
Silver (Ag), TCLP	Blank	ICSA5 S34320	<0.0125											BD
Silver (Ag), TCLP	Blank	ICSA6 S34320	<0.0125											BD
Silver (Ag), TCLP	Preparation Blank	ExtBlk1 R8393	<0.0125											
Silver (Ag), TCLP	Preparation Blank	ExtBlk2 R8402	<0.0125											
Silver (Ag), TCLP	Preparation Blank	Rblk 06_04_15	<0.0125											
Silver (Ag), TCLP	CCB	CCB3 R8480	<0.0125											
Silver (Ag), TCLP	CCB	CCB4 R8480	<0.0125											
Silver (Ag), TCLP	CCB	CCB5 R8480	<0.0125											
Silver (Ag), TCLP	CCB	CCB6 R8480	<0.0125											
Silver (Ag), TCLP	ICV Standard	ICV S34351	0.0506			0.0500	101					90-110		
Silver (Ag), TCLP	CCV Standard	CCV3 S34322	0.0496			0.0500	99.2					90-110		
Silver (Ag), TCLP	CCV Standard	CCV4 S34322	0.0484			0.0500	96.8					90-110		
Silver (Ag), TCLP	CCV Standard	CCV5 S34322	0.0487			0.0500	97.4					90-110		
Silver (Ag), TCLP	CCV Standard	CCV6 S34322	0.0479			0.0500	95.8					90-110		
Silver (Ag), TCLP	SIC Standard	ICSAB3 S34321	0.0219			0.0250	87.6					80-120		
Silver (Ag), TCLP	SIC Standard	ICSAB4 S34321	0.0214			0.0250	85.6					80-120		
Silver (Ag), TCLP	SIC Standard	ICSAB5 S34321	0.0224			0.0250	89.6					80-120		
Silver (Ag), TCLP	SIC Standard	ICSAB6 S34321	0.0209			0.0250	83.6					80-120		
Silver (Ag), TCLP	LCS	LCS 06_04_15	0.0218			0.0250	87.2					80-120		

1028801 Delek Refining, Ltd. Attn: Gus Hartung

Parameter	Analysis Type	Analysis I.D.	Analyzed Value	Duplicate Value	RPD	True Value	STD %Rec.	Original Value	Spike Added	MS %Rec	MSD %Rec	% Rec. L-H	RPD	flag
			Analysis	Duplicate/MSD RPD		Standard Recoveries		MS/MSD Recoveries				Control Limits		
Silver (Ag), TCLP	Duplicate	LCSD 06_04_15	0.0218	0.0227	4.04	0.0250	87.2						20	
Silver (Ag), TCLP	MS/MSD	1028813-1A MS	0.0400	0.0414	3.44			<0.0250	0.0500	80.0	82.8	75-125	20	
Silver (Ag), TCLP	MS/MSD	1028813-1A PDS	0.0394					<0.0250	0.0500	78.8		80-120	20	
Silver (Ag), TCLP	MS/MSD	1028816-1A MS	0.0638	0.0580	9.52			<0.0250	0.0500	128	116	75-125	20	
Silver (Ag), TCLP	MS/MSD	1028816-1A PDS	0.0626					<0.0250	0.0500	125		80-120	20	

Date/Time Analyzed: 7/14/2015 1:29:00 PM QA Batch Number: 1077866
Analysis Method: SW-846 6010C Analyst: BLC

ICSA1,2,3,4, CCB1,3,4 read between MDL and MQL. MS/MSD could not be assessed due to high background in original sample.

Barium (Ba), Total	Blank	ICSA1 S34392	<0.0200											
Barium (Ba), Total	Blank	ICSA2 S34392	<0.0200											
Barium (Ba), Total	Blank	ICSA3 S34392	<0.0200											
Barium (Ba), Total	Blank	ICSA4 S34392	<0.0200											
Barium (Ba), Total	Preparation Blank	Rblk 07_07_15	<0.862											
Barium (Ba), Total	CCB	CCB1 R8493	<0.0200											
Barium (Ba), Total	CCB	CCB2 R8493	<0.0200											
Barium (Ba), Total	CCB	CCB3 R8493	<0.0200											
Barium (Ba), Total	CCB	CCB4 R8493	<0.0200											
Barium (Ba), Total	ICV Standard	ICV S34391	0.998			1.00	99.8					90-110		
Barium (Ba), Total	CCV Standard	CCV1 S34394	2.06			2.00	103					90-110		
Barium (Ba), Total	CCV Standard	CCV2 S34394	2.03			2.00	101					90-110		
Barium (Ba), Total	CCV Standard	CCV3 S34394	2.01			2.00	100					90-110		
Barium (Ba), Total	CCV Standard	CCV4 S34394	2			2.00	100					90-110		
Barium (Ba), Total	SIC Standard	ICSAB1 S34393	0.106			0.100	106					80-120		
Barium (Ba), Total	SIC Standard	ICSAB2 S34393	0.106			0.100	106					80-120		
Barium (Ba), Total	SIC Standard	ICSAB3 S34393	0.107			0.100	107					80-120		
Barium (Ba), Total	SIC Standard	ICSAB4 S34393	0.106			0.100	106					80-120		
Barium (Ba), Total	LCS	LCS 07_07_15	51.4			48.1	107					80-120		
Barium (Ba), Total	Duplicate	LCSD 07_07_15	51.4	51.9	0.968	48.1	107						20	
Barium (Ba), Total	MS/MSD	1028715-1B MS	436	433	0.690			351	89.3	95.2	91.8	75-125	20	
Barium (Ba), Total	MS/MSD	1028715-1B PDS	389					351	89.3	42.6		80-120	20	

Date/Time Analyzed: 7/14/2015 1:29:00 PM QA Batch Number: 1077867
Analysis Method: SW-846 6010C Analyst: BLC

Cadmium (Cd), Total	Blank	ICSA1 S34392	<0.0200											
Cadmium (Cd), Total	Blank	ICSA2 S34392	<0.0200											
Cadmium (Cd), Total	Blank	ICSA3 S34392	<0.0200											

1028801 Delek Refining, Ltd. Attn: Gus Hartung

Parameter	Analysis Type	Analysis I.D.	Analysis: Analyzed Value	Duplicate/MSD RPD: Duplicate Value	RPD	Standard Recoveries: True Value	STD %Rec.	MS/MSD Recoveries: Original Value	Spike Added	MS %Rec	MSD %Rec	Control Limits: % Rec. L-H	RPD	flag
Cadmium (Cd), Total	Preparation Blank	Rblk 07_07_15	<0.862											
Cadmium (Cd), Total	CCB	CCB1 R8493	<0.0200											
Cadmium (Cd), Total	CCB	CCB2 R8493	<0.0200											
Cadmium (Cd), Total	CCB	CCB3 R8493	<0.0200											
Cadmium (Cd), Total	ICV Standard	ICV S34391	1.03			1.00	103					90-110		
Cadmium (Cd), Total	CCV Standard	CCV1 S34394	2.04			2.00	102					90-110		
Cadmium (Cd), Total	CCV Standard	CCV2 S34394	2.07			2.00	103					90-110		
Cadmium (Cd), Total	CCV Standard	CCV3 S34394	2.07			2.00	103					90-110		
Cadmium (Cd), Total	SIC Standard	ICSAB1 S34393	0.109			0.100	109					80-120		
Cadmium (Cd), Total	SIC Standard	ICSAB2 S34393	0.109			0.100	109					80-120		
Cadmium (Cd), Total	SIC Standard	ICSAB3 S34393	0.111			0.100	111					80-120		
Cadmium (Cd), Total	LCS	LCS 07_07_15	53.4			48.1	111					80-120		
Cadmium (Cd), Total	Duplicate	LCSD 07_07_15	53.4	53.4	0.00	48.1	111						20	
Cadmium (Cd), Total	MS/MSD	1028715-1B MS	50.4	46.9	7.19			1.78	44.6	109	101	75-125	20	
Cadmium (Cd), Total	MS/MSD	1028715-1B PDS	47.3					1.78	44.6	102		80-120	20	

Date/Time Analyzed: 7/14/2015 1:29:00 PM **QA Batch Number: 1077868**
Analysis Method: SW-846 6010C **Analyst: BLC**

Chromium (Cr), Total	Blank	ICSA1 S34392	<0.0200											
Chromium (Cr), Total	Blank	ICSA2 S34392	<0.0200											
Chromium (Cr), Total	Blank	ICSA3 S34392	<0.0200											
Chromium (Cr), Total	Preparation Blank	Rblk 07_07_15	<0.862											
Chromium (Cr), Total	CCB	CCB1 R8493	<0.0200											
Chromium (Cr), Total	CCB	CCB2 R8493	<0.0200											
Chromium (Cr), Total	CCB	CCB3 R8493	<0.0200											
Chromium (Cr), Total	ICV Standard	ICV S34391	0.99			1.00	99.0					90-110		
Chromium (Cr), Total	CCV Standard	CCV1 S34394	2.04			2.00	102					90-110		
Chromium (Cr), Total	CCV Standard	CCV2 S34394	2.02			2.00	101					90-110		
Chromium (Cr), Total	CCV Standard	CCV3 S34394	1.98			2.00	99.0					90-110		
Chromium (Cr), Total	SIC Standard	ICSAB1 S34393	0.106			0.100	106					80-120		
Chromium (Cr), Total	SIC Standard	ICSAB2 S34393	0.102			0.100	102					80-120		

1028801 Delek Refining, Ltd. Attn: Gus Hartung

Parameter	Analysis Type	Analysis I.D.	Analysis: Analyzed Value	Duplicate/MSD RPD: Duplicate Value	RPD	Standard Recoveries: True Value	STD %Rec.	MS/MSD Recoveries: Original Value	Spike Added	MS %Rec	MSD %Rec	Control Limits: % Rec. L-H	RPD	flag
Chromium (Cr), Total	SIC Standard	ICSAB3 S34393	0.106			0.100	106					80-120		
Chromium (Cr), Total	LCS	LCS 07_07_15	51.0			48.1	106					80-120		
Chromium (Cr), Total	Duplicate	LCSD 07_07_15	51.0	51.0	0.00	48.1	106						20	
Chromium (Cr), Total	MS/MSD	1028715-1B MS	68.8	62.1	10.2			21.1	44.6	107	91.9	75-125	20	
Chromium (Cr), Total	MS/MSD	1028715-1B PDS	64.7					21.1	44.6	97.8		80-120	20	

Date/Time Analyzed: 7/14/2015 1:29:00 PM **QA Batch Number: 1077869**
Analysis Method: SW-846 6010C **Analyst: BLC**

ICSA1,3, RBLK 7/7, CCB2,3 read between MDL and MQL.

Lead (Pb), Total	Blank	ICSA1 S34392	<0.100											
Lead (Pb), Total	Blank	ICSA2 S34392	<0.100											
Lead (Pb), Total	Blank	ICSA3 S34392	<0.100											
Lead (Pb), Total	Preparation Blank	Rblk 07_07_15	<4.31											
Lead (Pb), Total	CCB	CCB1 R8493	<0.100											
Lead (Pb), Total	CCB	CCB2 R8493	<0.100											
Lead (Pb), Total	CCB	CCB3 R8493	<0.100											
Lead (Pb), Total	ICV Standard	ICV S34391	1.01			1.00	101					90-110		
Lead (Pb), Total	CCV Standard	CCV1 S34394	2.06			2.00	103					90-110		
Lead (Pb), Total	CCV Standard	CCV2 S34394	2.09			2.00	105					90-110		
Lead (Pb), Total	CCV Standard	CCV3 S34394	2.12			2.00	106					90-110		
Lead (Pb), Total	SIC Standard	ICSAB1 S34393	0.21			0.200	105					80-120		
Lead (Pb), Total	SIC Standard	ICSAB2 S34393	0.216			0.200	108					80-120		
Lead (Pb), Total	SIC Standard	ICSAB3 S34393	0.22			0.200	110					80-120		
Lead (Pb), Total	LCS	LCS 07_07_15	52.9			48.1	110					80-120		
Lead (Pb), Total	Duplicate	LCSD 07_07_15	52.9	52.9	0.00	48.1	110						20	
Lead (Pb), Total	MS/MSD	1028715-1B MS	97.3	88.4	9.59			45.1	44.6	117	97.1	75-125	20	
Lead (Pb), Total	MS/MSD	1028715-1B PDS	88.4					45.1	44.6	97.1		80-120	20	

Date/Time Analyzed: 7/14/2015 1:29:00 PM **QA Batch Number: 1077870**
Analysis Method: SW-846 6010C **Analyst: BLC**

CCB1,2,3 read between MDL and MQL.

Selenium (Se), Total	Blank	ICSA1 S34392	<0.200											
Selenium (Se), Total	Blank	ICSA2 S34392	<0.200											
Selenium (Se), Total	Blank	ICSA3 S34392	<0.200											
Selenium (Se), Total	Preparation Blank	Rblk 07_07_15	<8.62											
Selenium (Se), Total	CCB	CCB1 R8493	<0.200											
Selenium (Se), Total	CCB	CCB2 R8493	<0.200											

1028801 Delek Refining, Ltd. Attn: Gus Hartung

Parameter	Analysis Type	Analysis I.D.	Analyzed Value	Duplicate Value	RPD	True Value	STD %Rec.	Original Value	Spike Added	MS %Rec	MSD %Rec	% Rec. L-H	RPD	flag
			Analysis	Duplicate/MSD RPD		Standard Recoveries		MS/MSD Recoveries				Control Limits		
Selenium (Se), Total	CCB	CCB3 R8493	<0.200											
Selenium (Se), Total	ICV Standard	ICV S34391	1.01			1.00	101					90-110		
Selenium (Se), Total	CCV Standard	CCV1 S34394	2.05			2.00	102					90-110		
Selenium (Se), Total	CCV Standard	CCV2 S34394	2.03			2.00	101					90-110		
Selenium (Se), Total	CCV Standard	CCV3 S34394	1.97			2.00	98.5					90-110		
Selenium (Se), Total	SIC Standard	ICSAB1 S34393	0.201			0.200	100					80-120		
Selenium (Se), Total	SIC Standard	ICSAB2 S34393	0.208			0.200	104					80-120		
Selenium (Se), Total	SIC Standard	ICSAB3 S34393	0.21			0.200	105					80-120		
Selenium (Se), Total	LCS	LCS 07_07_15	52.4			48.1	109					80-120		
Selenium (Se), Total	Duplicate	LCSD 07_07_15	52.4	51.9	0.959	48.1	109						20	
Selenium (Se), Total	MS/MSD	1028715-1B MS	55.4	50.9	8.47			<8.93	44.6	124	114	75-125	20	
Selenium (Se), Total	MS/MSD	1028715-1B PDS	52.2					<8.93	44.6	117		80-120	20	

Date/Time Analyzed: 7/14/2015 6:56:00 PM **QA Batch Number: 1077871**
Analysis Method: SW-846 6010C **Analyst: BLC**

ICSA2, CCB1,3 read between MDL and MQL. High background in original sample for MS/MSD therefore could not be assessed.

Silver (Ag), Total	Blank	ICSA S34402	<0.0125											
Silver (Ag), Total	Blank	ICSA1 S34402	<0.0125											
Silver (Ag), Total	Blank	ICSA2 S34402	<0.0125											
Silver (Ag), Total	Preparation Blank	Rblk 07_07_15	<0.539											
Silver (Ag), Total	CCB	CCB1 R8493	<0.0125											
Silver (Ag), Total	CCB	CCB2 R8493	<0.0125											
Silver (Ag), Total	CCB	CCB3 R8493	<0.0125											
Silver (Ag), Total	ICV Standard	ICV S34401	0.0503			0.0500	101					90-110		
Silver (Ag), Total	CCV Standard	CCV1 S34404	0.0497			0.0500	99.4					90-110		
Silver (Ag), Total	CCV Standard	CCV2 S34404	0.0503			0.0500	101					90-110		
Silver (Ag), Total	CCV Standard	CCV3 S34404	0.0516			0.0500	103					90-110		
Silver (Ag), Total	SIC Standard	ICSAB S34403	0.025			0.0250	100					80-120		
Silver (Ag), Total	SIC Standard	ICSAB2 S34403	0.0257			0.0250	103					80-120		
Silver (Ag), Total	SIC Standard	ICSAB3 S34403	0.0268			0.0250	107					80-120		
Silver (Ag), Total	LCS	LCS 07_07_15	1.01			1.20	84.2					80-120		
Silver (Ag), Total	Duplicate	LCSD 07_07_15	1.01	0.875	14.3	1.20	84.2						20	
Silver (Ag), Total	MS/MSD	1028715-1B MS	10.6	8.35	23.7			9.51	1.12	97.3		75-125	20	
Silver (Ag), Total	MS/MSD	1028715-1B PDS	10.7					9.51	1.12	106		80-120	20	

1028801	Delek Refining, Ltd.											Attn: Gus Hartung		
	Analysis			Duplicate/MSD RPD		Standard Recoveries		MS/MSD Recoveries				Control Limits		
Parameter	Analysis Type	Analysis I.D.	Analyzed Value	Duplicate Value	RPD	True Value	STD %Rec.	Original Value	Spike Added	MS %Rec	MSD %Rec	% Rec. L-H	RPD	flag
					Date/Time Analyzed: 7/14/2015 1:29:00 PM					QA Batch Number: 1077872				
					Analysis Method: SW-846 6010C					Analyst: BLC				
	ICSA1,3 read between MDL and MQL.													
Arsenic (As), Total	Blank	ICSA1 S34392	<0.100											
Arsenic (As), Total	Blank	ICSA2 S34392	<0.100											
Arsenic (As), Total	Blank	ICSA3 S34392	<0.100											
Arsenic (As), Total	Preparation Blank	Rblk 07_07_15	<4.31											
Arsenic (As), Total	CCB	CCB1 R8493	<0.100											
Arsenic (As), Total	CCB	CCB2 R8493	<0.100											
Arsenic (As), Total	CCB	CCB3 R8493	<0.100											
Arsenic (As), Total	ICV Standard	ICV S34391	1			1.00	100					90-110		
Arsenic (As), Total	CCV Standard	CCV1 S34394	2.02			2.00	101					90-110		
Arsenic (As), Total	CCV Standard	CCV2 S34394	2.07			2.00	103					90-110		
Arsenic (As), Total	CCV Standard	CCV3 S34394	2.07			2.00	103					90-110		
Arsenic (As), Total	SIC Standard	ICSAB1 S34393	0.206			0.200	103					80-120		
Arsenic (As), Total	SIC Standard	ICSAB2 S34393	0.212			0.200	106					80-120		
Arsenic (As), Total	SIC Standard	ICSAB3 S34393	0.219			0.200	110					80-120		
Arsenic (As), Total	LCS	LCS 07_07_15	51.9			48.1	108					80-120		
Arsenic (As), Total	Duplicate	LCSD 07_07_15	51.9	52.9	1.91	48.1	108						20	
Arsenic (As), Total	MS/MSD	1028715-1B MS	48.2	45.1	6.65			<4.46	44.6	108	101	75-125	20	
Arsenic (As), Total	MS/MSD	1028715-1B PDS	46.4					<4.46	44.6	104		80-120	20	
8260C Volatiles (Solid)					Date/Time Analyzed: 6/1/2015 1:37:00 PM					QA Batch Number: 1077586				
					Analysis Method: SW-846 8260C					Analyst: HLS				
	CCB result for Chloromethane, 2-Butanone, Toluene, 2-Hexanone, o-Xylene, n-Butylbenzene, Naphthalene, and 1,2,3-Trichlorobenzene read between MDL and MQL. CCV recovered below control limits for Dichlorodifluoromethane, Vinyl chloride, Trichlorofluoromethane, Methylene Chloride, 1,1-Dichloropropene, Carbon tetrachloride. CCV recovered high for 1,2,3-Tetrachloropropane. LCS recovered below control limits for Dichlorodifluoromethane, Bromomethane, Chloroethane, Dibromo-3-chloropropane, and 1,2,3-Trichlorobenzene. MSD recovered low for dichlorodifluoromethane, but MS is within limit. MS/MSD high for acetone; LCS is within limit.													
1,1,1,2-Tetrachloroethane	CCB	CCB	<5.00											
1,1,1-Trichloroethane	CCB	CCB	<5.00											
1,1,2,2-Tetrachloroethane	CCB	CCB	<5.00											
1,1,2-Trichloroethane	CCB	CCB	<5.00											
1,1-Dichloroethane	CCB	CCB	<5.00											
1,1-Dichloroethene	CCB	CCB	<5.00											
1,1-Dichloropropene	CCB	CCB	<5.00											
1,2,3-Trichlorobenzene	CCB	CCB	<5.00											BD
1,2,3-Trichloropropane	CCB	CCB	<2.00											

1028801	Delek Refining, Ltd.													Attn: Gus Hartung
	Analysis			Duplicate/MSD RPD		Standard Recoveries		MS/MSD Recoveries				Control Limits		
Parameter	Analysis Type	Analysis I.D.	Analyzed Value	Duplicate Value	RPD	True Value	STD %Rec.	Original Value	Spike Added	MS %Rec	MSD %Rec	% Rec. L-H	RPD	flag
1,2,4-Trichlorobenzene	CCB	CCB	<5.00											
1,2,4-Trimethylbenzene	CCB	CCB	<5.00											
1,2-Dibromo-3-chloropropane	CCB	CCB	<5.00											
1,2-Dibromoethane	CCB	CCB	<5.00											
1,2-Dichlorobenzene	CCB	CCB	<5.00											
1,2-Dichloroethane	CCB	CCB	<5.00											
1,2-Dichloropropane	CCB	CCB	<5.00											
1,3,5-Trimethylbenzene	CCB	CCB	<5.00											
1,3-Dichlorobenzene	CCB	CCB	<5.00											
1,3-Dichloropropane	CCB	CCB	<5.00											
1,4-Dichlorobenzene	CCB	CCB	<5.00											
2,2-Dichloropropane	CCB	CCB	<5.00											
2-Butanone (MEK)	CCB	CCB	<50.0											BD
2-Chloroethyl vinyl ether	CCB	CCB	<2.00											
2-Chlorotoluene	CCB	CCB	<5.00											
2-Hexanone	CCB	CCB	<5 00											BD
4-Chlorotoluene	CCB	CCB	<5.00											
4-Isopropyltoluene	CCB	CCB	<5.00											
4-Methyl-2-pentanone (MIBK)	CCB	CCB	<5.00											
Acetone	CCB	CCB	<50.0											
Benzene	CCB	CCB	<5.00											
Bromobenzene	CCB	CCB	<5.00											
Bromochloromethane	CCB	CCB	<5.00											
Bromodichloromethane	CCB	CCB	<5.00											
Bromoform	CCB	CCB	<5.00											
Bromomethane	CCB	CCB	<5.00											
Carbon disulfide	CCB	CCB	<5.00											
Carbon tetrachloride	CCB	CCB	<5.00											
Chlorobenzene	CCB	CCB	<5.00											
Chloroethane	CCB	CCB	<5.00											
Chloroform	CCB	CCB	<5.00											
Chloromethane	CCB	CCB	<5.00											BD
cis-1,2-Dichloroethene	CCB	CCB	<5.00											
cis-1,3-Dichloropropene	CCB	CCB	<5.00											
Dibromochloromethane	CCB	CCB	<5.00											
Dibromomethane	CCB	CCB	<5.00											

1028801	Delek Refining, Ltd.	Attn: Gus Hartung

	Analysis			Duplicate/MSD RPD		Standard Recoveries		MS/MSD Recoveries				Control Limits		
Parameter	Analysis Type	Analysis I.D.	Analyzed Value	Duplicate Value	RPD	True Value	STD %Rec.	Original Value	Spike Added	MS %Rec	MSD %Rec	% Rec. L-H	RPD	flag
Dichlorodifluoromethane	CCB	CCB	<5.00											
Ethylbenzene	CCB	CCB	<5.00											
Hexachlorobutadiene	CCB	CCB	<5.00											
Isopropylbenzene	CCB	CCB	<5.00											
m&p-Xylene	CCB	CCB	<5.00											
Methyl-t-butyl ether (MtBE)	CCB	CCB	<5.00											
Methylene Chloride	CCB	CCB	<5.00											
n-Butylbenzene	CCB	CCB	<5.00											BD
n-Propylbenzene	CCB	CCB	<5.00											
Naphthalene	CCB	CCB	<5.00											BD
o-Xylene	CCB	CCB	<5.00											BD
sec-Butylbenzene	CCB	CCB	<5.00											
Styrene	CCB	CCB	<5.00											
tert-Butylbenzene	CCB	CCB	<5.00											
Tetrachloroethene	CCB	CCB	<5.00											
Toluene	CCB	CCB	<5.00											BD
trans-1,2-Dichloroethene	CCB	CCB	<5.00											
trans-1,3-Dichloropropene	CCB	CCB	<5.00											
Trichloroethene	CCB	CCB	<5.00											
Trichlorofluoromethane	CCB	CCB	<5.00											
Vinyl acetate	CCB	CCB	<5.00											
Vinyl chloride	CCB	CCB	<5.00											
1,1,1,2-Tetrachloroethane	CCV Standard	CCV	20.7			20.0	103					80-120		
1,1,1-Trichloroethane	CCV Standard	CCV	16.8			20.0	84.0					80-120		
1,1,2,2-Tetrachloroethane	CCV Standard	CCV	21.3			20.0	107					80-120		
1,1,2-Trichloroethane	CCV Standard	CCV	21.5			20.0	108					80-120		
1,1-Dichloroethane	CCV Standard	CCV	17.6			20.0	88.0					80-120		
1,1-Dichloroethene	CCV Standard	CCV	16.1			20.0	80.5					80-120		
1,1-Dichloropropene	CCV Standard	CCV	15.2			20.0	76.0					80-120		
1,2,3-Trichlorobenzene	CCV Standard	CCV	16.8			20.0	84.0					80-120		
1,2,3-Trichloropropane	CCV Standard	CCV	25.3			20.0	127					80-120		
1,2,4-Trichlorobenzene	CCV Standard	CCV	19.6			20.0	98.0					80-120		
1,2,4-Trimethylbenzene	CCV Standard	CCV	22.5			20.0	113					80-120		
1,2-Dibromo-3-chloropropane	CCV Standard	CCV	18.4			20.0	92.0					80-120		
1,2-Dibromoethane	CCV Standard	CCV	22.1			20.0	111					80-120		

1028801	Delek Refining, Ltd.											Attn: Gus Hartung		
		Analysis		Duplicate/MSD RPD		Standard Recoveries		MS/MSD Recoveries				Control Limits		
Parameter	Analysis Type	Analysis I.D.	Analyzed Value	Duplicate Value	RPD	True Value	STD %Rec.	Original Value	Spike Added	MS %Rec	MSD %Rec	% Rec. L-H	RPD	flag
1,2-Dichlorobenzene	CCV Standard	CCV	22.5			20.0	113					80-120		
1,2-Dichloroethane	CCV Standard	CCV	16.9			20.0	84.5					80-120		
1,2-Dichloropropane	CCV Standard	CCV	19.2			20.0	96.0					80-120		
1,3,5-Trimethylbenzene	CCV Standard	CCV	22.1			20.0	111					80-120		
1,3-Dichlorobenzene	CCV Standard	CCV	23.1			20.0	116					80-120		
1,3-Dichloropropane	CCV Standard	CCV	20.6			20.0	103					80-120		
1,4-Dichlorobenzene	CCV Standard	CCV	21.1			20.0	106					80-120		
2,2-Dichloropropane	CCV Standard	CCV	16.8			20.0	84.0					80-120		
2-Butanone (MEK)	CCV Standard	CCV	166			200	83.0					80-120		
2-Chloroethyl vinyl ether	CCV Standard	CCV	18			20.0	90.0					80-120		
2-Chlorotoluene	CCV Standard	CCV	21.9			20.0	110					80-120		
2-Hexanone	CCV Standard	CCV	18.9			20.0	94.5					80-120		
4-Chlorotoluene	CCV Standard	CCV	22.1			20.0	111					80-120		
4-Isopropyltoluene	CCV Standard	CCV	21.5			20.0	108					80-120		
4-Methyl-2-pentanone (MIBK)	CCV Standard	CCV	19.4			20.0	97.0					80-120		
Acetone	CCV Standard	CCV	162			200	81.0					80-120		
Benzene	CCV Standard	CCV	16.6			20.0	83.0					80-120		
Bromobenzene	CCV Standard	CCV	21.7			20.0	109					80-120		
Bromochloromethane	CCV Standard	CCV	17.2			20.0	86.0					80-120		
Bromodichloromethane	CCV Standard	CCV	19.9			20.0	99.5					80-120		
Bromoform	CCV Standard	CCV	19.9			20.0	99.5					80-120		
Bromomethane	CCV Standard	CCV	18.8			20.0	94.0					80-120		
Carbon disulfide	CCV Standard	CCV	17.3			20.0	86.5					80-120		
Carbon tetrachloride	CCV Standard	CCV	14.5			20.0	72.5					80-120		
Chlorobenzene	CCV Standard	CCV	21.1			20.0	106					80-120		
Chloroethane	CCV Standard	CCV	16.6			20.0	83.0					80-120		
Chloroform	CCV Standard	CCV	17.9			20.0	89.5					80-120		
Chloromethane	CCV Standard	CCV	16.1			20.0	80.5					80-120		
cis-1,2-Dichloroethene	CCV Standard	CCV	16.7			20.0	83.5					80-120		
cis-1,3-Dichloropropene	CCV Standard	CCV	19.3			20.0	96.5					80-120		
Dibromochloromethane	CCV Standard	CCV	22.5			20.0	113					80-120		

1028801	Delek Refining, Ltd.											Attn: Gus Hartung		
	Analysis			Duplicate/MSD RPD		Standard Recoveries		MS/MSD Recoveries				Control Limits		
Parameter	Analysis Type	Analysis I.D.	Analyzed Value	Duplicate Value	RPD	True Value	STD %Rec.	Original Value	Spike Added	MS %Rec	MSD %Rec	% Rec. L-H	RPD	flag
Dibromomethane	CCV Standard	CCV	20.4			20.0	102					80-120		
Dichlorodifluoromethane	CCV Standard	CCV	15.8			20.0	79.0					80-120		
Ethylbenzene	CCV Standard	CCV	19.9			20.0	99.5					80-120		
Hexachlorobutadiene	CCV Standard	CCV	18.3			20.0	91.5					80-120		
Isopropylbenzene	CCV Standard	CCV	18.9			20.0	94.5					80-120		
m&p-Xylene	CCV Standard	CCV	40.4			40.0	101					80-120		
Methyl-t-butyl ether (MtBE)	CCV Standard	CCV	17			20.0	85.0					80-120		
Methylene Chloride	CCV Standard	CCV	13.9			20.0	69.5					80-120		
n-Butylbenzene	CCV Standard	CCV	21.5			20.0	108					80-120		
n-Propylbenzene	CCV Standard	CCV	23			20.0	115					80-120		
Naphthalene	CCV Standard	CCV	20			20.0	100					80-120		
o-Xylene	CCV Standard	CCV	20.4			20.0	102					80-120		
sec-Butylbenzene	CCV Standard	CCV	21			20.0	105					80-120		
Styrene	CCV Standard	CCV	20.6			20.0	103					80-120		
tert-Butylbenzene	CCV Standard	CCV	21.1			20.0	106					80-120		
Tetrachloroethene	CCV Standard	CCV	20.3			20.0	102					80-120		
Toluene	CCV Standard	CCV	21.1			20.0	106					80-120		
trans-1,2-Dichloroethene	CCV Standard	CCV	16.8			20.0	84.0					80-120		
trans-1,3-Dichloropropene	CCV Standard	CCV	21			20.0	105					80-120		
Trichloroethene	CCV Standard	CCV	20.8			20.0	104					80-120		
Trichlorofluoromethane	CCV Standard	CCV	15.8			20.0	79.0					80-120		
Vinyl acetate	CCV Standard	CCV	18.9			20.0	94.5					80-120		
Vinyl chloride	CCV Standard	CCV	15.2			20.0	76.0					80-120		
1,1,1,2-Tetrachloroethane	LCS	LCS	20.3			20.0	102					70-130		
1,1,1-Trichloroethane	LCS	LCS	16.5			20.0	82.5					70-130		
1,1,2,2-Tetrachloroethane	LCS	LCS	18.8			20.0	94.0					70-130		
1,1,2-Trichloroethane	LCS	LCS	18.6			20.0	93.0					70-130		
1,1-Dichloroethane	LCS	LCS	17.9			20.0	89.5					70-130		
1,1-Dichloroethene	LCS	LCS	15.6			20.0	78.0					70-130		
1,1-Dichloropropene	LCS	LCS	16.2			20.0	81.0					70-130		
1,2,3-Trichlorobenzene	LCS	LCS	13.7			20.0	68.5					70-130		
1,2,3-Trichloropropane	LCS	LCS	21.4			20.0	107					70-130		

1028801	Delek Refining, Ltd.											Attn: Gus Hartung		
	Analysis			Duplicate/MSD RPD		Standard Recoveries		MS/MSD Recoveries				Control Limits		
Parameter	Analysis Type	Analysis I.D.	Analyzed Value	Duplicate Value	RPD	True Value	STD %Rec.	Original Value	Spike Added	MS %Rec	MSD %Rec	% Rec. L-H	RPD	flag
1,2,4-Trichlorobenzene	LCS	LCS	16.5			20.0	82.5					70-130		
1,2,4-Trimethylbenzene	LCS	LCS	22.7			20.0	114					70-130		
1,2-Dibromo-3-chloropropane	LCS	LCS	13.3			20.0	66.5					70-130		
1,2-Dibromoethane	LCS	LCS	19.5			20.0	97.5					70-130		
1,2-Dichlorobenzene	LCS	LCS	23.0			20.0	115					70-130		
1,2-Dichloroethane	LCS	LCS	15.4			20.0	77.0					70-130		
1,2-Dichloropropane	LCS	LCS	18.0			20.0	90.0					70-130		
1,3,5-Trimethylbenzene	LCS	LCS	22.9			20.0	115					70-130		
1,3-Dichlorobenzene	LCS	LCS	23.7			20.0	119					70-130		
1,3-Dichloropropane	LCS	LCS	19.3			20.0	96.5					70-130		
1,4-Dichlorobenzene	LCS	LCS	22.0			20.0	110					70-130		
2,2-Dichloropropane	LCS	LCS	16.7			20.0	83.5					70-130		
2-Butanone (MEK)	LCS	LCS	157			200	78.5					70-130		
2-Chloroethyl vinyl ether	LCS	LCS	16.4			20.0	82.0					70-130		
2-Chlorotoluene	LCS	LCS	23.1			20.0	116					70-130		
2-Hexanone	LCS	LCS	16.0			20.0	80.0					70-130		
4-Chlorotoluene	LCS	LCS	22.8			20.0	114					70-130		
4-Isopropyltoluene	LCS	LCS	23.3			20.0	117					70-130		
4-Methyl-2-pentanone (MIBK)	LCS	LCS	15.8			20.0	79.0					70-130		
Acetone	LCS	LCS	167			200	83.5					70-130		
Benzene	LCS	LCS	17.5			20.0	87.5					70-130		
Bromobenzene	LCS	LCS	21.0			20.0	105					70-130		
Bromochloromethane	LCS	LCS	18.9			20.0	94.5					70-130		
Bromodichloromethane	LCS	LCS	19.0			20.0	95.0					70-130		
Bromoform	LCS	LCS	18.9			20.0	94.5					70-130		
Bromomethane	LCS	LCS	11.7			20.0	58.5					70-130		
Carbon disulfide	LCS	LCS	18.4			20.0	92.0					70-130		
Carbon tetrachloride	LCS	LCS	15.0			20.0	75.0					70-130		
Chlorobenzene	LCS	LCS	21.1			20.0	106					70-130		
Chloroethane	LCS	LCS	12.8			20.0	64.0					70-130		
Chloroform	LCS	LCS	19.1			20.0	95.5					70-130		
Chloromethane	LCS	LCS	14.1			20.0	70.5					70-130		
cis-1,2-Dichloroethene	LCS	LCS	17.4			20.0	87.0					70-130		
cis-1,3-Dichloropropene	LCS	LCS	17.4			20.0	87.0					70-130		
Dibromochloromethane	LCS	LCS	20.6			20.0	103					70-130		
Dibromomethane	LCS	LCS	18.3			20.0	91.5					70-130		

1028801 Delek Refining, Ltd. Attn: Gus Hartung

Parameter	Analysis Type	Analysis I.D.	Analyzed Value	Duplicate Value	RPD	True Value	STD %Rec.	Original Value	Spike Added	MS %Rec	MSD %Rec	% Rec. L-H	RPD	flag
	Analysis			Duplicate/MSD RPD		Standard Recoveries		MS/MSD Recoveries				Control Limits		
Dichlorodifluoromethane	LCS	LCS	12.9			20.0	64.5					70-130		
Ethylbenzene	LCS	LCS	19.6			20.0	98.0					70-130		
Hexachlorobutadiene	LCS	LCS	16.6			20.0	83.0					70-130		
Isopropylbenzene	LCS	LCS	19.9			20.0	99.5					70-130		
m&p-Xylene	LCS	LCS	38.9			40.0	97.2					70-130		
Methyl-t-butyl ether (MtBE)	LCS	LCS	16.0			20.0	80.0					70-130		
Methylene Chloride	LCS	LCS	19.0			20.0	95.0					70-130		
n-Butylbenzene	LCS	LCS	23.8			20.0	119					70-130		
n-Propylbenzene	LCS	LCS	22.3			20.0	112					70-130		
Naphthalene	LCS	LCS	15.5			20.0	77.5					70-130		
o-Xylene	LCS	LCS	19.3			20.0	96.5					70-130		
sec-Butylbenzene	LCS	LCS	21.7			20.0	109					70-130		
Styrene	LCS	LCS	20.3			20.0	102					70-130		
tert-Butylbenzene	LCS	LCS	20.5			20.0	102					70-130		
Tetrachloroethene	LCS	LCS	18.5			20.0	92.5					70-130		
Toluene	LCS	LCS	20.5			20.0	102					70-130		
trans-1,2-Dichloroethene	LCS	LCS	16.7			20.0	83.5					70-130		
trans-1,3-Dichloropropene	LCS	LCS	19.2			20.0	96.0					70-130		
Trichloroethene	LCS	LCS	17.9			20.0	89.5					70-130		
Trichlorofluoromethane	LCS	LCS	16.8			20.0	84.0					70-130		
Vinyl acetate	LCS	LCS	18.8			20.0	94.0					70-130		
Vinyl chloride	LCS	LCS	14.1			20.0	70.5					70-130		
1,1,1,2-Tetrachloroethane	MS/MSD	1028712-1	1870	1790	4.37			<466	1860	101	96.2	70-130	30	
1,1,1-Trichloroethane	MS/MSD	1028712-1	1760	1700	3.47			<466	1860	94.6	91.4	70-130	30	
1,1,2,2-Tetrachloroethane	MS/MSD	1028712-1	1860	1830	1.63			<466	1860	100	98.4	70-130	30	
1,1,2-Trichloroethane	MS/MSD	1028712-1	1770	1770	0.00			<466	1860	95.2	95.2	70-130	30	
1,1-Dichloroethane	MS/MSD	1028712-1	1860	1810	2.72			<466	1860	100	97.3	70-130	30	
1,1-Dichloroethene	MS/MSD	1028712-1	1810	1720	5.10			<466	1860	97.3	92.5	70-130	30	
1,1-Dichloropropene	MS/MSD	1028712-1	1690	1590	6.10			<466	1860	90.9	85.5	70-130	30	
1,2,3-Trichlorobenzene	MS/MSD	1028712-1	1510	1820	18.6			<466	1860	81.2	97.8	70-130	30	
1,2,3-Trichloropropane	MS/MSD	1028712-1	1930	2090	7.96			<186	1860	104	112	70-130	30	
1,2,4-Trichlorobenzene	MS/MSD	1028712-1	1650	1790	8.14			<466	1860	88.7	96.2	70-130	30	
1,2,4-Trimethylbenzene	MS/MSD	1028712-1	2030	2060	1.47			<466	1860	109	111	70-130	30	
1,2-Dibromo-3-chloropropane	MS/MSD	1028712-1	1520	1920	23.3			<466	1860	81.7	103	70-130	30	
1,2-Dibromoethane	MS/MSD	1028712-1	1800	1840	2.20			<466	1860	96.8	98.9	70-130	30	
1,2-Dichlorobenzene	MS/MSD	1028712-1	2130	2190	2.78			<466	1860	115	118	70-130	30	

1028801 Delek Refining, Ltd. Attn: Gus Hartung

	Analysis			Duplicate/MSD RPD		Standard Recoveries		MS/MSD Recoveries				Control Limits		
Parameter	Analysis Type	Analysis I.D.	Analyzed Value	Duplicate Value	RPD	True Value	STD %Rec.	Original Value	Spike Added	MS %Rec	MSD %Rec	% Rec. L-H	RPD	flag
1,2-Dichloroethane	MS/MSD	1028712-1	1750	1670	4.68			<466	1860	94.1	89.8	70-130	30	
1,2-Dichloropropane	MS/MSD	1028712-1	1620	1640	1.23			<466	1860	87.1	88.2	70-130	30	
1,3,5-Trimethylbenzene	MS/MSD	1028712-1	2030	2070	1.95			<466	1860	109	111	70-130	30	
1,3-Dichlorobenzene	MS/MSD	1028712-1	2120	2140	0.939			<466	1860	114	115	70-130	30	
1,3-Dichloropropane	MS/MSD	1028712-1	1750	1800	2.82			<466	1860	94.1	96.8	70-130	30	
1,4-Dichlorobenzene	MS/MSD	1028712-1	1900	2010	5.63			<466	1860	102	108	70-130	30	
2,2-Dichloropropane	MS/MSD	1028712-1	1720	1690	1.76			<466	1860	92.5	90.9	70-130	30	
2-Butanone (MEK)	MS/MSD	1028712-1	21700	22500	3.62			<4660	18600	117	121	70-130	30	
2-Chloroethyl vinyl ether	MS/MSD	1028712-1	1570	1690	7.36			<186	1860	84.4	90.9	70-130	30	
2-Chlorotoluene	MS/MSD	1028712-1	1970	2120	7.33			<466	1860	106	114	70-130	30	
2-Hexanone	MS/MSD	1028712-1	1500	1710	13.1			<466	1860	80.6	91.9	70-130	30	
4-Chlorotoluene	MS/MSD	1028712-1	1990	2030	1.99			<466	1860	107	109	70-130	30	
4-Isopropyltoluene	MS/MSD	1028712-1	2090	2160	3.29			<466	1860	112	116	70-130	30	
4-Methyl-2-pentanone (MIBK)	MS/MSD	1028712-1	1590	1720	7.85			<466	1860	85.5	92.5	70-130	30	
Acetone	MS/MSD	1028712-1	30900	32000	3.50			<4660	18600	166	172	70-130	30	SM
Benzene	MS/MSD	1028712-1	1850	1850	0.00			<466	1860	99.5	99.5	70-130	30	
Bromobenzene	MS/MSD	1028712-1	1790	1920	7.01			<466	1860	96.2	103	70-130	30	
Bromochloromethane	MS/MSD	1028712-1	2080	1960	5.94			<466	1860	112	105	70-130	30	
Bromodichloromethane	MS/MSD	1028712-1	1780	1730	2.85			<466	1860	95.7	93.0	70-130	30	
Bromoform	MS/MSD	1028712-1	1740	1750	0.573			<466	1860	93.5	94.1	70-130	30	
Bromomethane	MS/MSD	1028712-1	1460	1590	8.52			<466	1860	78.5	85.5	70-130	30	
Carbon disulfide	MS/MSD	1028712-1	2090	2050	1.93			<466	1860	112	110	70-130	30	
Carbon tetrachloride	MS/MSD	1028712-1	1430	1390	2.84			<466	1860	76.9	74.7	70-130	30	
Chlorobenzene	MS/MSD	1028712-1	1990	1960	1.52			<466	1860	107	105	70-130	30	
Chloroethane	MS/MSD	1028712-1	1630	1470	10.3			<466	1860	87.6	79.0	70-130	30	
Chloroform	MS/MSD	1028712-1	2090	1940	7.44			<466	1860	112	104	70-130	30	
Chloromethane	MS/MSD	1028712-1	1550	1640	5.64			<466	1860	83.3	88.2	70-130	30	
cis-1,2-Dichloroethene	MS/MSD	1028712-1	1850	1790	3.30			<466	1860	99.5	96.2	70-130	30	
cis-1,3-Dichloropropene	MS/MSD	1028712-1	1590	1570	1.27			<466	1860	85.5	84.4	70-130	30	
Dibromochloromethane	MS/MSD	1028712-1	1890	1970	4.15			<466	1860	102	106	70-130	30	
Dibromomethane	MS/MSD	1028712-1	1660	1730	4.13			<466	1860	89.2	93.0	70-130	30	
Dichlorodifluoromethane	MS/MSD	1028712-1	1350	1280	5.32			<466	1860	72.6	68.8	70-130	30	SM
Ethylbenzene	MS/MSD	1028712-1	1850	1790	3.30			<466	1860	99.5	96.2	70-130	30	
Hexachlorobutadiene	MS/MSD	1028712-1	2180	2260	3.60			<466	1860	117	122	70-130	30	
Isopropylbenzene	MS/MSD	1028712-1	1860	1810	2.72			<466	1860	100	97.3	70-130	30	
m&p-Xylene	MS/MSD	1028712-1	3620	3590	0.832			<466	3720	97.3	96.5	70-130	30	

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Parameter	Analysis Type	Analysis I.D.	Analyzed Value	Duplicate Value	RPD	True Value	STD %Rec.	Original Value	Spike Added	MS %Rec	MSD %Rec	% Rec. L-H	RPD	flag
	Analysis			Duplicate/MSD RPD		Standard Recoveries		MS/MSD Recoveries				Control Limits		
Methyl-t-butyl ether (MtBE)	MS/MSD	1028712-1	1850	1860	0.539			<466	1860	99.5	100	70-130	30	
Methylene Chloride	MS/MSD	1028712-1	2250	2050	9.30			<466	1860	121	110	70-130	30	
n-Butylbenzene	MS/MSD	1028712-1	2280	2340	2.60			<466	1860	123	126	70-130	30	
n-Propylbenzene	MS/MSD	1028712-1	1920	1930	0.519			<466	1860	103	104	70-130	30	
Naphthalene	MS/MSD	1028712-1	1640	1930	16.2			<466	1860	88.2	104	70-130	30	
o-Xylene	MS/MSD	1028712-1	1750	1800	2.82			<466	1860	94.1	96.8	70-130	30	
sec-Butylbenzene	MS/MSD	1028712-1	1940	1980	2.04			<466	1860	104	106	70-130	30	
Styrene	MS/MSD	1028712-1	1910	1830	4.28			<466	1860	103	98.4	70-130	30	
tert-Butylbenzene	MS/MSD	1028712-1	1850	1870	1.08			<466	1860	99.5	101	70-130	30	
Tetrachloroethene	MS/MSD	1028712-1	1740	1800	3.39			<466	1860	93.5	96.8	70-130	30	
Toluene	MS/MSD	1028712-1	1860	1860	0.00			<466	1860	100	100	70-130	30	
trans-1,2-Dichloroethene	MS/MSD	1028712-1	1840	1810	1.64			<466	1860	98.9	97.3	70-130	30	
trans-1,3-Dichloropropene	MS/MSD	1028712-1	1720	1760	2.30			<466	1860	92.5	94.6	70-130	30	
Trichloroethene	MS/MSD	1028712-1	1710	1800	5.13			<466	1860	91.9	96.8	70-130	30	
Trichlorofluoromethane	MS/MSD	1028712-1	1750	1730	1.15			<466	1860	94.1	93.0	70-130	30	
Vinyl acetate	MS/MSD	1028712-1	2180	2140	1.85			<466	1860	117	115	70-130	30	
Vinyl chloride	MS/MSD	1028712-1	1440	1540	6.71			<466	1860	77.4	82.8	70-130	30	

8260C Volatiles (TCLP) **Date/Time Analyzed: 6/1/2015 1:37:00 PM** **QA Batch Number: 1077272**

Analysis Method: SW-846 8260C **Analyst: HLS**

CCV response for Vinyl Chloride & Carbon Tetrachloride failed low. CCB & MidExtBlk response between MDL and MQL for 2-Butanone(MEK). Sample 1028696-2a was TCLP extract. All other samples were total TCLP analysis of the methanol extract. 2-Butanone (MEK) recovered low in the ICV, making sample results potentially biased low.

1,1-Dichloroethene	Preparation Blank	MidExtBlk	<243										
1,2-Dichloroethane	Preparation Blank	MidExtBlk	<243										
2-Butanone (MEK)	Preparation Blank	MidExtBlk	<2430										
Benzene	Preparation Blank	MidExtBlk	<243										
Carbon tetrachloride	Preparation Blank	MidExtBlk	<243										
Chlorobenzene	Preparation Blank	MidExtBlk	<243										
Chloroform	Preparation Blank	MidExtBlk	<243										
Tetrachloroethene	Preparation Blank	MidExtBlk	<243										
Trichloroethene	Preparation Blank	MidExtBlk	<243										
Vinyl chloride	Preparation Blank	MidExtBlk	<243										
1,1-Dichloroethene	CCB	CCB	<5.00										
1,2-Dichloroethane	CCB	CCB	<5.00										
2-Butanone (MEK)	CCB	CCB	<50.0										D,RB
Benzene	CCB	CCB	<5.00										
Carbon tetrachloride	CCB	CCB	<5.00										
Chlorobenzene	CCB	CCB	<5.00										
Chloroform	CCB	CCB	<5.00										
Tetrachloroethene	CCB	CCB	<5.00										

1028801	Delek Refining, Ltd.	Attn: Gus Hartung

	Analysis			Duplicate/MSD RPD		Standard Recoveries		MS/MSD Recoveries				Control Limits		
Parameter	*Analysis Type*	*Analysis I.D.*	*Analyzed Value*	*Duplicate Value*	*RPD*	*True Value*	*STD %Rec.*	*Original Value*	*Spike Added*	*MS %Rec*	*MSD %Rec*	*% Rec. L-H*	*RPD*	*flag*
Trichloroethene	CCB	CCB	<5.00											
Vinyl chloride	CCB	CCB	<5.00											
1,1-Dichloroethene	CCV Standard	CCV	16.1			20.0	80.5					80-120		
1,2-Dichloroethane	CCV Standard	CCV	16.9			20.0	84.5					80-120		
2-Butanone (MEK)	CCV Standard	CCV	166			200	83.0					80-120		
Benzene	CCV Standard	CCV	16.6			20.0	83.0					80-120		
Carbon tetrachloride	CCV Standard	CCV	14.5			20.0	72.5					80-120		RB1
Chlorobenzene	CCV Standard	CCV	21.1			20.0	106					80-120		
Chloroform	CCV Standard	CCV	17.9			20.0	89.5					80-120		
Tetrachloroethene	CCV Standard	CCV	20.3			20.0	102					80-120		
Trichloroethene	CCV Standard	CCV	20.8			20.0	104					80-120		
Vinyl chloride	CCV Standard	CCV	15.2			20.0	76.0					80-120		RB1
1,1-Dichloroethene	LCS	LCS	755			971	77.8					70-130		
1,2-Dichloroethane	LCS	LCS	746			971	76.8					70-130		
2-Butanone (MEK)	LCS	LCS	7600			9710	78.3					70-130		
Benzene	LCS	LCS	849			971	87.4					70-130		
Carbon tetrachloride	LCS	LCS	727			971	74.9					70-130		
Chlorobenzene	LCS	LCS	1020			971	105					70-130		
Chloroform	LCS	LCS	928			971	95.6					70-130		
Tetrachloroethene	LCS	LCS	898			971	92.5					70-130		
Trichloroethene	LCS	LCS	870			971	89.6					70-130		
Vinyl chloride	LCS	LCS	684			971	70.4					70-130		
1,1-Dichloroethene	MS/MSD	1028712-1	1810	1720	5.10			<466	1860	97.3	92.5	70-130	30	
1,2-Dichloroethane	MS/MSD	1028712-1	1750	1670	4.68			<466	1860	94.1	89.8	70-130	30	
2-Butanone (MEK)	MS/MSD	1028712-1	21700	22500	3.62			<4660	18600	117	121	70-130	30	
Benzene	MS/MSD	1028712-1	1850	1850	0.00			<466	1860	99.5	99.5	70-130	30	
Carbon tetrachloride	MS/MSD	1028712-1	1430	1390	2.84			<466	1860	76.9	74.7	70-130	30	
Chlorobenzene	MS/MSD	1028712-1	1990	1960	1.52			<466	1860	107	105	70-130	30	
Chloroform	MS/MSD	1028712-1	2090	1940	7.44			<466	1860	112	104	70-130	30	
Tetrachloroethene	MS/MSD	1028712-1	1740	1800	3.39			<466	1860	93.5	96.8	70-130	30	
Trichloroethene	MS/MSD	1028712-1	1710	1800	5.13			<466	1860	91.9	96.8	70-130	30	
Vinyl chloride	MS/MSD	1028712-1	1440	1540	6.71			<466	1860	77.4	82.8	70-130	30	

8270D Semivolatiles (TCLP) **Date/Time Analyzed: 6/9/2015 3:39:00 PM** **QA Batch Number: 1077852**
Analysis Method: SW-846 8270D **Analyst: HLS**

Prep Blank response above MQL for Pyridine, 1,4-Dichlorobenzene, and Pentachlorophenol. LCS & LCSD recovered low for Hexachloroethane. LCS/LCSD RPD recovered higher than 30% for Pyridine. **No MS/MSD due to lack of sample.

1,4-Dichlorobenzene	Preparation Blank	PBlk	<10.0										BQ
2,4,5-Trichlorophenol	Preparation Blank	PBlk	<10.0										
2,4,6-Trichlorophenol	Preparation Blank	PBlk	<10.0										

1028801	Delek Refining, Ltd.													Attn: Gus Hartung	
	Analysis			Duplicate/MSD RPD		Standard Recoveries		MS/MSD Recoveries				Control Limits			
Parameter	Analysis Type	Analysis I.D.	Analyzed Value	Duplicate Value	RPD	True Value	STD %Rec.	Original Value	Spike Added	MS %Rec	MSD %Rec	% Rec. L-H	RPD	flag
2,4-Dinitrotoluene	Preparation Blank	PBlk	<10.0											
Hexachlorobenzene	Preparation Blank	PBlk	<10.0											
Hexachlorobutadiene	Preparation Blank	PBlk	<10.0											
Hexachloroethane	Preparation Blank	PBlk	<10.0											
m&p-Cresol (3&4-Methylphenol)	Preparation Blank	PBlk	<10.0											
Nitrobenzene	Preparation Blank	PBlk	<10.0											
o-Cresol (2-Methylphenol)	Preparation Blank	PBlk	<10.0											
Pentachlorophenol	Preparation Blank	PBlk	<10.0											
Pyridine	Preparation Blank	PBlk	<10.0											BQ
1,4-Dichlorobenzene	CCV Standard	CCV	4910			5000	98.2					80-120		
2,4,5-Trichlorophenol	CCV Standard	CCV	5040			5000	101					80-120		
2,4,6-Trichlorophenol	CCV Standard	CCV	4800			5000	96.0					80-120		
2,4-Dinitrotoluene	CCV Standard	CCV	5150			5000	103					80-120		
Hexachlorobenzene	CCV Standard	CCV	5080			5000	102					80-120		
Hexachlorobutadiene	CCV Standard	CCV	5150			5000	103					80-120		
Hexachloroethane	CCV Standard	CCV	4810			5000	96.2					80-120		
m&p-Cresol (3&4-Methylphenol)	CCV Standard	CCV	9850			10000	98.5					80-120		
Nitrobenzene	CCV Standard	CCV	4860			5000	97.2					80-120		
o-Cresol (2-Methylphenol)	CCV Standard	CCV	4900			5000	98.0					80-120		
Pentachlorophenol	CCV Standard	CCV	5070			5000	101					80-120		
Pyridine	CCV Standard	CCV	4520			5000	90.4					80-120		
1,4-Dichlorobenzene	LCS	LCS	96.7			250	38.7					20-124		
2,4,5-Trichlorophenol	LCS	LCS	161			250	64.4					-		
2,4,6-Trichlorophenol	LCS	LCS	149			250	59.6					37-144		
2,4-Dinitrotoluene	LCS	LCS	184			250	73.6					39-139		
Hexachlorobenzene	LCS	LCS	182			250	72.8					-		
Hexachlorobutadiene	LCS	LCS	89.9			250	36.0					24-116		
Hexachloroethane	LCS	LCS	81.0			250	32.4					40-113		LF
m&p-Cresol (3&4-Methylphenol)	LCS	LCS	202			500	40.4					-		
Nitrobenzene	LCS	LCS	141			250	56.4					35-180		
o-Cresol (2-Methylphenol)	LCS	LCS	106			250	42.4					-		
Pentachlorophenol	LCS	LCS	196			250	78.4					14-176		

1028801	Delek Refining, Ltd.											Attn: Gus Hartung		
	Analysis			Duplicate/MSD RPD		Standard Recoveries		MS/MSD Recoveries				Control Limits		
Parameter	Analysis Type	Analysis I.D.	Analyzed Value	Duplicate Value	RPD	True Value	STD %Rec.	Original Value	Spike Added	MS %Rec	MSD %Rec	% Rec. L-H	RPD	flag
Pyridine	LCS	LCS	80.9			250	32.4					-		
1,4-Dichlorobenzene	Duplicate	LCSD	96.7	92.7	4.22								30	
2,4,5-Trichlorophenol	Duplicate	LCSD	161	147	9.09								30	
2,4,6-Trichlorophenol	Duplicate	LCSD	149	132	12.1								30	
2,4-Dinitrotoluene	Duplicate	LCSD	184	167	9.69								30	
Hexachlorobenzene	Duplicate	LCSD	182	157	14.7								30	
Hexachlorobutadiene	Duplicate	LCSD	89.9	86.0	4.43								30	
Hexachloroethane	Duplicate	LCSD	81.0	78.5	3.13								30	
m&p-Cresol (3&4-Methylphenol)	Duplicate	LCSD	202	176	13.8								30	
Nitrobenzene	Duplicate	LCSD	141	124	12.8								30	
o-Cresol (2-Methylphenol)	Duplicate	LCSD	106	92.0	14.1								30	
Pentachlorophenol	Duplicate	LCSD	196	171	13.6								30	
Pyridine	Duplicate	LCSD	80.9	54.9	38.3								30	DF

QA Flags and Definitions for Job 1028801

DEFINITIONS

µg/L	Micrograms per Liter (ppb)
µg/kg	Micrograms per Kilogram (ppb)
mg/L	Milligrams per Liter (ppm)
mg/kg	Milligrams per Kilogram (ppm)
N/C	Duplicate RPD not calculable due to results less than the sample quantitation limit.
F/O	Farm Out Analyzed by Certified Contract Laboratory Noted Under Technician.
MDL	(TRRP SQL) The minimum concentration of a COC the laboratory would measure and report with 99% confidence that the analyte concentration is greater than zero. The MDL reported in the MDL column is the method detection limit adjusted to reflect sample dilution
MQL	Lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. The MQL reported in the MQL column is the method quantitation limit adjusted to reflect sample dilution.

Note: "Time Analyzed" in the QA report is the start of the Analytical batch, it may not be 'actual Time' of each sample.
Note: Results are reported on a wet weight basis unless the results on that page are accompanied by the statement 'All results reported on a dry weight basis.'

Case narratives are displayed under individual parameter headers on the QA details report

Unless otherwise specified, these test results meet the requirements of NELAC.

QA FLAGS

J	Analyte concentration is above the MDL but less than the MQL and should be considered an estimate.
TT	Results are total analyte concentration in sample reported as TCLP/SPLP value.
SR	Matrix spike accuracy could not be assessed due to high background analyte levels in the spiked sample.
SM	A matrix spike associated with this batch recovered outside control limits due to suspected matrix interference.
RB2	Result is potentially biased high based on QA/QC.
RB1	Result is potentially biased low based on QA/QC.
LF	LCS recovery out of range.
DF	The RPD of the duplicate associated with this batch exceeded the control limit.
BQ	Analyte detected in associated blank above the level of the MQL.
BD	Analyte detected in associated blank between the MDL and the MQL.
**	Refer to QA Notes for further information on this analysis.

Analytical Environmental Laboratories
8310 South Broadway
Tyler, TX 75703
Phone: (903) 509-8700
Fax: (903) 509-8811 E-mail: ael_1995@yahoo.com

CHAIN OF CUSTODY

AEL Job No. 102 8801 Page 1 of 1

SUBMITTED BY: Delek Refining, Ltd.

ADDRESS: P.O. Box 840 Tyler, TX 75710

CONTACT: Gus Hartung

PHONE: (903) 579-3408 FAX / E-MAIL: (903) 579-3499

Sample Receiving Checklist - Laboratory Use Only — Reviewed By: ev

	Y	N	N/A		Y	N	N/A
Sufficient Amount of Sample for all Analyses	☑	☐	☐	All Expected Samples Present	☑	☐	☐
Samples Collected in Appropriate Containers	☑	☐	☐	All Sample Containers Intact	☑	☐	☐
Sample Labels Match Chain of Custody	☑	☐	☐	Samples Preserved Correctly	☑	☐	☐
Custody Seal Intact on Shipping Containers	☐	☐	☑	No Headspace for Volatiles	☑	☐	☐
Custody Seal Intact on Sample Containers	☐	☐	☑	Received within Holding Time	☑	☐	☐

TRRP Report ☐
E-mail Report ☐
Fax Results ☐

TAT (BUSINESS DAYS) (Please verify with lab)
Next Day (Emergency) ☐ 5 Days (Priority) ☐
3 Days (Rush) ☐ Standard (7-14) ☐

Project Name: Slurry Oil/TK BTTOMS (TK11)

Project Number:

Collected By: Dale Robertson (Delek)
(Print name/ affiliation & Sign Relinquished by below)

AEL ID	DATE of collection	TIME of collection	LOCATION / IDENTIFYING MARKS	COMP or GRAB	MATRIX Aq/Solid	CONTAINERS TYPE	HOW MANY	PRESERVED WITH	BTEX	TCLP VOA	TCLP SEM. VOA	TCLP RCRA Metals	Total Method 8260	Total Method 8270	Total RCRA Metals	% Ash							Cooler ID
1	5-29-15	9 AM	Slurry Oil TK BTTOMS	GRAB	Solid	Glass	2	None	X	X	X	X	X	X	X	X							

RELINQUISHED BY (SIGNATURE)	Date	Time	RECEIVED BY (SIGNATURE)	Date	Time
[signature]	5-29-15	12:06 PM			
RELINQUISHED BY (SIGNATURE)	Date	Time	RECEIVED BY (SIGNATURE)	Date	Time
RELINQUISHED BY (SIGNATURE)	Date	Time	AEL RECEIVED BY (SIGNATURE)	Date	Time
			Rae Carey	5/29/15	12:06

Any samples collected by AEL are collected according to Field Sampling SOP DN035.

REMARKS MAX Rush

Receiving Temp. °C 1.3 / 6.0 w/CF T# 68 Received Condition: on water

Shipped: ~~Hand Delivered~~ / Courier

Client Notified by ____ re:

Container Types: G- glass AG- amber glass TL- teflon liner
P- plastic SP- sterile plastic CC- client container
VOA- 40ml voa vial 4GTL- 4oz glass jar with teflon liner

FN031.14A 6/14

Analytical Environmental Laboratories
8310 South Broadway
Tyler, TX 75703
903-509-8700
NELAP Accredited T104704280-08-TX

7/14/2015 11:37:45 PM LIMS Version 49

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

June 24, 2015

Kent Crozier
Analytical Environmental Laboratories
8310 S. Broadway
Tyler, TX 75703
TEL: 903-509-8700
FAX: (903) 509-8811

RE: 1028801

Dear Kent Crozier:

Order No.: 15060293

Summit Environmental Technologies, Inc. received 1 sample(s) on 6/3/2015 for the analyses presented in the following report.

There were no problems with the analytical events associated with this report unless noted in the Case Narrative.

Quality control data is within laboratory defined or method specified acceptance limits except where noted.

If you have any questions regarding these tests results, please feel free to call the laboratory.

Sincerely,

Dr. Mo Osman
Project Manager
3310 Win St.
Cuyahoga Falls, Ohio 44223

A2LA 0724.01, Alabama 41600, Arizona AZ0788, Arkansas 88-0735, California 07256CA, Colorado, Connecticut PH-0105, Delaware, Florida NELAC E87688, Georgia E87688 and 943, Idaho OH00923, Illinois 200061 and Reg 5, Indiana C-OH-13, Kansas E-10347, Kentucky (Underground Storage Tank) 3, Kentucky 90146, Louisiana 04061 and LA12004, Maine 2012015, Maryland 339, Massachusetts M-OPH923, Minnesota 409711, Montana CERT0099, New Hampshire 2996, New Jersey OH006, New York 11777, North Carolina 39705 and 631, Ohio Drinking Water 4170, Ohio VAP CL0052, Oklahoma 9940, Oregon OH200001, Pennsylvania 68-01335, Rhode Island LA000317, South Carolina 92016001, Tennessee TN04018, Texas T104704466-11-5, Region 8 8TMS-L, USDA/APHIS P330-11-00244, Utah OH009232011-1, Vermont VT-87688, Virginia 00440 and 1581, Washington C891, West Virginia 248 and 9957C and E87688, Wisconsin 399013010

SUMMIT ENVIRONMENTAL TECHNOLOGIES, INC.
Analytical Laboratories

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

Case Narrative

WO#: **15060293**
Date: **6/24/2015**

CLIENT: Analytical Environmental Laboratories
Project: 1028801

This report in its entirety consists of the documents listed below. All documents contain the Summit Environmental Technologies, Inc., Work Order Number assigned to this report.

Paginated Report including Cover Letter, Case Narrative, Analytical Results, Applicable Quality Control Summary Reports, and copies of the Chain of Custody Documents are supplied with this sample set.

Concentrations reported with a J-Flag in the Qualifier Field are values below the Limit of Quantitation (LOQ) but greater than the established Method Detection Limit (MDL).

Method numbers, unless specified as SM (Standard Methods) or ASTM, are EPA methods.

Estimated uncertainty values are available upon request.

Analysis performed by DBM, VRM, or SFG were performed at Summit Labs 2704 Eatonton Highway Haddock, GA 31033

All results for Solid Samples are reported on an "as received" or "wet weight" basis unless indicated as "dry weight" using the "-dry" designation on the reporting units.

Summit Environmental Technologies, Inc., holds the accreditations/certifications listed at the bottom of the cover letter that may or may not pertain to this report.

The information contained in this analytical report is the sole property of Summit Environmental Technologies, Inc. and that of the customer. It cannot be reproduced in any form without the consent of Summit Environmental Technologies, Inc. or the customer for which this report was issued. The results contained in this report are only representative of the samples received. Conditions can vary at different times and at different sampling conditions. Summit Environmental Technologies, Inc. is not responsible for use or interpretation of the data included herein.

This report is believed to meet all of the requirements of NELAC or the accrediting / certifying agency. Any comments or problems with the analytical events associated with this report are noted below.
Prep Comments for SVPrep_BNATot_S(3550), Sample 15060293-001A: This sample was extracted by SW846:3580A (Waste Dilution) due to matrix

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

Case Narrative

WO#: **15060293**
Date: **6/24/2015**

CLIENT: Analytical Environmental Laboratories
Project: 1028801

Prep Comments for SVPrep_BNATot_S(3550), Sample 15060293-001AMS: This sample was extracted by SW846:3580A (Waste Dilution) due to matrix
Prep Comments for SVPrep_BNATot_S(3550), Sample 15060293-001AMSD: This sample was extracted by SW846:3580A (Waste Dilution) due to matrix

SUMMIT ENVIRONMENTAL TECHNOLOGIES, INC
Analytical Laboratories

Summit Environmental Technologies, In
3310 Win S
Cuyahoga Falls, Ohio 4422
TEL: (330) 253-8211 FAX: (330) 253-448
Website: http://www.settek.co

Qualifiers and Acronyms

WO#: **15060293**
Date: **6/24/2015**

These commonly used Qualifiers and Acronyms may or may not be present in this report.

Qualifiers

U	The compound was analyzed for but was not detected.
J	The reported value is greater than the Method Detection Limit but less than the Reporting Limit.
H	The hold time for sample preparation and/or analysis was exceeded.
D	The result is reported from a dilution.
E	The result exceeded the linear range of the calibration or is estimated due to interference.
MC	The result is below the Minimum Compound Limit.
*****	The result exceeds the Regulatory Limit or Maximum Contamination Limit.
m	Manual integration was used to determine the area response.
N	The result is presumptive based on a Mass Spectral library search assuming a 1:1 response.
P	The second column confirmation exceeded 25% difference.
C	The result has been confirmed by GC/MS.
X	The result was not confirmed when GC/MS Analysis was performed.
B/MB+	The analyte was detected in the associated blank.
G	The ICB or CCB contained reportable amounts of analyte.
QC-/+	The CCV recovery failed low (-) or high (+).
R/QDR	The RPD was outside of accepted recovery limits.
QL-/+	The LCS or LCSD recovery failed low (-) or high (+).
QLR	The LCS/LCSD RPD was outside of accepted recovery limits.
QM-/+	The MS or MSD recovery failed low (-) or high (+).
QMR	The MS/MSD RPD was outside of accepted recovery limits.
QV-/+	The ICV recovery failed low (-) or high (+).
S	The spike result was outside of accepted recovery limits.

Acronyms

ND	Not Detected	**RL**	Reporting Limit
QC	Quality Control	**MDL**	Method Detection Limit
MB	Method Blank	**LOD**	Level of Detection
LCS	Laboratory Control Sample	**LOQ**	Level of Quantitation
LCSD	Laboratory Control Sample Duplicate	**PQL**	Practical Quantitation Limit
QCS	Quality Control Sample	**CRQL**	Contract Required Quantitation Limit
DUP	Duplicate	**PL**	Permit Limit
MS	Matrix Spike	**RegLvl**	Regulatory Limit
MSD	Matrix Spike Duplicate	**MCL**	Maximum Contamination Limit
RPD	Relative Percent Different	**MinCL**	Minimum Compound Limit
ICV	Initial Calibration Verification	**RA**	Reanalysis
ICB	Initial Calibration Blank	**RE**	Reextraction
CCV	Continuing Calibration Verification	**TIC**	Tentatively Identified Compound
CCB	Continuing Calibration Blank	**RT**	Retention Time
RLC	Reporting Limit Check	**CF**	Calibration Factor
DF	Dilution Factor	**RF**	Response Factor

This list of Qualifiers and Acronyms reflects the most commonly utilized Qualifiers and Acronyms for reporting. Please refer to the Analytical Notes in the Case Narrative for any Qualifiers or Acronyms that do not appear in this list or for additional information regarding the use of these Qualifiers on reported data.

Summit Environmental Technologies, Inc.
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Workorder Sample Summary

WO#: **15060293**
24-Jun-15

CLIENT: Analytical Environmental Laboratories
Project: 1028801

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
15060293-001	10288001-1		5/29/2015 9:00:00 AM	6/3/2015 10:30:00 AM	Solid

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DATES REPORT

WO#: **15060293**

24-Jun-15

Client: Analytical Environmental Laboratories

Project: 1028801

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
15060293-001A	10288001-1	5/29/2015 9:00:00 AM	Solid	Percentage of Ash in Solid (D-482)			6/9/2015 4:11:51 PM
				Semivolatile Organic Compounds by C (SW8270C)		6/12/2015 8:30:25 AM	6/19/2015 1:47:00 AM

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WO#: **15060293**
Date Reported: **6/24/2015**
Company: Analytical Environmental Laboratories
Address: 8310 S. Broadway
Tyler TX 75703
Received: 6/3/2015
Project#: 1028801

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	RL	Run	Analyst
10288001-1	001	5/29/2015	Ash	43.4	%	Solid	ASTM D-482-02	1	0.100	6/9/2015	TAH
10288001-1	001	5/29/2015	1,2,4-Trichlorobenzene	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	1,2-Dichlorobenzene	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	1,2-Diphenylhydrazine	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	1,3-Dichlorobenzene	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	1,4-Dichlorobenzene	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	1-Methylnaphthalene	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	2,4,5-Trichlorophenol	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	2,4,6-Trichlorophenol	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	2,4-Dichlorophenol	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	2,4-Dimethylphenol	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	2,4-Dinitrophenol	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	2,4-Dinitrotoluene	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	2,6-Dinitrotoluene	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	2-Chloronaphthalene	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	2-Chlorophenol	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	2-Methylnaphthalene	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	2-Nitrophenol	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	3,3´-Dichlorobenzidine	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	4,6-Dinitro-o-cresol	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	4-Bromophenyl phenyl ether	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	4-Chlorophenyl phenyl ether	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	4-Nitrophenol	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Acenaphthene	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Acenaphthylene	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Anthracene	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Benzidine	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Benzo(a)anthracene	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Benzo(a)pyrene	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Benzo(g,h,i)perylene	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Benzo(k)fluoranthene	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Benzo(b)fluoranthene	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Bis(2-chloroethoxy)methane	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Bis(2-chloroethyl) ether	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Bis(2-chloroisopropyl) ether	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Bis(2-ethylhexyl) phthalate	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Butyl benzyl phthalate	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Chrysene	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Di-n-butyl phthalate	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Di-n-octyl phthalate	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM

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WO#: **15060293**
Date Reported: **6/24/2015**
Company: Analytical Environmental Laboratories
Address: 8310 S. Broadway
Tyler TX 75703

Received: 6/3/2015
Project#: 1028801

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	RL	Run	Analyst
10288001-1	001	5/29/2015	Dibenzo (a,h) anthracene	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Diethyl phthalate	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Dimethyl phthalate	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Fluoranthene	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Fluorene	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Hexachlorobenzene	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Hexachlorobutadiene	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Hexachlorocyclopentadiene	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Hexachloroethane	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Indeno(1,2,3-cd)pyrene	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Isophorone	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	N-Nitrosodi-n-propylamine	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	N-Nitrosodimethylamine	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	N-Nitrosodiphenylamine	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Naphthalene	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Nitrobenzene	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	p-Chloro-m-cresol	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Pentachlorophenol	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Phenanthrene	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Phenol	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	1,1-Biphenyl	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Pyrene	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	m&p-Cresol	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Carbazole	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Dibenzofuran	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	o-Cresol	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	4-Methylphenol	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	3-Methylphenol	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	2-Nitroaniline	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	3-Nitroaniline	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	4-Nitroaniline	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	4-Chloroaniline	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Aniline	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Azobenzene	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Benzyl alcohol	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM
10288001-1	001	5/29/2015	Pyridine	ND	mg/Kg	Solid	EPA 8270 C	50	4200	6/19/2015	MSM

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Accreditation Program Analytes Report

WO#: **15060293**
24-Jun-15

Client: Analytical Environmental Laboratories
Project: 1028801

Program Name	Sample ID	ClientSampleID	Matrix	Test Name	Analyte	Status
Florida DOH	15060293-001A	10288001-1	Solid	Semivolatile Organic Compounds by GC/MS (SW8270C)	Azobenzene	NA
				Percentage of Ash in Solid (D-482)	Ash	NA
				Semivolatile Organic Compounds by GC/MS (SW8270C)	Aminoazobenzene	NA
					Anilazine	NA
					Aniline	NA
					Anthracene	A
					Aramite	NA
					alpha-BHC	NA
					Azinphos-methyl	NA
					Aldrin	NA
					Barban	NA
					Benz(a)anthracene	A
					Benzaldehyde	NA
					Benzidine	A
					Benzo(a)pyrene	A
					Benzo(b)fluoranthene	A
					Atrazine	NA
					5-Nitro-o-anisidine	NA
					4-Methylphenol	A
					4-Nitroaniline	NA
					4-Nitrobiphenyl	NA
					4-Nitrophenol	A
					4-Nitroquinoline-N-oxide	NA
					5,5-Diphenylhydantoin	NA
					alpha-Terpineol	NA
					5-Nitroacenaphthene	NA
					Benzoic acid	NA
					5-Nitro-o-toluidine	NA
					7,12-Dimethylbenz(a)anthracene	NA

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Accreditation Program Analytes Report

WO#: **15060293**
24-Jun-15

Client: Analytical Environmental Laboratories
Project: 1028801

Program Name	Sample ID	ClientSampleID	Matrix	Test Name	Analyte	Status
Florida DOH	15060293-001A	10288001-1	Solid	Semivolatile Organic Compounds by GC/MS (SW8270C)	a,a-Dimethylphenethylamine	NA
					Acenaphthene	A
					Acenaphthylene	A
					Acetophenone	NA
					5-Chloro-2-methylaniline	NA
					Crotoxyphos	NA
					Chlordane, total	NA
					Chlorfenvinphos	NA
					Chlorobenzilate	NA
					Chlorthalonil	NA
					Chrysene	A
					cis-Diallate	NA
					Benzo(g,h,i)perylene	A
					Cresols, Total	A
					Carbofuran	NA
					Cyclohexylamine	NA
					delta-BHC	NA
					Demeton-O	NA
					Demeton-S	NA
					Diallate	NA
					Dibenz(a,h)anthracene	A
					Coumaphos	NA
					Bromoxynil	NA
					4-Chloroaniline	NA
					Benzyl alcohol	NA
					beta-BHC	NA
					Bis(2-chloroethoxy)methane	A
					Bis(2-chloroethyl) ether	A
					Bis(2-chloroisopropyl) ether	A
					Chlorbenzilate	NA
					bis(2-Ethylhexyl)adipate	NA

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Accreditation Program Analytes Report

WO#: **15060293**
24-Jun-15

Client: Analytical Environmental Laboratories
Project: 1028801

Program Name	Sample ID	ClientSampleID	Matrix	Test Name	Analyte	Status
Florida DOH	15060293-001A	10288001-1	Solid	Semivolatile Organic Compounds by GC/MS (SW8270C)	Carbophenothion	NA
					Butyl benzyl phthalate	A
					Caprolactam	NA
					Captafol	NA
					Captan	NA
					Carbaryl	NA
					Carbazole	NA
					Benzo(k)fluoranthene	A
					Bis(2-ethylhexyl) phthalate	A
					2,4-Dichlorophenol	A
					1-Naphthylamine	NA
					2,3,4,6-Tetrachlorophenol	NA
					2,3,5,6-Tetrachlorophenol	NA
					2,4,5-Trichlorophenol	A
					2,4,5-Trimethylaniline	NA
					2,4,6-Tribromophenol	A
					2,6-Dinitrotoluene	A
					2,4-Diaminotoluene	NA
					1-Acetyl-2-thiourea	NA
					2,4-Dichlorophenyl 4-nitrophenyl ether	NA
					2,4-Dimethylphenol	A
					2,4-Dinitrophenol	A
					2,4-Dinitrotoluene	A
					2,5-Dimethylphenol	NA
					4-Chlorophenyl phenyl ether	A
					2,4,6-Trichlorophenol	A
					1,3,5-Trinitrobenzene	NA
					1,1-Biphenyl	NA
					1,2,4,5-Tetrachlorobenzene	NA
					1,2,4-Trichlorobenzene	A

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Accreditation Program Analytes Report

WO#: **15060293**
24-Jun-15

Client: Analytical Environmental Laboratories
Project: 1028801

Program Name	Sample ID	ClientSampleID	Matrix	Test Name	Analyte	Status
Florida DOH	15060293-001A	10288001-1	Solid	Semivolatile Organic Compounds by GC/MS (SW8270C)	1,2-Dibromo-3-chloropropane	NA
					1,2-Dichlorobenzene	A
					1,2-Dimethylnaphthalene	NA
					1-Methylnaphthalene	NA
					1,2-Diphenylhydrazine	NA
					1-Chloronaphthalene	NA
					1,3-Dichlorobenzene	A
					1,3-Dinitrobenzene	NA
					1,4-Dichlorobenzene	A
					1,4-Dinitrobenzene	NA
					1,4-Naphthoquinone	NA
					1,4-Phenylenediamine	NA
					2-Acetylaminofluorene	NA
					1,2-Dinitrobenzene	NA
					4,6-Dinitro-2-methylphenol	A
					3-Methylphenol	A
					3-Nitroaniline	NA
					4,4'-DDD	NA
					4,4'-DDE	NA
					4,4'-DDT	NA
					4,4'-Methylenebis (2-chloroaniline)	NA
					2,6-Dichlorophenol	NA
					4,4'-Oxydianiline	NA
					3,4-Methylphenol	A
					4-Aminobiphenyl	NA
					4-Bromophenyl phenyl ether	A
					4-Chloro-1,2-phenylenediamine	NA
					4-Chloro-1,3-phenylenediamine	NA
					4-Chloro-3-methylphenol	A
					Dibenzofuran	NA

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Accreditation Program Analytes Report

WO#: **15060293**

24-Jun-15

Client: Analytical Environmental Laboratories

Project: 1028801

Program Name	Sample ID	ClientSampleID	Matrix	Test Name	Analyte	Status
Florida DOH	15060293-001A	10288001-1	Solid	Semivolatile Organic Compounds by GC/MS (SW8270C)	4,4'-Methylenebis (N,N-dimethylaniline)	NA
					2-Methylphenol	A
					2-Aminoanthraquinone	NA
					2-Chloroaniline	NA
					2-Chloronaphthalene	A
					2-Chlorophenol	A
					2-Cyclohexyl-4,6-dinitrophenol	NA
					2-Fluorobiphenyl	A
					3-Methylcholanthrene	NA
					2-Methylnaphthalene	NA
					3-Amino-9-ethylcarbazole	NA
					2-Naphthylamine	NA
					2-Nitroaniline	NA
					2-Nitrophenol	A
					2-Picoline	NA
					3-(Chloromethyl)pyridine hydrochloride	NA
					3,3'-Dichlorobenzidine	A
					4-Chlorophenol	NA
					2-Fluorophenol	A
					p-Cresidine	NA
					O,O,O-Triethyl phosphorothioate	NA
					o-Anisidine	NA
					Octamethyl pyrophosphoramide	NA
					Oil Range Organics, C21-C35	NA
					o-Toluidine	NA
					Parathion, ethyl	NA
					Phenanthrene	A
					p-Benzoquinone	NA
					N-Nitrosopiperidine	NA
					p-Dimethylaminoazobenzene	NA

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Accreditation Program Analytes Report

WO#: **15060293**
24-Jun-15

Client: Analytical Environmental Laboratories
Project: 1028801

Program Name	Sample ID	ClientSampleID	Matrix	Test Name	Analyte	Status
Florida DOH	15060293-001A	10288001-1	Solid	Semivolatile Organic Compounds by GC/MS (SW8270C)	Pentachlorobenzene	NA
					Pentachloroethane	NA
					Pentachloronitrobenzene	NA
					Pentachlorophenol	NA
					Mirex	NA
					Parathion, methyl	NA
					N-Nitrosodiethylamine	NA
					Dibenz(a,j)acridine	NA
					Naled	NA
					Naphthalene	A
					n-Decane	NA
					Nicotine	NA
					Nitrobenzene	A
					n-Octadecane	NA
					Nitroquinoline-1-oxide	NA
					N-Nitrosopyrrolidine	NA
					N-Nitrosodimethylamine	A
					N-Nitroso-di-n-butylamine	NA
					N-Nitrosodiphenylamine	A
					N-nitrosodipropylamine	A
					N-Nitrosomethylethylamine	NA
					N-Nitrosomorpholine	NA
					Phenobarbital	NA
					Nitrobenzene-d5	A
					Toluene diisocyanate	NA
					Sulfallate	NA
					Sulfotep	NA
					Terbufos	NA
					Tetrachlorvinphos	NA
					Tetraethyl dithiopyrophosphate	NA
					Tetraethyl pyrophosphate	NA

'L-NELAI A Accredited 'L-NELAI NA Not Accredited WI NA Not Accredited

ACCRED

SUMMIT ENVIRONMENTAL TECHNOLOGIES, INC
Analytical Laboratories

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

Accreditation Program Analytes Report

WO#: **15060293**
24-Jun-15

Client: Analytical Environmental Laboratories
Project: 1028801

Program Name	Sample ID	ClientSampleID	Matrix	Test Name	Analyte	Status
Florida DOH	15060293-001A	10288001-1	Solid	Semivolatile Organic Compounds by GC/MS (SW8270C)	Phenacetin	NA
					Thiophenol	NA
					Resorcinol	NA
					Toxaphene	NA
					trans-Diallate	NA
					Trifluralin	NA
					Trimethyl phosphate	NA
					Tri-p-tolyl phosphate	NA
					Tris(2,3-dibromopropyl) phosphate	NA
					Thionazin	NA
					Piperonyl sulfoxide	NA
					Phenol	A
					Phenol-d6	A
					Phentermine	NA
					Phorate	NA
					Phosalone	NA
					Phosmet	NA
					Strychnine	NA
					Phthalic anhydride	NA
					Safrole	NA
					Pronamide	NA
					Propylthiouracil	NA
					p-Terphenyl-d14	A
					Pyrene	A
					Pyridine	A
					Quinoline	NA
					Mexacarbate	NA
					Phosphamidon	NA
					Endosulfan II	NA
					Ethyl carbamate	NA

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Accreditation Program Analytes Report

WO#: **15060293**
24-Jun-15

Client: Analytical Environmental Laboratories
Project: 1028801

Program Name	Sample ID	ClientSampleID	Matrix	Test Name	Analyte	Status
Florida DOH	15060293-001A	10288001-1	Solid	Semivolatile Organic Compounds by GC/MS (SW8270C)	Dinoseb	NA
					Dioxathion	NA
					Diphenyl ether	NA
					Diphenylamine	NA
					Diphenylhydrazine	NA
					Dinocap	NA
					Endosulfan I	NA
					Di-n-butyl phthalate	A
					Endosulfan sulfate	NA
					Endrin	NA
					Endrin aldehyde	NA
					Endrin ketone	NA
					EPN	NA
					Monocrotophos	NA
					Disulfoton	NA
					Diethyl phthalate	A
					Dichlone	NA
					Dichlorvos	NA
					Dicrotophos	NA
					Dieldrin	NA
					Diesel Range Organics C10-C28	NA
					Diesel Range Organics, C10-C12	NA
					Di-n-octyl phthalate	A
					Diesel Range Organics, C16-C21	NA
					Ethyl methacrylate	NA
					Diethyl sulfate	NA
					Diethylstilbestrol	NA
					Dihydrosaffrole	NA
					Dimethoate	NA
					Dimethyl phthalate	A
					Dimethylaminoazobenzene	NA

'L-NELAI A Accredited 'L-NELAI NA Not Accredited WI NA Not Accredited

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Accreditation Program Analytes Report

WO#: **15060293**
24-Jun-15

Client: Analytical Environmental Laboratories
Project: 1028801

Program Name	Sample ID	ClientSampleID	Matrix	Test Name	Analyte	Status
Florida DOH	15060293-001A	10288001-1	Solid	Semivolatile Organic Compounds by GC/MS (SW8270C)	Diesel Range Organics, C12-C16	NA
					Malathion	NA
					Ethion	NA
					Hydroquinone	NA
					Indeno(1,2,3-cd)pyrene	A
					Isodrin	NA
					Isophorone	A
					Isosafrole	NA
					Hydrocarbons C10-C20	NA
					Leptophos	NA
					Hexamethylphosphoramide	NA
					Maleic anhydride	NA
					Mestranol	NA
					Methapyrilene	NA
					Methoxychlor	NA
					Methyl methanesulfonate	NA
					Mevinphos	NA
					Kepone	NA
					Heptachlor	NA
					Ethyl methanesulfonate	NA
					Famphur	NA
					Fensulfothion	NA
					Fenthion	NA
					Fluchloralin	NA
					Fluoranthene	A
					Hydrocarbons C20-C34	NA
					gamma-BHC	NA
					Dibenzo(a,e)pyrene	NA
					Heptachlor epoxide	NA
					Hexachlorobenzene	A
					Hexachlorobutadiene	A

'L-NELAI A Accredited 'L-NELAI NA Not Accredited WI NA Not Accredited

ACCRED

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Website: http://www.settek.com

Accreditation Program Analytes Report

WO#: **15060293**
24-Jun-15

Client: Analytical Environmental Laboratories
Project: 1028801

Program Name	Sample ID	ClientSampleID	Matrix	Test Name	Analyte	Status
Florida DOH	15060293-001A	10288001-1	Solid	Semivolatile Organic Compounds by GC/MS (SW8270C)	Hexachlorocyclopentadiene	A
					Hexachloroethane	A
					Hexachlorophene	NA
					Hexachloropropene	NA
					Fluorene	A
Wisonsin Department o				Percentage of Ash in Solid (D-482)	Ash	NA

'L-NELAI A Accredited 'L-NELAI NA Not Accredited WI NA Not Accredited

ACCRED

Analytical Environmental Laboratories
8310 South Broadway
Tyler, TX 75703
Phone: (903) 509-8700
Fax: (903) 509-8811 E-mail: ael_1995@yahoo.com

CHAIN OF CUSTODY

FARM OUT TO: Summit Env. Tech., Ohio

AEL Job No._____ Page____of____

SUBMITTED BY: AEL

ADDRESS: 8310 S Broadway Tyler TX 75703

CONTACT: Kent Crozier

PHONE: 903-509-8700 FAX / E-MAIL:

Sample Receiving Checklist - Laboratory Use Only

Reviewed By: _____

	Y	N	N/A		Y	N	N/A
Sufficient Amount of Sample for all Analyses	☐	☐	☐	All Expected Samples Present	☐	☐	☐
Samples Collected in Appropriate Containers	☐	☐	☐	All Sample Containers Intact	☐	☐	☐
Sample Labels Match Chain of Custody	☐	☐	☐	Samples Preserved Correctly	☐	☐	☐
Custody Seal Intact on Shipping Containers	☐	☐	☐	No Headspace for Volatiles	☐	☐	☐
Custody Seal Intact on Sample Containers	☐	☐	☐	Received within Holding Time	☐	☐	☐

TRRP Report
E-mail Report
Fax Results

TAT (BUSINESS DAYS) (Please verify with lab): Next Day (Emergency); 3 Days (Rush); 5 Days (Priority); Standard (7-14)

Project Name:

Project Number:

Collected By: Client
(Print name/ affiliation & Sign 'Relinquished by' below)

ANALYSIS REQUESTED

AEL ID	DATE of collection	TIME of collection	LOCATION / IDENTIFYING MARKS	COMP/ GRAB	MATRIX Aq/Solid	CONTAINERS TYPE	HOW MANY	PRESERVED WITH	% Ash,	Semi-Volatiles												Cooler ID
1	5/29/15	9:00	1028801-1C	Grab.	Solid	4GTL	1	6°	X													
1	42153	0.375	1028801-1D	Grab.	Solid	4GTL	1	6°		X												

15060293-001

RELINQUISHED BY (SIGNATURE)	Date	Time	RECEIVED BY (SIGNATURE)	Date	Time
Kai Cau	6/1/15	16:30	Jeremiah Stroll	6-3-15	10:30
RELINQUISHED BY (SIGNATURE)	Date	Time	RECEIVED BY (SIGNATURE)	Date	Time
RELINQUISHED BY (SIGNATURE)	Date	Time	AEL RECEIVED BY (SIGNATURE)	Date	Time

Any samples collected by AEL are collected according to Field Sampling SOP DN035.
REMARKS

Receiving Temp. °C____/____w/CF T#____ Received Condition:_____
Shipped: Hand Delivered / Courier_____
Client Notified by_____re:

Container Types: G- glass AG- amber glass TL- teflon liner
P- plastic SP- sterile plastic CC- client container
VOA- 40ml vos vial 4GTL- 4oz glass jar with teflon liner

FN031.14A 2/11

Rev. 12
Date: 07/27/13

Summit Environmental Technologies, Inc.
Cooler Receipt Form

Initials of person inspecting cooler and samples: F.C.

Client: A.E.L

Order Number: 15060293

Date Received: 6.3.15 Time Received: 10:30AM Date cooler(s) opened and samples inspected: _____

Number of Coolers/Boxes: 1 N/A

Shipper: FED EX UPS DHL Airborne US Postal Walk-in Pickup Other: _____

Packaging: Peanuts Bubble Wrap Paper Foam None Other: _____

Tape on cooler/box: Y N N/A

Custody Seals intact Y N N/A

C-O-C in plastic Y N N/A

Ice ✓ Blue ice _____ present / absent / melted N/A

Sample Temperature IR Gun #16020459 CF _____ °C 6.8 °C N/A

Radiological Testing Instrument serial #35127 Y N N/A
(see page 2 for scan results)
**Use 1 sheet per sample for Radiological Testing. If sample is HOT, the Radiological Safety Officer must be notified immediately.

C-O-C filled out properly Y N N/A

Samples in separate bags Y N N/A

Sample containers intact* Y N N/A

*If no, list broken sample(s): _____

Sample label(s) complete (ID, date, etc.) Y N N/A

Label(s) agree with C-O-C Y N N/A

Correct containers used Y N N/A

Sufficient sample received Y N N/A

Bubbles absent from 40 mL vials** Y N N/A

** Samples with bubbles <6mm are acceptable Indicate bubble size if >6mm. _____

Was client contacted about samples Y N

Will client send new samples Y N

Client contact: _____

Date/Time: _____

Logged in by: _____

Comments: _____

ASH GROVE CEMENT COMPANY
CHEM-FUEL QUALIFICATION

GENERATOR Marathon Petroleum Company	**BILLING INFORMATION**	**LAB NUMBER** CF151314
FACILITY ADDRESS 4663 Airline Highway	**COMPANY** Sumter Transport	**CHEM-FUEL TYPE** M-Blend
City / **ST ZIP** Garyville / LA 70051	**BILLING ADDRESS** 1880 Lynette Drive	**SAMPLE SURVEY RECEIPT DATE** 3/30/2015
Federal EPA ID# LAD 081 999 724	**City** / **ST** / **ZIP** Sumter / SC / 29154	**COMPLETION DATE** 4/2/2015
SIC CODE 2911	**Contact**	

VOLATILE ORGANICS
(Relative Area Percent)
GC/MSD-FID
5 MAJOR CONSTITUENTS:

Naphthalene, 1,6,7-Trimethyl-	6.49	%
Naphthalene, 1,4-Dimethyl-	5.59	%
Naphthalene, 2,7-Dimethyl-	5.49	%
Naphthalene, 2-(1-Methylethyl)-	5.14	%
Naphthalene, 1,5-Dimethyl-	4.19	%
		%
		%
		%
		%

HEAT OF COMBUSTION

BTU/lb	6,260	Btu/lb
Density	12.46	lb/gal
Chlorine	0.1	%(w/w)
pH	9.4	50%
Solids	100	%
Water	7.8	%
Radioactivity	<MBG	
Comp/Stability	OK	
Sulfides	<5	ppm
Cyanides	<0.1	ppm

TOTAL METALS

As	185	ppm
Sb	<4	ppm
Ba	20	ppm
Be	0.4	ppm
Cd	<0.4	ppm
Cr	38	ppm
Pb	<4	ppm
Hg	<0.1	ppm
Ni	96	ppm
Ag	<4	ppm
Se	<4	ppm
Tl	<4	ppm

Comments:

43.3% Ash
93.2 lbs. / cu.ft.

Benzene NESHAP

PCBS

Aroclors <20 ppm

PROCESSOR POINT OF CONTACT
Jay Lambremont

TITLE
HES Professional

PHONE NUMBER
(985) 535-7163

PROCESS/WASTE FUEL DESCRIPTION

Petroleum refinery clarified slurry oil sediments.
Cleaning out of product storage tank.

Chemist's Signature

4-2-15
Completion Date

Ash Grove Cement Company hereby warrants tht the waste stream represented by the survey and sample submitted is acceptable at the Ash Grove facilities marked below, and that said facility has the appropriate permit(s) and can accept this waste as long as all hazards associated with it have been fairly disclosed on the survey and the composition of the waste does not change so as to render the attached survey and sample submitted to Ash Grove Cement Company nonrepresentative.

✓ **Conditional approval (See attached). PLEASE NOTE THIS APPROVAL NUMBER ON ALL SHIPMENT MANIFESTS.**
Based on high ash, alumina, and silica.

__ **Chanute, KS** ✓ **Foreman, AR**

William T. Duggan
Signature

Date

AG1916
Chem-Fuel Approval Number

Ash Grove Technical Center
11011 Cody Street, Suite 125
Overland Park, Kansas 66210
April 22, 2014

Report No.: R19270
Work Order No.: WO-140154

SUBJECT:

On April 9, 2014, a request for services was issued by the Technical Center on behalf of Mr. Jason McMillan at the Ash Grove Foreman plant. Mr. Ron Vidergar requested that we do an XRF analysis on the submitted fuel ash samples. The samples were ashed by the Cadence Laboratory at the Foreman plant.

SAMPLES IDENTIFICATION:

Sample No.	Description	Date Received
S-140422	Blanchard Refining, 44% Ash (CF141186)	04-08-2014

TEST RESULTS:

XRF:

Oxide	S-140422
SiO_2	11.23 %
Al_2O_3	9.40
Fe_2O_3	5.80
CaO	4.66
MgO	0.70
SO_3	8.88
Na_2O	0.37
K_2O	0.12
TiO_2	0.15
P_2O_5	0.20
Mn_2O_3	0.04
SrO	0.05
Cr_2O_3	0.03
V_2O_5	0.64
ZnO	0.08
NiO	0.12
BaO	0.05
La_2O_3	0.01
MoO_3	0.16
PdO	0.20
Cl	<0.01
F	1.02
LOI	56.00
Total	99.91 %
Eq. Alk.	0.45 %

METHODOLOGY:

XRF analysis was done on a pressed powder pill of the submitted samples using the "Omnian" semi-quant software on a PANalytical Axios wavelength dispersive spectrometer by Trent Olivier and Steve Lane.

Submitted by,

Steven B. Lane
Chemical Laboratory Supervisor

Ash Grove Technical Center
11011 Cody Street, Suite 125
Overland Park, Kansas 66210
September 21, 2015

Report No.: **R20252**
Work Order No.: **WO-150596**

SUBJECT

On September 18, 2015, a request for services was issued by the Technical Center on behalf of Mr. Jason McMillan, Cadence Lab Manager, at the Ash Grove Foreman plant. Mr. Ron Vidergar requested that an XRF analysis be done on the submitted fuel ash sample. The sample was ashed by the Cadence Laboratory at the Foreman plant.

SAMPLES IDENTIFICATION

Sample No.	Description	Date Received
S-151710	Diamond Shamrock Fuel Ash (AG1948) – 43.3% Ash	09-17-2015

TEST RESULTS

XRF:

Oxide	Ash Analysis S-151710	Whole Sample Basis** S-151710
SiO_2	13.97 %	7.71 %
Al_2O_3	3.19	1.81
Fe_2O_3	14.64	4.77
CaO	54.46	22.56
MgO	0.47	0.27
SO_3	6.22	3.14
Na_2O	ND	ND
K_2O	1.24	0.57
TiO_2	1.20	0.41
P_2O_5	1.37	0.71
Mn_2O_3	0.16	0.05
SrO	0.43	0.13
Cr_2O_3	0.18	0.06
V_2O_5	0.22	0.08
ZnO	0.04	0.02
NiO	0.13	0.04
CuO	0.12	0.04
BaO	0.23	0.07
La_2O_3	0.36	0.12
MoO_3	0.17	0.05
F^-	0.82	0.57
LOI	----	56.70
Total	99.62 %	99.88 %
Eq. Alk.	0.82 %	0.38 %

** = Calculated with loss on ignition (LOI) included.

METHODOLOGY

XRF analysis was done on a pressed powder pill of the submitted samples using the "Omnian" semi-quant software on a PANalytical Axios wavelength dispersive spectrometer by Steve Lane.

Submitted by,

Steven B. Lane
Chemical Laboratory Supervisor

Ash Grove Technical Center
11011 Cody Street, Suite 125
Overland Park, Kansas 66210
April 13, 2015

Report No.: **R19908**
Work Order No.: **WO-150255**

SUBJECT

On April 2, 2015, a request for services was issued by the Technical Center on behalf of Mr. Jason McMillan, Cadence Lab Manager, at the Ash Grove Foreman plant. Mr. Ron Vidergar requested that an XRF analysis be done on the submitted fuel ash sample. The sample was ashed by the Cadence Laboratory at the Foreman plant.

SAMPLES IDENTIFICATION

Sample No.	Description	Date Received
S-150641	Marathon Fuel Ash (CF151314, AG1916) – 43.3% Ash	04-02-2015

TEST RESULTS

XRF:

Oxide	Ash Analysis S-150641	Whole Sample Basis** S-150641
SiO_2	51.21 %	21.19 %
Al_2O_3	34.44	17.41
Fe_2O_3	2.34	0.66
CaO	0.61	0.18
MgO	0.09	0.05
SO_3	0.18	0.06
Na_2O	0.46	0.25
K_2O	8.02	2.63
TiO_2	1.46	0.43
P_2O_5	0.24	0.08
Mn_2O_3	0.01	<0.01
SrO	<0.01	<0.01
Cr_2O_3	0.05	0.02
ZnO	0.02	0.01
CuO	0.01	<0.01
NiO	0.18	0.10
La_2O_3	0.52	0.16
LOI	----	56.70
Total	99.85 %	99.96 %
Eq. Alk.	5.74 %	1.98 %

** = Calculated with loss on ignition (LOI) included.

METHODOLOGY

XRF analysis was done on a pressed powder pill of the submitted samples using the "Omnian" semi-quant software on a PANalytical Axios wavelength dispersive spectrometer by Steve Lane.

Submitted by,

Steven B. Lane
Chemical Laboratory Supervisor

Refinery Storage Tank Sampling Methodology

Section B, No. 2b

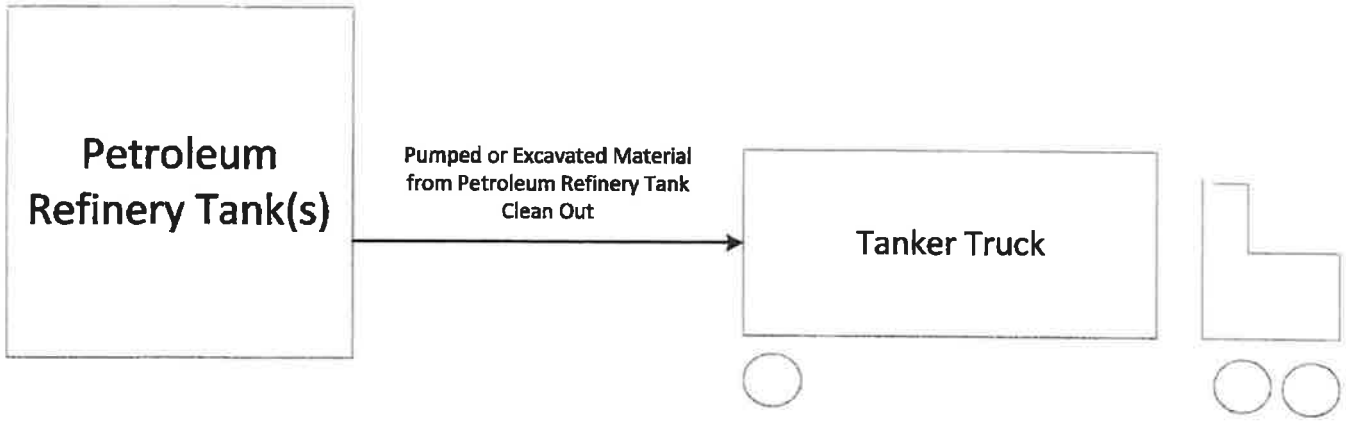
Sampling of the waste material generated during the annual maintenance clean-out of the refinery storage tanks Is conducted in one of two ways. The sampling method is dependent on whether the material in the tank is in solid, sludge, or liquid form. For each load of waste material, the samples are collected through a tank manway or a tank vent. The tanks are sampled at multiple locations and at multiple depths in order to obtain the required number of samples that are representative of the entire contents of the tanks.

For solid and sludge tanks that contain small quantities of liquids, a bucket auger is utilized to collect a representative sample from a number of locations and depths throughout the tank. Upon retrieval, the contents of the bucket auger are placed in clean laboratory preserved (where applicable) sample jars and placed on ice for delivery to an independent laboratory for analysis. This sample process is repeated until the requisite number of samples are collected to accurately represent the contents of the tank.

All samples are collected in a manner to ensure that no cross-contamination occurs during sample collection. Sampling technicians wear disposable latex gloves during sampling activities. The collected samples are shipped to the laboratory under proper chain of custody control to ensure proper delivery to the laboratory. Where applicable, samples are homogenized by the laboratory prior to analysis.

ATTACHMENT 4:
Description and Schematic of Manufacturing Processes and/or Pollution Control Methods for All Accepted Wastes

Attachment 4
Schematic of Petroleum Refinery Cleanout Process



GENERIC MODULE 1 FORM
PETROLEUM REFINERY CLEANOUT LIQUIDS

2510-PM-BWM0014 6/2005

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Coordination #

MODULE 1
REQUEST FOR APPROVAL TO TREAT, STORE, OR DISPOSE OF A HAZARDOUS WASTE STREAM

Before completing this form, read the step-by-step instructions provided with this form.

	DEP USE ONLY
Application Fee **Check No.** 108290 **Amount** $ 1,500.00	**Application or Facility ID#** _____ **Stamp Date Application Received**

SECTION A. FACILITY AND GENERATOR INFORMATION (must be completed by TSD facility)

1. Treatment, Storage, or Disposal Site

   a. Name of Facility Keystone Cement Company

   Address Route 512, P.O. Box A, Bath, PA 18014-0058

   Municipality East Allen Township County Northampton

   b. Identification number | P | A | D | 0 | 0 | 2 | 3 | 8 | 9 | 9 | 5 | 5 | 9 | |

   c. Hazardous waste permit number(s) for treatment, storage or disposal facility to be utilized

   PAD002389559

   d. Facility contact person

   Name Karen M. Livezey Title Manager, Environmental Compliance

   Telephone Number 610-837-1881 Ext. 8313

2. Generator of the Waste

   a. Name of company See Attachment 1

   Mailing address _____

   Location of site if different from mailing address _____

   Municipality _____ County _____

   b. If a subsidiary, name of parent co. _____

   c. Identification number | | | | | | | | | | | | | | |

   d. Company contact person

   Name _____ Title _____

   Telephone Number _____

SECTION B. WASTE DESCRIPTION (Must be completed by generator)

1. General Properties

a. pH range 4.5 to 10.3 (based on analyses or knowledge)

b. Physical state:

(1) **liquid waste (EPA Method 9095) – YES**

(2) solid (EPA Method 9095) - YES

(3) gas (ambient temperature and pressure)

c. Physical appearance:

Color Black Odor Petroleum

Number of solid or liquid phases of separation RANGE: ≤49% solid and ≥51% liquid

Describe each phase of separation. Petroleum refinery cleanout materials and tank bottom sludge liquids.

d. U.S. DOT proper shipping name UN/NA number, and hazard class (if applicable):

HW solid N.O.S.

HW liquid N.O.S.

Please note that shipping name(s) may vary based on generator.

e. Typical volume of waste to be shipped to treatment, storage, or disposal facility:

(1) Monthly 859,085 **gal.**, tons, pounds (circle one)

(2) Annually 10,309,000 **gal.**, tons, pounds (circle one)

f. Treatment or disposal frequency: 1,300 times per year; one time

g. Current volume to be shipped to treatment, storage or disposal facility

TBD **gal.**, tons, pounds (circle one)

h. Describe the hazardous waste according to its description and hazardous waste number in 25 Pa. Code 261a and 40 CFR Part 261.

See Attachment 2

2. Chemical Analyses – *Please attach the following:*

   a. The results of the analysis of the waste as described in the instructions. See Attachment 3

   b. A description of the sampling method. See Attachment 3

   c. The substantiation for a confidentiality claim, as described in the instructions, if portions of the information you have submitted are confidential. Not Applicable

3. Process Description and Schematic – *Please attach the following:*

   a. The substantiation for a confidentiality claim as described in the instructions, if portions of the information you have submitted are confidential. Not Applicable

   b. A detailed description of the manufacturing and/or pollution control processes producing the hazardous waste as specified in the instructions. Attachments 2 and 4

   c. A schematic of the manufacturing and/or pollution control processes producing the hazardous waste as specified in the instructions.

      Attachment 4

SECTION C. LINER COMPATIBILITY EVALUATION (must be completed by TSD facility, if applicable) Not Applicable

Attach the results of the liner compatibility evaluation or supporting data as specified in the instructions.

SECTION D. PROPOSED TREATMENT, STORAGE, AND/OR DISPOSAL METHOD
(Must be completed by TSD facility. Use additional sheets if necessary.)

1. Proposed Treatment Method
Waste derived fuels are burned for energy recovery in the production of Portland cement.

2. Proposed Storage Method and Length of Storage
Above ground storage tanks. Typical length of storage is 1 to 15 days.

3. Proposed Disposal Method

Beneficial reuse as a supplemental fuel in a cement kiln.

SECTION E. ALTERNATIVES TO PROPOSED TREATMENT AND/OR DISPOSAL METHOD
(Must be completed by generator. Use additional sheets if necessary.)

1. What Other Treatment, Disposal, Recycle, Reuse, or Reclamation Method(s) Can be Used? Briefly describe viable alternatives to your proposal.

RCRA thermal incineration or deactivation and thermal adsorption

Why was the Treatment and/or Disposal Method in Section D Chosen?

Energy Recovery

SECTION F. SOURCE REDUCTION STRATEGY N/A
(Form 25 R must be completed by generator and attached to this application as specified in the instructions.)

SECTION G. CERTIFICATION OF GENERATOR

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Name of Responsible Official_____ Title_____

Signature_____ Date _____

Taken, sworn, and subscribed before me, this_____day of_____A.D. 20_____

Notary Seal

_____

_____

SECTION H. CERTIFICATION OF REGISTERED PROFESSIONAL ENGINEER FOR THE TREATMENT, STORAGE, OR DISPOSAL FACILITY

This is to certify that I have personally reviewed all engineering information contained in the accompanying modules, drawings, specifications, and other documents which are part of this application and that I have found it to be of good engineering quality, true, and correct, and is in conformance with the requirements of the Department of Environmental Protection, and it does not, to the best of my knowledge, withhold information that is pertinent to a determination of compliance with the requirements of the Department.

NOTICE: It is an offense under Pennsylvania Crimes Code to affirm a false statement in documents submitted to the Department.

Name Stephen P. Holt, P.E.

Signature Stephen P. Holt

Date 12/20/2022

Address 654 Judge Street, Harleyville, SC 29488

Phone No. (803) 496-2281

ATTACHMENT 1:
List of All Generators

Attachment 1
Generators of the Waste

Name of Company	Mailing Address	City	EPA ID	State	Country	Zip Code
American Refining - Bradford	77 N KENDALL AVE	BRADFORD	PAD000780171	PA	US	16701
Andeavor - St Paul Park	301 ST PAUL PARK RD	St Paul Park	MND006162820	MN	US	55071
BP - Husky Toledo	4001 CEDAR POINT RD	Toledo	OHD005057542	OH	US	43616
BP - Whiting	2815 Indianapolis Blvd	Whiting	IND984894667	IN	US	46394
Citgo - Lemont	135TH & NEW AVE	LEMONT	ILD041550567	IL	US	60439
Ergon - Newell	9995 OHIO RIVER BLVD. ROUTE 2 SOUTH	NEWELL	WVR000010058	WV	US	26050
ExxonMobil - Joliet	Arsenal Rd & I-55	Joliet	ILD064403199	IL	US	60410
Flint Hills - Pine Bend	13775 CLARK RD	ROSEMOUNT	MND000686071	MN	US	55068
Husky - Lima	1150 S METCALF ST	Lima	OHR000032151	OH	US	45804
Husky - Superior	2407 STINSON AVE	SUPERIOR	WID006194336	WI	US	54880
Marathon - Canton	2408 GAMBRINUS AVE SW	CANTON	OHD048107049	OH	US	44706234
Marathon - Detroit	1300 S FORT ST	DETROIT	MID005506357	MI	US	48217
Monroe Energy - Trainer	4101 Post Road	TRAINER	PAR000531657	PA	US	19061
PBF - Delaware City	4550 Wrangle Hill Road	Delaware City	DEN201000006	DE	US	19706
PBF - Paulsboro	800 Billingsport Road	Paulsboro	NJD002342426	NJ	US	08066
PBF - Toledo	1819 Woodville Road	Oregon	OHD046511	OH	US	43616
PES - Philadelphia	3144 Passyunk Avenue	Philadelphia	PAD049791098	PA	US	19145
Phillips 66 - Bayway	1400 Park Avenue	Linden	NJD986645984	NJ	US	07036
United Refining - Warren	15 BRADLEY ST	WARREN	PAD002105179	PA	US	16365
Andeavor - Anacortes	W MARCH PT RD	Anacortes	WAD009275082	WA	US	98221
Andeavor - Dickinson	3815 116th Ave. S.W.	Dickinson	NDR000011817	ND	US	58601
Andeavor - Kenai	1601 TIDEWATER ROAD	ANCHORAGE	AKD055503825	AK	US	99501
Andeavor - Los Angeles	2101 E. PACIFIC COAST HIGHWAY	Wilmington	CAD041520644	CA	US	90744
Andeavor - Mandan	900 OLD RED TRAIL NE	Mandan	NDD006175467	ND	US	58554
Andeavor - Martinez	150 Solano Way	Pacheco	CAR000091488	CA	US	94553
Andeavor - Salt Lake City	474 WEST 900 NORTH	Salt Lake City	UTD000826362	UT	US	84103
Antelope Refining - Douglas	2070 HIGHWAY 59	Douglas	WYR000210658	WY	US	82633
Big West Oil - Salt Lake City	333 WEST CENTER ST	NORTH SALT LAKE	UTD045267127	UT	US	84054280
BP - Cherry Point	4519 GRANDVIEW RD	BLAINE	WAD069548154	WA	US	98230-
Calumet - Great Falls	1900 10TH ST NE	GREAT FALLS	MTD000475194	MT	US	59404
Chevron - El Segundo	324 W. El Segundo BLVD	El Segundo	CAD983669292	CA	US	90245
Chevron - Kapolei	91-480 MALAKOLE STREET	KAPOLEI	HIT160010005	HI	US	96707
Chevron - Richmond	841 CHEVRON WAY	RICHMOND	CAD009114919	CA	US	94801
Chevron - Salt Lake City	685 SOUTH CHEVRON WAY	NORTH SALT LAKE	UTD092029768	UT	US	84054
CHS - Laurel	803 US HIGHWAY 212 S	LAUREL	MTD986071454	MT	US	59044
ExxonMobil - Billings	700 Exxonmobil Rd	Billings	MTD010380574	MT	US	59101
Greka Energy - Santa Maria Refinery	1660 SINTON	Santa Maria	CAD008361883	CA	US	93454
Holly Frontier - Cheyenne	2700 EAST 5TH STREET	CHEYENNE	WYD051843613	WY	US	82003
Holly Frontier - West Bountiful	393 SOUTH 800 WEST	WEST BOUNTIFUL	UTD009090580	UT	US	84087
Kern Oil - Bakersfield	7724 EAST PANAMA LANE	BAKERSFIELD	CAD990724916	CA	US	93307
Par Pacific - Kapolei	91-325 Komohana St	Kapolei	HID056786395	HI	US	96707
Par Pacific - Newcastle	10 Stampede Road	Newcastle	WYD043705102	WY	US	82701
PBF - Torrance	3700 W 190th St	Torrance	CAD008354052	CA	US	90504
Phillips 66 - Billings	401 S 23rd St	Billings	MTD986069599	MT	US	59101
Phillips 66 - Carson Los Angeles	1520 E Sepulveda Blvd	Carson	CAD983658220	CA	US	90745
Phillips 66 - Ferndale	3901 UNICK RD	Ferndale	WAD009250366	WA	US	98248
Phillips 66 - Rodeo San Francisco	1380 SAN PABLO AVE	RODEO	CAR000215228	CA	US	94572
Phillips 66 - Santa Maria/Arroyo Grande	2555 WILLOW RD	ARROYO GRANDE	CAT080010796	CA	US	93420
Phillips 66 - Wilmington Los Angeles	1660 WEST ANAHEIM ST.	WILMINGTON	CAR000215517	CA	US	90744
San Joaquin Refining - Bakersfield	3500 Shell St	Bakersfield	CAD990806317	CA	US	93308
Shell - Martinez	3485 PACHECO BOULEVARD	MARTINEZ	CAD009164021	CA	US	94553
Shell - Puget Sound	8505 S TEXAS RD	Anacortes	WAD009276197	WA	US	98221
Silver Eagle Refining - Evanston	2990 COUNTY ROAD 180	EVANSTON	WYD988869269	WY	US	82930
Silver Eagle Refining - Woods Cross	2355 SOUTH 1100 WEST	WOODS CROSS	UTD063314975	UT	US	84087
Sinclair Refining - Rawlins	5700 E HIGHWAY 20/26	Casper	WYD048743009	WY	US	82609
Suncor - Commerce City	5801 BRIGHTON BLVD	Commerce City	COT090011420	CO	US	80022
Torrance Logistics - Cerritos	12851 E. 166th Street	Cerritos	CAT000623538	CA	US	90703
US Oil - Tacoma	3001 MARSHALL AVE	TACOMA	WAD009252719	WA	US	98421
Valero - Benicia	3400 EAST SECOND	BENICIA	CAD063001770	CA	US	94510
Valero - Wilmington	2402 EAST ANAHEIM STREET	WILMINGTON	CAD066647066	CA	US	90744
World Energy - Paramount	14700 DOWNEY AVENUE	PARAMOUNT	CAD008371098	CA	US	90723
World Oil Refining - South Gate	9302 GARFIELD AVE	South Gate	CAD008345464	CA	US	90280
Irving Oil - St John	340 Loch Lomond Rd	Saint John	FCCANADA	NB	Canada	E2J 3Z6
CountryMark - Mt Vernon	1200 REFINERY RD	MOUNT VERNON	IND044908663	IN	US	47620
Marathon - Robinson	100 MARATHON AVE P O BOX 1200	ROBINSON	ILD005476882	IL	US	62454

Attachment 1
Generators of the Waste

Phillips 66 - Wood River	900 S Central Ave	Roxana	ILR000077115	IL	US	62084
Valero - Memphis	543 W MALLORY	MEMPHIS	TND007026958	TN	US	38109
Alon - Big Springs	200 REFINERY RD	BIG SPRING	TXD008013468	TX	US	79720
Andeavor - El Paso	6500 TROWBRIDGE DR	EL PASO	TXR000027979	TX	US	79905
Andeavor - Gallup	92 GIANT CROSSING ROAD	GALLUP	NMD000333211	NM	US	87301
Calumet - San Antonio	7811 S PRESA ST	SAN ANTONIO	TXD049754047	TX	US	78223
Citgo - Corpus Christi	4809 UP RIVER RD	CORPUS CHRISTI	TXD000750877	TX	US	78407
CVR - Coffeyville	400 N LINDEN ST	COFFEYVILLE	KSD007138605	KS	US	67337
CVR - Wynnewood	906 SOUTH POWELL	WYNNEWOOD	OKD000396549	OK	US	73098
ExxonMobil - Baton Rouge	4045 Scenic Highway	BATON ROUGE	LAD062662887	LA	US	70805
ExxonMobil - Baytown	2800 DECKER DR	BAYTOWN	TXD000782698	TX	US	77520
ExxonMobil - Beaumont	1795 BURT ST	BEAUMONT	TXD990797714	TX	US	77701
Flint Hills - Corpus Christi	1700 NUECES BAY BLVD	CORPUS CHRISTI	TXD066447376	TX	US	78407
Holly Frontier - Artesia	501 EAST MAIN STREET	ARTESIA	NMD048918817	NM	US	88210
Holly Frontier - El Dorado	1401 S DOUGLAS RD	EL DORADO	KSD007233422	KS	US	67042
Holly Frontier - Tulsa	902 w 25th Street	Tulsa	OKD990750960	OK	US	74017
Marathon - Catlettsburg	11631 US ROUTE 23	CATLETTSBURG	KYD041376138	KY	US	41129
Marathon - Texas City	502 10TH ST S	TEXAS CITY	TXD008079501	TX	US	77590
NCRA - McPherson	2000 S Main st	McPherson	KSD007145956	KS	US	67460
Phillips 66 - Borger	Spur 119 N	Borger	TXD980626774	TX	US	79008
Phillips 66 - Ponca City	1000 S Pine St.	Ponca City	OKD007233836	OK	US	74601
Phillips 66 - Sweeny	8189 Old FM 524	Old Ocean	TXD048210645	TX	US	77463
Valero - Ardmore	ONE VALERO WAY	ARDMORE	OKD057705972	OK	US	73401
Valero - Corpus Christi	5900 UP RIVER RD	CORPUS CHRISTI	TXD074604166	TX	US	78407
Valero - McKee	6701 FM 119	SUNRAY	TXD059685339	TX	US	79086
Valero - Three Rivers	301 LE ROY ST	THREE RIVERS	TXD990709966	TX	US	78071
Calcasieu Refining - Lake Charles	4359 West Tank Farm Road	LAKE CHARLES	LAD099393225	LA	US	70605
Calumet - Cotton Valley	1756 OLD HWY 7	COTTON VALLEY	LAD000225805	LA	US	71018
Calumet - Princeton	10234 LA-177	Princeton	LAD985200930	LA	US	71067
Calumet - Shreveport	3333 Midway Ave.	Shreveport	LAD008052334	LA	US	71109
Chevron - Pascagoula	250 INDUSTRIAL ROAD	Pascagoula	MSD054179403	MS	US	39581
Citgo - Lake Charles	4401 HWY 108	Lake Charles	LAD008080350	LA	US	70602
Delek - El Dorado	1000 MCHENRY	EL DORADO	ARD000021998	AR	US	71730
Delek - Krotz Springs	HWY 105-S 356 S. LEVEE RD.	KROTZ SPRINGS	LAD081407850	LA	US	70750
Delek - Tyler	1702 E COMMERCE ST	TYLER	TXD007333800	TX	US	75702
Ergon - Vicksburg	2611 HAINING RD	VICKSBURG	MSD098595317	MS	US	39183
Goodway - Atmore	4745 Ross Road	Atmore		AL	US	36502
Hunt Southland - Rogerslacy	177 HANEY ROAD	SANDERSVILLE	MSD079467536	MS	US	39477
Hunt - Tuscaloosa	1855 FAIRLAWN RD	TUSCALOOSA	ALD004009320	AL	US	35401
Lyondellbasell - Houston	12000 Lawndale	Houston	TXD082688979	TX	US	77017
Marathon - Garyville	4663 Airline Highway	GARYVILLE	LAD081999724	LA	US	70051
Motiva - Port Arthur	2555 Savannah Ave	PORT ARTHUR	TXD008097529	TX	US	77640
Pasadena Refining System - Pasadena	111 RED BLUFF RD	Pasadena	TXD008091290	TX	US	77506
PBF - Chalmette	500 W. St. Bernard HWY.	Chalmette	LAD008179707	LA	US	70043
Pelican - Lake Charles	4646 Highway 3059 Oldtown Road	Lake Charles	LAD092476126	LA	US	70611
Phillips 66 - Belle Chasse	15551 HWY. 23	Belle Chasse	LAD056024391	LA	US	70037
Phillips 66 - Westlake	2200 Old Spanish Trail	Westlake	LAD990683716	LA	US	70669
Placid Refining - Port Allen	1940 LA-1	Port Allen	LAD053783353	LA	US	70767
Shell - Convent	10700 LA-44	Convent	LAD065485146	LA	US	70723
Shell - Deer Park	5900 Hwy. 225 @ Center	DEER PARK	TXD067285973	TX	US	77536
Shell - Norco	15536 RIVER ROAD	NORCO	LAD008186579	LA	US	70079
Shell - Saraland	400 Industrial Pkwy	Saraland	ALD020852422	AL	US	36571
South Hampton - Silsbee	7752 West FM 418	Silsbee	TXD062120340	TX	US	77656
Total - Port Arthur	7600 32ND ST	Groves	TXD065099160	TX	US	77619
Valero - Houston	9701 MANCHESTER ST	HOUSTON	TXD053624193	TX	US	77012
Valero - Meraux	2500 E. ST. BERNARD HWY.	MERAUX	LAD008058471	LA	US	70075
Valero - Port Arthur	1801 South Gulfway Drive	Port Arthur	TXD008090409	TX	US	77640
Valero - St. Charles	14902 River Road	Norco	LAD000225862	LA	US	70079
Valero - Texas City	1301 LOOP 197 S	TEXAS CITY	TXD000792937	TX	US	77590
Continental - Somerset	501 REFINERY ROAD	SOMERSET	KYD089227227	KY	US	42501
Cross Oil - Smackover	484 E. SIXTH STREET	SMACKOVER	ARD990869737	AR	US	71762

ATTACHMENT 2:
Description of All Accepted Wastes

PADEP GENERIC MODULE 1 FORM
SECTION B, Nos. 1h and 3b – Waste Code Description

Applicable Waste Codes

The listing associated with this Generic Module 1 applies to specific liquid waste streams from petroleum refineries. The petroleum refining process typically creates large quantities of contaminated wastewater. Before this wastewater can be discharged to a river or sewer, it must be treated to remove oil, solid material, and chemical pollutants. Gravity provides a simple way of separating these pollutants from refinery wastewaters. Over time, solids and heavier pollutants precipitate from wastewaters to form a sludge. Other less dense pollutants accumulate on the surface of wastewaters, forming a material known as float. These gravitational separation processes can be encouraged through chemical or mechanical means. The following waste code descriptions are being included with this Generic Module 1 Application:

F037	Petroleum refinery primary oil/water/solids separation sludge. Any sludge generated from the gravitational separation of oil/water/solids during the storage or treatment of process wastewaters and oily cooling wastewaters from petroleum refineries. Such sludges include, but are not limited to, those generated in oil/water/solids separators; tanks and impoundments; ditches and other conveyances; sumps; and stormwater units receiving dry weather flow.
F038	Petroleum refinery secondary (emulsified) oil/water/solids separation sludge. Any sludge and/or float generated from the physical and/or chemical separation of oil/water/solids in process wastewaters and oily cooling wastewaters from petroleum refineries. Such wastes include, but are not limited to, all sludges and floats generated in: induced air flotation (IAF) units, tanks and impoundments, and all sludges generated in DAF units.
K048	Dissolved air floatation (DAF) float from the petroleum refining industry.
K049	Slop oil emulsion solids from the petroleum refining industry.
K050	Heat exchanger bundle cleaning sludge from the petroleum refining industry.
K051	API separator sludge from the petroleum refining industry.
K052	Tank bottoms (leaded) from the petroleum refining industry.
K169	Crude oil storage tank sediment from petroleum refining operations.
K170	Clarified slurry oil storage tank separation solids from petroleum refining operations.
K171	Spent Hydrotreating catalyst from petroleum refining operations, including guard beds used to desulfurize feeds to other catalytic reactors (this listing does not include inert support media)
K172	Spent Hydrorefining catalyst from petroleum refining operations, including guard beds used to desulfurize feeds to other catalytic reactors (this listing does not include inert support media)

Additional waste codes can be added if a generator confirms that the process generating the waste material has not changed. Keystone may accept that material in accordance with the Generic Module 1 if Keystone is permitted to accept that particular waste code at its facility.

ATTACHMENT 3:
Chemical Analyses and Description of Waste Sampling Method

Generic Module 1 Analytical Parameter Ranges

Parameter	Acceptance Range (Total Analysis/TCLP) [e]	Keystone Cement Waste Acceptance Limit (Total Analysis)
pH	>4.5, <10.3 SU [3]	>2.0, <12.5 SU
Ignitability, Flash Point	< 140 °F [4]	
Reactive sulfide	Not characteristically reactive [4]	
Reactive cyanide	Not characteristically reactive [4]	
Arsenic*	25 - 185 ppm [3]	≤1,120 mg/kg (combined)
Beryllium	0.0 - 19.38 ppm [1]	
Chromium*	0.0 - 986.80 ppm [1]	
Barium*	≤1,651 ppm [2]	
Benzene*	<100,000 ppm [5]	
Cadmium*	0.0 - 990.93 ppm [1]	≤3,500 mg/kg (combined)
Lead*	0.0 - 1910.40 ppm [1]	
Carbon tetrachloride*	<93.8 ppm [2]	
Chlordane*	<0.99 ppm [2]	
Chlorobenzene*	<2.5 ppm [3]	
Chloroform*	<9.8 ppm [2]	
O-cresol*	0.0473 ppm [3]	
M-cresol*	0.0681 ppm [3]	
P-cresol*		
Cresol*	<200.00 ppm [4]	
2,4-D* (acetic acid)	<10.0 ppm [4]	
1,4-dichlorobenzene*	<4.9 ppm [2]	
1,2-dichloroethane*	<2.5 ppm [3]	
1,1-dichloroethylene*	<2.5 ppm [3]	
2,4-dinitrotoluene*	<1.9 ppm [2]	
Endrin*	<0.02 ppm [4]	
Heptachlor*	<0.008 ppm [4]	
Hexachlorobenzene*	<0.1 ppm [3]	
Hexachlorobutadiene*	<2.5 ppm [3]	
Hexachloroethane*	<5.8 ppm [2]	
Lindane*	<0.40 ppm [4]	
Mercury*	0.0 - 9.97 ppm [1]	≤10 mg/kg
Methoxychlor*	<10.0 ppm [4]	
Methyl ethyl ketone*	<25 ppm [3]	
Nitrobenzene*	<1,534.4 ppm [2]	
Pentachlorophenol*	<0.1 ppm [3]	
Pyridine*	<0.1 ppm [3]	
Selenium*	<4 - <19.2 ppm [3]	
Silver*	<8.06 ppm [2]	
Tetrachloroethylene*	<2.5 ppm [3]	
Toxaphene*	<0.50 ppm [4]	
Trichloroethylene*	<2.5 ppm [3]	

2,4,5-trichlorophenol*	<400.00 ppm [4]	
2,4,6-trichlorophenol*	<2.00 ppm [4]	
2,3,4-TP (Silvex)*	<1.00 ppm [4]	
Vinyl chloride*	<30.7 ppm [2]	
Copper*	<211.6 ppm [2]	
Nickel*	75 - 1,000 ppm [3]	≤1000 mg/kg
Zinc*	<1350.7 ppm [2]	
Heat value	≥5,000 - 20,000 BTU/lb [1]	≥5,000 BTU/lb
PCBs	Not present [3] **(a)**	Not present **(a)**
Total solids	0% - 49% [3]	
Percent water	0 - 70% [1]	
Antimony	<422.25 ppm [2]	
Thallium	<31.61 ppm [2]	
Percent Chloride	≤3.00 % [1]	≤3.00 %
Peroxide	No [1]	Not present **(b)**
Specific gravity @ 60° F (±2)	0.04 - 1.12 [1]	0.600-1.200
Compatibility	Yes [1]	Yes
Dioxins/furans **(c)**	Must meet WAP Acceptance Limit	Not present
Herbicides and Pesticides **(d)**	Must meet WAP Acceptance Limit	Not present

Notes:

Analysis is required for all parameters unless certified not present.

* Requires TCLP Analysis. Please note, where the waste contains less than 0.5 percent filterable solids, the waste itself, after filtering using the methodology outlined in Method 1311, is considered to be the extract.

(a) Not present, Parameter should not be detected by analysis with a detection limit of 40 ppm

(b) Not present, Parameter should not be detected by analysis with a detection limit of 10 ppm

(c) Defined as in 40CFR 260.10: Dioxins and furans (D/F) means tetra, penta, hexa, hepta, and octa-chlorinated dibenzo dioxins and furans.

(d) Herbicides and Pesticides that are not acceptable at Keystone include tri-, tetra-, and pentachlorophenols (waste code F027); wastes from the production of certain pesticides such as chlordane (waste code K032); and P and U wastes defined in 40 CFR §261.33(e) and (f).

(e) Acceptance Range Based on:

1) Keystone analytical of all accepted loads from January 2010 - July 2018;
2) Keystone CY 2017 limits based on profiles and quarterly composite sampling;
3) Analytical reports provided by a sampling of Generic Module 1 generators;
4) Toxicity Characteristic Regulatory Limits;
5) Benzene NESHAP waste by definition.

N/A: Not Applicable

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

[Prior to Acceptance, each generator will certify that their waste meets the requirements of this Generic Module 1]

Signature Printed (or typed) name and title

Date

ASH GROVE CEMENT COMPANY
CHEM-FUEL QUALIFICATION

GENERATOR Shell Deer Park	**BILLING INFORMATION**	**LAB NUMBER** CF143873
FACILITY ADDRESS 5900 State Hwy 225	**COMPANY** Sumter Transport Company	**CHEM-FUEL TYPE** K-Blend
City / **ST ZIP** Deer Park / TX 77539	**BILLING ADDRESS** P.O. Box 1060	**SAMPLE SURVEY RECEIPT DATE** 9/10/2014
Federal EPA ID# TXD 067 285 973	**City** / **ST** / **ZIP** Sumter / SC / 29151	**COMPLETION DATE** 9/24/2014
SIC CODE 2911	**Contact** Brian Wilson	

VOLATILE ORGANICS
(Relative Area Percent)
GC/MSD-FID
5 MAJOR CONSTITUENTS:

Naphthalene, 2-Methyl-	6.69	%
Naphthalene, 1,5-Dimethyl-	4.94	%
Naphthalene, 1,4-Dimethyl-	4.78	%
Naphthalene, 2,3,6-Trimethyl-	4.41	%
Naphthalene, 1,6,7-Trimethyl-	4.05	%
		%
		%
		%
		%

HEAT OF COMBUSTION

BTU/lb	16,300	Btu/lb
Density	9.44	lb/gal
Chlorine	0.2	%(w/w)
pH	5.6	50%
Solids	25	%
Water	1.68	%
Radioactivity	<MBG	
Comp/Stability	OK	
Sulfides	<5	ppm
Cyanides	<0.1	ppm

TOTAL METALS

As	156	ppm
Sb	<4	ppm
Ba	16	ppm
Be	0.4	ppm
Cd	<0.4	ppm
Cr	12	ppm
Pb	9	ppm
Hg	<0.1	ppm
Ni	75	ppm
Ag	<4	ppm
Se	<4	ppm
Tl	<4	ppm

Comments:

No issues.

PCBS

Aroclors <20 ppm

PROCESSOR POINT OF CONTACT
Michael W. Smith

TITLE
Waste Coordinator

PHONE NUMBER
(713) 246-7280

PROCESS/WASTE FUEL DESCRIPTION

Tank bottom sludge liquids
Clean out of storage tank

Chemist's Signature

9-24-14
Completion Date

Ash Grove Cement Company hereby warrants tht the waste stream represented by the survey and sample submitted is acceptable at the Ash Grove facilities marked below, and that said facility has the appropriate permit(s) and can accept this waste as long as all hazards associated with it have been fairly disclosed on the survey and the composition of the waste does not change so as to render the attached survey and sample submitted to Ash Grove Cement Company nonrepresentative.

__ **Conditional approval (See attached). PLEASE NOTE THIS APPROVAL NUMBER ON ALL SHIPMENT MANIFESTS.**

__ **Chanute, KS** ✓ **Foreman, AR**

William T. Dryer	10-3-14	AG1888
Signature	**Date**	**Chem-Fuel Approval Number**

Refinery Storage Tank Sampling Methodology

Section B, No. 2b

Sampling of the waste material generated during the annual maintenance clean-out of the refinery storage tanks Is conducted in one of two ways. The sampling method is dependent on whether the material in the tank is in solid, sludge, or liquid form. For each load of waste material, the samples are collected through a tank manway or a tank vent. The tanks are sampled at multiple locations and at multiple depths in order to obtain the required number of samples that are representative of the entire contents of the tanks.

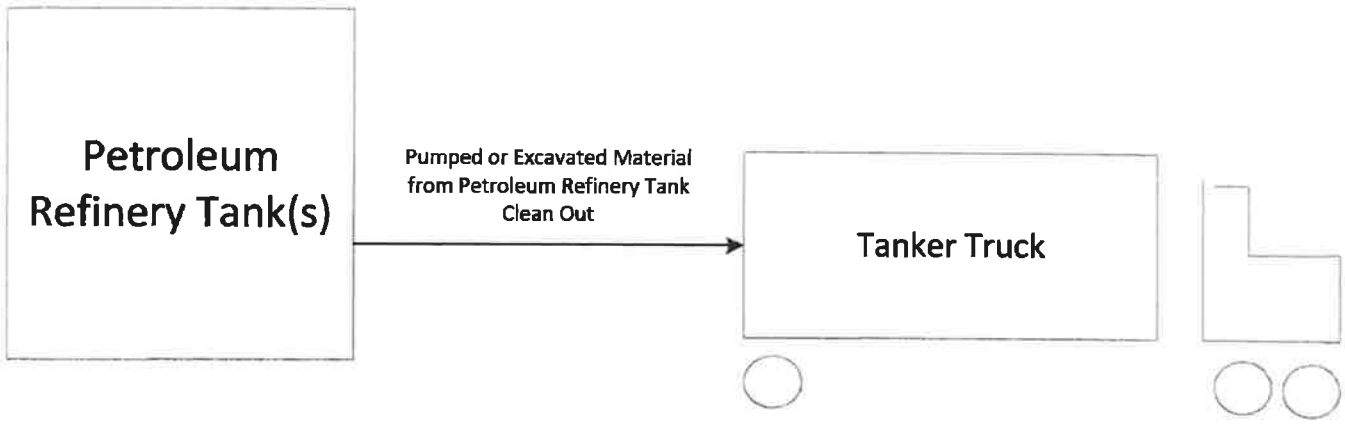
For liquid tanks, a Coliwasa sampling device and/or a custom made sampling device is utilized to obtain samples from multiple locations and depths within the tank in order to obtain a representative sample. Upon retrieval, the contents of the sampling devices are transferred to clean laboratory preserved (where applicable) sample jars and placed on ice for delivery to an independent laboratory for analysis. This sample process is repeated until the requisite number of samples are collected to represent the entire contents of the tank.

All samples are collected in a manner to ensure that no cross-contamination occurs during sample collection. Sampling technicians wear disposable latex gloves during sampling activities. The collected samples are shipped to the laboratory under proper chain of custody control to ensure proper delivery to the laboratory. Where applicable, samples are homogenized by the laboratory prior to analysis.

ATTACHMENT 4:

Description and Schematic of Manufacturing Processes and/or Pollution Control Methods for All Accepted Wastes

Attachment 4
Schematic of Petroleum Refinery Cleanout Process



PADEP GENERIC MODULE 1 FORM
SECTION B, Nos. 1h and 3b – Waste Code Description

Applicable Waste Codes

The listing associated with this Generic Module 1 applies to specific liquid waste streams from petroleum refineries. The petroleum refining process typically creates large quantities of contaminated wastewater. Before this wastewater can be discharged to a river or sewer, it must be treated to remove oil, solid material, and chemical pollutants. Gravity provides a simple way of separating these pollutants from refinery wastewaters. Over time, solids and heavier pollutants precipitate from wastewaters to form a sludge. Other less dense pollutants accumulate on the surface of wastewaters, forming a material known as float. These gravitational separation processes can be encouraged through chemical or mechanical means. The following waste code descriptions are being included with this Generic Module 1 Application:

F037	Petroleum refinery primary oil/water/solids separation sludge. Any sludge generated from the gravitational separation of oil/water/solids during the storage or treatment of process wastewaters and oily cooling wastewaters from petroleum refineries. Such sludges include, but are not limited to, those generated in oil/water/solids separators; tanks and impoundments; ditches and other conveyances; sumps; and stormwater units receiving dry weather flow.
F038	Petroleum refinery secondary (emulsified) oil/water/solids separation sludge. Any sludge and/or float generated from the physical and/or chemical separation of oil/water/solids in process wastewaters and oily cooling wastewaters from petroleum refineries. Such wastes include, but are not limited to, all sludges and floats generated in: induced air flotation (IAF) units, tanks and impoundments, and all sludges generated in DAF units.
K048	Dissolved air floatation (DAF) float from the petroleum refining industry.
K049	Slop oil emulsion solids from the petroleum refining industry.
K050	Heat exchanger bundle cleaning sludge from the petroleum refining industry.
K051	API separator sludge from the petroleum refining industry.
K052	Tank bottoms (leaded) from the petroleum refining industry.
K169	Crude oil storage tank sediment from petroleum refining operations.
K170	Clarified slurry oil storage tank separation solids from petroleum refining operations.
K171	Spent Hydrotreating catalyst from petroleum refining operations, including guard beds used to desulfurize feeds to other catalytic reactors (this listing does not include inert support media)
K172	Spent Hydrorefining catalyst from petroleum refining operations, including guard beds used to desulfurize feeds to other catalytic reactors (this listing does not include inert support media)

Additional waste codes can be added if a generator confirms that the process generating the waste material has not changed. Keystone may accept that material in accordance with the Generic Module 1 if Keystone is permitted to accept that particular waste code at its facility.

APPENDIX C
PREPAREDNESS, PREVENTION, AND CONTINGENCY PLAN

PREPAREDNESS, PREVENTION AND CONTINGENCY PLAN

Prepared by:

Keystone Cement Company
Bath, Pennsylvania

Last Revised by:

Keystone Cement Company
Environmental Department Staff

Corporate Environmental Department
Formerly Golder Associates Project No.: 053-6364

DISTRIBUTION:

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EMS Doc No. 02-04 | January 2020

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LIST OF ABBREVIATIONS

AST	Aboveground Storage Tank
BIF	Boiler and Industrial Furnace
BMP	Best Management Practice
CAP	Corrective Action Process
CFR	Code of Federal Regulations
CHP	Chemical Hygiene Plan
CKD	Cement Kiln Dust
HAZWOPER	Hazardous Waste Operations and Emergency Response
LEPC	Local Emergency Planning Committee
MSHA	Mine Safety and Health Administration
NPDES	National Pollutant Discharge Elimination System
NRC	National Response Center
OSHA	Occupational Safety and Health Administration
PA	Pennsylvania
PADEP	Pennsylvania Department of Environmental Protection
PEMA	Pennsylvania Emergency Management Agency
PPC	Preparedness, Prevention, and Contingency
PPE	Personal Protection Equipment
ppm	Parts Per Million
psig	Pounds per Square Inch Gauge
RCRA	Resource Conservation and Recovery Act
RMP	Risk Management Program
SARA	Superfund Amendments and Reauthorization Act
SDS	Safety Data Sheets
SOP	Standard Operating Procedures
SPCC	Spill Prevention Control and Countermeasures
SPR	Spill Prevention Response
TSDF	Treatment, Storage, and Disposal Facility
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOC	Volatile Organic Compound
WFOP	Waste Fuels Operations Plan

INTRODUCTION

Keystone Cement Company (Keystone) of Bath, Pennsylvania has developed this integrated Preparedness, Prevention and Contingency (PPC) Plan for the facility operations to meet both Federal and Pennsylvania Department of Environmental Protection (PADEP) requirements. Keystone has prepared this PPC Plan document in two distinct parts. Part I addresses the Resource Conservation and Recovery Act (RCRA) Regulated Operations portion of the Keystone facility that involve the storage, handling and beneficial use of hazardous waste fuels and other hazardous wastes generated on-site. Part II addresses the Non-RCRA Regulated Operations and includes PPC Plan activities for all other areas of Keystone's operations.

Part I of this plan addresses the requirements of Title 25 of the Pennsylvania Code of Regulations (PA Code) Section 270a.14 and 25 PA Code 264a, which apply to hazardous waste treatment, storage, and disposal facilities. Both Part I and Part II of this plan address the relevant PADEP requirements cited in 25 PA Code. This PPC Plan also addresses certain requirements under the spill prevention response (SPR) provisions of the Pennsylvania Storage Tank and Spill Prevention Act, county emergency planning requirements, the facility's Best Management Practices (BMP) Plan, and PPC Plans required by permits currently in effect at the Keystone site.

This PPC Plan addresses all operations at the Keystone site to the extent required by the subject regulations. When executed, this PPC Plan will minimize hazards to human health and the environment while assuring the safety of employees and limiting potential damage to buildings, equipment, and the environment in the event of an emergency. This PPC Plan generally follows the guidance and format provided in the PADEP document entitled "Guidelines for the Development and Implementation of Environmental Emergency Response Plans" revised August 2005.

Keystone will update and amend this PPC Plan whenever changes to the facility equipment or operations result in the need for such amendments. Any such changes to RCRA regulated operations detailed in Part I will only occur following PADEP notification and/or approval, if required, for such changes. Changes to the non-RCRA regulated operations detailed in Part II will be made as appropriate, and Keystone will update the PADEP copy of the PPC Plan at the time the facility copies are updated.

PART I - RCRA REGULATED OPERATIONS

IA. DESCRIPTION OF FACILITY

IA.1 DESCRIPTION OF INDUSTRIAL ACTIVITY

Keystone Cement Company (Keystone) is located on an approximately 840-acre site along Route 329 in East Allen Township, Northampton County, Pennsylvania (PA) as shown in Figure 1. More detailed site plan drawings are included in Figures 2A and 2B. Keystone produces portland cement, crushed stone and related products and operates a variety of equipment and systems associated with the manufacturing processes.

Keystone's facility includes on-site quarrying operations as well as manufacturing operations. Keystone's primary product, portland cement, is sold in both bulk quantities and in commercial packages. The process begins with the on-site quarrying of limestone, the primary raw material used in the process. The limestone is crushed, screened, and combined with other ingredients including, but not limited to, iron, alumina and silica. These materials are fed to a raw mill, which grinds and blends the various materials. The raw material (now called kiln feed) is then introduced to the top of the preheater tower, where it is further dried and heated. From the preheater tower, the kiln feed enters the rotary portion of the kiln, where the high temperatures generated by burning fossil fuels and/or hazardous waste fuels transform the materials into cement clinker. The clinker from the kiln is then combined with various product-enhancing materials before final processing in the finishing mills. In the finishing mills the clinker is refined from pellet size material to the fine powder product known as portland cement. The cement product is stored for bulk loading operations or is packaged for commercial sale.

The ingredients used in the cement manufacturing operations are primarily inert materials such as the limestone and silica. These materials are either stockpiled in designated areas or stored within the large building on-site referred to as the "clinker storage hall." Fuels used to fire the kilns are stored in designated fuel storage areas. Miscellaneous materials that support the various facility operations are used throughout the site and consist primarily of oils, grease, antifreeze, grinding aid and similar compounds. These materials are stored and used in designated storage and satellite areas located throughout the facility. Hazardous waste fuels are received, stored on-site and fired in the cement kiln. Figures 3A, 3B, and 3C present a plan view of the facility layout that includes identification of specific storage and satellite areas. Figures 2A and 2B show the areas where hazardous wastes are routinely handled or stored. Section IA.3 includes a detailed

discussion of the Resource Conservation and Recovery Act (RCRA) Regulated Operations portion of the facility.

All of the areas used for hazardous waste unloading, storage, or burning are either sheltered from precipitation or bermed/walled in such a manner as to prevent both storm water run-on and runoff. The berms and walls are shown on Figures 3A, 3B, and 3C.

IA.2 DESCRIPTION OF EXISTING EMERGENCY RESPONSE PLANS

Keystone has previously developed Preparedness, Prevention, and Contingency (PPC) Plans as part of the facility's RCRA Part B permitting process. The plant has operated under the most recent PPC Plan approved by the Pennsylvania Department of Environmental Protection (PADEP) as part of the RCRA Part B permit, which was renewed as requested and effective on July 9, 2009, for the facility's hazardous waste fuel storage operations. The PPC Plan detailed herein incorporates the pertinent information from previous plans and has been updated to include new systems and procedures. Part I addresses PPC Plan elements for the RCRA Regulated Operations. Part II addresses the Non-RCRA Regulated Operations for the entire site.

In addition to the PPC Plan, Keystone maintains a Risk Management Program (RMP), a Waste Fuels Operations Plan (WFOP), a Chemical Hygiene Plan, a Spill Prevention Control and Countermeasures (SPCC) Plan, and a Waste Analysis Plan. These plans work in conjunction with and are maintained on-site in close proximity to the PPC Plan, as appropriate.

The purpose of the RMP is to comply with the general duty clause of Section 112(r) of the federal Clean Air Act. As discussed in the RMP, Keystone must comply with the Program Level 1 requirements, including submission of the Risk Management Plan to the USEPA at least every five (5) years. The written RMP, last revised in 2017, includes an Accident Prevention Program and Emergency Response Program.

The WFOP outlines procedures for handling and use of hazardous waste fuels, including incident prevention procedures. Section 9 of the WFOP details the inspection and maintenance procedures from the hazardous waste fuels tank systems, and Section 10 of the WFOP provides detailed information on the employee training program for hazardous waste fuels operations.

The Chemical Hygiene Plan helps ensure the protection of Keystone's laboratory personnel from the risks associated with the use of hazardous chemicals. It also outlines the safe use, storage, and disposal of hazardous chemicals in the laboratory.

Keystone's SPCC Plan, required by the federal Oil Pollution Prevention regulations, discusses containment and countermeasures that would prevent oil spills from reaching navigable waters. It lists oil containers and oil-containing equipment with 55 gallons or more of oil or oil products storage capacity, some of which are also discussed in the PPC Plan.

In order to comply with RCRA regulations, all waste streams must be approved by the PADEP prior to use as fuel in Keystone's cement kilns. These regulations mandate that Keystone maintains on-site and adheres to a Waste Analysis Plan pursuant to 25 Pa Code Section 264.12 and 40 CFR 270. The Waste Analysis Plan covers such topics as fuel substitution; feed streams to the kilns; waste fuels sampling methods; acceptance procedures; ignitable, reactive, and incompatible wastes; and cement kiln dust (CKD) sampling methods.

IA.3 MATERIAL, OPERATIONS AND WASTE INVENTORY

IA.3.1 Waste Fuels Operations

The major operating units included in the waste fuels operations and the associated hazardous waste management units are shown on Figure 2A. The general hazardous waste fuel truck delivery route into and through the facility from PA Route 512 is depicted as well. The principal hazardous waste management units consist of the waste fuel receipt and storage areas including waste unloading areas, hazardous waste fuel storage tanks and the new dry process cement kiln, which is a hazardous waste combustor (HWC) regulated unit that burns hazardous waste for its fuel value. The existing storage tanks are identified as Tanks 1A and 1B, each of which can store up to 15,000 gallons of fuel, and Tanks 2 and 3, each of which can store up to 31,500 gallons of fuel. The tanks are identified on the drawings. Keystone's cement kiln can fire a variety of non-waste fuels and waste fuels including hazardous waste. Presently, the kiln primarily fires a combination of pulverized bituminous coal and liquid hazardous waste fuels.

Table 1 includes a complete list of the hazardous waste codes that Keystone can use as substitutes for non-waste fuels in manufacturing portland cements. Table 2 provides a description of each of the approved hazardous waste codes.

In order to use any of these wastes as fuel substitutes in Keystone's cement kiln the waste must meet specific physical and chemical requirements and must be approved by the PADEP. The waste fuel requirements and acceptance criteria are detailed in the facility's RCRA Part B permit and Clean Air Act Operating Permit.

All of the hazardous wastes listed in Table 1, which meet the wastes fuel criteria requirements identified in the RCRA Part B and Title V Permits, can be accepted, and stored in any one of the permitted tanks, and/or used by in the cement kiln in place of virgin/non-waste fuel. Keystone analyzes each shipment of waste received at the facility to determine whether the waste meets the applicable, acceptance criteria. Once laboratory data confirming the acceptable composition of the waste is available, it is unloaded into one of the storage tanks. The laboratory data for all shipments of hazardous waste fuels are maintained on-site and available for review.

IA.3.2 Miscellaneous Hazardous Waste Storage

At times, hazardous waste generated on-site is stored for less than 90 days in the bermed truck unloading area in locations that are protected from vehicular traffic. In addition to the principal hazardous waste storage areas, there are two temporary (<90 day) hazardous waste storage areas on-site that are subject to the RCRA generator requirements at 40 CFR 262. The first area, known as the general hazardous waste storage area, is used to store miscellaneous hazardous wastes such as used personal protection equipment (PPE), spent carbon from the volatile organic compound (VOC) control system, and laboratory wastes. It is located on a bermed concrete pad under the former No. 2 Cement Kiln as shown on Figure 2A. The second temporary storage area is used to store CKD that fails the Bevill residue analysis and is located on a concrete pad adjacent to the Quarry Shop (see Figure 2B). The second temporary storage area, known as the CKD Contingency Area, is normally empty as CKD generated at Keystone typically passes the Bevill residue analysis and is stored in the non-hazardous CKD storage piles (see Part II of this PPC Plan for a description of the non-hazardous CKD storage piles). Wastes in these temporary hazardous waste storage areas are transported off-site within 90 days of generation for disposal at a permitted facility.

IA.3.3 Waste Fuels Unloading and Staging

The main tanker truck unloading area, located near the waste fuel storage area, is used to temporarily stage trucks prior to and while their contents are sampled and analyzed for conformance with the acceptance parameters. In addition during times of high activity, trucks may be temporarily staged in the truck parking and staging areas identified in Figure 2A prior to

or after sampling and unloading. The unloading area, truck parking area, and truck staging area are not intended for long-term storage of hazardous waste fuels and are in a state of constant flux.

IA.4 POLLUTION INCIDENT HISTORY

Keystone has not experienced a major spill or major contaminant release that required full-scale implementation of the facility PPC Plan. However, a vapor ignition occurred in the storage tank vent system and the head space of the waste fuel storage Tank No. 3 on December 8, 1997. No material spillage occurred and only minor quantities of air contaminants were released as a result of the incident. However, uncertainty over the extent of the incident at the time of the occurrence lead to initial implementation of the facility's PPC Plan, until the extent and nature of the incident was better understood by the PPC Plan Coordinator.

On August 5, 1998, coal began to smolder in the 100-ton coal bunker. This incident was not considered an event that would cause any type of environmental hazard or discharge since it was isolated from the facility waste fuels operations. Therefore, the facility PPC Plan was not implemented. Based on PADEP guidance, this PPC Plan has been revised to encompass the entire facility. Should a similar incident occur in the future, the facility PPC Plan will be implemented to the extent necessary.

Subsequent to this coal incident, a water flood system at the bottom of the bunker has been installed to extinguish any potential fires. A 25,000 cubic foot per minute fan has been installed in the coal storage building to vent any harmful fumes (e.g., carbon monoxide) that may develop in the event of a fire. Carbon monoxide monitors have also been installed to continuously monitor carbon monoxide levels to ensure worker safety and to act as combustion warning devices.

On January 27, 1999, a contractor hired to clean a cement storage silo was fatally injured when he slipped off of a semi-solid ledge of cement, landed in 10 feet of cement dust, and suffocated. This incident did not result in a material spillage or the release of air contaminants into the atmosphere; however, uncertainty over the extent of the incident at the time of the occurrence lead to the initial implementation of the facility's PPC Plan, until the extent and nature of the incident was better understood by the PPC Plan Coordinator.

Keystone is committed to the proper implementation of the measures contained in this PPC Plan, as demonstrated by their initiating the PPC Plan during two incidents when it was ultimately unnecessary. Additionally, during other site incidences where implementation of this PPC Plan was not required, Keystone has taken measures to be protective of their employees and the public by installing measures to assist in controlling the potential incidences. Finally, Keystone's proactive commitment, combined with their history of no reportable releases, demonstrates that the program and measures outlined in this document are effective.

IA.5 IMPLEMENTATION SCHEDULE FOR PLAN ELEMENTS NOT CURRENTLY IN PLACE

All aspects of this PPC Plan are ready for implementation immediately in the event of a release or an emergency situation at the facility.

IB. DESCRIPTION OF HOW PLAN IS IMPLEMENTED BY ORGANIZATION

IB.1 ORGANIZATIONAL STRUCTURE OF FACILITY FOR IMPLEMENTATION

A major incident is defined as a major leak, major spill, explosion, or fire. A major leak is defined as any leak larger than a seep or drip from the shell of a tank or pipe/flanges which cannot be controlled. A major spill is a spill that cannot be easily and quickly controlled. Incidents of lesser severity are considered minor incidents.

In case of a major release, spill or fire at the liquid waste fuel area or any of the related operations areas, or other major release or fire within the facility, the Emergency Coordinator has the authority to implement the PPC Plan backed by the full resources of the company. The duties and responsibilities of the Emergency Coordinator are detailed in Section IB.3.

The Shift Supervisors, all Secondary Emergency Coordinators, and the majority of operating personnel have been instructed to notify a Primary Emergency Coordinator in the event of a major incident, such as fire, explosion, or a major spill. In the event of any incident, the employee discovering the incident will immediately notify the Shift Supervisor, either directly or through the Control Room Operator. The Shift Supervisor will then contact a Primary (or Secondary, if a Primary is not available) Emergency Coordinator who will assess the situation and decide whether to implement the PPC Plan. If the Primary Emergency Coordinator is not present on-site or immediately able to assume his role, the Shift Supervisor or other Secondary Emergency Coordinator will begin coordinating the response actions to stop or minimize the

impacts of the event, evacuate personnel as appropriate, call response agencies, notify PADEP, and perform other appropriate actions until relieved by the Primary Emergency Coordinator.

During an emergency event, the Emergency Coordinator, or designee, will assess the extent of the situation and contact appropriate personnel, instructing them on specific activities and individuals to contact, such as outside fire departments, hospitals, ambulance services and police. The Emergency Coordinator, or designee, will notify the appropriate regulatory agencies and response groups after instructing operations personnel to curtail those plant operations responsible for, or potentially involved in, an emergency event. The Emergency Coordinator, or designee, will have overall responsibility for completing the required contingency reports.

In the case of a waste fuel tank rupture, the Emergency Coordinator, or designee, will notify the Storage Facility Personnel, or a properly trained individual, to set up portable pumps to transfer spilled material into the remaining waste fuel tanks that are not ruptured and contain compatible wastes. The secondary containment area around the waste fuel tanks, consisting of the concrete block walls and concrete floor, will contain spillage in the event of tank rupture.

In the event of a pipeline leak in the waste fuels area of the facility, the Emergency Coordinator, or designee, will instruct the Shift Supervisor to coordinate the termination of pumping and closure of the flow valves immediately upstream and downstream of the rupture to minimize spillage. Repairs will be made and inspected prior to reinitiating pumping. The appropriate Shift Supervisor will be instructed by the Emergency Coordinator, or designee, to have the spillage cleaned up, or removed with absorbent material. The absorbent materials will then be inserted into a solids storage container for subsequent appropriate disposal.

In the event of a minor spill, the employee first identifying the situation will notify the Shift Supervisor, either directly or through the Control Room Operator. The Shift Supervisor will then contact the Emergency Coordinator. It is important to note that the Shift Supervisor is often a Secondary Emergency Coordinator. In the event that a Primary Emergency Coordinator is not available, the Shift Supervisor or other Secondary Emergency Coordinator will oversee the clean-up of the minor spill and will address handling and disposal of the absorbent material. If a Primary Emergency Coordinator is available, that Primary Emergency Coordinator will instruct the Secondary Emergency Coordinator and other appropriate personnel in the actions to take and the clean-up efforts. For minor spills, it may not be necessary for the Primary Emergency Coordinator to be present at the site before or during clean-up activities, but the Primary Emergency Coordinator will follow-up with the Shift Supervisor and other personnel during the

following business day to ensure that proper procedures were followed and complete the necessary paperwork.

If any event occurs on site that may endanger human health or the environment, or provides instances of non-compliance with the Hazardous Waste Management Permit (PAD002389559) (Hazardous Waste Permit) for the Site, Keystone is required by the Hazardous Waste Permit to contact the PADEP within twenty-four (24) hours from the time that the circumstances were initially observed. A written submission shall be provided to PADEP within five (5) days (although the PADEP may extend it to 15 days) of the time that Keystone became aware of the circumstances. All submissions and reports must comply with all applicable reporting requirements established in the Hazardous Waste Permit.

IB.1.1 Notification/Reporting Requirements

In the event of a major spill, the Emergency Coordinator will assume control of the situation. However, when the Emergency Coordinator is not present at the Site or unable to immediately assume the emergency coordination duties, the Shift Supervisor or other available Secondary Emergency Coordinator will act as the Emergency Coordinator until relieved by the Primary Emergency Coordinator. For the remainder of this discussion, the Emergency Coordinator, whether Primary or Secondary, or designee, will be responsible for performing the activities outlined within this section.

General notifications requirements are presented in **Exhibit B.1-1** | ***Notification and Reporting Procedures.*** This document is presented as an exhibit to the Plan - structured to provide an overview of key emergency response actions and formatted to post for ready use and access.

Requirements and actions specific to particular situation are given additional detail in the discussion which follows.

Waste Fuels Operations Tank System Incident Documentation

1. The general items that must be documented are:
   - Reporter name/date;
   - Incident date/time;
   - Incident description;
   - Kinds and quantities of materials involved;
   - Injuries;

- Potential hazards to human health and/or environment;
- Immediate actions taken;
- Investigative actions taken;
- Description of system repairs, if any;
- Actions taken to prevent future occurrence;
- System integrity; and,
- Confirmation of Keystone management and PADEP notification, if necessary.

2. A release to the environment outside secondary containment that cannot be quantified or is equal to or greater than one pound must be reported to the PADEP within 24 hours of its detection.

3. Incidents, which include waste solidification, polymerization, physical/chemical reactions, or system component malfunctions that require major repairs, must be reported to the PADEP within 24 hours of their detection.

4. Within 30 days of detection of an incident requiring 24-hour notification, a report shall be submitted to the PADEP.

Aboveground Storage Tanks, Drums, and Other Containers

This subsection applies to spills from aboveground storage tanks (ASTs) and other containers used at the facility containing hazardous wastes, a regulated substance pursuant to the Pennsylvania Storage Tanks and Spill Prevention Act (Act 32 of 1998). As part of Act 32 of 1998, the PADEP adopted regulations establishing release confirmation, release reporting and corrective action requirements for owners and operators of regulated aboveground and underground storage tanks. The formalized regulation (25 PA Code Chapter 245.301-245.313) known as the Corrective Action Process (CAP) went into effect August 21, 1993, which provides the necessary actions to abate risks to human health and the environment, and the necessary steps to prevent further migration of the released substance into the environment.

The CAP regulations define a reportable release as: "A quantity or an unknown quantity of regulated substance released to or posing an immediate threat to surface water, groundwater, bedrock, soil or sediment." The reportable quantities for various types of wastes, as required by 40 CFR 302 are the amounts or quantities of release or discharge that is allowable before notification is required. The current listing of reportable quantities is presented in Table 18. As soon as it is acknowledged that a release or discharge of a hazardous substance has occurred, and is in a quantity equal to or exceeding the reportable quantity, the National Response Center (800) 424-8802; in Washington, DC must be notified within a 24-hour period.

General details common to determining circumstances and requirements for the notification of releases from storage tanks and containers are included within in **Exhibit B.1-1** | ***Notification and Reporting Procedures***.

In the event that a regulated or hazardous substance is released from storage above an amount equal to or exceeding the reportable quantity for that substance pursuant to 25 PA Code 245, which references the reportable release quantities determined under Section 102 of the federal Comprehensive Environmental Response, Compensation, and Liability Act (codified in 40 CFR Part 302) and Section 311 of the federal Water Pollution Control Act, the following parties must be notified:

- Pennsylvania Emergency Management Agency (PEMA);
- Emergency Coordinator for the Local Emergency Planning Committee (LEPC); and,
- National Response Center (NRC).

The reportable quantities for all hazardous substances listed in 40 CFR Part 302 range from one pound to 5,000 pounds depending on the material released. Table 18 presents a listing of all hazardous wastes approved for use as fuel on-Site, with the associated reportable quantity specified in 40 CFR Part 302. Following a reportable release of any of these substances, a Follow-Up Written Emergency Notice shall be submitted to PEMA and the LEPC within 14 days of the release. The follow-up notice will update the oral notification and include additional information with respect to:

- Actions taken to respond to and contain the release;
- Any known or anticipated acute or chronic health risks associated with the release;
- Advice regarding medical attention necessary for exposed individuals; and,
- Actions to be taken to mitigate potential future incidents.

PADEP Notification

If an incident occurs that involves an imminent or potential threat to public health, welfare and safety, notification should be made to PADEP. The procedure for such notification is detailed within in **Exhibit B.1-1** | *Notification and Reporting Procedures*.

IB.1.2 List of Emergency Coordinators

In case of a major release, spill or fire at the liquid waste fuel area or any of the related operations areas, the Primary Emergency Coordinator has the authority to implement the PPC Plan backed by the full resources of the company. The duties and responsibilities of the Primary Emergency Coordinator are detailed in the Section B.2, *DUTIES AND RESPONSIBILITES OF THE COORINDATOR.*

The Shift Supervisors, all Secondary Emergency Coordinators, and the majority of operating personnel have been instructed to notify the Primary Emergency Coordinator in the case of any major incident, such as fire, explosion, or a major spill. In the event of any incident, the employee discovering the incident will immediately notify the Control Room. The Control Room Operator would then contact the Shift Supervisor who in turn will contact the Primary (or Secondary if the Primary is not available) Emergency Coordinator who would assess the situation and decide whether to implement the PPC Plan.

Listings and contact information for all of the designated Primary and Secondary Coordinators are presented in **Exhibit B.1-2** and **Exhibit B.1-3**. Exhibit B.1-2 presents the Keystone ***Emergency Coordinator Phone Listing*** and Exhibit B.1-3 provides ***Emergency Coordinator Contact Information Details,*** respectively. These documents are formatted to provide ready use and access and may be separately posted/display from this Plan.

The revision of each document is current as of the time of the most recent Plan – with this number/date identified within the footer of each exhibit.

IB.2 DUTIES AND RESPONSIBILITIES OF THE COORDINATOR

The two (2) listed Primary Emergency Coordinators are the Plant Manager and the Manager, Environmental Compliance. The Manager, Environmental Compliance is responsible for all operations within the facility that pertain to the hazardous waste materials (i.e. storage tanks, fuel material transports and kilns). He ensures that correct operational procedures are being followed and that proper health and safety measures are provided. The Plant Manager oversees the entire plant to ensure that production is maintained and that operational procedures are followed, including coordination of training activities for facility personnel through the assistance of the Safety Director and Manager, Environmental Compliance. In addition, with the backing and support of plant management, the Manager, Environmental Compliance works to enforce all

applicable standards and regulations within the plant to meet local, regional, state and federal guidelines and regulations required to effectively manage the plant.

The Primary Emergency Coordinator, or in the case of his absence or inability to assume the emergency coordination duties, the Secondary Emergency Coordinator, has the following duties and responsibilities in the event of an incident. The Emergency Coordinator may designate appropriate personnel to perform specific tasks. The Emergency Coordinator, or designee, will identify the problem, assess the potential health and environmental hazards, and notify the appropriate response groups and regulatory agencies, if necessary. He, or his designee, will also contact the appropriate people involved in making response actions, corrective actions, and repairs.

The Emergency Coordinator, or designee, will instruct the designated plant personnel to perform specific activities associated with the nature of the emergency. For example, he may request that the designated personnel assume positions at the plant entrances. These individuals will then have the responsibility to work in conjunction with the Fire or Police, as necessary, to do the following:

- Direct the emergency personnel to the incident site and control traffic and parking in order to promote easy access for emergency vehicles;
- Refuse entrance onto plant property to all unauthorized persons; and,
- Courteously refuse entrance and direct members of the news media to the plant office conference room or other designated location where the Vice President of Operations, the Plant Manager, and/or other company management personnel will be responsible for handling the media in an emergency. All questions and requests for information will be handled by these individuals.

Under the direction of the Shift Supervisor, the Control Room Operator will attempt to maintain an accurate log of event communications and notifications as they occur including the time, people, instructions, requests, etc. The Operator will also notify the Emergency Coordinator of ongoing developments.

The Keystone facility has prepared for and taken steps to prevent hazards by implementing inspection procedures, installing emergency equipment, making arrangements with local response groups, following storage and accessibility guidelines, and establishing a command structure which provides emergency and operational authority in the various sections of the facility. Internal communication devices exist in sufficient numbers and locations within the facility to allow easy access and communication with all personnel, in particular, to Supervisors and Emergency Coordinators at the time of an emergency or other hazard.

IB.3 CHAIN OF COMMAND

In the event of an emergency, the person making the discovery will notify the Shift Supervisor, either directly or through the Control Room Operator. The Shift Supervisor will then contact an Emergency Coordinator. The Emergency Coordinator, or designee, will contact the appropriate corporation officers and other emergency coordinators as previously listed if necessary. The PPC Plan chain of command is depicted in Table 3.

IC. SPILL LEAK PREVENTION AND RESPONSE

IC.1 PRE-RELEASE PLANNING

Keystone receives and stores liquid hazardous waste fuels. The fuels are delivered to the facility in tank trucks which are unloaded on an unloading pad shown on Figure 2A. The truck unloading pad is constructed of concrete with appropriate curbing and coating to serve as secondary containment. If a railcar unloading facility is constructed, the railcar unloading pad will be of equivalent construction. From the unloading pads the fuels are piped to any of the waste fuel storage tanks. The tanks are all located within secondary containment structures capable of holding the entire contents of a tank along with the rainfall resulting from a 25 year, 24 hour storm event. In addition, the liquid transfer pipes and pumps connected to the solvent fuel storage tanks are equipped with secondary containment and/or leak detection devices in locations with increased potentials for leaks. From the storage tanks, the fuels are piped directly to the cement kiln, where they are combusted for their fuel value.

With the secondary containment systems identified above in place, the possibility of a major spill from the waste fuel operations is minimized and contributions to storm water pollution from the kilns, storage tanks, and unloading areas are unlikely. Keystone implements a detailed daily system inspection program and has continuous process monitors as well as surveillance cameras in the waste fuels areas. Any minor leaks that could occur from pumps or piping should not be of sufficient volume to preclude cleanup without being contained in the immediate spill area. However, should a major spill occur outside of a containment area, the material would follow the site storm water drainage pattern as indicated on Figure 2A.

The two temporary hazardous waste storage areas (<90 days) on-site are also bermed to prevent storm water run-on and runoff. Therefore, contributions to storm water pollution from these areas are unlikely.

Overall flow patterns of surface runoff through and around the site of the main cement plant, the truck parking area, the truck staging area, and the truck access roads generally drain easterly from the east side of Route 329 with the southern and northern sections of the plant site divided by a "ridge" line running easterly from the Locker Room/Laboratory Building to the area of the former Warehouse Buildings beneath the rotary portion of the new cement kiln. These areas are mostly paved. Existing surface drainage, except for limited runoff into the swale along the north side of the truck access road, is diverted into two (2) existing holding/detention basins: one located just east of the cement kiln stack (North Storm Water Detention Basin) and the other one at the southeast corner of the cement plant site near the railroad (East Storm Water Detention Basin). As soon as practicable following a release at the main cement plant, the truck parking area, the truck staging area, and the truck access roads, Keystone will take steps to contain the extent of the release and avoid entry into the facility's storm water management system by using spill booms, absorbent materials, or other appropriate response equipment. Should a regulated substance that is spilled enter storm water runoff, the plant will promptly deploy absorbent spill booms to contain the material and to prevent any further migration.

Existing drainage facilities within the operational area of the Keystone plant generally consist of a combined system of swales, drainage troughs, culverts and inlets. A storm drainage trough located in the area between the Power House and the former No. 1 Cement Kiln collects surface and building drainage from the southern half of the plant area and drains into a system of culverts and inlets that divert surface water flow into a pump pit just east of the new cement kiln. From this collection point, inflow is conveyed northwardly into the holding basin located east of the cement kiln stack. Similarly, the swales, culverts and inlets in the northern section of the plant area collect and convey surface and building drainage into the holding basin east of the kiln stack.

Drainage from the areas east and west of the Bulk Cement Silos and Loading Station situated at the southern most area of the plant site generally flow eastward and drain into the East Storm Water Detention Basin located at the southeastern corner of the plant site. Overflow from the basin ultimately drains into the Monocacy Creek via a spillway and culverts beneath the railroad.

Surface runoff not collected by the storm water management system within the plant areas flows eastward into two (2) existing drainage swales. The swale located south of the East Storm Water Detention Basin drains into the Monocacy Creek. The northern swale, which runs eastward along the north side of the main truck access road on the west side of the railroad tracks, diverts surface drainage into the Monocacy Creek.

The layout of the cement plant provides for the tanker trucks to enter and exit the Site along a main access road leading from Route 512. This main access road traverses the Monocacy Creek over a concrete bridge. The reduced speed limit reduces the risk of tanker trucks leaving the roadway and entering the Monocacy Creek. Trucks are required to maintain the required speed along the access road, and not park along this portion of the roadway, thus minimizing the risk of spill into the Monocacy Creek. In the event that a spill occurs along the main access road in the vicinity of the Monocacy Creek, the Control Room will be immediately notified of the spill and immediate response will occur. Portable booms will be strategically placed downstream of the spill to prevent spill from reaching the Monocacy within the Monocacy Creek to create dams to contain the spill. As described in ID.1.2 a spill of this type will likely be a Class A or B Degree of Danger and outside assistance would be contacted to assist in maintaining the spill.

The design of the hazardous waste unloading and storage areas virtually eliminates the potential of any contact storm water runoff. All unloading areas are constructed of structural concrete or equivalent material with a coating and are curbed to provide secondary containment and collection of storm water. In addition, all tank areas are provided with secondary containment. All unloading facilities and tank secondary containment areas are equipped with a sump pit. Any storm water collected in these areas is sampled and analyzed for listed hazardous constituents and hazardous characteristics. In accordance with revised SOP WF-12, collected water determined to be hazardous is either manifested and shipped off-site to a permitted treatment, storage, and disposal facility (TSDF) or placed into the tank farm and combined with the waste fuel and fired in the kiln, following testing for the waste fuel acceptance parameters. Following testing in accordance with SOP WF-12, stormwater meeting the testing criteria can be used for re-use in cooling water or for other purposes. Liquid in the containment area resulting from a known leak or contamination event will be directly disposed of off-site or returned to the hazardous waste fuels storage tanks. Non-hazardous storm water is stored in the storm water tanks to the west of the truck unloading area or in the former slurry tanks and will be used for dust control, cooling water tower or other appropriate on-site uses.

IC.2 MATERIAL COMPATIBILITY

The materials normally handled and stored in each of the plant areas outside of the waste fuels operations are typically stored and handled individually including isolated spill containment. Therefore, incompatibility of these materials is not considered an issue.

Keystone's hazardous waste fuels storage tank system has been designed for handling the types of waste fuels identified in Section IA.3.1 of this plan. In addition to only accepting waste fuels that meet the acceptance criteria of the facility's RCRA Part B permit and Clean Air Act Operating Permit, Keystone implements detailed standard operating procedures (SOPs) to ensure that the fuels received are compatible with each other. The facility has compiled a "Waste Fuels Operations Plan" document that details all of the operations and includes the related SOPs for waste fuels compatibility testing. The following summarizes Keystone's approach for addressing potential compatibility issues:

1. It is the duty of the original shipper (Department of Transportation regulations) to ensure that the wastes are compatible with the equipment used for transportation to the site;
2. Prior to unloading, a representative sample from each shipment is tested for compatibility with the contents of the material in the tank in which it will be stored. Additionally, a sample from each load will be tested for compatibility with all fuels in the storage facility. These testing procedures, including sample size, frequency, and location, are detailed in the facility's Waste Fuels Operations Plan; and,
3. Shipments of waste found to have adverse effects on process equipment, pollution control equipment, or quality of the final product, will not be accepted.

IC.3 INSPECTION AND MONITORING PROGRAM

Spill and leak prevention is a primary goal of the PPC Plan. At Keystone, spill prevention is accomplished through proper maintenance of equipment and systems, good housekeeping practices, security policies, tank inspections, and education of employees on the proper handling of all materials including hazardous materials.

Keystone conducts regular inspections of the hazardous waste areas for equipment malfunctions, structural deterioration, operator errors, uncontrolled runoff, spills, and other situations that could cause the release of hazardous waste constituents. The purpose of the inspections is to detect potential problems and correct the situations before releases occur. Liquid level gauges are installed on all of the hazardous waste fuel storage tanks in addition to conservation vents and flame arresters.

High level alarms are installed on all of the hazardous waste fuel storage tanks to prevent overfilling, and these alarms are closely monitored. A siren alarm and flashing red light alerts the operator of a high level condition and automatically shuts down the unloading pumps. Keystone also monitors and inspects the carbon adsorption systems that control organic vapor emissions from the waste fuel storage tanks.

As part of the hazardous waste area inspections, Keystone also inspects the containment structures used to prevent storm water contamination. The integrity of the structures is inspected, and the areas are checked for accumulation of waste materials and storm water. The results of the inspections are noted on inspection logs and repair and/or liquid removal activities are instigated in a timely manner.

Records of inspections and the inspection schedule are kept on-site. Section 9 of Keystone's Waste Fuels Operations Plan details the inspection and maintenance procedures for the hazardous waste fuels tank systems and includes detailed SOPs. The following subsections provide an overview of the facility's inspection and monitoring program.

IC.3.1 Frequency of Inspection

The major systems described in previous sections of this PPC Plan for minimizing and/or containing spills and other releases, and for responding in the event of emergencies are routinely inspected. In addition, a more detailed inspection process is incorporated for the waste fuels operations as described below.

Table 4, reprinted from Section 9 of the Waste Fuels Operations Plan, presents the planned schedule for inspecting the monitoring, safety, emergency, security, and operating equipment and systems. The items listed in Table 4 are considered important because of their role in preventing, detecting, or responding to environmental or human health hazards. Along with the schedule for inspection, the appropriate SOP for the item to be inspected is identified. All of the SOPs are included in the facility's Waste Fuels Operations Plan. The frequency of inspections is based on the need and the effectiveness of an inspection to prevent the occurrence of an uncontrolled event, in addition to the regulatory requirements.

IC.3.2 Inspection Procedure and Recordkeeping

Inspection duties are assigned to specific individuals who have been trained in inspection requirements. These individuals are under the direct supervision of the Plant Manager, who is responsible for confirming that the inspections are properly conducted.

Each regulated process system has its own inspection report form that describes items to inspect and the types of problems for which to look. If problems or the need for repair are not observed, the inspector signs the form and files it in the central file location designated for "acceptable" inspections. If any unacceptable situation is observed (e.g., repairs are needed), a notation is made by the inspector, a copy is kept by him in his separate "repair" file, and a copy is given to the appropriate maintenance or operation supervisor for repairs or corrections.

Inspection of the storm water outfalls and sediment and erosion control measures at the facility are discussed in Section IG.

IC.3.3 Remedial Action

If inspections reveal that non-emergency maintenance is needed, repairs will be completed as soon as practical in order to prevent equipment damage, safety problems, or accidental release of hazardous materials. Proper maintenance also reduces the need for emergency repairs. If a hazard is imminent or has already occurred as noticed during the course of an inspection, or any time between inspections, remedial action will be taken immediately. Keystone personnel will act in accordance with this PPC Plan to notify the appropriate authorities and initiate any emergency remedial actions as required.

In the event of an emergency involving the release of hazardous constituents to the environment, efforts will be directed towards containing the hazard, removing and arranging for appropriate disposal of hazardous constituents, and subsequently decontaminating the affected area, as outlined in Section IB.

IC.3.4 Recordkeeping and Inspection Forms

Specific components of the hazardous waste fuel systems which must be inspected during the facility inspections are noted in Table 4. The daily, weekly, monthly, quarterly, and yearly inspection forms are included in the facility's Waste Fuels Operations Plan. Findings of the inspections will be recorded on the appropriate facility inspection form along with the name and title of inspector, date of inspection, observations, and remedial action.

IC.4 PREVENTIVE MAINTENANCE

For preparedness and prevention, Keystone has demonstrated its conformance with 40 CFR 264.32 by being equipped with the following items:

- Internal communication or alarm system;
- Telephone and hand-held two-way radios;
- Portable fire extinguishers, fire control equipment (i.e., foam suppressant system) spill control equipment, and decontamination equipment; and,
- Water at adequate volume and pressure.

The location of the response related items (except fire extinguishers) are located on Figure 6, and a summary of this equipment is presented in Table 19.

Visual inspections of all secondary containment structures throughout the facility are conducted on a regular basis to ensure that the structure will contain any material that leaks out of its container. The specific areas discussed in Section IA.3 are individually inspected and monitored to make sure that their respective emergency response items and up-to-date Safety Data Sheets (SDS) are available on-site. All storage tanks and drums are inspected for leaks or damage. Fire extinguishers are routinely inspected and maintained in a usable and operative condition in accordance with Mine Safety and Health Administration (MSHA) requirements (30 CFR Parts 56 and 57).

As preventive maintenance, Keystone has installed several response related systems, equipment and signaling devices throughout the facility to protect the public and the environment. In particular, the areas that contain hazardous waste are protected by several emergency response components that are strategically placed to provide adequate coverage of the areas. The locations of the response related systems and equipment are shown on Figure 6. The areas that handle the unloading and storage of hazardous waste materials within the facility are equipped with secondary containment structures to contain any potential spills. In addition to the secondary containment structures, there are materials, equipment and systems including fire suppression hoses located within the vicinity of these areas to provide additional preventive measures. In the area of the fuel tanks, there is a fire suppressant foam system consisting of nozzles located within the secondary containment areas and hose reels. The foam system is manually activated using

pull switches which are shown on Figure 6. Fire suppressant hose reels are also located in the area of the main tanker truck unloading area

A fire hydrant is currently located in the area of the former cement Kilns All fire hydrants within the Keystone facility are inspected and maintained by Associated Fire in Nazareth, Pennsylvania. According to East Allen Township the design requirements for the fire hydrant system should be 500 to 1000 gpm operating at 50 to 100 psi. As shown on Figure 6, the existing fire hydrant is supplied by a 75 horsepower pump which draws water from the reservoir.

At the hazardous waste fuels operations areas, visual inspections of the storage and pumping areas are made daily. Piping systems and valving are closely monitored for leakage. Loss of fluid pressure is indicative of a worn pump. Worn pumps are taken off the line and repaired immediately.

The preventive maintenance of Keystone's storm water management system is discussed in Sections IF and IG.

Keystone's preventative maintenance program is considered part of the normal inspection and maintenance procedures addressed in detail in Section 9 of the facility's Waste Fuels Operations Plan and discussed above in Section IC.3 of this PPC Plan.

IC.5 HOUSEKEEPING PROGRAM

Minor spills at any of the areas discussed in Section IA.3 are cleaned up, and the spill material is stored in the flammable or hazardous waste solid storage container for proper disposal. Roadways by the storage containment dikes are kept clean and open for accessibility. Furthermore, Keystone maintains a clean and orderly facility to prevent potential pollutants from contacting storm water runoff.

Keystone's housekeeping program is considered part of the normal inspection and maintenance procedures addressed in detail in Section 9 of the facility's Waste Fuels Operations Plan and discussed above in Section IC.3 of this PPC Plan.

IC.6 SECURITY

Keystone employs general security measures relative to all facility operations. The type and number of security measures in use is dependent on the location within the facility as identified below. However, the overriding security measure for the Site is acquiring access to the facility. All site visitors are required to check in at the time of entry to the plant and required to be approved by Keystone personnel. While on-site, visitors are escorted by Keystone personnel. Contractors working on-site without constant supervision by Keystone personnel must receive training including instruction relative to this PPC Plan.

Keystone currently has in place a badge identification system where contractors have a helmet ID, employees have an ID badge, and visitors are required to have a visitor badge.

The chance of unknowing and/or unauthorized entry into the hazardous waste management system areas is reduced by Keystone's security systems. If unauthorized persons are found around or in the process area they will be stopped and challenged, and the appropriate actions will be taken, including contacting the local authorities if necessary. Under normal conditions local authorities can respond to calls within approximately 5 minutes. Keystone utilizes a 24-hour surveillance system in the form of video cameras that monitor the existing hazardous waste facilities including the solvent receipt and storage areas.

All of the waste fuel operations are considered one area. Key sections are under the constant visual monitoring of the cameras. The monitoring screens are located in the control room for the cement kiln, which is manned continuously while in operation. Additional monitoring screens are located in the Resource Recovery trailer. The cement kiln cannot be operated without the continual monitoring of the equipment, precluding unattended operation of the hazardous waste management systems. The television monitoring system is a 24-hour direct observation system. The entire hazardous waste management area is lighted to provide television monitoring system coverage at all hours of the day. If the lighting is ever inoperable, operating personnel are instructed to patrol the waste management area.

Keystone inspects all piping and valve connections to minimize the potential to release the contents of any tank by opening a valve. Keystone has attempted, when practical, to hardpipe, lock-out, or fit with a plug or blind flange all valves associated with the hazardous waste fuel system to prevent malicious or accidental release of a tank's contents.

For the purpose of controlling time of delivery and direction of fuel pumping into the hazardous waste management area, locking mechanisms are installed on the unloading pump starter. The locking mechanisms are manually unlocked by Keystone personnel at the start of each day of deliveries, and it is normal practice to lock the mechanisms at the end of the day. Thus, although the pumps are energized, they are in standby mode and must be manually started by Keystone personnel prior to unloading each truck of waste fuels. Also, unloading operations are monitored by an attendant at the tank truck.

Warning signs, which are legible from a distance of 25 feet, are posted in the hazardous waste fuel process area with the following messages:

- **"NO SMOKING"**
- **"NO ADMITTANCE AUTHORIZED PERSONNEL ONLY"**

These signs are posted according to RCRA regulations. All signs are printed in English.

Keystone personnel are instructed to report any unusual activities or suspicious persons to the supervisor. The supervisor is required to inspect the site to check for evidence of intruders, potential hazardous waste releases to the environment, and any other problems. If any such problems are observed, the supervisor will take appropriate measures to remedy the situation.

IC.7 EXTERNAL FACTOR PLANNING

In the event of a power failure, all pumps stop. Accordingly, all material processing, flow and/or transfer of materials also stops. Check valves and other fail-safe devices in critical system components hold materials in place and prevent backflow or siphoning. The foam fire fighting system in the hazardous waste fuel storage area is tied to the plant's emergency generator and will not be affected in the event of a power failure.

The entrance road from Route 512 is the only portion of the facility within the 100-year flood plain. All RCRA activities at the Keystone facility are outside the 100-year flood plain. The closest hazardous waste management area to the floodplain, the planned truck/railcar unloading and waste fuels storage area (RCRA-permitted units not yet constructed), is planned to be greater than 200 feet from the 100-year floodplain boundary. Therefore, there are no structures specifically designed and constructed to divert floodwaters or modify the effects of a flood. If

flood waters render the main access road from Route 512 unusable, traffic will be redirected to enter the site by the access road from Route 329.

IC.8 EMPLOYEE TRAINING PROGRAM

The information contained in this section outlines Keystone's personnel training program in accordance with the requirements in PA Code 264a, which incorporates by reference Title 40 of the Code of Federal Regulations (CFR) Part 264.16, the current PADEP air operating permits, and the applicable MSHA hazard communication regulations of 30 CFR Parts 46 and 47. Keystone is under the regulatory auspices of the MSHA and therefore closely follows the requirements of that agency.

The intent of the personnel training program is to ensure that Keystone employees have the necessary knowledge and training to safely and properly manage all plant operations including, but not limited to, the hazardous waste operations, kiln operations, air pollution control equipment, and monitoring systems so as to assure compliance with applicable state and federal regulations and in a manner that minimizes hazards to human health and the environment. Upon completion of training, Keystone personnel are able to respond effectively to emergencies by being familiar them with emergency procedures, emergency equipment, and emergency systems. Key individuals who are involved in the management and handling of hazardous waste are trained in areas pertinent to their duties. These individuals include personnel involved with the operation of the Kiln, ancillary equipment and CKD management. This training includes RCRA requirements.

IC.8.1 Outline of Training Program

All Keystone employees receive training in both safety and manufacturing procedures. Detailed information and SOPs for the training program for the waste fuels operations are included in Section 10 of the facility's Waste Fuels Operations Plan. The safety training consists of general concepts and response to emergencies and is outlined herein. Keystone is under the regulatory auspices of the MSHA, and the company follows the requirements of that agency. Keystone uses on-the-job training for most job functions. Those functions are based upon job titles and include maintenance, equipment operation and management functions.

The Keystone training program has been organized to instruct personnel in the pertinent portions of the overall scope. The general topics covered in the program follow:

- Waste fuels operations SOPs;
- Plant communication and alarm systems;
- Systems emergency shutdown and contingency procedures, including hazardous waste fuel cut-off through interlocks triggered by certain parameters required by RCRA Part B and Clean Air Act Title V regulations;
- Response to fires, including location and use of fire extinguishing equipment;
- Plant emergency evacuation procedures;
- PPC Plan implementation, including Keystone's storm water pollution prevention goals;
- MSHA 30 CFR Parts 46 and 47 (hazard communication);
- Location, usage, maintenance, and repair of available safety equipment for personal protection such as rubber gloves, face shields, respirators, boots, rubber aprons, rubber jackets and hoods with air supply systems.

IC.8.2 Title/Job Description

In the cement manufacturing operation, most employees have no involvement with hazardous waste management. These employees typically receive on-the-job safety training. Certain employees have only indirect involvement with hazardous waste management. This latter group includes supervisors and/or management personnel who might be involved in an emergency response. Others are involved directly with hazardous waste management. Key individuals who are involved in hazardous waste management are trained in areas pertinent to their duties. Table 5, reprinted from Section 10 of the Waste Fuels Operations Plan, identifies the positions requiring training and the specific SOPs included in the training. As new SOPs are developed, they are added to the training program.

Employees who do not have any direct responsibility for the handling or ultimate disposition of hazardous waste only receive training related to their job and general facility safety procedures.

IC.8.3 Initial Training Period

Within six months of assignment, all newly hired, transferred, or cross-trained personnel receive classroom instruction and/or on-the-job training that relates specifically to their assigned duties (40 CFR 264.16). All existing personnel have already received the appropriate level of training or are currently enrolled in the training program.

Mastery of specific job skills and procedures is accomplished through supervised on-the-job activities. In general, all newly hired, transferred, or cross-trained facility personnel will be assigned to assist fully trained, experienced personnel as they perform their jobs. New employees will often temporarily assist in activities, which are peripheral to their primary job function so that they gain a more complete appreciation of the overall operation of the facility. Supervisory personnel observe and evaluate the performance and competence of the trainees over the course of their apprenticeship.

IC.8.4 Annual Training Review

At least once annually, Keystone employees involved in the waste management activities undergo refresher training. This course has been developed to document competency in the waste related job function including emergency response. Annual training on emergency procedures is provided for all operations personnel.

Annual training includes an overview of RCRA and PADEP permit requirements, a review of the PPC Plan, OSHA HAZWOPER procedures, and specific implementation procedures for the facility in the event of an emergency. Discussion of specific hazardous waste handling procedures relevant to the individuals in the training session and their responsibilities are also discussed.

In addition, emphasis is placed on discussions of any changes in wastes, equipment, operations, procedures, or regulations that affect the PPC Plan and emergency response activities. Personnel attending the class review and discuss in detail any operational concerns, difficulties, malfunctions, incidents, or regulatory compliance problems that occurred in the previous year. This training is typically done through a review of the SOPs.

Regularly scheduled safety meetings at the plant also provide an avenue for disseminating information relevant to hazardous waste management and specific company policies and procedures related to hazardous waste management.

In the management of hazardous waste, specific training is required of personnel handling the hazardous waste. This training includes such items as the identification of hazardous waste, requirements for the transportation of hazardous waste, and health and safety, to name a few. A more complete listing of the content and items covered in the typical Keystone annual hazardous waste training course is contained in Appendix I.

IC.8.5 Training Directors

Keystone's Safety Manager serves as the Training Director and coordinates training activities for facility personnel. There may be instances where Keystone may employ a contractor/consultant to provide the required training. The Training Director may also incorporate the use of outside contractors for training of personnel. The Manager, Environmental Compliance, Environmental Compliance Coordinator, and Resource Recovery Manager have the requisite experience in training for hazardous waste management and plant safety procedures. Typically, qualifications would be a degree in one of the sciences or suitable experience in health, safety, environmental compliance and/or supervision, or relevant experience.

IC.8.6 Relevance of Training to Job Position

Comprehensive training of both RCRA and hazardous waste materials management regulations and permit requirements is provided to all waste management personnel. Unique and specific training applicable to specific positions is conducted mainly through on-the-job training and review of SOPs.

IC.8.7 Training for Emergency Response

Facility personnel receive training in implementing the PPC Plan, both during initial training and during the annual review. They are familiar with emergency procedures, equipment, and systems and will be able to respond promptly and safely should the need arise.

The training program includes the following safety items:

- Procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment;
- Communications and alarm systems;
- Response to fires and explosions;
- First aid; and,
- Shutdown of operations.

IC.8.8 Implementation of Training Program

Regulations require that certain records relating to the training of hazardous waste facility personnel be maintained at the facility. Keystone complies with these regulations by maintaining the following items:

- Job title for each position at the facility relating to hazardous waste management;
- Name of each employee filling a hazardous waste management position; and,
- Written job description for each position including responsibilities and qualifications required of the position.

Training records of active personnel will be kept until closure of the facility. Training records on former employees will be kept for at least three years from the date the employee last worked at the facility.

ID. COUNTERMEASURES

ID.1 COUNTERMEASURES TO BE UNDERTAKEN BY FACILITY

ID.1.1 Waste Fuels Operations

This section describes special protective and incident-preventive procedures, devices and systems planned for use in the hazardous waste area in the event of a release. These devices and procedures are designed to account for the high degree or care which needs to be taken when handling hazardous wastes, to protect the health and safety of personnel, and to prevent environmental impacts.

Vehicle Transport Emergency Response

The possibility of a release from a transport vehicle (tanker truck) outside of secondary containment exists. The release would need to be contained using portable spill equipment or by making emergency containment structures out of earth, CKD or other materials. Depending on the release location, measures may be required to contain a release that has reached the Monocacy Creek A release of this type would be considered a Class A or B Degree of Danger and require outside assistance and emergency notifications.

Aisle Space Requirements

Keystone allows for sufficient aisle space as defined in NFPA 30 and related standards around all waste fuel areas in the event of an emergency. Unobstructed access is maintained for all waste fuel areas that are located outside. This clearance provides maneuverability between the tanks by the employees for inspection. In the unloading area of the tanker trucks, the trucks are situated to allow the movement of employees between the trucks to chock the wheels, inspection of the tanker truck and for movement to perform the required sampling procedures.

Liquid Waste Unloading and Loading Operations

All personnel overseeing the unloading of bulk liquid wastes will be instructed by the supervisor, or his designee, as to the proper safety equipment to be worn during off-loading of material. After quality control inspection and acceptance, each delivery truck will be directed, under the guidance of site personnel, to the designated unloading area. The containment volumes of the unloading areas have been designed to provide sufficient containment of any accidental spill or leak. The truck or railcar will be positioned in a stable position prior to unloading. If the material is ignitable, the Keystone employee supervising the unloading will confirm that all sources of

sparks and open flames are removed from the working area. The truck or railcar will be grounded to reduce the possibility of static electrical discharge. All hose and piping connections will be secured and checked. All valves involved will be checked for proper operation. Drip buckets will be positioned under primary disconnection points to collect material not fully discharged. If all connections and valves are in proper operating condition, the truck or railcar will be unloaded. The tank or railcar number, quantity, and the manifest number of the waste shipment will be recorded.

Response Related Systems and Equipment

The Keystone site has employed countermeasures to prevent the potential contamination to the public and the environment. Several response related systems, equipment and signaling devices are located throughout the facility, as indicated on Figure 6. These items include, but are not limited to:

- Fire sprinkler systems;
- Fire extinguishers;
- Fire hydrants;
- First aid kits; and,
- Safety Data Sheets (SDS's)

In addition to these items, the areas that handle hazardous waste contain specialty emergency spill and fire response equipment such as:

- Absorbent Material;
- Spill Booms;
- Foam Suppressant System; and,
- Over Pack Drums.

There is other equipment and systems on-site that are utilized during daily operations or are contingency equipment for specific systems on-site, which can also be utilized during an emergency response event.

Equipment Maintenance

Keystone utilizes a maintenance program to ensure proper operation of equipment. Maintenance recordkeeping forms are used for key pieces of operating equipment, including pumps, motors, tanks and instrumentation. Spare parts are kept available on-site for key equipment. Keystone

uses multiple storage units for storing hazardous liquid wastes. Consequently, should a storage unit be in need of repairs, it will not inhibit Keystone's ability to accept material.

Personal Protective Equipment

Personnel unloading bulk liquid containers of waste fuels are required to wear an assortment of PPE. The equipment list includes, but is not limited to, safety glasses, safety shoes, hard hat, protective clothing, and respirators. Other individuals in areas of incidental contact follow SOPs for proper safety equipment procedures. Keystone retains a large inventory of safety and respiratory equipment on-site, for use in handling the wastes that are to be managed at the facility.

Ignitable Wastes

The storage of ignitable wastes poses various handling problems. The following are areas of concern when handling such wastes.

1. Ignition

All operations, equipment, and nearby combustion sources will be managed so that the possibility of ignition is minimized. Personnel are trained to survey the work area for any sources of ignition or open flame. These sources must be removed from the work area. Smoking is not permitted in the hazardous waste area, and "No Smoking" signs are conspicuously posted.

2. Explosion Hazard

Liquid waste fuel areas are located outside, therefore an accumulation of vapors will not likely occur. Since all waste solvent tanks are closed tanks with vapors vented directly through a carbon canister or back to the truck being unloaded, vapor release to the environment is minimized.

3. Toxic Inhalation Potential

Personnel are instructed to assume that all wastes are toxic. Prior to handling any waste material where personnel contact is possible, all personnel will be directed to wear the appropriate safety and respiratory equipment.

In work areas dealing with toxic materials, the appropriate first aid, safety, and remedial action equipment will be present at the work site prior to initiation of work.

Whenever prolonged exposure to vapors is required, proper safety equipment will be worn. At a minimum, half-face respirators will be worn.

4. Toxic Skin Absorption

The potential for skin absorption is minimal. Whenever it is necessary to work on equipment which may have hazardous waste on it (i.e., pumps and level indicators), proper skin protection, such as coveralls and gloves, will be required.

5. Toxic Ingestion

There is little possibility of accidental ingestion of such materials. Employees are required to eat only in designated areas after washing hands.

Reactive Wastes

Keystone will not manage reactive wastes at the Bath, PA facility. The procedures described in the Keystone's Waste Analysis Plan are designed, in part, to identify and reject reactive wastes.

Incompatible Wastes

No incompatible wastes will be stored or treated with other incompatible waste at the Keystone site. Wastes will be tested by Keystone laboratory personnel for compatibility prior to acceptance and storage of the material, as described in Keystone's Waste Analysis Plan.

ID.1.2 Emergency Response

This subsection addresses the appropriate emergency response procedures to be undertaken by the Emergency Coordinator during an incident.

The general, response to an incident is detailed within **Exhibit D.1** | ***Facility-wide Incident Assessment and Response***. This document provides an overview of actions initiated by the First Responder through the coordination of the Emergency Coordinator – who shall assess the overall situation, determine the severity/class of the incident and direct the response efforts accordingly.

Individual responses to specific circumstances are discussed within this Section according to the type of incident and area of the facility involved.

General Emergency and Evacuation Response

The Control Room Operator or the Shift Supervisor will call the Emergency Coordinator (the Primary Emergency Coordinator or the Secondary if the Primary is unavailable). The Shift Supervisor will begin to direct personnel in appropriate response actions until relieved by the Emergency Coordinator and will call the fire department and other emergency response groups, if necessary (i.e., emergency vehicles are present or will be present on-site). The Emergency Coordinator, or designee, will in turn call the Plant Manager and appropriate corporation officers, activate the emergency horn with one long blast (if site evacuation is necessary), and call the response groups and regulatory agencies (if necessary).

The Emergency Coordinator, or designee, will make the following calls if necessary:

- Electrical Coordinator - to have him deenergize the equipment plus power to any circuits that may be endangered by a fire or other incident;
- Shift Foreman, or Designee - to close all flow valves to isolate the system;
- Labor Coordinator, or Designee - to obtain loaders and dump trucks to haul absorbent materials (i.e., kiln dust) to the scene;
- Emergency Response Clean-up Crew - to provide additional emergency response support (listed in Section ID.2); and,
- Additional Emergency Contacts (listed in Section ID.3).

Waste Fuels Operations Tank Incident Response

For Class C incidents in the waste fuels operations, the following response procedures shall be followed:

Spill and leak response actions

1. If the release was from a component (pipe, valve, pump, etc.) of a liquid pipeline;
    - Waste flow through the pipeline shall be immediately stopped and locked out. Inspect the system and all affected system components to determine the cause of the release;
    - Any waste material remaining in the isolated pipeline shall be removed within 24 hours after detection of the leak or in as timely a manner as practicable and managed as a hazardous waste;
    - Fugitive emissions of VOCs shall be monitored. If levels are ≥10,000 parts per million (ppm) for more than one hour, the PADEP Air Quality Division at the Bethlehem office shall be notified;

- If the material released was to a secondary containment area, released materials shall be removed within 24 hours or in as timely a manner as practicable in accordance with Keystone SOP "Containment Area Cleanup;" and,

- If the material release was to the soil, the release shall be immediately contained and cleaned. Additionally, if the release cannot be quantified or if the release to the soil or air is greater than the reportable quantity, the release shall be reported to PADEP within 24 hours; and a written report consistent with the requirements of 25 PA Code 264.196 (4)(iii) shall be submitted to PADEP within 30 days.

2. If the release was from a component (pipe, valve, flange, etc.) of a tank vapor control pipeline:

   - Vapor flow through the pipeline shall be immediately stopped, and the system and all affected components shall be inspected to determine the cause of the release;

   - The vapor line shall be purged with nitrogen;

   - Any waste material (condensate) remaining in the isolated pipeline shall be removed within 24 hours after detection or in as timely a manner as practicable and managed as a hazardous waste; and,

   - Fugitive emissions of VOCs shall be monitored. If levels are ≥10,000 ppm for more than one hour, the PADEP Air Quality Division at the Bethlehem office shall be notified.

3. If the release was from a component (manway, shell, pressure gauge, etc.) of a tank:

   - Flow of material into the tank shall be immediately stopped and the system and all affected components shall be inspected to determine the cause of the release;

   - Any waste material remaining in the tank shall be removed within 24 hours after detection or in as timely a manner as practicable and managed as a hazardous waste;

   - Fugitive emissions of VOCs shall be monitored. If levels are ≥10,000 ppm for more than one hour, the PADEP Air Quality Division at the Bethlehem office shall be notified; and,

   - If the material released was to the secondary containment area, released materials shall be removed within 24 hours or in as timely a manner as practicable and managed as a hazardous waste.

Inoperable Tank System Response Actions

1. If it is determined that a component of the liquid pipeline is inoperable (blocked line, faulty valve, etc.) or has affected the normal functioning of the system:

   - Waste flow through the pipeline shall be immediately stopped, and the system and all affected components shall be inspected to determine the cause of the inoperation;

- The waste fuel purging SOPs shall be followed to purge the line; and,
- Any waste material remaining in the isolated pipeline shall be removed and managed as a hazardous waste, if necessary, to facilitate investigation/inspection/repairs.

2. If it is determined that a component of the tank vapor control pipeline is inoperable (faulty valve, fan, etc.) or has affected the normal functioning of the system:

   - Vapor flow through the pipeline shall be immediately stopped;
   - The vapor line shall be purged with nitrogen; and,
   - Any waste material (condensate) remaining in the isolated pipeline shall be removed and managed as a hazardous waste, if necessary, to facilitate investigation/ inspection/repairs.

3. If it is determined that a component of a tank is inoperable (solids, faulty monitors, etc.) or has affected the normal functioning of the system:

   - Unloading of material into the tank shall be immediately stopped;
   - In the event peroxides are detected in a storage tank, tank agitation shall be stopped until the peroxides are removed; and,
   - Any waste material remaining in the tank shall be removed and managed as a hazardous waste, if necessary, to facilitate investigation/inspection/repairs.

Major Repairs

1. If the system requires major repairs, the isolated system may not be returned to service until a certification by an independent, qualified, registered professional engineer is obtained certifying that the repaired system is capable of handling hazardous wastes without release for the intended life of the system. The certification is required under 40 CFR 264.196(f) as modified by the definitions for "registered professional engineer or professional engineer" set forth in 25 PA Code 260a.10 and 40 CFR 270.11(d).

2. Major repairs are defined as extensive repairs such as structural damage to a tank vessel or secondary containment area or changes in equipment following failure, malfunction, or release. Major repairs do not include periodic and/or routine replacement of like kind waste fuels system components installed per manufacturer recommendations and properly inspected/calibrated prior to being placed in service. For example: pumps, valves, piping sections, monitors, and vents.

3. Certification of all major repairs shall be submitted to the PADEP within seven days after returning the tank system to use.

4. If subsequent to an incident investigation it is determined that major system repairs that will result in a change in the tank system design configuration must be made, the following procedures shall be followed:

- A request for approval, including preliminary engineering, shall be submitted to the PADEP for review and approval;
- Subsequent to approval, repairs may commence; and,
- Upon completion of repairs, items numbers 1 and/or 3 (above) relating to Professional Engineer's certification shall be satisfied.

Tank Spills and Leakage

In case of a tank rupture or spill, the Emergency Coordinator, or designee, will notify the proper personnel to contain and clean-up the material and to set-up any necessary equipment to pump the spilled material into alternate storage vessels if appropriate. As discussed in Section IC.2, all incoming waste loads are tested for compatibility with the wastes stored in the waste fuel storage tanks. Thus, Keystone personnel will consult the results of these tests prior to transferring spilled material into an alternate storage vessel. After the spill has been contained and collected, the Emergency Coordinator, or designee, will conduct a post-emergency evaluation of the area and equipment from which the spill occurred. During the post-emergency evaluation, the Emergency Coordinator, or designee, will determine if the leak or release was due to failure of the primary tank system. All valves, associated piping and equipment will be inspected. An assessment of the necessary repairs will be filed with the Emergency Coordinator, or designee.

If the release has not damaged the integrity of the tank system, the tank system will be returned to service following the inspection. If the release was due to failure of a primary tank system, the tank will be repaired prior to being placed back into service.

If extensive repairs to a tank system are required, Keystone will not place the system back into service until an independent, qualified, registered professional engineer certifies that the repaired system is capable of handling material, without release, for the intended life of the system.

Piping runs are in conspicuous locations and can be readily observed for leaks in the material transport network. Under normal operations the storage and piping systems are monitored daily, seven days a week by the Shift Supervisors, facility personnel, and video monitors. In the event of a pipeline leak, the associated pumps will be shut down until the pipeline is repaired. Trained individuals will be contacted to clean up spillage, which will be pumped to a storage tank with compatible materials or inserted into properly labeled storage drums.

In case of electrical failure, the Electrical Supervisor will be contacted to make repairs.

Identification of Hazardous Materials

In the case of a fire, the identification of hazardous materials would be performed via review of SDS, hazardous waste manifests, and any available laboratory data. Should any regulatory agencies or emergency response services desire to know the identity of material involved in a fire or release, Keystone will have available on-site any relevant SDS, label information, and/or shipping paperwork.

Assessment

Any foreseeable fire or release of hazardous wastes would likely be contained within hazardous waste management unit containment structures (i.e., secondary containment). The volumes of the Hazardous Waste Management Units involved could not result in the release of significantly large quantities of material, thereby preventing the spread of such material to the surrounding land areas or the environment. Furthermore, the secondary containment structures have been designed with sufficient volume to hold the quantity of material stored in the largest hazardous waste management unit in each area. The primary emergency responder, East Allen Township Fire Department, has the necessary arrangements with other emergency response agencies in the area and will assist/direct any emergency response activities.

Evacuation of the plant site, should this be required, will be conducted in conformance with the site evacuation plan described in Section ID.4.

Tank Emergency Repair

Tank emergency repairs are performed in accordance with SOP WF-31, entitled "Tank System Incident Response," developed and maintained by Keystone. The purpose of SOP WF-31 is to respond to major or catastrophic leaks from the tanks used for storage at the facility. SOP WF-31 applies to metal storage tanks and containment areas as discussed in the subsections below. A major leak is defined as any leak larger than a seep or drip from the shell of a tank or pipe/flanges which cannot be readily controlled. In general, the plan for each tank is to empty the tank and secondary containment first and then, at the discretion of the Plant Management, to repair or replace the tank.

Metal Storage Tanks

Upon discovering a leak, the employee must immediately contact the area supervisor, who will identify the contents and volume of the tank, and the Shift Supervisor, either directly or through the Control Room Operator. If appropriate, the Shift Supervisor will contact the Emergency Coordinator.

If it is possible to transfer all or part of the leaking tank volume into another liquid waste fuel tank having compatible material, the transfer will proceed using the manifold pumps. If the available tank volume is insufficient to contain the necessary volume, the transfer will be to tank truck(s) for proper disposition.

At the direction of the Resource Recovery Manager, the tank will be washed and inspected to determine the cause of the leak. Repairs, if so directed, will be made by fill-welding a patch on the outside of the tank or by fill-welding any cracks or by other similar welding methods. If the leak is a small hole surrounded by sound material, the Resource Recovery Manager may direct use of a plug kit for sealing the leak with a gasket material which is appropriate to the type of material stored in the tank.

Any fluids that have leaked into secondary containment will be transferred by the pump manifold to an alternate storage tank with compatible materials or tank truck(s) or be removed by a vacuum truck for processing or off-site disposal.

After the leak is repaired, the tank will be hydrostatically tested under the supervision of a qualified Professional Engineer, who will certify that suitable repairs have been made prior to placing the tank back in service.

Containment Areas

Upon discovering a leak into a containment area, the employee should immediately contact the area supervisor, who will identify the contents and volume of the spill in the area, and the Shift Supervisor, either directly or through the Control Room Operator.

If it is possible to transfer all or part of the material into another unit storing a compatible material, the transfer will proceed using the manifold pumps. If the available tank volume is insufficient to contain the necessary volume, the transfer will be made to tank truck(s) for proper

disposition. Any necessary repairs will be made and certified by a professional engineer prior to being returned to service.

Prevention of Recurrences or Spread of Fires, Explosions, or Releases

In the case of a fire, explosion, or release, the equipment or device that allowed the release and subsequent fire, explosion, or spread of any hazardous constituent will not be put back into service until all appropriate repairs are completed and all safety devices are checked and determined to be functional.

Should a fire occur due to a spill, as soon as the fire is extinguished, all remaining flammable material will be removed as soon as possible. It is likely that the involved material would be contained within the waste fuels containment areas. Remaining material will either be pumped to an alternate storage tank with compatible materials or tank truck(s) or absorbed with absorbent material and placed in storage drums.

Storage and Treatment of Released Material

Released flammable material may be pumped to an alternate non-damaged storage vessel with compatible materials. Smaller spilled quantities that are collected by absorbent material will be placed in storage drums. In the unlikely event that numerous tanks are involved in a major incident, an outside waste management service may be called in to clean up and dispose of the material.

Incompatible Wastes

Due to the initial acceptance screening procedure, incompatible wastes would be isolated on the plant property minimizing the potential for the mixing of incompatible wastes. In the event of a reaction in a storage vessel, an outside waste management service may be called to clean and dispose of the material, as appropriate.

Post-Emergency Equipment Maintenance

Hand tools used for clean-up efforts will be cleaned and restored to original condition for subsequent use. Any emergency equipment that requires renewing, such as fire extinguishers, air packs, etc. may be renewed by an outside contractor prior to being placed back in standby service.

Earth-moving equipment, such as front-end loaders and trucks used to transport clean-up material may be cleaned by brushing. Clean-up material from this operation will be properly disposed, as necessary.

ID.2 COUNTERMEASURES TO BE UNDERTAKEN BY CONTRACTORS

In the event that emergency response is needed, Keystone is prepared to respond to the "first alert" to contain any off-site impact or to control health and safety of employees and neighbors. If cleanup and emergency response exceeds the ability of Keystone to respond, the following list of emergency contractors will be contacted for assistance. Typical response time shall be one to two hours upon notification.

Emergency Response Contractors

1. Rapid Response, Inc.
   14 Brick Kiln Court
   Northampton, PA 18067
   1-484-275-6900
   1-877-460-1038
   610-837-4100

2. Elk Environmental Services
   1420 Clarion Street
   Reading, PA 19601
   610-372-4760
   800-851-7156 (24 HR Emergency)

Keystone contacted these companies to confirm they are still capable of providing these services. Current agreements for emergency assistance from each contractor are included in Appendix A.

ID.3 INTERNAL AND EXTERNAL COMMUNICATIONS AND ALARM SYSTEMS

Keystone maintains a communication network consisting of public telephones, cellular phones, two-way radios, and signaling horns. All personnel within the facility will have access to one or more of the communication systems listed. Each process area and office will be provided with at least one telephone.

Plant supervisors are supplied with cellular telephones and/or two-way radios, or other communication devices. Operating personnel have access to the cellular telephone numbers for emergency, or rapidly, contacting those individuals. Facility personnel can alert others to the existence of a possible emergency situation by voice contact, two-way radios, a telephone system,

and an alarm system. Operations personnel typically carry two-way radios when working and thus, have immediate access to emergency communication equipment. Using these radios, they can communicate with the other operations personnel. If no telephone is available, personnel will carry two-way radios.

The emergency telephone numbers and contact information are detailed within **Exhibit D.3**.

Exhibit D.3-1 presents the listing of *External Notifications and Resources List* and **Exhibit D.3-2** provides the *External Notifications Primary Contacts Summary*. These documents are formatted to provide ready use and access and are separately posted/displayed within the Control Room.

ID.4 EVACUATION PLAN FOR INSTALLATION PERSONNEL

Figures 1, 3A, 3B, and 3C represent a site plan of the Keystone facility. The primary evacuation route leads to the west, where all personnel are instructed to congregate at the main plant office on the west side of PA Route 329. Should wind directions be from the east, the alternate congregation point is at the east end of the internal plant road terminating at PA Route 512 (see Figures 4 and 5). All personnel are instructed to remain at the evacuation points to allow for a head count by management personnel. The drawings provide an overall plan view of the entire Keystone facility with respect to the adjacent PA Routes 329 and 512.

The signal for evacuation is one long blast by the electric horn alarm system which is activated from the Control Room and Substation. More detailed instructions (congregation point, specific areas or evacuation, etc.) may be relayed over the facility's two-way radio system.

ID.5 EMERGENCY RESPONSE EQUIPMENT

The following specialty emergency spill and fire response equipment is available at the facility.

- Absorbent Material, Spill Booms, and Over Pack Drums (in the Waste Fuels Area, Power House, and Oil House); and,
- Stretcher (in the Plant Operations and Machine Shop).

There is other equipment and systems on-site that are utilized during daily operations or are contingency equipment for specific systems on-site, which can also be utilized during an emergency response event. This equipment includes the following items:

- FM 200 Suppression System (in the Control Room);
- Personal Protection Equipment (PPE), including Tyvek suits, respirators, gloves, and boots (in the Waste Fuels Area);
- Fire Suppressant Foam System, designed to engulf the tank containment areas and unloading stations with 7,000 gallons of foam in ten minutes. This foam will blanket the hazardous waste storage area to extinguish and prevent the spread of fire (in the Waste Fuels Area);
- Water Sprinkler System (in the Oil House and Stockpile Area of the Kiln Burner Floor);
- Limited hard copy Safety Data Sheets (SDS) (in Oil House, Finish Mill/4,400 Horse Power Mill, Laboratory, and Resource Recovery Trailer) Up-to-date SDS via 3E Company and SIRI MSDS;
- First Aid Kits (in the Storage and Machine Shop, Control Room, and Resource Recovery Trailer);
- Emergency Showers and Eyewash Stations (in the Laboratory);
- Listing of Emergency Notification Personnel (in the Main Office, Resource Recovery Trailer, and Control Room);
- Waste Fuels Response Designated Equipment, listed in SOPs WF-08 and WF-54, all of which may be used for non-waste fuels response actions, as well (in the Waste Fuels Area);
- Front End Loaders (at various locations around the facility);
- Dump Trucks (at various locations around the facility);
- Miscellaneous Equipment, such as shovels, brooms, pails, roll-off boxes and containers, drums, etc. (throughout the operating area of the plant);
- Fire Extinguishers (over 200 are located throughout the facility); and,
- Fire Hydrants with 75 pounds per square inch gauge (psig) of water pressure (two are located accessible to the kilns and waste fuels storage tanks).

The typical locations of these items are shown on Figure 6, with exception of the front end loaders, dump trucks, miscellaneous equipment, and fire extinguishers. The front end loaders, dump trucks and miscellaneous equipment are typically used in Keystone's maintenance and production activities, are readily accessible, and may be used for emergency response activities as needed.

IE. EMERGENCY SPILL CONTROL NETWORK

IE.1 ARRANGEMENTS WITH LOCAL EMERGENCY RESPONSE AGENCIES

Keystone has provided copies of this PPC Plan to the Pennsylvania Department of Environmental Protection, Northampton County Emergency Management Agency, East Allen Township Fire Department, Pennsylvania State Police (Bethlehem), the Borough of Bath, and the emergency response contractors. Enclosed in Appendix A is a copy of the transmittal letter that Keystone included when forwarding copies of this document to the appropriate emergency response authorities. Appendix A also includes Agreements for Emergency Assistance with certain agencies in the event of an emergency. Revised PPC Plan information will be forwarded to these agencies as appropriate and the updated agreement letters will be appended.

IE.2 NOTIFICATION LISTS

The list presented in **Exhibit D.3-1 | External Notifications and Resources List** details external contact information for agencies and other third party responders (whom may be) contacted in the event of an emergency or spill.

IE.3 DOWNSTREAM NOTIFICATION REQUIREMENTS FOR STORAGE TANKS

Keystone has a regulated substance storage capacity greater than 21,000 gallons, which makes Keystone subject to the spill prevention response (SPR) provisions of the Pennsylvania Storage Tank and Spill Prevention Act. These regulated substances include the hazardous waste fuel that is stored in various storage tanks throughout the facility as discussed in Sections IA.3. The SPR requires Keystone to prepare a downstream notification list to include surface water intakes and counties and municipalities within 20 downstream miles of the facility. Keystone will provide annual written notice, containing a listing of the type and quantity of material stored on-site. Also, the Compliance Manager, or designee, shall annually update the contact names, telephone numbers and addresses with the local PEMA office. The downstream entities are listed below. Table 14 details the contact name, telephone number, and mailing address of the representatives of each of these governing bodies.

IE.3.1 Surface Water Intakes

The list below includes public water suppliers, private water suppliers, and industrial water suppliers that utilize surface water intakes within 20 downstream miles of the tank facility.

Public Water Suppliers:	None.
Private Water Suppliers:	None on Monocacy Creek or Lehigh River.
Industrial Water Users:	According to a discussion with the Northampton Counties Emergency Management Agency, there are no industrial water users with surface intakes 20 miles downstream from Keystone.

IE.3.2 Counties/Municipalities

Also, the following list includes counties and municipalities that are within 20 downstream miles of the tank facility:

Northampton County	Hanover Township
East Allen Township	Freemansburg Borough
Lower Nazareth Township	Lower Saucon Township
Bethlehem Township	Williams Township
Bethlehem City	Palmer Township

IF. STORM WATER MANAGEMENT PRACTICES

As described in Section IC.1, Keystone has taken proactive measures regarding the potential discharge of products or materials from the hazardous waste areas by implementing a wide range of traditional measures and best management practices described in the PADEP's *Erosion and Sediment Control Program Manual*, as follows:

- Products and materials stored at the plant in tanks, silos, buildings, or under canopies, are protected from storm water, thus reducing the potential for water pollution;
- RCRA regulated materials (discussed in Part I of this PPC Plan) are stored within secondary containment;
- Channels, swales, storm inlets and storm sewer piping are used to direct the site storm water into the storm water detention ponds;
- Storm water detention ponds, which attenuate peak discharges from the plant area, allow suspended solids that may be within the storm water runoff to fall out of suspension, and settle in the ponds; and,
- Certain CKD stockpiles are stabilized.

Keystone holds National Pollutant Discharge Elimination System (NPDES) permits for storm water discharges through outfalls at the facility. Their locations are shown on Figure 2A. Keystone follows the inspection, monitoring, and reporting requirements of these permits. In accordance with Keystone's NPDES Permit Number PA-0011517, structural storm water management measures are visually inspected annually by Keystone personnel for compliance with the permit. Repairs are made by Keystone personnel or outside contractors as necessary.
The storm water management practices at the facility, combined with Plant Operations pre-release procedures, have been successfully implemented in the past to prevent a release as discussed in Section IA.4. Also, certification requirements of non-storm water discharges are discussed in Section I I.

IG. SEDIMENT AND EROSION PREVENTION

As discussed in Part II and throughout the PPC Plan, the areas with high potential for soil erosion such as stockpiles and landfills are maintained to reduce the potential for sediments in storm water runoff and erosion. In addition, most of the storm water runoff from the site is directed to on-site storm water detention ponds or the reservoir. These ponds reduce peaks in storm water flow events and function as sedimentation basins, thus further reducing the potential for sediment to be transported off-site. Also, much of the plant area is paved, thus reducing the likelihood of soil erosion. Areas that experience traffic (either pedestrian or vehicle) have paved or gravel surfaces. In accordance with Keystone's NPDES Permit Number PA-0011517, sediment and erosion control measures are visually inspected annually by Keystone personnel. Repairs are made by Keystone personnel or outside contractors as necessary.

These measures appear to be working effectively, based upon the clarity of the discharge water at the permitted, NPDES discharge points, as visually observed by Keystone personnel.

IH. ADDITIONAL REQUIREMENT FOR EPCRA, SECTION 313 FACILITIES

An inventory of the materials used and stored on-site is provided in Section IA.3. As discussed throughout this PPC Plan, materials are stored and maintained in such a manner so as to reduce the potential for contact with storm water runoff and surface waters. As such, materials that are stored within tanks, silos, buildings or under canopies do not come into contact with storm water. Section IC.1 includes a detailed discussion of the storm water controls within and around the

Plant. Finally, as noted is Section IA.4, there have not been any incidents at this facility that required the implementation of this PPC Plan.

Tables 15 and 16 include a listing of the Superfund Amendments and Reauthorization Act (SARA) Title III, Sections 313 and 312 materials, respectively, used and stored at this facility.

II. CERTIFICATION REQUIREMENTS FOR NON-STORM WATER DISCHARGES

In accordance with Keystone's NPDES permit, the PPC Plan contains a certification by a designated employee or officer of Keystone that the discharge from Outfall 004 and the storm water only portion of Outfall 003 has been evaluated for the presence of non-storm water discharges per the PPC Guidelines. The Certification for Non-Storm water Discharges form is provided in Appendix C.

IJ. SIGNATORY REQUIREMENTS

The special requirements for SARA Title III, Section 313 facilities require the annual review and certification of the PPC Plan by a professional engineer licensed by the Commonwealth of Pennsylvania. This certification shall attest that the "storm water PPC Plan has been prepared in accordance with good engineering practices." A copy of this engineer's certification is provided in Appendix D.

PART II - NON - RCRA REGULATED OPERATIONS

IIA. DESCRIPTION OF FACILITY

IIA.1 DESCRIPTION OF INDUSTRIAL ACTIVITY

Keystone Cement Company (Keystone) is located on an approximately 840-acre site along Route 329 in East Allen Township, Northampton County, Pennsylvania as shown in Figure 1. Figures 2, 3A, 3B, and 3C provide a more detailed site plan. Keystone produces portland cement, crushed stone and related products and operates a variety of equipment and systems associated with the manufacturing processes.

Keystone's facility includes on-site quarrying operations as well as manufacturing operations. Keystone's primary product, portland cement, is sold in both bulk quantities and in commercial packages. The process begins with the on-site quarrying of limestone, the primary raw material used in the process. The limestone is crushed, screened, and combined with other ingredients including, but not limited to, iron, alumina and silica. These materials are fed to a raw mill which grinds and blends the various raw materials. The raw material (now called kiln feed) is then introduced to the top of the preheater tower, where it is further dried and heated. From the preheater tower, the kiln feed enters the rotary portion of the kiln, where the high temperatures generated by burning fossil fuels and/or waste fuels, including hazardous wastes, transform the materials into cement clinker. The clinker from the kilns is then combined with various product-enhancing materials before final processing in the finishing mills. In the finishing mills the clinker is refined from pellet size material to the fine powder product known as portland cement. The cement product is stored for bulk loading operations or is packaged for commercial sale.

The ingredients used in the cement manufacturing operations are primarily inert materials such as the limestone and silica. These materials are either stockpiled in designated areas or stored within the large building on-site referred to as the "clinker storage hall." Fuels used to fire the kilns are stored in designated fuel storage areas. Miscellaneous materials that support the various facility operations are used throughout the site and consist primarily of oils, grease, antifreeze and similar compounds. These materials are stored and used in designated storage and satellite areas located throughout the facility. Hazardous waste fuels are received, stored on-site and fired in the cement kiln. Figures 3A, 3B, and 3C present a plan view of the facility layout that includes identification of specific storage and satellite areas. Section IIA.3 includes a detailed discussion of the Non-Resource Conservation and Recovery Act (RCRA) Regulated Operations portions of the facility

that have higher potentials for releases of chemicals or raw materials that might possibly cause harm to human health or the environment.

IIA.2 DESCRIPTION OF EXISTING EMERGENCY RESPONSE PLANS

Keystone has previously developed Preparedness, Prevention, and Contingency (PPC) Plans as part of the facility's RCRA Part B permitting process. The plant has operated under the most recent PPC Plan approved by the Pennsylvania Department of Environmental Protection (PADEP) as part of the RCRA Part B permit, which was effective on December 26, 2001, for the facility's hazardous waste fuel storage operations. The PPC Plan detailed herein incorporates the pertinent information from previous plans and has been updated to include new systems and procedures implemented since April 1999. Part I addresses PPC Plan elements for the RCRA Regulated Operations. Part II addresses the Non-RCRA Regulated Operations for the entire site.

In addition to the PPC Plan, Keystone maintains a Risk Management Program (RMP), a Waste Fuels Operations Plan (WFOP), a Chemical Hygiene Plan, a Spill Prevention Control and Countermeasures (SPCC) Plan, and a Waste Analysis Plan. These plans work in conjunction with and are maintained on-site in close proximity to the PPC Plan, as appropriate.

The purpose of the RMP is to comply with the general duty clause of Section 112(r) of the federal Clean Air Act. As discussed in the RMP, Keystone must comply with the Program Level 1 requirements, including submission of the Risk Management Plan to the USEPA at least every five (5) years. The written RMP, last revised September 2014, includes an Accident Prevention Program and Emergency Response Program.

The WFOP outlines procedures for handling and use of hazardous waste fuels, including incident prevention procedures. Section 9 of the WFOP details the inspection and maintenance procedures from the hazardous waste fuels tank systems, and Section 10 of the WFOP provides detailed information on the employee training program for hazardous waste fuels operations.

The Chemical Hygiene Plan helps ensure the protection of Keystone's laboratory personnel from the risks associated with the use of hazardous chemicals. It also outlines the safe use, storage, and disposal of hazardous chemicals in the laboratory.

Keystone's SPCC Plan, required by the federal Oil Pollution Prevention regulations, discusses containment and countermeasures that would prevent oil spills from reaching navigable waters. It

lists oil containers and oil-containing equipment with 55 gallons or more of oil or oil products storage capacity, some of which are also discussed in the PPC Plan.

In order to comply with RCRA regulations, all waste streams must be approved by the PADEP prior to use as fuel in Keystone's cement kilns. These regulations mandate that Keystone maintains on-site and adheres to a Waste Analysis Plan pursuant to 25 Pa Code Section 264.12 and 40 CFR 270. The Waste Analysis Plan covers such topics as fuel substitution; feed streams to the kilns; waste fuels sampling methods; acceptance procedures; ignitable, reactive, and incompatible wastes; and cement kiln dust (CKD) sampling methods.

IIA.3 MATERIAL AND WASTE INVENTORY

Areas for storing or using materials that have the potential for a spill or release that might possibly cause harm to human health or to the environment were identified. These areas are detailed in the following subsections, along with identification of the materials in each area. The areas of the facility that are addressed in Part II of this PPC Plan have been categorized as follows:

- Satellite Areas for Equipment Maintenance Materials;
- General Storage Areas;
- Propane Storage Areas;
- Aboveground Storage Tanks;
- Underground Storage Tanks;
- Stockpile Areas;
- CKD Stockpiles;
- Laboratory Activities;
- Landfill Activities;
- Miscellaneous Activities; and,
- Subcontractor Activities.

These categories are discussed in more detail in the subsections below.

It is important to note that from time to time materials may be moved to locations on-site other than those specified herein and that materials other than those identified herein may be needed for a specific purpose. Precautions for preventing or responding to spills, releases or other emergencies for such materials located temporarily to meet short-term needs will be required for contractors working on-site who bring any such materials into the facility as part of their activities.

Other vendors may be contracted by Keystone to supply an array of services. The work performed by these vendors along with work performed by Keystone employees may require materials to be moved to locations on-site not specified by this plan and/or materials other than those identified herein. Precautions for preventing or responding to spills, releases or other emergencies for such materials located temporarily to meet short-term needs will be required for contractors and Keystone personnel. The listing of the safety data sheets (SDS) for the on-site commercial products pertinent to this PPC Plan is dynamic. Keystone maintains limited hardcopies of SDS for materials commonly used and stored at the facility. In the event of an emergency, Keystone obtains up-to-date SDS from any of the following sources:

- 3E Company
  - P: 1-800-360-32206
  - P: 1-760-602-8700

- SIRI MSDS Online Index – http://www.hazard.com/msds/
- Limited hardcopies filed at various locations

These sources are also listed in Appendix B

IIA.3.1 Satellite Areas for Equipment Maintenance Materials

The satellite areas for equipment maintenance materials include those areas throughout the facility where relatively small amounts of materials are used by facility personnel on a daily basis. These areas typically contain such materials as antifreeze, fuel additives, oil and grease contained in drums, totes or similar portable containers. The actual materials stored may vary from time to time, as will the quantities stored. All materials kept in these areas are appropriately labeled, and SDS are available on-site.

These areas have been included in the PPC Plan since frequent use may result in a greater potential for a spill or accident to occur. However, it is important to keep in mind that only

relatively small quantities are kept in each area, thus reducing the potential impact to human health and the environment. Each area has been assigned an identification number and is listed in Table 6, and their approximate locations are shown on Figures 3A, 3B, and 3C.
As stated in Section IIA.2, Keystone's SPCC Plan also addresses oil storage in containers and equipment on-site. Thus, the oil drums and drum storage areas listed in the SPCC Plan overlap with the Satellite Areas for Equipment Maintenance Materials described herein.

IIA.3.2 General Storage Areas

The general storage areas include those areas throughout the facility that are strictly used for storage of chemicals/materials and not for material use. These areas are used to support and replenish materials being used at the satellite areas discussed in Section IIA.3.1 or at other process points in the facility. The approximate location of the storage areas within buildings throughout the facility are identified on Figures 3A, 3B and 3C. These general storage areas are labeled on the drawing as Storage Areas and each has been assigned an identification code. The general storage areas are listed in Table 7. The table summarizes the materials that are typically stored in these locations. The types of materials stored and the quantities stored may vary at any given time. All stored materials are appropriately labeled, and SDS are available on-site.

As stated in Section IIA.2, Keystone's SPCC Plan also addresses oil storage in containers and equipment on-site. Thus, the oil drums and drum storage areas listed in the SPCC Plan overlap with the General Storage Areas described herein.

IIA.3.3 Propane Storage Areas

The propane storage areas include the main propane tank and cylinder filling area and several other areas throughout the facility where propane cylinders are stored in racks for use by forklifts and/or heating units. The approximate locations of the propane storage areas are identified on Figures 3A, 3B and 3C. Each of the areas is identified with a unique code and listed in Table 8. The main propane storage tank in the laboratory area has a design capacity of approximately 1,000 gallons. The smaller cylinders kept in the other storage areas typically hold approximately 20 to 100 pounds of propane each.

IIA.3.4 Aboveground Storage Tank Areas

The aboveground storage tank (AST) areas include those areas throughout the facility where aboveground storage tanks are located, with the exception of the hazardous waste fuel storage tanks which are discussed in detail in Section IA.3.1. The ASTs contain such materials as antifreeze, oils, used oil fuel, cement slurry, fuel and grinding aid (a liquid additive that enhances the clinker grinding process). The approximate location of the ASTs throughout the facility are identified on the figures. In addition to stationary tanks, there are several portable ASTs and a mobile tanker truck used for diesel fuel storage/vehicle fueling on-site. The locations of the portable and mobile tanks vary throughout the facility. Each AST has been given a unique identification code. Table 9 provides a listing of these tanks, their capacity and the material they contain. The actual contents of the tanks may vary from time to time; however, all tanks are appropriately labeled as to their contents. The SDS for the contents of each tank is available on-site.

As stated in Section IIA.2, Keystone's SPCC Plan also addresses oil storage in containers and equipment on-site. Thus, the oil ASTs listed in the SPCC Plan overlap with the ASTs described herein.

IIA.3.5 Underground Storage Tank Areas

The underground storage tank (UST) areas include those areas throughout the facility where an underground storage tank is located. The tanks contain such materials as heating oil and gasoline. The tanks are used to fuel heating units within buildings or to fuel vehicles used at the facility. The approximate location of the USTs are identified on the figures. There is a fueling station located adjacent to the underground fuel storage tank located at the quarry shop operations as depicted on the figures. Each storage tank has been given a unique identification code. Table 10 provides a listing of these tanks, their capacity and the material they contain. The SDS for the contents of each tank is available on-site.

IIA.3.6 Stockpile Areas

The stockpile areas include those areas throughout the facility where raw material, product, and coal are stored. The stockpiles of inert raw materials and product located at the facility are not considered to pose any imminent threat to human health or to the environment. Dust control is applied to the stockpiles as necessary, and any storm water issues are addressed in the facility's National Pollutant Discharge Elimination System (NPDES) permit. The locations of these stockpiles change from time to time as facility conditions warrant, therefore they are not addressed in detail in this PPC Plan.

The coal storage and processing area has been included as a stockpile area in the facility. This area includes a 100-ton coal bunker in the clinker storage building and a system which conveys coal to the plant's two cement kilns. The approximate locations of the coal bunker and mill are identified on the figures and listed in Table 11. Keystone may in the future obtain approval for outdoor storage of coal, if this occurs this plan is intended to incorporate by reference pertinent requirements under those approvals.

IIA.3.7 Cement Kiln Dust Stockpiles

The CKD stockpile areas are located (1) south of the Plant Operations, near the Cement Package Loading Building and the railroad spurs; and (2) adjacent to and west of the quarry holding water reservoir (reservoir), north of the plant. The volume of the material located in this stockpile area changes based upon plant operations. The inactive portions of the CKD stockpiles are stabilized by hydroseeding to promote the growth of vegetation; thus, reducing the potential for sediment transport. Much like the other stockpiles at the site, the CKD does not pose any imminent threat to human health or to the environment.

In order to promote rapid and efficient runoff of rainwater from the CKD stockpiles south of the Plant, the area at the toe of slope of these piles, adjacent to the edge of pavement, has been regraded to form a channel. This channel promotes positive drainage toward the East Storm Water Detention Basin east of the stockpiles. Gravel has been added to the portion of this channel closest to the East Storm Water Detention Basin. The gravel functions as a filter for particles that may be transported in the runoff. Additionally, this channel discharges directly into the East Storm Water Detention Basin, which functions as a sedimentation basin by detaining peak runoff

flow rates, and allowing solids to fall out of suspension. The approximate location of this regraded, gravel channel is shown on Figure 3A.

The CKD stockpile adjacent to the reservoir on the north side of the plant is also known as the CKD Management Area and is used as a temporary staging area for CKD. The area is lined and has a leachate collection system that conveys leachate to a sump. However, because of the CKD moisture holding capacity, leachate is rarely present in the sump area, and thus, leachate discharges from the CKD Management Area are rare. In addition, the surface water runoff from the CKD Management Area discharges directly into the reservoir, or flows overland to the low point adjacent to the reservoir overflow pipe. The reservoir and the low point act as sedimentation basins, which further reduce the potential for discharge of particles/sediment from the CKD Management Area.

IIA.3.8 Laboratory Activities

Activities dealing with the analysis of hazardous waste fuels and analysis of cement product take place within the laboratory building, which is identified on Figure 3A and listed in Table 12. The laboratory contains small quantities of various chemicals and materials used in both chemical and physical analyses. The laboratory chemical storage containers are appropriately labeled, and SDS are available on-site.

IIA.3.9 Landfill Activities

In the past, Keystone used an on-site landfill to dispose of the spent refractory brick from the two cement kilns. The Plant has fully recovered the material previously disposed in the on-site landfill and reused it within the manufacturing process. The former landfill has been permanently closed. The refractory brick is inert material that is not considered to pose any imminent threat to human health or to the environment

Keystone has submitted an application to PADEP to construct a new residual waste landfill on an approximately 15-acre site located on the west side of Route 329, north and northwest of the quarrying operations. However, construction of this new landfill is not planned at this time. As such, the new landfill is not discussed any further in this document.

IIA.3.10 Miscellaneous Activities

Certain other equipment and activities at the facility has also been included in this part of the PPC Plan due to unique aspects that have the potential to pose a danger or threat. Miscellaneous units include several parts washing units. The approximate locations of the parts washers are identified on the figures. Each unit has been assigned a unique identification code and is listed in Table 13.

Blasting operations using explosives may take place anywhere throughout the quarry area and, therefore, have not been identified on the figures. Explosives used in these operations are brought on-site by a licensed contractor only when they will be used and are not stored on-site. The portable fuel tanks may also be located anywhere throughout the facility at any given time and, therefore, have not been identified on the figures.

Keystone considers the potential to spill or release materials from transportation equipment moving around the site to fall under the category of a miscellaneous activity. The materials that could potentially be spilled in the event of a transportation incident include: gasoline, diesel fuel, antifreeze, lubricants, and other similar materials, as well as cargo material being transported by the vehicle.

There are also numerous operations throughout the facility covered under Air Quality permits that potentially generate dust. These operations are equipped with dust collectors to control the particulate matter emissions. The dust collectors are inspected routinely for determining compliance status and, if necessary, repairs are made as soon as practicable. These dust collectors do not pose a threat to human health or the environment and are, therefore, not considered as part of this PPC Plan.

IIA.3.11 Subcontractor Activities

Subcontractor activities may take place throughout the facility at any given time. Various subcontractors come on-site to fuel storage tanks, deliver materials, remove waste materials, and to perform other tasks including maintenance and construction activities). The exact location of subcontracted construction services, type of equipment, materials, and personnel employed on-site can vary. From time to time materials may be moved to locations on-site other than those specified herein and that materials other than those identified herein may be needed for a specific purpose. Precautions for preventing or responding to spills, releases or other emergencies for

such materials located temporarily to meet short-term needs will be required for contractors working on-site who bring any such materials into the facility as part of their activities. Keystone requires that all subcontractors, who will be working on-site, be trained in the appropriate sections of this PPC Plan.

IIA.4 POLLUTION INCIDENT HISTORY

Keystone has not experienced a major spill or major contaminant release that required full-scale implementation of the facility PPC Plan. However, a vapor ignition occurred in the storage tank vent system and the head space of the waste fuel storage Tank No. 3 on December 8, 1997. No material spillage occurred and only minor quantities of air contaminants were released as a result of the incident. However, uncertainty over the extent of the incident at the time of the occurrence lead to initial implementation of the facility's PPC Plan, until the extent of the incident was better understood by the PPC Plan Coordinator.

On August 5, 1998, coal began to smolder in the 100-ton coal bunker. This incident was not considered an event that would cause any type of environmental hazard or discharge since it was isolated from the facility waste fuels operations. Therefore, the facility PPC Plan was not implemented. Based on PADEP guidance, this PPC Plan has been revised to encompass the entire facility. Should a similar incident occur in the future, the facility PPC Plan will be implemented to the extent necessary.

Subsequent to this coal incident, a water flood system at the bottom of the bunker has been installed to extinguish any potential fires. A 25,000 cubic foot per minute fan has been installed in the coal storage building to vent any harmful fumes (e.g., carbon monoxide) that may develop in the event of a fire. Carbon monoxide monitors have also been installed to continuously monitor carbon monoxide levels to ensure worker safety and to act as a combustion warning devices.

On January 27, 1999, a contractor hired to clean a cement storage silo was fatally injured when he slipped off of a semi-solid ledge of cement, landed in 10 feet of cement dust, and suffocated. This incident did not result in a material spillage or the release of air contaminants into the atmosphere; however, uncertainty over the extent of the incident at the time of the occurrence lead to the initial implementation of the facility's PPC Plan, until the extent and nature of the incident was better understood by the PPC Plan Coordinator.

Keystone is committed to the proper implementation of the measures contained in this PPC Plan, as demonstrated by their initiating the PPC Plan during two incidents when it was ultimately unnecessary. Additionally, during other site incidences where implementation of this PPC Plan was not required, Keystone has taken measures to be protective of their employees and the public by installing measures to assist in controlling the potential incidences. Finally, Keystone's proactive commitment, combined with their history of no reportable releases, demonstrates that the program and measures outlined in this document are effective.

IIA.5 IMPLEMENTATION SCHEDULE FOR PLAN ELEMENTS NOT CURRENTLY IN PLACE

All aspects of this PPC Plan are ready for implementation immediately in the event of a release or an emergency situation at the facility.

IIB. DESCRIPTION OF HOW PLAN IS IMPLEMENTED BY ORGANIZATION

IIB.1 ORGANIZATIONAL STRUCTURE OF FACILITY FOR IMPLEMENTATION

A major incident is defined as a major leak, major spill, explosion, or fire. A major leak is defined as any leak larger than a seep or drip from the shell of a tank or pipe/flanges which cannot be controlled. A major spill is a spill that cannot be easily and quickly controlled. Incidents of lesser severity are considered minor incidents.

In case of a major release, spill or fire at the liquid waste fuel area or any of the related operations areas, or other major release or fire within the facility, the Emergency Coordinator has the authority to implement the PPC Plan backed by the full resources of the company. The duties and responsibilities of the Emergency Coordinator are detailed in Section IIB.3.

The Shift Supervisors, all Secondary Emergency Coordinators, and the majority of operating personnel have been instructed to notify a Primary Emergency Coordinator in the event of a major incident, such as fire, explosion, or a major spill. In the event of any incident, the employee discovering the incident will immediately notify the Shift Supervisor, either directly or through the Control Room Operator. The Shift Supervisor will then contact a Primary (or Secondary, if a Primary is not available) Emergency Coordinator who will assess the situation and decide whether to implement the PPC Plan. If the Primary Emergency Coordinator is not present on-site or immediately able to assume his role, the Shift Supervisor or other Secondary Emergency Coordinator will begin coordinating the response actions to stop or minimize the impacts of the event, evacuate personnel as appropriate, call response agencies, notify PADEP, and perform other appropriate actions until relieved by the Primary Emergency Coordinator.

During an emergency event, the Emergency Coordinator, or designee, will assess the extent of the situation and contact appropriate personnel, instructing them on specific activities and individuals to contact, such as outside fire departments, hospitals, ambulance services, etc. The Emergency Coordinator, or designee, will notify the appropriate regulatory agencies and response groups after instructing operations personnel to curtail those plant operations responsible for, or potentially involved in, an emergency event. The Emergency Coordinator, or designee, will have overall responsibility for completing the required contingency reports.

In the event of a minor spill, the employee first identifying the situation will notify the Shift Supervisor, either directly or through the Control Room Operator. The Shift Supervisor will then contact the Emergency Coordinator. It is important to note that the Shift Supervisor is often a Secondary Emergency Coordinator. In the event that a Primary Emergency Coordinator is not available, the Shift Supervisor or other Secondary Emergency Coordinator will oversee the clean-up of the minor spill and will address handling and disposal of the absorbent material. If a Primary Emergency Coordinator is available, that Primary Emergency Coordinator will instruct the Secondary Emergency Coordinator and other appropriate personnel in the actions to take and the clean-up efforts. For minor spills, it may not be necessary for the Primary Emergency Coordinator to be present at the site before or during clean-up activities, but the Primary Emergency Coordinator will follow-up with the Shift Supervisor and other personnel during the following business day to ensure that proper procedures were followed and complete the necessary paperwork.

IIB.1.1 Notification/Reporting Requirements

In the event of a major spill, the Emergency Coordinator will assume control of the situation. However, when the Emergency Coordinator is not present at the Site or unable to immediately assume the emergency coordination duties, the Shift Supervisor or other available Secondary Emergency Coordinator will act as the Emergency Coordinator until relieved by the Primary Emergency Coordinator. For the remainder of this discussion, the Emergency Coordinator, whether Primary or Secondary, or designee, will be responsible for performing the activities outlined below.

General notifications requirements are presented in **Exhibit B.1-1**, *Notification and Reporting Procedures.* This document is presented as an exhibit to the Plan - structured to provide an overview of key emergency response actions and formatted to post for ready use and access.

Requirements and actions specific to particular situation are given additional detail in the discussion which follows.

Aboveground and Underground Storage Tanks, Portable Tanks, Drums and Containers

This subsection applies to spills from ASTs and USTs, portable tanks, and any other containers used at the facility containing regulated substances pursuant to the Pennsylvania Storage Tanks and Spill Prevention Act (Act 32 of 1998), which references the hazardous substances lists in Title 40 of the Code of Federal Regulations (CFR) Section 302.4 and 40 CFR 280.

As part of Act 32 of 1998, the PADEP adopted regulations establishing release confirmation, release reporting and corrective action requirements for owners and operators of regulated aboveground and underground storage tanks. The formalized regulation (25 PA Code Chapter 245.301-245.313) known as the Corrective Action Process (CAP) went into effect August 21, 1993.

The CAP regulations define a reportable release as: "A quantity or an unknown quantity of regulated substance released to or posing an immediate threat to surface water, groundwater, bedrock, soil or sediment." This definition includes an amount equal to or greater than one (1) gallon released to surface soils.

General details common to determining circumstances and requirements for the notification of releases from storage tanks and containers are included within in **Exhibit B.1-1**, ***Notification and Reporting Procedures***.

In the event that a regulated or hazardous substance is released from storage above an amount equal to or exceeding the reportable quantity for that substance pursuant to 25 PA Code 245, which references the reportable release quantities determined under Section 102 of the federal Comprehensive Environmental Response, Compensation, and Liability Act (codified in 40 CFR Part 302) and Section 311 of the federal Water Pollution Control Act, the following parties must be notified:

- Pennsylvania Emergency Management Agency (PEMA);
- Emergency Coordinator for the Local Emergency Planning Committee (LEPC); and,
- National Response Center (NRC).

The reportable quantities for all hazardous substances listed in 40 CFR Part 302 ranges from one pound to 5,000 pounds depending on the material released. Following a reportable release of any of these substances, a Follow-Up Written Emergency Notice shall be submitted to PEMA and the LEPC within 14 days of the release. The follow-up notice will update the oral notification and include additional information with respect to:

- Actions taken to respond to and contain the release;
- Any known or anticipated acute or chronic health risks associated with the release;
- Advice regarding medical attention necessary for exposed individuals; and,
- Actions to be taken to mitigate potential future incidents.

PADEP Notification

If an incident occurs that involves an imminent or potential threat to public health, welfare and safety, notification should be made to PADEP. The procedure for such notification is detailed within in **Exhibit B.1-1** | *Notification and Reporting Procedures*.

IB.1.2 List of Emergency Coordinators

In case of a major release, spill or fire at the liquid waste fuel area or any of the related operations areas, the Primary Emergency Coordinator has the authority to implement the PPC Plan backed by the full resources of the company. The duties and responsibilities of the Primary Emergency Coordinator are detailed in the Section B.2, *DUTIES AND RESPONSIBILITES OF THE COORINDATOR.*

The Shift Supervisors, all Secondary Emergency Coordinators, and the majority of operating personnel have been instructed to notify the Primary Emergency Coordinator in the case of any major incident, such as fire, explosion, or a major spill. In the event of any incident, the employee discovering the incident will immediately notify the Control Room. The Control Room Operator would then contact the Shift Supervisor who in turn will contact the Primary (or Secondary if the Primary is not available) Emergency Coordinator who would assess the situation and decide whether to implement the PPC Plan.

Listings and contact information for all of the designated Primary and Secondary Coordinators are presented in **Exhibit B.1-2** and **Exhibit B.1-3**. Exhibit B.1-2 presents the Keystone ***Emergency Coordinator Phone Listing*** and Exhibit B.1-3 provides ***Emergency Coordinator Contact Information Details,*** respectively. These documents are formatted to provide ready use and access and may be separately posted/display from this Plan.

The revision of each document is current as of the time of the most recent Plan – with this number/date identified within the footer of each exhibit.

IIB.2 DUTIES AND RESPONSIBILITIES OF THE COORDINATOR

The Primary Emergency Coordinator, or in the case of his absence or inability to assume the emergency coordination duties, the Secondary Emergency Coordinator, has the following duties and responsibilities in the event of an incident. The Emergency Coordinator may designate appropriate personnel to perform specific tasks. The Emergency Coordinator, or designee, will identify the problem, assess the potential health and environmental hazards, and notify the appropriate response groups and regulatory agencies, if necessary. He, or his designee, will also contact the appropriate people involved in making response actions, corrective actions, and repairs.

The Emergency Coordinator, or designee, will instruct the designated plant personnel to perform specific activities associated with the nature of the emergency. For example, he may request that the designated personnel assume positions at the plant entrances. These individuals will then have the responsibility to work in conjunction with the Fire or Police, as necessary, to do the following:

- Direct the emergency personnel to the incident site and control traffic and parking in order to promote easy access for emergency vehicles;
- Refuse entrance onto plant property to all unauthorized persons; and,
- Courteously refuse entrance and direct members of the news media to the plant office conference room or other designated location where the Vice President of Operations, the Plant Manager, and/or other company management personnel will be responsible for handling the media in an emergency. All questions and requests for information will be handled by these individuals.

Under the direction of the Shift Supervisor, the Control Room Operator will attempt to maintain an accurate log of event communications and notifications as they occur including the time, people, instructions, requests, etc. The Operator will also notify the Emergency Coordinator of ongoing developments.

IIB.3 CHAIN OF COMMAND

In the event of an emergency, the person making the discovery will notify the Shift Supervisor, either directly or through the Control Room Operator. The Shift Supervisor will then contact an Emergency Coordinator. The Emergency Coordinator, or designee, will contact the appropriate corporation officers and other emergency coordinators as previously listed if necessary. The PPC Plan chain of command is depicted in Table 3.

IIC. SPILL LEAK PREVENTION AND RESPONSE

IIC.1 PRE-RELEASE PLANNING

In preparing this PPC Plan, Keystone has identified all areas at the facility that include sources of potential material spills or leaks or other potential environmental hazards. These potential sources have been categorized into the following areas:

- Satellite Areas for Equipment Maintenance Materials;
- General Storage Areas;
- Propane Storage Areas;
- Aboveground Storage Tanks;
- Underground Storage Tanks;
- Stockpile Areas;
- CKD Stockpile Areas;
- Laboratory Activities;
- Landfill Activities;
- Miscellaneous Activities; and,
- Subcontractor Activities.

These areas were previously detailed in Section IIA and are depicted on Figures 3A, 3B and 3C. Pre-release planning measures for each of these areas are discussed below. The hazardous waste fuel operations are addressed in Part I of this document.

Satellite areas used for the storage of equipment maintenance materials have the potential for a spill or leak since these areas include materials that are used by facility personnel on a regular basis. Materials stored in these areas are stored in either 55-gallon drums, totes or smaller, more practical containers. Pollution incident prevention practices specific to these areas include operating procedures, visual inspections and monitoring, secondary containment structures, and emergency spill/release response packs which are readily available in the event of an emergency.

The general storage areas include those areas at the facility where materials are stored in bulk quantities to be distributed to the various satellite areas discussed above or to other operations

areas. Materials stored in these areas are handled on a less frequent basis, and therefore, are less likely to experience a leak or release. Pollution incident prevention practices specific to these areas include operating procedures, visual inspections and monitoring, secondary containment structures, and emergency spill/release response packs being readily available in the event of an emergency.

All of the aboveground storage tanks at Keystone, with the exception of the slurry tanks and the mobile tanker truck, are either double-lined or have secondary containment structures built around them. Potential for spills and leaks for any of these tanks exist when they are being filled, in the event of failure of a tank component or if the tank should rupture. Due to the large storage capacity of the three slurry tanks located near the No. 2 Cement Kiln, a retention area has been constructed to serve as secondary containment should any of the tanks rupture. Pollution incident prevention practices specific to these areas include visual inspections and monitoring, and maintenance of the integrity of the secondary containment structures.

The stockpile areas include those areas throughout the facility where raw material, product, and coal are stored. These areas do not have the potential to spill or leak materials harmful to human health or the environment. There is a potential for coal to smolder in the coal bunker/mill stockpile area of the facility. Fire prevention specific to this area includes visual inspection and monitoring, and the installation of fire prevention/fighting equipment as previously discussed in Section IIA.4.

Laboratory activities include the analysis of hazardous waste fuel shipments and cement quality. Pollution incident prevention practices specific to this area include visual inspections and monitoring, proper laboratory procedures, and the proper storage of chemicals.

CKD produced during the on-site cement manufacturing process that is determined to be non-hazardous by USEPA test method SW-846, or equivalent, is stored in piles on-site. The inactive portions of the piles have been, or are in the process of being, covered with hydroseed to allow vegetation to stabilize the piles' surfaces. The vegetation will minimize emissions of air-borne particulates and suspended solids in storm water runoff.

Landfill activities at the facility include an existing landfill from which the disposed material is being mined for re-use in the manufacturing process. In addition, a proposed residual waste

landfill has been designed for the site; however, there are no current plans to construct the landfill.

Miscellaneous units and activities include those sources of spills or leaks that do not come under one of the specific categories listed above. These units include parts washing units, quarry blasting operations, air pollution control equipment, and transportation vehicles on-site. Pollution incident prevention practices specific to these units include visual inspections and monitoring, preventative maintenance procedures, and secondary containment structures where applicable.

The general direction of the flow of surface water on the site is shown on Figures 3A, 3B and 3C. Materials spilled in any of the above areas, should secondary containment fail or as a result of equipment failure, accident, or human error, will follow the general flow patterns. With the secondary containment systems identified above in place, the possibility of a major release from these areas is minimized. Any minor leaks that could occur from these areas should not be of sufficient volume to preclude cleanup although the spill may not be contained in the immediate spill area. However, should a major release migrate outside of a containment area, the material would follow the general surface water drainage pattern. Precautions will be taken to minimize any overflow from secondary containment systems that may occur as the result of precipitation or the intended application of water during clean-up activities. These precautions will include the temporary construction of additional containment barriers.

Overall flow patterns of surface runoff through and around the site of the main cement plant, the truck parking area, the truck staging area, and the truck access roads generally drain easterly from the east side of Route 329 with the southern and northern sections of the plant site divided by a "ridge" line running easterly from the Locker Room/Laboratory Building to the area of the former Warehouse Buildings beneath the rotary portion of the new cement kiln. These areas are mostly paved. All existing surface drainage, except for limited runoff into the swale along the north side of the truck access road, is diverted into two (2) existing holding/detention basins: one located just east of the cement kiln stack (North Storm Water Detention Basin) and the other one at the southeast corner of the cement plant site near the railroad (East Storm Water Detention Basin). As soon as possible following a release at the main cement plant, the truck parking area, the truck staging area, and the truck access roads, Keystone will take steps to contain the extent of the release and avoid entry into the facility's storm water management system by using spill booms, absorbent materials, or other appropriate response equipment. Should a regulated substance that is spilled enter storm

water runoff, the plant will promptly deploy absorbent spill booms to contain the material and to prevent any further migration.

Existing drainage facilities within the operational area of the Keystone plant generally consist of a combined system of swales, drainage troughs, culverts and inlets. A storm drainage trough located in the area between the Power House and the former No. 1 Cement Kiln collects surface and building drainage from the southern half of the plant area and drains into a system of culverts and inlets, which divert surface water flow into a pump pit just east of the new cement kiln. From this collection point, all inflow is conveyed northwardly into the holding basin located east of the cement kiln stack. Similarly, the swales, culverts and inlets in the northern section of the plant area collect and convey all surface and building drainage into the holding basin east of the cement kiln stack.

Drainage from the areas east and west of the Bulk Cement Silos and Loading Station situated at the southern most area of the plant site generally flow eastward and drain into the East Storm Water Detention Basin located at the southeastern corner of the plant site. Overflow from the basin ultimately drains into the Monocacy Creek via a spillway and culverts beneath the railroad.

Surface runoff not collected by drainage control systems within the plant areas flows eastward into two (2) existing drainage swales. The swale located south of the East Storm Water Detention Basin drains into the Monocacy Creek. The northern swale, which runs eastward along the north side of the main truck access road on the west side of the rail road tracks, diverts surface drainage into the Monocacy Creek.

Surface runoff on the quarry side of the facility generally flows easterly, toward a quarry, and/or towards the West Storm Water Detention Basin located southwest of the Quarry Shop and west of PA Route 329. Water collected in the West Storm Water Detention Basin enters the site's storm water management system and is conveyed to one of the storm water detention basins or reservoir on the plant side of the facility.

Additionally, Keystone has implemented many Best Management Practices (BMPs) for chemical handling and spill prevention, as discussed throughout this PPC Plan.

IIC.2 MATERIAL COMPATIBILITY

The materials normally handled and stored in each of the plant areas outside of the waste fuels operations are typically stored and handled individually, including isolated spill containment. Therefore, incompatibility of these materials is not considered an issue. Materials stored in the stockpiles or in the landfill do not have compatibility issues.

IIC.3 INSPECTION AND MONITORING PROGRAM

Spill and leak prevention is a primary goal of the PPC Plan. At Keystone, spill prevention is accomplished through proper maintenance of equipment and systems, good housekeeping practices, security policies, tank inspections, and education of employees on the proper handling of all materials including hazardous materials.

Satellite Areas for Equipment Maintenance Materials

General housekeeping practices, such as neat, orderly storage areas and prompt cleanup of spills or leaks, are integrated into the inspection and monitoring program. Each of the satellite areas used for the storage of equipment maintenance materials discussed in Section IIA.3.1 are equipped with emergency spill/release response packs and secondary spill containment. The spill response packs are located near the satellite areas for easy access in case an emergency occurs. The spill response packs are equipped with such response items as fire extinguishers, over-pack drums, SDS for the materials in the area, absorbent material in the event of a spill, emergency eyewash kits, and a list of emergency notification personnel. Designated personnel are trained and assigned to inspect these areas to ensure that proper housekeeping and spill prevention procedures are followed.

General Storage Areas

The general storage areas discussed in Section IIA.3.2, are located in buildings that serve as secondary containment in the event that a spill or release were to occur. Each of these buildings have concrete floors to prevent any spills from reaching soil and some also have curbing with the ability to contain the spill. In addition, emergency spill/release response packs are located nearby in order to respond in the event of an emergency. These areas are inspected by assigned and trained personnel to ensure that proper housekeeping and spill prevention and reporting procedures are followed.

Propane Storage Areas

Propane storage areas discussed in Section IIA.3.3, consist of the main propane storage tank and storage racks for propane cylinders. Typically, eight to ten propane cylinders are stored in these racks to be used by forklifts or small heating units. Each of the racks is located in limited access areas, protected by chain link fences and/or hazard barriers. The requisite fire hazard warning signs are posted and these areas are inspected by assigned and trained personnel to ensure that proper housekeeping, and accident prevention, and reporting procedures are followed.

Aboveground Storage Tank Areas

The ASTs discussed in Section IIA.3.4, with the exception of the three tanks formerly used to store cement slurry and the mobile tanker truck, are either double lined or have secondary containment structures installed. Secondary containment structures include tanks being located on cement surfaces inside a building with curbing, or if a tank is located outside of a building, it is located on a concrete pad with containment or attached self-containment structures. The used oil fuel tank is a double wall tank and drip containment pads are used for the containment of incidental spills during filling. Each storage tank is properly labeled and an SDS for the contents is available on-site. Spill response packs including spill absorbent material is also available near all tanks in case a leak should occur. Storage tanks are visually inspected on a regular basis for leaks. Fuel deliveries from contractors are scheduled during normal working hours, and precautions are taken to prevent overfilling of the tanks. Visual inspections are also performed by trained personnel during scheduled deliveries, observing the condition of secondary containment areas, valves, piping, and support structures.

The three slurry tanks located near the former No. 2 Cement Kiln contain uncontaminated water from secondary containments structures that will be used in the dry-process cement kiln.. In the event that one of the three tanks should rupture, the spilled contents would follow a swale, which will convey the slurry to a retention area located east of the new kiln stack. If necessary, the facility can provide further temporary diking to increase containment of any such spill.

Underground Storage Tank Areas

The USTs discussed in Section IIA.3.5 contain such materials as heating oil, gasoline and fuel oil. Material deliveries from contractors are scheduled during normal working hours, and precautions are taken to prevent overfilling of the tanks. Visual inspections are also performed by trained

personnel during scheduled deliveries, observing the condition of secondary containment areas, valves, piping, and support structures.

Stockpile Areas

The stockpile areas discussed in Section IIA.3.6, consist of raw material, product, and coal storage piles. These stockpiles of inert raw material and product are not considered to pose an unreasonable threat to human health or to the environment. A potential for coal to smolder does exist in the coal bunker/mill stockpile area of the facility. In order to prevent coal from smoldering, a water flood system is installed in the coal bunker to suppress any combustion that may occur. This system is actuated by a valve that is located at a distance from the bunker so that it can be activated safely in the event of an emergency. A 25,000 cubic foot per minute fan is installed to remove any potential harmful fumes (e.g., carbon monoxide) from the area if combustion should occur. In addition, carbon monoxide monitors and alarms are installed to protect human health and to act as a combustion warning device. These fire prevention systems are inspected daily by assigned and trained personnel to ensure proper operation and that accident prevention procedures are followed.

Cement Kiln Dust Stockpiles

The CKD in the CKD stockpiles discussed in Section IIA.3.7, is a co-product of the wet manufacturing process. As such, the piles do not pose an unreasonable threat to human health or to the environment. The CKD stockpiles at the site are inspected seasonally by assigned and trained personnel to ensure proper housekeeping and to identify areas that require additional stabilization. The inactive portions of the CKD stockpiles have been seeded to stabilize the material and to minimize the potential for sediment to be transported to the downgradient storm water detention basin or reservoir.

Laboratory Activities

The laboratory activities discussed in Section IIA.3.8 include the storage and use of various chemicals used to analyze hazardous waste fuels brought on-site and for quality control of cement products. Trained laboratory technicians conducting these activities follow a Chemical Hygiene Plan (CHP) prepared in accordance with 29 CFR Part 1910, Occupational Exposures to Hazardous Chemicals in Laboratories. The CHP sets forth procedures, equipment, personal protective equipment and work practices designed to minimize employee exposure to health hazards associated with handling hazardous chemicals in the workplace. The CHP includes SDS

for each chemical used in the laboratory, first-aid procedures, and mixing procedures. Each chemical is stored in properly labeled containers and in flame retardant cabinets. This area is inspected by assigned and trained personnel to ensure that proper housekeeping and accident prevention procedures are followed.

Landfill Activities

The landfill activities discussed in Section IIA.3.9, consist of an existing landfill from which the disposed material is being mined for re-use in the manufacturing process. In addition, a proposed residual waste landfill has been designed for the site; however, construction is not currently planned.

Miscellaneous Activities

Miscellaneous activities as discussed in Section IIA.3.10, consist of the parts washing units and quarry blasting operations. They also include the various air pollution control devices located throughout the plant and transport vehicles. The parts washing units are also designed with integral secondary containment systems to capture spills and leaks. Spill and leak prevention measures are not applicable to quarry blasting operations. Necessary safety precautions in the quarry blasting operations include using only licensed blasting personnel who are trained to follow approved Mining Safety and Health Administration (MSHA) safety blast requirements. All of the miscellaneous units are routinely inspected by trained personnel to ensure that proper housekeeping and spill prevention procedures are followed. The facility air pollution control devices undergo routine inspection and preventative maintenance to minimize the potential for equipment failure and release of air contaminants. Keystone monitors the operation of transport vehicles on-site to the extent practicable and encourages safe operating procedures for such equipment.

IIC.3.1 Frequency of Inspection

The major systems described in previous sections of this PPC Plan for minimizing and/or containing spills and other releases, and for responding in the event of emergencies are routinely inspected.

IIC.3.2 Inspection Procedure and Recordkeeping

Inspection duties are assigned to specific individuals who have been trained in inspection requirements. These individuals are under the direct supervision of the Plant Manager, who is responsible for confirming that the inspections are properly conducted.

Each regulated process system has its own inspection report form, which describes items to inspect and the types of problems for which to look. If problems or the need for repair are not observed, the inspector signs the form and files it in the central file location designated for "acceptable" inspections. If any unacceptable situation is observed (e.g., repairs are needed), a notation is made by the inspector, a copy is kept by him in his separate "repair" file, and a copy is given to the appropriate maintenance or operation supervisor for repairs or corrections.

Inspection of the storm water outfalls and sediment and erosion control measures at the facility are discussed in Section IIG.

IIC.3.3 Remedial Action

If inspections reveal that non-emergency maintenance is needed, repairs will be completed as soon as practicable in order to prevent equipment damage, safety problems, or accidental release of hazardous materials. Proper maintenance also reduces the need for emergency repairs. If a hazard is imminent or has already occurred as noticed during the course of an inspection, or any time between inspections, remedial action will be taken immediately. Keystone personnel will act in accordance with this PPC Plan to notify the appropriate authorities and initiate any emergency remedial actions as required.

In the event of an emergency involving the release of hazardous constituents to the environment, efforts will be directed towards containing the hazard, removing and arranging for appropriate disposal of hazardous constituents, and subsequently decontaminating the affected area, as outlined in Section IIB.

IIC.4 PREVENTIVE MAINTENANCE

Visual inspections of all secondary containment structures throughout the facility are conducted on a regular basis to ensure that the structure will contain any material that leaks out of its container. The specific areas discussed in Section IIA.3 are individually inspected and monitored to make sure that their respective emergency response items and up-to-date SDS are available on-site. All storage tanks and drums are inspected for leaks or damage. Fire extinguishers are routinely inspected in accordance with MSHA requirements.

Preventive maintenance at the landfill area of the facility includes periodic inspections, testing, corrective actions, repair or adjustment, and recordkeeping of findings. Maintenance of the piping, valves and ancillary equipment at the leachate transfer station will be performed as necessary based on the inspections.

The preventive maintenance of Keystone's storm water management system is discussed in Sections IIF and IIG.

IIC.5 HOUSEKEEPING PROGRAM

Any minor spills at any of the areas discussed in Section IIA.3 are cleaned up, and the spill material is stored in the flammable or hazardous waste solid storage container for proper disposal. Roadways by the storage containment dikes are kept clean and open for accessibility. Furthermore, Keystone maintains a clean and orderly facility to prevent potential pollutants from contacting storm water runoff.

Empty oil drums from the various satellite or storage areas throughout the facility are sent to the Pre-disposal Area (Storage Area 7) where they are stored on a concrete pad prior to proper off-site disposal by an approved contractor.

IIC.6 SECURITY

Keystone employs general security measures relative to all facility operations. All site visitors are required to check in at the time of entry to the plant and required to be approved by Keystone personnel. While on-site, visitors are escorted by Keystone personnel. Contractors working on-site without constant supervision by Keystone personnel must receive training including

instruction relative to this PPC Plan. Keystone personnel are instructed to report any unusual activities or suspicious persons to the supervisor. The supervisor is required to inspect the site to check for evidence of intruders, potential hazardous waste releases to the environment, and any other problems. If any such problems are observed, the supervisor will take appropriate measures to remedy the situation. If unauthorized persons are found the local authorities will be contacted to take the appropriate actions. Under normal conditions local authorities can respond to calls within approximately 5 minutes. Keystone currently has in place a badge identification system where employees have a badge ID, helmet ID for contractors and visitors are required to have a visitor badge.

IIC.7 EXTERNAL FACTOR PLANNING

In the event of a power failure, all pumps stop. As a result, all material processing, flow and/or transfer of materials also stops. Check valves and other fail-safe devices in critical system components hold materials in place and prevent backflow or siphoning. The foam fire fighting system in the hazardous waste fuel storage area is tied to the plant's emergency generator and will not be affected in the event of a power failure.

IIC.8 EMPLOYEE TRAINING PROGRAM

The information contained in this section outlines Keystone's personnel training program in accordance with the requirements in PA Code 264a, which incorporates by reference 40 CFR Part 264.16, the current PADEP air operating permits, and the applicable MSHA hazard communication regulations of 30 CFR Parts 46 and 47.

The intent of the personnel training program is to ensure that Keystone employees have the necessary knowledge and training to safely and properly manage all plant operations including, but not limited to, the hazardous waste operations, kiln operations, air pollution control equipment, and monitoring systems so as to assure compliance with applicable state and federal regulations and in a manner that minimizes hazards to human health and the environment.

IIC.8.1 Outline of Training Program

All Keystone employees receive training in both safety and manufacturing procedures. The safety training consists of general concepts and response to emergencies and is outlined herein. Keystone is under the regulatory auspices of the MSHA, and the company follows the

requirements of that agency. Keystone uses on-the-job training for most job functions. Those functions are based upon job titles and include maintenance, equipment operation and management functions.

The Keystone training program has been organized to instruct personnel in the pertinent portions of the overall scope. The general topics covered in the program follow:

- Waste fuels operations SOPs;
- Plant communication and alarm systems;
- Systems emergency shutdown and contingency procedures, including hazardous waste fuel cut-off through interlocks triggered by certain parameters required by RCRA Part B and Clean Air Act Title V regulations;
- Response to fires, including location and use of fire extinguishing equipment;
- Plant emergency evacuation procedures;
- PPC Plan implementation, including Keystone's storm water pollution prevention goals;
- MSHA 30 CFR Parts 46 and 47 (hazard communication); and,
- Location, usage, maintenance, and repair of available safety equipment for personal protection such as rubber gloves, face shields, respirators, boots, rubber aprons, rubber jackets and hoods with air supply systems.

IIC.8.2 Job Title/Job Description

Key individuals who are involved in hazardous waste management are trained in areas pertinent to their duties. In the cement manufacturing operation, most employees have no involvement with hazardous waste management. These employees typically receive on-the-job safety training. Certain employees have only indirect involvement with hazardous waste management. This latter group includes supervisors and/or management personnel who might be involved in an emergency response. Others are involved directly with hazardous waste management.

Employees who do not have any direct responsibility for the handling, or ultimate disposition of, hazardous waste only receive training related to their job and general facility safety procedures.

IIC.8.3 Initial Training Period

Within six months of assignment, all newly hired, transferred, or cross-trained personnel receive classroom instruction and/or on-the-job training which relates specifically to their assigned duties. All existing personnel have already received the appropriate level of training or are currently enrolled in the training program.

Mastery of specific job skills and procedures is accomplished through supervised, on-the-job activities. In general, all newly hired, transferred, or cross-trained facility personnel will be assigned to assist fully trained, experienced personnel as they perform their jobs. New employees will often temporarily assist in activities which are peripheral to their primary job function so that they gain a more complete appreciation of the overall operation of the facility. Supervisory personnel observe and evaluate the performance and competence of the trainees over the course of their apprenticeship.

IIC.8.4 Annual Training Review

At least once annually, Keystone employees involved in the waste management activities undergo refresher training. This course has been developed to document competency in the waste related job function including emergency response. Annual training on emergency procedures is provided for all operations personnel.

IIC.8.5 Training Directors

Keystone's Safety Coordinator serves as the Training Director and coordinates training activities for facility personnel. There may be instances where Keystone may employ a contractor/subconsultant to provide the required training. The Manager, Environmental Compliance and Resource Recovery Manager have the requisite experience in training for hazardous waste management and plant safety procedures. Typically, qualifications would be a degree in one of the sciences or suitable experience in health, safety, environmental compliance and/or supervision, or relevant experience.

IIC.8.6 Relevance of Training to Job Position

Comprehensive training of both RCRA and hazardous waste materials management regulations and permit requirements is provided to all waste management personnel. Unique and specific

training applicable to specific positions is conducted mainly through on-the-job training and review of standard operating procedures (SOPs).

IIC.8.7 Training for Emergency Response

Facility personnel receive training in implementing the PPC Plan, both during initial training and during the annual review. They are familiar with emergency procedures, equipment, and systems and will be able to respond promptly and safely should the need arise.

The training program includes the following safety items:

- Procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment;
- Communications and alarm systems;
- Response to fires and explosions;
- First aid; and,
- Shutdown of operations.

IID. COUNTERMEASURES

IID.1 COUNTERMEASURES TO BE UNDERTAKEN BY FACILITY

IID.1.1 Satellite and General Storage Areas

This section describes the specific countermeasures that will be undertaken by facility personnel in the event of a spill in any of the satellite and facility storage areas presented in Section IIA.3. These areas include the following: satellite areas for equipment maintenance materials, general storage areas, propane storage areas, aboveground storage tanks, underground storage tanks, laboratory activities, miscellaneous units, and subcontractor activities. The hazardous waste fuel storage areas and hazardous waste fuels operations are not included in these areas.

In the event of a minor or major spill of a hazardous material, the following emergency procedures must be followed:

Minor Spills

The individual discovering the spill should contact the Shift Supervisor, either directly or through the Control Room Operator, immediately and, under the direction of the Shift Supervisor or Emergency Coordinator, take the following actions:

- Identify spilled substance;
- Try to locate and eliminate source; and,
- Stop spill from spreading using absorbent materials.

Major Spills

The individual discovering the spill should contact the Shift Supervisor, either directly or through the Control Room Operator, immediately and, under the direction of the Shift Supervisor or Emergency Coordinator, take the following actions:

- Evacuate the area, if necessary; and,
- Await further direction from the Shift Supervisor and/or Emergency Coordinator.

Containment and/or Collection

The Emergency Coordinator, or designee, must assess the situation and determine whether or not it is safe to continue cleanup activities. Once the area is safe, the following measures will be undertaken:

- Prevent spread of materials;
- Transfer spilled materials to safe containers for removal; and,
- Label the recovery container with material name and date.

Minor spills should be contained and collected immediately, where the situation allows without endangering involved parties. A complete emergency equipment list can be found in Section IID.5.

All of the bulk storage tanks (with the exception of the slurry storage tanks and the mobile tanker truck) and open working drums have secondary containment structures that are designed to hold the entire contents of the respective container (or are double walled tanks). A spill confined to the secondary containment will be pumped into a portable tank or tanker truck.

Removal or Migration

Following the cleanup of a spill event, the recovered solid waste, contaminated soil or contaminated water will be treated, stored or disposed in accordance with applicable environmental requirements. If migration of the regulated substance occurs, the quantity and fate transport of the substance shall be determined and remedial actions will continue.

IID.1.2 Landfill Activities

Countermeasures to be undertaken by facility personnel will include mitigating measures for minor incidents that are controlled and do not pose an immediate danger to offsite personnel or the environment. These incidents include minor material spills that may have caused the problem.

IID.1.3 Emergency Response

This subsection addresses the appropriate emergency response procedures to be undertaken by the Emergency Coordinator during an incident.

The general, response to an incident is detailed within **Exhibit D.1** | ***Facility-wide Incident Assessment and Response***. This document provides an overview of actions initiated by the First Responder through the coordination of the Emergency Coordinator – who shall assess the overall situation, determine the severity/class of the incident and direct the response efforts accordingly.

Individual responses to specific circumstances are discussed within this Section according to the type of incident and area of the facility involved.

General Emergency and Evacuation Response

The Control Room Operator or the Shift Supervisor will call the plant Emergency Coordinator (the Primary Emergency Coordinator or the Secondary if the Primary is unavailable). The Shift Supervisor will begin to direct personnel in appropriate response actions until relieved by the Emergency Coordinator, and will call the fire department and other emergency response groups, if necessary (i.e., emergency vehicles are present or will be present on-site). The Emergency Coordinator, or designee, will in turn call the Plant Manager and appropriate corporation officers, activate the emergency horn with one long blast (if site evacuation is necessary), and call the response groups and regulatory agencies (if necessary).

The Emergency Coordinator, or designee, will make the following calls if necessary:

- Electrical Coordinator - to have him deenergize the equipment plus power to any circuits that may be endangered by a fire or other incident;
- Shift Foreman, or Designee - to close all flow valves to isolate the system;
- Labor Coordinator, or Designee - to obtain loaders and dump trucks to haul absorbent materials (i.e., kiln dust) to the scene;
- Emergency Response Clean-up Crew - to provide additional emergency response support (listed in Section IID.2); and,
- Additional Emergency Contacts (listed in Section IID.3).

Tank Spills and Leakage

In case of a tank rupture or spill, the Emergency Coordinator will notify the proper personnel to contain and clean-up the material and to set-up any necessary equipment to pump the spilled material into alternate storage vessels if compatible and appropriate. After the spill has been contained and collected, the Emergency Coordinator will conduct a post-emergency evaluation of the area and equipment from which the spill occurred. During the post-emergency evaluation, the Emergency Coordinator, or designee, will determine if the leak or release was due to failure of the primary tank system. All valves, associated piping and equipment will be inspected. An assessment of the necessary repairs will be filed with the Emergency Coordinator, or designee.

If the release has not damaged the integrity of the tank system, the tank system will be returned to service following the inspection. If the release was due to failure of a primary tank system, the tank will be repaired prior to being placed back into service.

Identification of Hazardous Materials

In the case of a fire, the identification of hazardous materials would be performed via review of SDS, hazardous waste manifests, and any available laboratory data. Should any regulatory agencies or emergency response services desire to know the identity of material involved in a fire or release, Keystone will have available on-site any relevant SDS, label information, and/or shipping paperwork.

Tank Emergency Repair

Tank emergency repairs are performed in accordance with SOP WF-31, entitled "Tank System Incident Response," developed and maintained by Keystone. The purpose of SOP WF-31 is to respond to major or catastrophic leaks from the tanks used for storage at the facility. SOP WF-31 applies to metal storage tanks and containment areas as discussed in the subsections below. A major leak is defined as any leak larger than a seep or drip from the shell of a tank or pipe/flanges which cannot be readily controlled. In general, the plan for each tank is to empty the tank and secondary containment first and then, at the discretion of the Plant Management, to repair or replace the tank.

Metal Storage Tanks

Upon discovering a leak, the employee must immediately contact the area supervisor, who will identify the contents and volume of the tank, and the Shift Supervisor, either directly or through the Control Room Operator. If appropriate, the Shift Supervisor will contact the Emergency Coordinator.

Leaking tanks or containers will be emptied into other non-leaking tanks or containers. If the tank or container can be repaired, that process will be performed. If repairs cannot be made or if it is not worth the cost or effort, the tank or container will be replaced as appropriate and the leaking unit will be properly disposed.

Containment Areas

Upon discovering a leak into a containment area, the employee should immediately contact the area supervisor, who will identify the contents and volume of the spill in the area, and the Shift Supervisor, either directly or through the Control Room Operator.

Prevention of Recurrences or Spread of Fires, Explosions, or Releases

In the case of a fire, explosion, or release, the equipment or device that allowed the release and subsequent fire, explosion, or spread of any hazardous constituent will not be put back into service until all appropriate repairs are completed and all safety devices are checked and determined to be functional.

Should a fire occur due to a spill, as soon as the fire is extinguished all remaining flammable material will be removed as soon as possible. Remaining material will either be pumped to an alternate storage tank or absorbed with absorbent material and placed in storage drums.

Storage and Treatment of Released Material

Released flammable material may be pumped to an alternate non-damaged storage vessel. Smaller spilled quantities that are collected by absorbent material will be placed in storage drums. In the unlikely event that numerous tanks are involved in a major incident, an outside waste management service may be called in to clean up and dispose of the material.

Post-Emergency Equipment Maintenance

Hand tools used for clean-up efforts will be cleaned and restored to original condition for subsequent use. Any emergency equipment that requires renewing, such as fire extinguishers, air packs, etc. may be renewed by an outside contractor prior to being placed back in standby service.

Earth-moving equipment, such as front-end loaders and trucks used to transport clean-up material may be cleaned by brushing. Clean-up material from this operation will be properly disposed, as necessary.

IID.2 COUNTERMEASURES TO BE UNDERTAKEN BY CONTRACTORS

In the event that emergency response is needed, Keystone is prepared to respond to the "first alert" to contain any off-site impact or to control health and safety of employees and neighbors. If cleanup and emergency response exceeds the ability of Keystone to respond, the following list of emergency contractors will be contacted for assistance. Typical response time shall be one to two hours upon notification.

Emergency Response Contractors

1. Rapid Response, Inc.
   14 Brick Kiln Court
   Northampton, PA 18067
   1-484-275-6900
   1-877-460-1038

2. Elk Environmental Services
   1420 Clarion Street
   Reading, PA 19601
   610-372-4760
   800-851-7156 (24 HR Emergency)

Keystone contacted these companies to confirm they are still capable of providing these services. Current agreements for emergency assistance from each contractor are included in Appendix A.

IID.3 INTERNAL AND EXTERNAL COMMUNICATIONS AND ALARM SYSTEMS

Keystone maintains a communication network consisting of public telephones, cellular phones equipped with two-way radios, and signaling horns. All personnel within the facility will have

access to one or more of the communication systems listed. Each process area and office will be provided with at least one telephone.

Plant supervisors are supplied with cellular telephones and also equipped with two-way radios or other communication devices. Operating personnel have access to the cellular telephone numbers for emergency, or rapidly, contacting of those individuals. Facility personnel can alert others to the existence of a possible emergency situation by voice contact, two-way radios, a telephone system, and an alarm system. Operations personnel typically carry two-way radios when working and thus, have immediate access to emergency communication equipment. Using these radios, they can communicate with the other operations personnel. If no telephone is available, personnel will carry two-way radios.

The emergency telephone numbers and contact information are detailed within **Exhibit D.3**.

Exhibit D.3-1 presents the listing of *External Notifications and Resources List* and **Exhibit D.3-2** provides the *External Notifications Primary Contacts Summary*. These documents are formatted to provide ready use and access and are separately posted/displayed within the Control Room.

IID.4 EVACUATION PLAN FOR INSTALLATION PERSONNEL

Figures 1, 3A, 3B, and 3C represent a site plan of the Keystone facility. The primary evacuation route leads to the west, where all personnel are instructed to congregate at the main plant office on the west side of PA Route 329. Should wind directions be from the east, the alternate congregation point is at the east end of the internal plant road terminating at PA Route 512 (see Figures 4 and 5). All personnel are instructed to remain at the evacuation points to allow for a head count by management personnel. The drawings provide an overall plan view of the entire Keystone facility with respect to the adjacent PA Routes 329 and 512.

The signal for evacuation is one long blast by the electric horn alarm system which is activated from the Control Room and Substation. More detailed instructions (congregation point, specific areas or evacuation, etc.) may be relayed over the facility's two-way radio system.

IID.5 EMERGENCY EQUIPMENT AVAILABLE FOR RESPONSE

The following specialty emergency spill and fire response equipment is available at the facility.

- Absorbent Material, Spill Booms, and Over Pack Drums (in the Waste Fuels Area, Power House, and Oil House); and,

- Stretcher (in the Storage and Machine Shop).

There is other equipment and systems on-site that are utilized during daily operations or are contingency equipment for specific systems on-site, which can also be utilized during an emergency response event. This equipment includes the following items:

- FM 200 Suppression System (in the Control Room);
- Personal Protection Equipment (PPE), including Tyvek suits, respirators, gloves, and boots (in the Waste Fuels Area);
- Fire Suppressant Foam System, designed to engulf the tank containment areas and unloading stations with 7,000 gallons of foam in ten minutes. This foam will blanket the hazardous waste storage area to extinguish and prevent the spread of fire (in the Waste Fuels Area);
- Water Sprinkler System (in the Oil House and Stockpile Area of the Kiln Burner Floor);
- Limited hard copy Safety Data Sheets (SDS) (in Oil House, Finish Mill/4,400 Horse Power Mill, Laboratory, and Resource Recovery Trailer) Up-to-date SDS via 3E Company and SIRI MSDS;
- First Aid Kits (in the Storage and Machine Shop, Control Room, and Resource Recovery Trailer);
- Emergency Showers and Eyewash Stations (in the Laboratory);
- Listing of Emergency Notification Personnel (in the Main Office, Resource Recovery Trailer, and Control Room);
- Waste Fuels Response Designated Equipment, listed in SOPs WF-08 and WF-54, all of which may be used for non-waste fuels response actions, as well (in the Waste Fuels Area);
- Front End Loaders (at various locations around the facility);
- Dump Trucks (at various locations around the facility);
- Miscellaneous Equipment, such as shovels, brooms, pails, roll-off boxes and containers, drums, etc. (throughout the operating area of the plant);
- Fire Extinguishers (over 200 are located throughout the facility); and,
- Fire Hydrants with 75 pounds per square inch gauge (psig) of water pressure (two are located accessible to the kilns and waste fuels storage tanks).

The typical locations of these items are shown on Figure 6, with exception of the front end loaders, dump trucks, miscellaneous equipment, and fire extinguishers. The front end loaders, dump trucks and miscellaneous equipment are typically used in Keystone's maintenance and production activities, are readily accessible, and may be used for emergency response activities as needed.

IIE. EMERGENCY SPILL CONTROL NETWORK

IIE.1 ARRANGEMENTS WITH LOCAL EMERGENCY RESPONSE AGENCIES AND HOSPITALS

Keystone has provided copies of the existing PPC Plan to the Northampton County Emergency Management Service, the local fire and police departments, the Lehigh Valley Hospital, and the state police. Enclosed in Appendix A is a copy of the transmittal letter that Keystone included when forwarding copies of this document to the appropriate emergency response authorities. Appendix A also includes Agreements for Emergency Assistance with certain agencies in the event of an emergency. This revised PPC Plan will be forwarded to these agencies, as appropriate, and the updated agreement letters will be appended. The list included in Section IID.3. provides the telephone numbers of the local response agencies and hospitals.

IIE.2 NOTIFICATION LISTS

The list presented in **Exhibit D.3-1 | External Notifications and Resources List** details external contact information for agencies and other third party responders (whom may be) contacted in the event of an emergency or spill.

IIE.3 DOWNSTREAM NOTIFICATION REQUIREMENTS FOR STORAGE TANKS

Keystone has a regulated substance storage capacity greater than 21,000 gallons which makes Keystone subject to the spill prevention response (SPR) provisions of the Pennsylvania Storage Tank and Spill Prevention Act requirements. These regulated substances include the hazardous materials and oil that is stored in various storage tanks throughout the facility as discussed in Section IIA.3. The SPR requires Keystone to prepare a downstream notification list to include surface water intakes and counties and municipalities within 20 downstream miles of the facility. Keystone will provide annual written notice, containing a listing of the type and quantity of material stored on-site. Also, the Compliance Manager, or designee, shall annually update the contact names, telephone numbers and addresses with the local PEMA office. The downstream entities are listed below. Table 14 includes a table with the contact name, telephone number, and mailing address of the representatives of each of these governing bodies.

IIE.3.1 Surface Water Intakes

The list below includes public water suppliers, private water suppliers, and industrial water suppliers that utilize surface water intakes within 20 downstream miles of the tank facility.

Public Water Suppliers:	None.
Private Water Suppliers:	None on Monocacy Creek or Lehigh River.
Industrial Water Users:	According to a discussion with the Northampton Counties Emergency Management Agency, there are no industrial water users with surface intakes 20 miles downstream from Keystone.

IIE.3.2 Counties and Municipalities

Also, the following list includes counties and municipalities that are within 20 downstream miles of the tank facility:

Northampton County	Hanover Township
East Allen Township	Freemansburg Borough
Lower Nazareth Township	Lower Saucon Township
Bethlehem Township	Williams Township
Bethlehem City	Palmer Township

IIF. STORM WATER MANAGEMENT PRACTICES

As described in Section IIC.1, Keystone has taken proactive measures regarding the potential discharge of products or materials from portions of the facility that have higher potentials for releases due to storage or handling of chemicals or raw materials that might possibly cause harm to human health or the environment by taking a wide range of traditional measures and best management practices described in the PADEP's *Erosion and Sediment Control Program Manual*, as follows:

- Products and materials stored at the plant in tanks, silos, buildings, or under canopies, are protected from storm water, thus reducing the potential for water pollution;
- RCRA regulated materials (discussed in Part I of this PPC Plan) are stored within secondary containment;
- Channels, swales, storm inlets and storm sewer piping are used to direct the site storm water into the storm water detention ponds;

- Storm water detention ponds, which attenuate peak discharges from the plant area, allow suspended solids that may be within the storm water runoff to fall out of suspension, and settle in the ponds; and,
- Certain CKD stockpiles are stabilized.

Keystone holds NPDES permits for storm water discharges through outfalls at the facility. Keystone follows the inspection monitoring and reporting requirements of these permits. In accordance with Keystone's NPDES Permit Number PA-0011517, structural storm water management measures are visually inspected annually by Keystone personnel for compliance with the permit. Repairs are made by Keystone personnel or outside contractors as necessary.

The storm water management practices at the facility, combined with Plant Operations pre-release procedures, have been successfully implemented in the past to prevent a release as discussed in Section IIA.4. Also, certification requirements of non-storm water discharges are discussed in Section II I.

IIG. SEDIMENT AND EROSION PREVENTION

As discussed in Section IIA.3 and throughout the PPC Plan, the areas with high potential for soil erosion such as stockpiles and landfills are maintained to reduce the potential for sediments in storm water runoff and erosion. In addition, most of the storm water runoff from the site is directed on on-site storm water detention ponds or the reservoir. These ponds reduce peaks in storm water flow events and function as sedimentation basins, thus further reducing the potential for sediment to be transported off-site. Also, much of the plant area is paved, thus reducing the likelihood of soil erosion. Areas that experience traffic (either pedestrian or vehicle) have paved or gravel surfaces. In accordance with Keystone's NPDES Permit Number PA-0011517, sediment and erosion control measures are visually inspected annually by Keystone personnel. Repairs are made by Keystone personnel or outside contractors as necessary.

These measures appear to be working effectively, based upon the clarity of the discharge water at the permitted, NPDES discharge points, as visually observed by Keystone personnel.

IIH. ADDITIONAL REQUIREMENT FOR EPCRA, SECTION 313 FACILITIES

An inventory of the materials used and stored on-site is provided in Section IIA.3. As discussed through this PPC Plan, materials are stored and maintained in such a manner so as to reduce the

potential for contact with storm water runoff and surface waters. As such, materials that are stored within tanks, silos, buildings or under canopies do not come into contact with storm water. Section IIC.1 includes a detailed discussion of the storm water controls within and around the Plant. Finally, as noted is Section IIA.4, there have not been any incidents at this facility that required the implementation of this PPC Plan.

Tables 15 and 16 include a listing of the Superfund Amendments and Reauthorization Act (SARA) Sections 313 and 312 materials, respectively, used and stored at this facility.

II I. CERTIFICATION REQUIREMENTS FOR NON-STORM WATER DISCHARGES

In accordance with Keystone's NPDES permit, the PPC Plan contains a certification by a designated employee or officer of Keystone that the discharge from Outfall 004 and the storm water only portion of Outfall 003 has been evaluated for the presence of non-storm water discharges per the PPC Guidelines. The Certification for Non-Storm water Discharges form is provided in Appendix C.

IIJ. SIGNATORY REQUIREMENTS

The special requirements for SARA Title III, Section 313 facilities requires the annual review and certification of the PPC Plan by a professional engineer licensed by the Commonwealth of Pennsylvania. This certification shall attest that the "storm water PPC Plan has been prepared in accordance with good engineering practices." A copy of this engineer's certification is provided in Appendix D.

TABLES

TABLE 1
WASTES APPROVED FOR USE AS FUEL AT KEYSTONE

Primary Waste Codes[1]

D001	K022	K156	U112
D018	K023	K169	U113
D035	K025	K170	U115
F001	K026	U001	U117
F002	K028	U002	U140
F003	K035	U004	U153
F004	K036	U009	U154
F005	K048	U012	U159
K014	K049	U019	U161
K015	K050	U031	U169
K016	K051	U051	U171
K017	K052	U052	U188
K018	K083	U055	U194
K019	K086*	U056	U220
K020	K087	U057	U239

*solvent washings only

[1] Note: Each primary waste code listed above may contain secondary trace contaminants that exhibit hazardous waste characteristics identified in Table 2 and by PA Code Title 25, Section 261 Subchapter C, which incorporates by reference 40 CFR 261 Subchapter C.

TABLE 2
WASTE CODE DESCRIPTIONS

D001	Ignitable Waste
D004	Arsenic *
D005	Barium *
D006	Cadmium *
D007	Chromium *
D008	Lead *
D009	Mercury *
D010	Selenium *
D011	Silver *
D012	Endrin *
D013	Lindane *
D014	Methoxychlor *
D015	Toxaphene *
D016	2, 4-D *
D017	2, 4, 5-TP (Silvex) *
D018	Benzene
D019	Carbon tetrachloride *
D020	Chlordane *
D021	Chlorobenzene *
D022	Chloroform *
D023	o-Cresol *
D024	m-Cresol *
D025	p-Cresol *
D026	Cresol *
D027	1,4-Dichlorobenzene *
D028	1,2-Dichloroethane *
D029	1,1-Dichloroethylene *
D030	2,4-Dinitrotoluene *
D031	Heptachlor (and its epoxide) *
D032	Hexachlorobenzene *
D033	Hexachlorobutadiene *
D034	Hexachloroethane *
D035	Methyl ethyl ketone
D036	Nitrobenzene *
D037	Pentachlorophenol *
D038	Pyridine *
D039	Tetrachloroethylene *
D040	Trichloroethylene *
D041	2,4,5-Trichlorophenol *
D042	2,4,6-Trichlorophenol *
D043	Vinyl chloride *
F001	The following spent halogenated solvents used in degreasing: tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons; all spent solvent mixtures/blends used in degreasing containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004 and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

TABLE 2
WASTE CODE DESCRIPTIONS

F002	The following spent halogenated solvents: tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-tri-fluoroethane, orthodichlorobenzene, trichlorofluoromethane, and 1,1,2-trichloro-ethane; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those listed in F001, F004, or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
F003	The following spent non-halogenated solvents: xylene, acetone, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; all spent solvent mixtures/blends containing, before use, one or more of the above halogenated solvents and a total of ten percent or more (by volume) of one or more of those solvents listed in F001, F002, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
F004	The following spent non-halogenated solvents: cresols and cresylic acid, and nitrobenzene; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
F005	The following spent non-halogenated solvents: toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, and 2-nitropropane; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, or F004; and still bottoms from the recovery of these spent solvents and spent solvents mixtures.
K014	Bottoms from the acetonitrile purification column in the production of acrylonitrile.
K015	Still bottoms from the distillation of benzyl chloride.
K016	Heavy ends or distillation residues from the production of carbon tetrachloride.
K017	Heavy ends (still bottoms) from the purification column in the production of epichlorohydrin.
K018	Heavy ends from the fractionation column in ethyl chloride production.
K019	Heavy ends from the distillation of ethylene dichloride in ethylene dichloride production.
K020	Heavy ends from the distillation of vinyl chloride in vinyl chloride monomer production.
K022	Distillation bottom tars from the production of phenol/acetone from cumene.
K023	Distillation light ends from the production of phthalic anhydride from naphthalene.
K025	Distillation bottoms from the production of nitrobenzene by the nitration of benzene.
K026	Stripping still tails from the production of methyl ethylpyridines.
K028	Spent catalyst from the hydrochlorinator reactor in the production of 1,1,1-trichloroethane.
K035	Wastewater treatment sludges generated in the production of creosote.
K036	Still bottoms from toluene reclamation distillation in the production of disulfoton .
K048	Dissolved air floatation (DAF) float from the petroleum refining industry.
K049	Slop oil emulsion solids from the petroleum refining industry.
K050	Heat exchanger bundle cleaning sludge from the petroleum refining industry.
K051	API separator sludge from the petroleum refining industry.
K052	Tank bottoms (leaded) from the petroleum refining industry.
K083	Distillation bottoms from aniline extraction.

TABLE 2
WASTE CODE DESCRIPTIONS

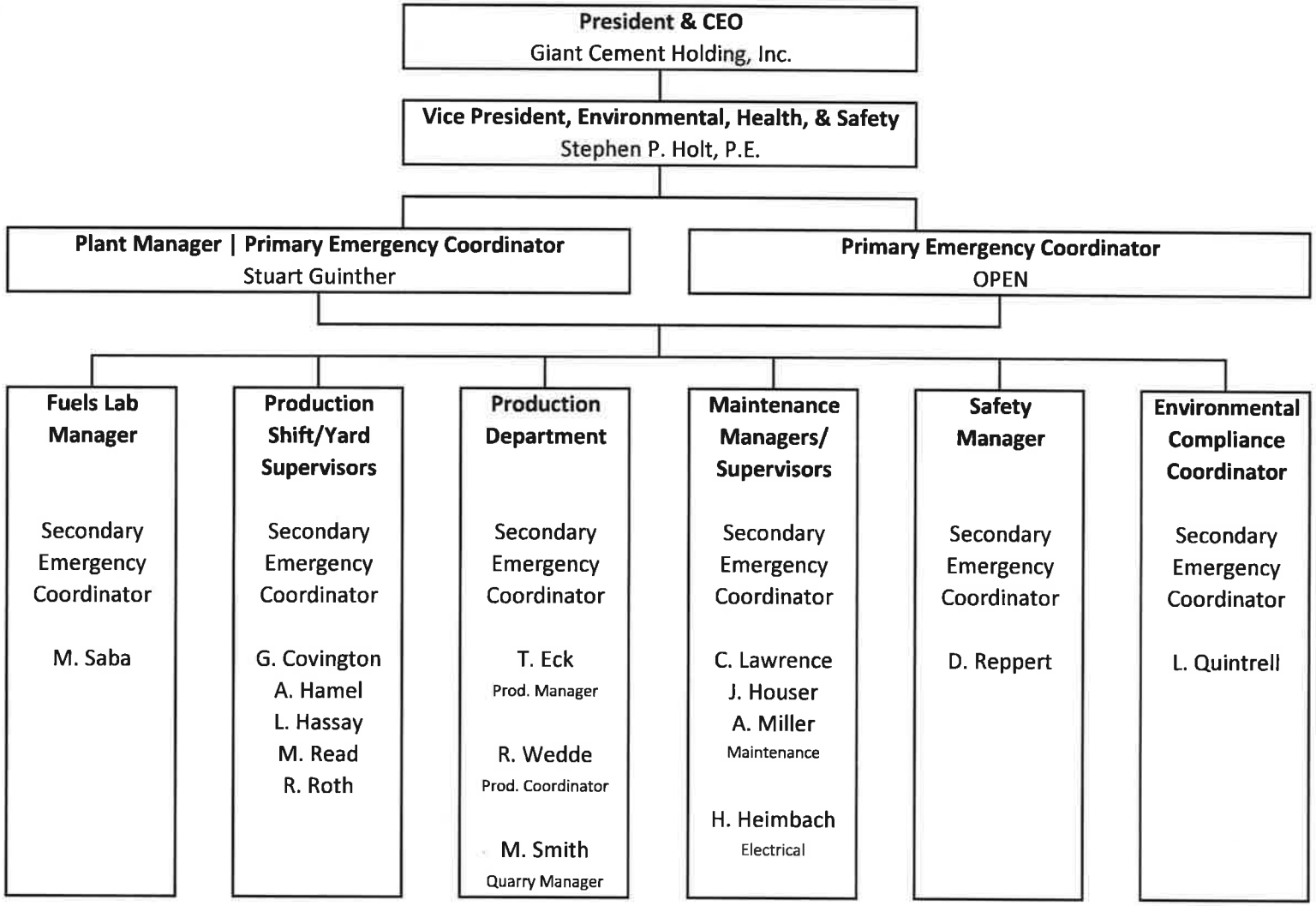
K086	Solvent washes and sludges, or from cleaning tubs and equipment used in the formulation of ink from pigments, driers, soaps, and stabilizers containing chromium and lead.
K087	Decanter tank tar sludge from coking operations.
K156	Organic waste from the production of carbamates
K169	Crude oil storage tank sediment from petroleum refining operations.
K170	Clarified slurry oil storage tank separation solids from petroleum refining opertions.
U001	Acetaldehyde
U002	Acetone
U003	Acetonitrile**
U004	Acetophenone
U009	Acrylonitrile
U012	Aniline
U019	Benzene
U031	1-Butanol
U037	Chlorobrnzene**
U043	Ethene, chloro**
U044	Chloroform**
U051	Creosote
U052	Cresols
U055	Cumene
U056	Cyclohexane
U057	Cyclohexanone
U070	o-Dichlorobenzene**
U077	Ethane, 1,2-dichloro**
U080	Methane, dicloro**
U112	Ethyl Acetate
U113	Ethyl Acrylate
U115	Ethylene Oxide
U117	Ethyl Ether
U118	Ethyl methacrylate**
U121	Methane, trichlorofluoro-**
U122	Formaldehyde**
U140	Isobutyl alcohol
U153	Methanethiol
U154	Methanol
U159	Methyl Ethyl Ketone
U161	Methyl Isobutyl Ketone
U162	Mtehyl methcrylate**
U165	Napthalene**
U169	Nitrobenzene
U171	2-Nitropropane
U188	Phenol
U194	1-Propanamine
U196	Pyridine**
U210	Tetrachloroethylene**
U211	Methane, tetrachloro**
U213	Tetrahydrifuran**

TABLE 2
WASTE CODE DESCRIPTIONS

U220	Toluene
U226	Ethane, 1,1,1-trichloro**
U227	Ethane, 1,1,2-trichloo**
U228	Ethene, trichloro**
U239	Xylene
U359	Ethylene glycol monoethyl ether**

*Not a primary waste code, secondary waste contaminate characteristic only.
**These secondary waste codes may only be accepted at concentrations as approved for each individual waste stream via the Module 1 process, in addition to the general waste acceptance limit for chlorides.

TABLE 3
PPC PLAN CHAIN OF COMMAND - KEYSTONE CEMENT COMPANY*



*The PPC Plan Chain of Command is tied to the job title shown in the table. If a listed individual changes, the responsibilities of the position transfers to the new individual holding the position.

TABLE 4
NITROGEN SYSTEM INSPECTION TABLE
KEYSTONE CEMENT COMPANY

Component	Inspection Frequency	Calibration Frequency	Action Set Points	Inspection/ Maintenance SOP	Incident Response
Vessel	Daily	n/a	N level ≤ 30 psig	SOP WF-07 Nitrogen System Inspection and Maintenance and SF-08 Daily Waste Fuel Systems Inspection Procedure	SOP WF-31 Tank System Incident Response
Heat Exchanger	Daily	n/a	n/a	SOP WF-07 Nitrogen System Inspection and Maintenance and SF-08 Daily Waste Fuel Systems Inspection Procedure	SOP WF-31 Tank System Incident Response
Regulators	Daily	n/a	n/a	SOP WF-07 Nitrogen System Inspection and Maintenance and SF-08 Daily Waste Fuel Systems Inspection Procedure	SOP WF-31 Tank System Incident Response
Nitrogen Blanketing Valve	Daily	n/a	n/a	SOP WF-07 Nitrogen System Inspection and Maintenance and SF-08 Daily Waste Fuel Systems Inspection Procedure	SOP WF-31 Tank System Incident Response

From Keystone's Waste Fuels Operations Plan

TABLE 4
NITROGEN SYSTEM INSPECTION TABLE
KEYSTONE CEMENT COMPANY

Component	Inspection Frequency	Calibration Frequency	Action Set Points	Inspection/ Maintenance SOP	Incident Response
Operational Light	Daily	n/a	n/a	SOP WF-09 Foam Inspection and Maintenance and WF-08 Daily Waste Fuel Systems Inspection Procedure	SOP WF-31 Tank System Incident Response
Piping	Daily	n/a	n/a	SOP WF-09 Foam Inspection and Maintenance and WF-08 Daily Waste Fuel Systems Inspection Procedure	SOP WF-31 Tank System Incident Response
Bladder Tank	Daily, Quarterly	n/a	n/a	SOP WF-09 Foam Inspection and Maintenance and WF-08 Daily Waste Fuel Systems Inspection Procedure	SOP WF-31 Tank System Incident Response
Alarm Devices	Quarterly	n/a	Activation (broken glass)	SOP WF-09 Foam Inspection and Maintenance	SOP WF-31 Tank System Incident Response
Control Valves	Quarterly	n/a	n/a	SOP WF-09 Foam Inspection and Maintenance	SOP WF-31 Tank System Incident Response
Gauges	Quarterly	n/a	n/a	SOP WF-09 Foam Inspection and Maintenance	SOP WF-31 Tank System Incident Response
Pipe Fittings	Quarterly	n/a	n/a	SOP WF-09 Foam Inspection and Maintenance	SOP WF-31 Tank System Incident Response
Buildings	Quarterly	n/a	n/a	SOP WF-09 Foam Inspection and Maintenance	SOP WF-31 Tank System Incident Response
Sprinklers	Quarterly	n/a	n/a	SOP WF-09 Foam Inspection and Maintenance	SOP WF-31 Tank System Incident Response
Hangers/Bracing	Quarterly	n/a	n/a	SOP WF-09 Foam Inspection and Maintenance	SOP WF-31 Tank System Incident Response

From Keystone's Waste Fuels Operations Plan

TABLE 4
NITROGEN SYSTEM INSPECTION TABLE
KEYSTONE CEMENT COMPANY

COMPONENT	INSPECTION FREQUENCY	CALIBRATION FREQUENCY	ACTION SET POINT	INSPECTION/MAINTENANCE SOPs	INCIDENT RESPONSE SOPs
Piping System Structural Integrity	Daily, Quarterly, Annually	Annually (certification)	N/A	• SOP WF-08 Daily Waste Fuel Systems Inspection Procedure • SOP WF-29 Piping System Structural Integrity Inspection and Maintenance • SOP WF-14 VOC Monitoring	• SOP WF-31 Tank System Incident Response
Pumping System	Daily, Quarterly	N/A	N/A	• SOP WF-08 Daily Waste Fuel Systems Inspection Procedure • SOP WF-14 VOC Monitoring	• SOP WF-31 Tank System Incident Response

From Keystone's Waste Fuels Operations Plan

TABLE 4
NITROGEN SYSTEM INSPECTION TABLE
KEYSTONE CEMENT COMPANY

COMPONENT	INSPECTION FREQUENCY	CALIBRATION FREQUENCY	ACTION SET POINT	INSPECTION/MAINTENANCE SOPs	INCIDENT RESPONSE SOPs
Thermocouples	Daily	Annually	N/A	• SOP WF-08 Daily Waste Fuel Systems Inspection Procedure • SOP WF-18 Carbon System Thermocouples Inspection and Maintenance	• SOP WF-31 Tank System Incident Response
Pressure Relief Device	Daily, Annually	Annually	15 psig	• SOP WF-08 Daily Waste Fuel Systems Inspection Procedure • SOP WF-19 Carbon System Pressure Relief Device Inspection and Maintenance	• SOP WF-31 Tank System Incident Response
Flame Arrestor	Daily, Annually (maintenance)	N/A	N/A	• SOP WF-08 Daily Waste Fuel Systems Inspection Procedure • SOP WF-20 Carbon System Flame Arrestor Inspection and Maintenance	• SOP WF-31 Tank System Incident Response
Carbon Canisters	Daily	N/A	VOC $\geq$180 ppm above background	• SOP WF-08 Daily Waste Fuel Systems Inspection Procedure • SOP WF-10 carbon canister replacement procedure • SOP WF-21 Carbon System Carbon Canisters Inspection and Maintenance	• SOP WF-31 Tank System Incident Response
CO and O_2 Monitoring System	Daily (inspection), Weekly (maintenance), Quarterly (maintenance)	Weekly	500 ppm CO alarm, $0_2 \geq 5\%$	• SOP WF-08 Daily Waste Fuel Systems Inspection Procedure • SOP WF-22 Carbon System CO Monitoring System Inspection and Maintenance	• SOP WF-31 Tank System Incident Response • SOP WF-32 CO Alarm Incident Response

From Keystone's Waste Fuels Operations Plan

TABLE 4
NITROGEN SYSTEM INSPECTION TABLE
KEYSTONE CEMENT COMPANY

COMPONENT	INSPECTION FREQUENCY	CALIBRATION FREQUENCY	ACTION SET POINT	INSPECTION/MAINTENANCE SOPs	INCIDENT RESPONSE SOPs
Thermocouples	Daily	Annually	30 °F above ambient temperature	• SOP WF-08 Daily Waste Fuel Systems Inspection Procedure • SOP WF-23 Tank System Thermocouple Inspection and Maintenance	• SOP WF-31 Tank System Incident Response
Pressure Sensors	Daily	Annually	≥1.8 psig	• SOP WF-08 Daily Waste Fuel Systems Inspection Procedure • SOP WF-24 Tank System Pressure Sensors Inspection and Maintenance	• SOP WF-31 Tank System Incident Response
Flame Detonators	Daily, Annually (maintenance)	N/A	N/A	• SOP WF-08 Daily Waste Fuel Systems Inspection Procedure • SOP WF-25 Tank System Flame Detonators Inspection and Maintenance	• SOP WF-31 Tank System Incident Response
Emergency Vents/ Conservation Vents	Daily, Annually (maintenance)	N/A	2.0 psig	• SOP WF-08 Daily Waste Fuel Systems Inspection Procedure • SOP WF-26 Tank System Emergency Relief Vents Inspection and Maintenance	• SOP WF-31 Tank System Incident Response
Agitators	Daily, Quarterly, Annually (maintenance)	N/A	N/A	• SOP WF-08 Daily Waste Fuel Systems Inspection Procedure • SOP WF-27 Tank System Agitators Inspection and Maintenance	• SOP WF-31 Tank System Incident Response

From Keystone's Waste Fuels Operations Plan

TABLE 4
NITROGEN SYSTEM INSPECTION TABLE
KEYSTONE CEMENT COMPANY

COMPONENT	INSPECTION FREQUENCY	CALIBRATION FREQUENCY	ACTION SET POINT	INSPECTION/MAINTENANCE SOPs	INCIDENT RESPONSE SOPs
Liquid Level Alarms	Daily, Quarterly (test)	Annually	Tanks 1A and 1B Low Level – 500 gal High Level 1 – 14,000 gal High Level 2 – 14,500 gal High Level 3 – 15,000 gal Tanks 2 and 3 Low Level – 500 gal High Level 1 – 30,500 gal High Level 2 – 31,000 gal High Level 3 – 31,500 gal	• SOP WF-08 Daily Waste Fuel Systems Inspection Procedure • SOP WF-11 Liquid Level Alarm Inspection and Maintenance	• SOP WF-31 Tank System Incident Response • SOP WF-34 Tank System Level Alarm Incident Response
Tank Structural Integrity	Daily, Annually	Annually (certification)	N/A	• SOP WF-08 Daily Waste Fuel Systems Inspection Procedure • SOP WF-28 Tank System Tank Structural Integrity Inspection and Maintenance	• SOP WF-31 Tank System Incident Response

From Keystone's Waste Fuels Operations Plan

TABLE 4
NITROGEN SYSTEM INSPECTION TABLE
KEYSTONE CEMENT COMPANY

COMPONENT	INSPECTION FREQUENCY	CALIBRATION FREQUENCY	ACTION SET POINT	INSPECTION/MAINTENANCE SOPs	INCIDENT RESPONSE SOPs
Containment Area Structural Integrity	Daily, Annually	Annually (certification)	N/A	• SOP WF-08 Daily Waste Fuel Systems Inspection Procedure • SOP WF-30 Containment System Structural Integrity Inspection and Maintenance	• SOP WF-31 Tank System Incident Response

From Keystone's Waste Fuels Operations Plan

TABLE 5
KEYSTONE CEMENT COMPANY
LISTS OF HAZARODUS WASTE SOPs and SUMMARY OF SOP TRAINING[1]

	A	B	C	D	E	F	G	H	I	J
DOCUMENT | STANDARD OPERATING PROCEDURE (SOP)	**ENV TECH**	**R.R. FACILITY MGR**	**PLANT MGMT**	**SHIFT SUPER**	**ENV COMP MGR**	**MAINT TECH**	**ELEC TECH**	**CNTRL ROOM OPR**	**LAB MGR**	**LAB TECH**
Waste Fuel Operation Plan	X	X	X	X	X				X	
PPC Plan	X	X	X	X	X	X	X	X	X	X
Lab SOPs		X	X		X				X	X
WF-00 Document Formatting	X[1]	X	X		X					
WF-01 Sampling of a Bulk Liquid Container	X	X	X		X					
WF-02 Waste Acceptance/Rejection Procedure	X	X	X		X				X	X
WF-03 Qualifying Waste Fuel Burn Tanks	Deleted									
WF-04 Storage Tank Sampling	X	X	X		X					
WF-05 Unloading Procedure	X	X	X		X					
WF-06 Process Change	X[1]	X	X	X	X	X	X	X	X	X
WF-07 Nitrogen System Inspection and Maintenance	X	X	X		X					
WF-08 Daily Waste Fuel Systems Inspection Procedure	X	X	X		X					
WF-09 Foam System Inspection and Maintenance	X	X	X		X					
WF-10 Carbon Canister Replacement Procedure	X	X	X		X					
WF-11 Liquid Level Alarm Inspection and Maintenance	X	X	X		X			X		
WF-12 Resource Recovery Facility Stormwater Management	X	X	X	X	X				X	
WF-13 Carbon Vent Line Condensate Draining	X	X	X		X					
WF-14 VOC Monitoring	X	X	X		X					

TABLE 5
KEYSTONE CEMENT COMPANY
LISTS OF HAZARODUS WASTE SOPs and SUMMARY OF SOP TRAINING[1]

	A	B	C	D	E	F	G	H	I	J
DOCUMENT | STANDARD OPERATING PROCEDURE (SOP)	**ENV TECH**	**R.R. FACILITY MGR**	**PLANT MGMT**	**SHIFT SUPER**	**ENV COMP MGR**	**MAINT TECH**	**ELEC TECH**	**CNTRL ROOM OPR**	**LAB MGR**	**LAB TECH**
WF-15 Waste Fuel Feed Lines Purge Procedure	X	X	X	X	X			X		
WF-16 Left Blank										
WF-17 Left Blank										
WF-18 Carbon System Temperature Device Inspection and Maintenance	X	X	X		X		X			
WF-19 Carbon System Pressure Relief Device Inspection and Maintenance	X	X	X		X					
WF-20 Carbon System Flame Arrestor Inspection and Maintenance	X	X	X		X					
WF-21 Carbon System Carbon Canisters Inspection and Maintenance	X	X	X		X					
WF-22 Carbon System CO + O2 Monitoring System Inspection and Maintenance	X	X	X		X		X			
WF-23 Tank System Temperature Device Inspection and Maintenance	X	X	X		X		X			
WF-24 Tank System Pressure Sensors Inspection and Maintenance	X	X	X		X		X			
WF-25 Tank System Flame Detonator Inspection and Maintenance	X	X	X		X					
WF-26 Tank System Emergency Relief Vents Inspection and Maintenance	X	X	X		X					
WF-27 Tank System Agitators Inspection and Maintenance	X	X	X		X					
WF-28 Tank System Structural Integrity Inspection and Maintenance	X	X	X		X					

TABLE 5
KEYSTONE CEMENT COMPANY
LISTS OF HAZARODUS WASTE SOPs and SUMMARY OF SOP TRAINING[1]

	A	B	C	D	E	F	G	H	I	J
DOCUMENT | STANDARD OPERATING PROCEDURE (SOP)	**ENV TECH**	**R.R. FACILITY MGR**	**PLANT MGMT**	**SHIFT SUPER**	**ENV COMP MGR**	**MAINT TECH**	**ELEC TECH**	**CNTRL ROOM OPR**	**LAB MGR**	**LAB TECH**
WF-29 Piping System Structural Integrity Inspection and Maintenance	X	X	X		X					
WF-30 Containment Area Structural Integrity Inspection and Maintenance	X	X	X		X					
WF-31 Tank System Incident Response	X	X	X	X	X	X	X	X	X	X
WF-32 CO Alarm Incident Response	X	X	X	X	X			X		
WF-33 Operations Exceedance Reporting	X	X	X	X	X		X	X		
WF-34 Tank System Liquid Level Alarm Response	X	X	X	X	X			X		
WF-35 Tank System High Temperature Response	X	X	X	X	X			X		
WF-36 Tank System High Pressure Level Incident Response	X	X	X	X	X			X		
WF-37 Emergency Response	X	X	X	X	X	X	X	X	X	X
WF-38 Waste Fuels Operations Plan Review and Update	X	X	X	X	X	X	X	X	X	X
WF-39 Open Flame and Hot Work	X	X	X	X	X	X	X	X	X	X
WF-40 Personal Hygiene Procedure	X	X	X	X	X	X	X	X	X	X
WF-41 Personal Protective Equipment Requirements	X	X	X	X	X	X		X	X	X
WF-42 Respirator Use	X	X	X	X	X	X		X	X	X
WF-43 Communication Device Procedure	X	X	X	X	X	X	X	X	X	X
WF-44 Contractor Safety and Health Program	X	X	X	X	X	X		X	X	X
WF-45 Emergency Siren	X	X	X	X	X	X	X	X	X	X

TABLE 5
KEYSTONE CEMENT COMPANY
LISTS OF HAZARODUS WASTE SOPs and SUMMARY OF SOP TRAINING[1]

	A	B	C	D	E	F	G	H	I	J
DOCUMENT | STANDARD OPERATING PROCEDURE (SOP)	**ENV TECH**	**R.R. FACILITY MGR**	**PLANT MGMT**	**SHIFT SUPER**	**ENV COMP MGR**	**MAINT TECH**	**ELEC TECH**	**CNTRL ROOM OPR**	**LAB MGR**	**LAB TECH**
WF-46 Waste Fuel Operations Plan and SOP Training		X	X		X					
WF-47 Waste Fuel Flow meter Calibration and Verification	Deleted									
WF-48 Waste Fuel Flow meter Security			X	X	X		X	X		
WF-49 Waste Fuel Flow Systems Inspection Form			X	X	X		X	X		
WF-50 Documentation Requirements for the Waste Fuel Operations Plan	X[1]	X	X	X	X	X	X	X	X	X
WF-51 Plant Visitors Policy and Procedures	X	X	X	X	X	X	X	X	X	X
WF-52 Purge Storage Tanks with Nitrogen	X	X	X		X					
WF-53 Confined Space	X	X	X	X	X	X	X		X	
WF-54 Emergency Equipment	X	X	X		X					
WF-55 Containment Area Cleanup	X	X	X	X	X					
WF-56 Vapor Balance System-Conservation Vent Inspection and Maintenance	X	X	X		X					
WF-57 Vapor Balance System-Pressure Sensor Inspection and Maintenance	X	X	X		X		X			
WF-58 Vapor Balance System-Flame Arrestor Inspection and Maintenance	X	X	X		X					
WF-59 Vapor Recovery	X	X	X		X					
WF-60 Truck Staging and Parking Areas	X	X	X	X	X					
WF-62 Daily Inspection Procedure for Kiln	X	X	X	X	X					

TABLE 5
KEYSTONE CEMENT COMPANY
LISTS OF HAZARODUS WASTE SOPs and SUMMARY OF SOP TRAINING[1]

	A	B	C	D	E	F	G	H	I	J
DOCUMENT | STANDARD OPERATING PROCEDURE (SOP)	**ENV TECH**	**R.R. FACILITY MGR**	**PLANT MGMT**	**SHIFT SUPER**	**ENV COMP MGR**	**MAINT TECH**	**ELEC TECH**	**CNTRL ROOM OPR**	**LAB MGR**	**LAB TECH**
Residue Management Equipment										
WF-63 Truck Staging Area: RMP Limits	X	X	X	X	X					

NOTES:

[1] This table will be updated as necessary, including the addition of new SOPs. It will be maintained by plant staff (main office) in agreement with the content of Waste Fuels SOP procedure WF-46 (same table is referenced there-in).

[2] The Documents Coordinator is also included with the Environmental Technicians for this standard operating procedure.

The personnel identified in the above columns include each of the following job functions:

A| Env Tech - Environmental Technician, Unloader, & Maintenance
B| R.R. Facility Mgr - Resource Recovery Facility Manager
C | Plant Mgmt - Plant Management
D| Shift Super - Production Manager, Coordinator, Shift & Utility Supervisor
E| Env Comp Mgr - Manager, Environmental Compliance & Coordinator
F| Maint Tech - Maintenance Manager & all maintenance personnel
G| Elec Tech - Electrical Manager and Electrical Technician
H| Cntrl Room Opr - Control Room Operator and Expeditor A & B
I| Lab Mgr - Laboratory Manager
J| Lab Tech - Laboratory Technician

TABLE 6
SUMMARY OF SATELLITE AREAS FOR
EQUIPMENT MAINTENANCE MATERIALS
KEYSTONE CEMENT COMPANY

Maintenance Material Area No.	Location[a]	Material[b]
MM1	Finish Mill/4,400 HP Mill	Equipment maintenance materials
MM2	Packhouse	Equipment maintenance materials
MM8*	Kiln No. 2 Stack Area	Equipment maintenance materials
MM12*	Tank Truck Unloading Area	Equipment maintenance materials
MM14*	Quarry Shop	Equipment maintenance materials
MM15	KAPCO Garage	Equipment maintenance materials
MM16	KAPCO Area	Equipment maintenance materials
MM18*	Power House	Equipment maintenance materials
MM19	Oil House	Equipment maintenance materials
MM20	Outside the Oil House	Equipment maintenance materials

[a] See Section 5 of this PPC Plan (Figures) for the approximate location of each area.

[b] Equipment maintenance materials typically include antifreeze, fuel additives, oil, and grease. The types and quantities of materials stored are subject to change. Updated SDS are maintained at various locations on-site and are readily available.

* Indicates a break in sequential order. The break occurs when a Maintenance Material Area is removed.

TABLE 7
SUMMARY OF GENERAL STORAGE AREAS
KEYSTONE CEMENT COMPANY

Storage Area No.	Location[a]	Material[b]
SA1	Finish Mill/4,400 HP Mill	Cement additive (grinding aid and water), plasticizer, lube and drain oil
SA5*	Oil House	Glycol, kerosene, miscellaneous maintenance oils
SA6	Foam Storage Building	Currently Empty
SA11*	Outside the Oil House (Temporary Storage Area)	Kerosene, Descaler, mineral spirits, oil
SA12	Old #2 Kiln Precipitator Building	Cement additive (grinding aid), lube, miscellaneous maintenance materials

[a] See attached figures for the approximate location of each area.

[b] All materials listed for each area represent the materials that are typically stored in these locations. All stored materials will be clearly labeled. The types and actual quantities of materials stored may vary. Updated SDS are maintained at various locations on-site and are readily available.

* Indicates a break in sequential order. The break occurs when a Storage Area is removed/ no longer in service.

TABLE 8
SUMMARY OF PROPANE STORAGE AREAS
KEYSTONE CEMENT COMPANY

Propane Area No.	Location[a]
P1	Cement Package Loading
P4*	Employee Parking Area
P5	CCDC Stack Pad

[a] See attached figures for approximate location of each area.
[b] Appropriate MSDS are maintained at various locations on-site and are readily available.
* Indicates a break in sequential order. The break occurs when a Storage Area is removed/ no longer in service.

TABLE 9
SUMMARY OF ABOVEGROUND STORAGE TANK AREAS
KEYSTONE CEMENT COMPANY

Tank No.	Location[a]	Capacity (gal)	Material[b]
AST1	Waste Fuel Tanks Storage Area (1A)	15,000	Hazardous waste fuel
AST2	Waste Fuel Tanks Storage Area (1B)	15,000	Hazardous waste fuel
AST3	Waste Fuel Tanks Storage Area (2)	31,500	Hazardous waste fuel
AST4	Waste Fuel Tanks Storage Area (3)	31,500	Hazardous waste fuel
AST5	New Finish Mill/ 4,400 HP Mill	10,000	Grinding Aid
AST11*	Oil House	275	Kerosene
AST12	Outside Quarry Shop	275	Dexton II Oil
AST13	Outside Quarry Shop	275	SAE 30W Engine Oil
AST14	Outside Quarry Shop	275	SAE 50 Gear Oil
AST15	Outside Quarry Shop	500	15 W 40 Engine Oil
AST16	Outside Quarry Shop	275	10 W Hydraulic Oil
AST17	Outside Quarry Shop	275	10 W Hydraulic Oil
AST18	Outside Quarry Shop	275	ATF Transmission fluid
AST19	Outside Quarry Shop	500	Waste Oil
AST20	KAPCO Storage Building	250	Diesel Fuel
AST21	KAPCO Storage Building	275	No. 2 Fuel Oil
AST22	KAPCO Storage Building	500	Hydraulic Oil
AST23	KAPCO Storage Building	500	Hydraulic Oil
AST24	KAPCO Storage Building	275	Hydraulic Oil
AST25	KAPCO Storage Building	275	15 W 40 Engine Oil
AST26	KAPCO Storage Building	275	ATF Transmission fluid
AST27	KAPCO Storage Building	275	SAE 30 Oil
AST28	KAPCO Storage Building	250	SAE 50 Gear Oil
AST29	Outside in the KAPCO Area	10,000	Diesel fuel
AST36*	Quarry Area | Portable	2,000	Diesel fuel
AST38*	Foam Storage Building	500	Aqueous film-forming foam (AFFF)
AST40*	Resource Recovery Office (east side)	1,000,000	Stormwater
AST41	Resource Recovery Office (east side)	500,000	Stormwater
AST42	Generator Under Kiln No. 2	3,000	Diesel fuel
AST43	NW corner of plant employee parking lot	500	Low sulfur diesel/over road fuel oil
AST44	Finish Mill #1	10,000	Retarder-Cement Additive
AST45	Outside ER6	4,000	Heating Oil (No. 2 Fuel Oil)
AST46	Outside (rear) Main Office	275	Heating Oil (No. 2 Fuel Oil)
AST47	Outside (rear) Main Office	275	Heating Oil (No. 2 Fuel Oil)
AST48	Former Kiln 2 Location	18,000	Heating Oil | Used On-Spec Oil
AST49	Ouside Laboratory Building	275	Heating Oil (No. 2 Fuel Oil)

NOTES

See Section 5 (Figures) for the approximate location of each area.

* Indicates a break in sequential order. The break occurs when a storage tank is removed.

[a] Some tank contents are subject to change. Tanks are properly labeled with SDS readily available on-site.

[b] PADEP Storage Tank Registration Material Classification | Facility ID: 48-23776 | Site ID: 451528

[c] RCRA regulated material | Not AST program registered.

TABLE 10
SUMMARY OF UNDERGROUND STORAGE TANK AREAS
KEYSTONE CEMENT COMPANY

Tank No.	Location[a]	Capacity (gal)	Material[b]
~~UST2*~~	~~Truck Staging Area~~	~~10,000~~	~~Oil~~ | **Closed in Place - October 2018**
~~UST3~~	~~In Front of Maintenance Shop/Purchasing Area~~	~~8,000~~	~~Oil~~ | **Closed in Place - October 2018**
UST4*	Outside the Core Building	12,000	Oil
UST5	Outside the Quarry Shop/ Vehicle Fueling Area	1,000	Gasoline
~~UST6~~	~~Outside the Quarry Shop/ Vehicle Fueling Area~~	~~10,000~~	~~Oil~~ | **Closed in Place - 6/27/2014**

[a] See attached figures for the approximate location of each area.
[b] Tank contents are subject to change. Updated SDS are maintained at various locations on-site and are readily available.
* Indicates a break in sequential order. The break occurs when a storage tank is removed.

TABLE 11
SUMMARY OF STOCKPILE AREAS
KEYSTONE CEMENT COMPANY

Stockpile Area No.	Location[a]	Description
SP1	Coal Storage	Coal bunker/mill[b]

[a] See attached figures for the approximate location of the coal storage area.

[b] Appropriate SDS are maintained at various locations on-site and are readily available.

TABLE 12
SUMMARY OF LABORATORY ACTIVITY AREAS
KEYSTONE CEMENT COMPANY

Laboratory Area No.	Location[a]	Description
LAB1	Main Laboratory	Waste fuels and cement laboratory activities
LAB2	Next to Oil House	Typical laboratory activities
LAB3	KAPCO Area	Typical laboratory activities

[a] See attached figures for the approximate location of each area.

[b] Appropriate SDS are maintained at various locations on-site and are readily available.

TABLE 13
SUMMARY OF MISCELLANEOUS UNITS
KEYSTONE CEMENT COMPANY

Miscellaneous Area No.	Location[a]	Description
MISC1	Storage and Machine Shop	Parts washing unit
MISC2	Repair and Pipe Shop	Parts washing unit
MISC3	Quarry Shop	Parts washing unit
~~MISC4~~	~~KAPCO Storage Building~~	~~Parts washing unit~~ **Removed from Service**
MISC5	Quarry Shop and various locations of use (Temporary)	Explosives used for blasting operations
MISC6	Packhouse	Parts washing unit

[a] See attached figures for the approximate location of each area.

[b] Appropriate SDS are maintained at various locations on-site and are readily available.

Table 14
Keystone Cement Company
Preparedness Prevention and Contingency (PPC) Plan Downstream Notification List

County/Municipality	Contact Name	Contact Title1	Contact Title2	Address 1	Address 2	City, State, Zip	Greeting	Phone #	Approximate Distance Downstream (miles)
Northampton County	Mr. Michael F. Rinker	EM Planning Manager	Northampton County	100 Gracedale Avenue		Nazareth, PA 18064	Mr. Rinker	610-746-3194	Contained
East Allen Township	Mr. Brent M. Green	Manager, East Allen Township		5344 Nor-Bath Boulevard		Northampton, PA 18067	Mr. Green	610-262-7961	Contained
Lower Nazareth Township	Ms. Lori A. Stauffer	Manager, Lower Nazareth Township		623 Municipal Drive		Nazareth, PA 18064	Ms. Stauffer	610-759-7434	2.5
Bethlehem Township	Ms. Angela Kelly	Bethlehem Township Fire Marshall		4225 Easton Avenue		Bethlehem, PA 18020	Ms. Kelly	610-814-6400	5.5
Hanover Township	Mr. John J. Finnigan	Manager, Hanover Township	Hanover Township	3630 Jacksonville Road		Bethlehem, PA 18017	Mr. Mattson	610-866-1140	8.5
Bethlehem City	Ms. Jessica L. Lucas	Director, Environmental Health Programs	Bethlehem City	10 E. Church Street		Bethlehem, PA 18018	Ms. Lucas	610-865-7083	11.5
Bethlehem Authority	Mr. Stephen Repasch	Bethlehem Authority Executive Director		10 E. Church Street		Bethlehem, PA 18018	Mr. Repasch	610-865-7090	11.5
Bethlehem City	Mr. Warren Achey	Bethlehem City Fire Chief		10 E. Church Street		Bethlehem, PA 18018	Mr. Achey	610-865-7143	11.5
Lehigh County	Mr. Scott Lindenmuth	Director of Emergency Services	Lehigh County	640 W. Hamilton Street	8th Floor	Allentown, PA 1810	Mr. Lindenmuth	610-782-4600	12
Freemansburg Borough	Mr. Gerald Gasda	Manager, Freemansburg Borough		600 Monroe Street		Freemansburg, PA 18017-7280	Mr. Gasda	610-866-2220	14.5
Lower Saucon Township	Ms. Leslie Huhn	Manager, Lower Saucon Township		3700 Old Philadelphia Pike		Bethlehem, PA 18015	Ms. Huhn	610-865-3291	15.5
Williams Township	Mr. Mikal Sabatine	Manager, Williams Township		655 Cider Press Road		Easton, PA 18042	Mr. Sabatine	610-258-6088	19.5
Palmer Township	Mr. Robert Williams	Manager, Palmer Township		3 Weller Place		Palmer, PA 18045-1975	Mr. Christman	610-253-7191	19.5

Keystone Cement Company, Bath, PA
Tank Information Summary

KCC Ref ID	Material Stored [a]	PADEP Sub Code [b]	Plant Area	Capacity (gallons)
ABOVEGROUND STORAGE TANKS				
AST49	Heating Oil (No. 2 Fuel Oil)	HO	Cement Lab (Ouside)	275
AST05	Grinding Aid	UNREG	Finish Mills	10,000
AST44	Retarder-Cement Additive	UNREG	Finish Mills	10,000
AST43	Low sulfur diesel/over road fuel oil	DIESL	General Plant	500
AST45	Heating Oil (No. 2 Fuel Oil)	HO	Kiln #1	4,000
AST48	Heating Oil | Used On-Spec Oil	HO	Kiln #1	18,000
AST46	Heating Oil (No. 2 Fuel Oil)	HO	Main Office	275
AST47	Heating Oil (No. 2 Fuel Oil)	HO	Main Office	275
AST11*	Kerosene	KERO	Maintenance Shops	275
AST42	Diesel Fuel [Emergency Generator]	DIESL	Old Kiln Area	3,000
AST40*	Containment Water	UNREG	Old Kiln Area	1,000,000
AST41	Containment Water	UNREG	Old Kiln Area	500,000
AST20	Diesel Fuel [Mobile Equipment Fueling]	DIESL	KAPCO	275
AST21	Heating Oil (No. 2 Fuel Oil)	HO	KAPCO	275
AST26	ATF | Transmission fluid	NMO	KAPCO	275
AST22	Engine | Hydraulic Oil	NMO	KAPCO	275
AST23	Engine | Hydraulic Oil	NMO	KAPCO	275
AST24	Engine | Hydraulic Oil	NMO	KAPCO	275
AST25	Engine Oil [15 W 40]	NMO	KAPCO	275
AST28	Gear Oil [SAE 50]	NMO	KAPCO	275
AST27	Oil [SAE 30 W]	NMO	KAPCO	275
AST29	Diesel Fuel [Mobile Equipment Fueling]	DIESL	Quarry	10,000
AST36*	Diesel Fuel [Mobile Equipment Fueling]	DIESL	Quarry	2,000
AST12	ATF | Dexton II Oil	NMO	Quarry	275
AST18	ATF | Transmission fluid	NMO	Quarry	275
AST15	Engine Oil [15 W 40]	NMO	Quarry	500
AST13	Engine Oil [SAE 30 W]	NMO	Quarry	275
AST14	Gear Oil [SAE 50]	NMO	Quarry	275
AST16	Hydraulic Oil	NMO	Quarry	275
AST17	Hydraulic Oil	NMO	Quarry	275
AST19	Waste Oil	USDOL	Quarry	500
AST38*	AFFF | Aqueous film-forming foam	UNREG	Resource Recovery	500
AST01	Hazardous waste fuel	UNREG	Resource Recovery	15,000
AST02	Hazardous waste fuel	UNREG	Resource Recovery	15,000
AST03	Hazardous waste fuel	UNREG	Resource Recovery	31,500
AST04	Hazardous waste fuel	UNREG	Resource Recovery	31,500
UNDERGROUND STORAGE TANKS				
UST4*	Heating Oil (No. 2 Fuel Oil)	HO	Kiln #1	12,000
UST5	Gasoline	GAS	Quarry	1,000

NOTES

Tanks are listed in order of TYPE (AST or UST); PLANT AREA, MATERIAL STORED (Grouped by PADEP Sub Code); and KCC

*Indicates a break in sequential order. The break occurs when a storage tank is removed.

(a) Some tanks are subject to change. Tanks are properly labeled with SDS readily available on site.

(b) PADEP Storage Tank Registration Material Classification | Facility ID: 48-23776 | Site IS: 451528

(c) RCRA regulated material. Not AST program registered.

TABLE 15
SUMMARY OF SARA, Title III, Section 313 Materials[a]
KEYSTONE CEMENT COMPANY

COMPOUNDS[b]	
Ethylbenzene	Chloroform
Dichloromethane (Methylene Chloride)	Trichloroethylene
Methyl Isobutyl Ketone	Chromium
Tetrachloroethylene	Dimethyl Phthalate
Toluene	1,1,1-Trichloroethane
1,2,4-Trimethylbenzene	p-Chloroaniline
Xylenes (Mixed Isomers)	p-Cresol
Phenol	Methoxychlor
Di(2-Ethylhexyl) Phthalate	Toxaphene
Dibutyl Phthalate	Chlordane
Naphthalene	Heptachlor
1,2-Dichlorobenzene	Mercury
Barium	Nickel
Lead	

(a) The list of SARA, Title III, Section 313 Materials at the facility is subject to change. The list of Section 313 Materials is updated and reported to PADEP in accordance with applicable regulations.
(b) Updated SDS are maintained in the facility control room and plant office and are readily available.

TABLE 16
SUMMARY OF SARA, Title III, Section 312 Materials[a]
KEYSTONE CEMENT COMPANY

COMPOUNDS[b]	
Air Plas	Acetic Acid and Ethylene Glycol Grinding Aid
Cement	Bituminous Coal
Clinker	Cement Kiln Dust/Stablesorb
Iron Oxide Mill Scale	Gypsum/Calcium Sulfate
Liquid Argon	Limestone Aggregate
Petroleum Hydrocarbons	Liquid Nitrogen
Sand	Purchased Limestone/Calcium Carbonate
Waste Solvent Mixtures	

(a) The list of SARA, Title III, Section 312 Materials at the facility is subject to change. The list of Section 312 Materials is updated and reported to PADEP in accordance with applicable regulations. 2014 Tier II reporting (completed in February 2015) includes updated material location maps. See Figures 7A & 7B.

(b) Updated SDS are maintained in the facility control room and plant office and are readily available.

TABLE 17

Waste Acceptance Criteria
Summary of Analytical Methods and Screen Limits

Parameter	Acceptance Limit	Keystone Cement Lab ID	Reference Source Document	Test Method[1]
% Chloride (Cl)	≤3.00%	RL. 7	SW846	9253 (MOD)
PCBs Screen[2]	Not Present	RL. 18, RL. 19, RL. 20	SW846	3620B (Mod) / 8000 (Mod) / 8082 (Mod)
Heat Content [Fuel Value]	≥ 5,000 Btu/Lb	RL. 6	SW846 | ASTM	5050 (Mod) / E711 (MOD)
Peroxide	Not Present (<10 ppm)[3]	RL. 12	Manufacturer Specs	EM Quant. Strips [or equivalent]
pH	2.0 to 12.5 pH	RL. 14	SW846	9045C (Mod)
Viscosity (CPS)	< 7,000 cps @ 60° F±2°, 4/1-9/30 < 12,000 cps @ 35° F±2°, 10/1-3/31	RL. 13	Manufacturer Specs	Brookfield Viscometer [or equivalent]
Compatibility	Yes	RL. 9, RL. 10, RL. 11	ASTM	5058 (MOD)
Phases[4]	Consistent with Mod 1 Approval	Not applicable	Visual Inspection	Number of Phases
Iodine[5]	< 2%	S-1	Keystone SOP	--
Periodic Metals Confirmation Testing [6]				
Arsenic (As)	≤1,120 ppm (combined)	RL. 15, RL. 16	SW846	3051/6010B or 7061A (Mod)
Beryllium (Be)				3051/6010B (Mod) or 7090
Chromium (Cr)				3051/6010B (Mod) or 7190
Cadmium (Cd)	≤3,500 ppm (combined)	RL. 15, RL. 16	SW846	3051/6010B (Mod) or 7130
Lead (Pb)				3051/6010B (Mod) or 7420
Mercury (Hg)	≤10 ppm	RL. 15, RL. 17	SW846	3051(Mod) / 3015A(Mod) / 7470A(Mod) / 7471A(Mod)

NOTES:

(1) Changes to the analytical methods may be made via the Part IV Section F (SOP Modification) Process. Updated methods will be incorporated consistent with the facility's laboratory accreditation.

(2) PCBs will be screened at the facility with a maximum detection level of 40 ppm. Waste acceptance at pre-qualification (Module 1) represents "not present" as defined as "quantifiable levels of PCBs" at 40 CFR Part 761.3 (i.e., - 2 ppm).

(3) On-site screening level.

(4) The incoming shipment should not indicate a greater number of phases than indicated on the Module 1 Form. In the event that there are a greater number of phases than indicated on the Mod 1, the generator will be contacted to ensure that the additional phases do not represent a change in the waste or process generating the waste.

(5) Applies to waste streams where there is a discrepancy in the number of phases is identified during incoming shipment inspection procedures (i.e., - there are a greater number of phases than identified in the Module 1/Form U). Keystone will determine iodine content for any phase containing 25% or greater of the waste sample by volume and containing 75% or greater water content.

(6) Metals testing is only required to be performed on every tenth shipment from each generator. The periodic testing will be used to confirm that the waste stream metals concentrations remain below the limits detailed above. However, the testing is not required to be performed prior to individual shipment acceptance and unloading.

TABLE 18
REPORTABLE QUANTITIES OF WASTE DERIVED FUELS
Keysone Cement Company

Ref: USEPA List of Lists
EPA 550-B-19-003
June 2019

WASTE CODE	DESCRIPTION	REPORTABLE QUANTITIES	
	Chemical Compound or Substance	Pound(s)	Kg
D001	Ignitable Waste	100	45.5
D004	Arsenic	1	0.45
D005	Barium	1,000	454
D006	Cadmium	10	4.54
D007	Chromium	10	4.54
D008	Lead	10	4.54
D009	Mercury	1	0.45
D010	Selenium	10	4.54
D011	Silver	1	0.45
D012	Endrin	1	0.45
D013	Lindane	1	0.45
D014	Methoxychlor	1	0.45
D015	Toxaphene	1	0.45
D016	2,4-D	100	45.4
D017	2,4,5-TP (Silvex)	100	45.4
D018	Benzene	10	4.54
D019	Carbon Tetrachloride	10	4.54
D020	Chlordane	1	0.45
D021	Chlorobenzene	100	45.4
D022	Chloroform	10	4.54
D023	o-Cresol	100	45.4
D024	m-Cresol	100	45.4
D025	p-Cresol	100	45.4
D026	Cresol	100	45.4
D027	1,4-Dichlorobenzene	100	45.4
D028	1,2-Dichloroethane	100	454
D029	1,1-Dichloroethylene	100	45.4
D030	2,4-Dinitrotoluene	10	4.54
D031	Heptachlor (and its epoxide)	1	0.45
D032	Hexachlorobenzene	10	4.54
D033	Hexachlorobutadiene	1	0.45
D034	Hexachloroethane	100	45.4
D035	Methy Ethyl Keytone	5,000	2,270
D036	Nitrobenzene	1,000	454
D037	Pentachlorophenol	10	4.54
D038	Pyridine	1,000	454

Notes:
- Reportable Quantities obtained from 40 CFR 302.4.
- RQ values for each hazardous substance reported in Pounds and Kilograms (Kg).
- Unlisted hazardous substances in §302.4 have the RQ of 100 pounds.

TABLE 18
REPORTABLE QUANTITIES OF WASTE DERIVED FUELS
Keysone Cement Company

Ref: USEPA List of Lists
EPA 550-B-19-003
June 2019

WASTE CODE	DESCRIPTION	REPORTABLE QUANTITIES	
	Chemical Compound or Substance	Pound(s)	Kg
D039	Tetrachloroethylene	100	45.4
D040	Trichloroethylene	100	45.4
D041	2,4,5-Trichlorophenol	10	4.54
D042	2,4,6-Trichlorophenol	10	4.54
D043	Vinyl Chloride	1	0.45
F001	The following spent halogenated solvents used in degreasing: Tetrachloroethylene (RCRA Waste No. U210) Trichloroethylene (RCRA Waste No. U228) Methylene chloride (RCRA Waste No. U080) 1,1,1-Trichloroethane (RCRA Waste No. U226) Carbon tetrachloride (RCRA Waste No. U211) Chlorinated fluorocarbons	10	4.54
F002	The following spent halogenated solvents: Tetrachloroethylene (RCRA Waste No. U210) Methylene chloride (RCRA Waste No. U080) Trichloroethylene (RCRA Waste No. U228) 1,1,1-Trichloroethane (RCRA Waste No. U226) Chlorobenzene (RCRA Waste No. U037) 1,1,2-Trichloro-1,2,2-trifluoroethane o-Dichlorobenzene (RCRA Waste No. U070) Trichlorofluoromethane (RCRA Waste No. U121) 1,1,2-Trichloroethane (RCRA Waste No. U227)	10	4.54
F003	The following spent non-halogenated solvents and still bottoms from recovery: Xylene (RCRA Waste No. U239) Acetone (RCRA Waste No. U002) Ethyl acetate (RCRA Waste No. U112) Ethylbenzene Ethyl ether (RCRA Waste No. U117) Methyl isobutyl ketone (RCRA Waste No. U161) n-Butyl alcohol (RCRA Waste No. U031) Cyclohexanone (RCRA Waste No. U057) Methanol (RCRA Waste No. U154)	100	45.4

Notes:
- Reportable Quantities obtained from 40 CFR 302.4.
- RQ values for each hazardous substance reported in Pounds and Kilograms (Kg).
- Unlisted hazardous substances in §302.4 have the RQ of 100 pounds.

TABLE 18
REPORTABLE QUANTITIES OF WASTE DERIVED FUELS
Keysone Cement Company

Ref: USEPA List of Lists
EPA 550-B-19-003
June 2019

WASTE CODE	DESCRIPTION	REPORTABLE QUANTITIES	
	Chemical Compound or Substance	Pound(s)	Kg
F004	The following spent non-halogenated solvents and still bottoms from recovery: Cresols/cresylic acid (RCRA Waste No. U052) Nitrobenzene (RCRA Waste No. U169)	100	45.4
F005	The following spent non-halogenated solvents and still bottoms from recovery: Toluene (RCRA Waste No. U220) Methyl ethyl ketone (RCRA Waste No. U159) Carbon disulfide (RCRA Waste No. P022) Isobutanol (RCRA Waste No. U140) Pyridine (RCRA Waste No. U196)	100	45.4
K014	Bottoms from the acetonitrile purification column in the production of acrylonitrile.	5,000	2,270
K015	Still bottoms from the distillation of benzyl chloride.	10	4.54
K016	Heavy ends or distillation residues from the production of carbon tetrachloride.	1	0.45
K017	Heavy ends (still bottoms) from the purification column in the production of epichlorohydrin.	10	4.54
K018	Heavy ends from the fractionation column in ethyl chloride production.	1	0.45
K019	Heavy ends from the distillation of ethylene dichloride in ethylene dichloride production.	1	0.45
K020	Heavy ends from the distillation of vinyl chloride in vinyl chloride monomer production.	1	0.45
K022	Distillation bottom tars from the production of phenol/acetone from cumene	1	0.45
K023	Distillation light ends from the production of phthalic anhydride from naphthalene.	5,000	2,270
K025	Distillation bottoms from the production of nitrobenzene by the nitration of benzene.	10	4.54
K026	Stripping still tails from the production of methyl ethylpyridines.	1,000	454
K028	Spent catalyst from the hydrochlorinator reactor in the production of 1,1,1-trichloroethane.	1	0.45
K035	Wastewater treatment sludges generated in the production of creosote.	1	0.45

Notes:
- Reportable Quantities obtained from 40 CFR 302.4.
- RQ values for each hazardous substance reported in Pounds and Kilograms (Kg).
- Unlisted hazardous substances in §302.4 have the RQ of 100 pounds.

TABLE 18
REPORTABLE QUANTITIES OF WASTE DERIVED FUELS
Keysone Cement Company

Ref: USEPA List of Lists
EPA 550-B-19-003
June 2019

WASTE CODE	DESCRIPTION	REPORTABLE QUANTITIES	
	Chemical Compound or Substance	Pound(s)	Kg
K036	Still bottoms from toluene reclamation distillation in the production of disulfoton .	1	0.45
K048	Dissolved air floatation (DAF) float from the petroleum refining industry.	10	4.54
K049	Slop oil emulsion solids from the petroleum refining industry.	10	4.54
K050	Heat exchanger bundle cleaning sludge from the petroleum refining industry.	10	4.54
K051	API separator sludge from the petroleum refining industry.	10	4.54
K052	Tank bottoms (leaded) from the petroleum refining industry.	10	4.54
K083	Distillation bottoms from aniline extraction.	100	45.4
K086	Solvent washes and sludges, or from cleaning tubs and equipment used in the formulation of ink from pigments, driers, soaps, and stabilizers containing chromium and lead.	10	4.54
K087	Decanter tank tar sludge from coking operations.	100	45.4
K156	Organic waste (including heavy ends, still bottoms, light ends, spent solvents, filtrates, and decantates) from the production of carbamates and carbamoyl oximes.	10	4.54
K169	Crude oil storage tank sediment from petroleum refining operations.	10	4.54
K170	Clarified slurry oil storage tank separation solids from petroleum refining operations.	1	0.45
U001	Acetaldehyde	1,000	454
U002	Acetone	5,000	2,270
U003	Acetonitrile	5,000	2,270
U004	Acetophenone	5,000	2,270
U009	Acrylonitrile	100	45.4
U012	Aniline	5,000	2,270
U019	Benzene	10	4.54
U031	n-Butyl Alcohol	5,000	2,270
U037	Chlorobenzene	100	45.4
U043	Chloroethene | Vinyl Chloride	1	0.45
U044	Chloroform | Trichloromethane	10	4.54
U051	Cresote	1	0.45
U052	Cresols (Mixed Isomers)	100	45.4
U055	Cumene	5,000	2,270
U056	Cyclohexane	1,000	454

Notes:
- Reportable Quantities obtained from 40 CFR 302.4.
- RQ values for each hazardous substance reported in Pounds and Kilograms (Kg).
- Unlisted hazardous substances in §302.4 have the RQ of 100 pounds.

TABLE 18
REPORTABLE QUANTITIES OF WASTE DERIVED FUELS
Keysone Cement Company

Ref: USEPA List of Lists
EPA 550-B-19-003
June 2019

WASTE CODE	DESCRIPTION	REPORTABLE QUANTITIES	
	Chemical Compound or Substance	Pound(s)	Kg
U057	Cyclohexanone	5,000	2,270
U070	1,2-Dichlorobenzene | o-Dichlorobenzene	100	45.4
U077	1,2-Dichloroethane | Ethylene dichloride	100	45.4
U080	Dichloromethane | Methylene dichloride	1,000	454
U112	Ethyl Acetate	5,000	2,270
U113	Ethyl Acrylate	1,000	454
U115	Ethylene Oxide	10	4.54
U117	Ethyl Ether	100	45.4
U118	Ethyl Methacrylate | 2-Methyl ethyl ester	1,000	454
U121	Trichlorofluoromethane	5,000	2,270
U122	Formaldehyde	100	45.4
U140	Isobutyl Alcohol	5,000	2,270
U153	Methanethiol	100	45.40
U154	Methanol	5,000	2,270
U159	Methyl Ethyl Ketone	5,000	2,270
U161	Methyl Isobutyl Ketone	5,000	2,270
U162	Methyl Methacrylate	1,000	454
U165	Naphthalene	10	4.54
U169	Nitrobenzene	1,000	454
U171	2-Nitropropane	10	4.54
U188	Phenol	1,000	454
U194	1-Propanamine	5,000	2,270
U196	Pyridine	1,000	454
U210	Tetrachloroethylene	100	45.4
U211	Carbon tetrachloride	10	4.54
U213	Tetrahydrofuran	1,000	454
U220	Toluene	1,000	454
U226	1,1,1-Trichloroethane | Methyl chloroform	1,000	454
U227	1,1,2-Trichloroethane	100	45.4
U228	Trichloroethylene	100	45.4
U239	Xylene	1,000	45.4
U359	2-Ethoxyethanol | Ethylene glycol monoethyl ether	1,000	45.4

Notes:
- Reportable Quantities obtained from 40 CFR 302.4.
- RQ values for each hazardous substance reported in Pounds and Kilograms (Kg).
- Unlisted hazardous substances in §302.4 have the RQ of 100 pounds.

TABLE 18s

REPORTABLE QUANTITY SHORT LIST FOR HWF, PRODUCTS / COMMON MATERIALS

Keysone Cement Company

Mat'l ID	DESCRIPTION	REPORTABLE QUANTITIES	
	Chemical Compound or Substance	Pound(s)	Kg
Hazardous Waste (HWF)	Hazardous Waste-derived Fuel (HWF) or materials contaminated/containing D, F, K and/or U-listed wastes.	1 to 10 (or > depending on codes)	0.45 to 4.54
25 Pa Code § 262a.43(2)(i)...liquids that become hazardous waste when spilled or discharged shall be reported to the Department when the quantity spilled or discharged equals or exceeds the reportable quantity for the waste contained in 40 CFR 302.4 (relating to designation of hazardous substances) or 10 gallons, whichever is more stringent			
Liquids that become Hazardous Waste when spilled			
For example:	DOT - Gasoline, UN1203	63 lbs (>10 gal)	29
In case of spill (and unless otherwise required by DEP), consider the applicable RQ for the most restrictive component that could be managed during a spill cleanup. HOWEVER, a discharge or spill into waters of this Commonwealth shall be reported regardless of quantity spilled or discharged.			
The following materials, including: oils; petroleum products; and other product mixtures (that may contain hazardous substances), may not have a specified RQ. In agreement with PA DEP regulation (and particular circumstances) a spill of > 1 gallon may be reportable.			
Retarder | W.R. Grace product - RDA (CT-1034)	Aqueous solution of compound carbohydrates. DOT Non-hazardous/non-regulated. No component subject to reporting.	None May be reportable based upon circumstances, e.g., potential for environmental impact to navigable waters. [See Exhibit D.1]	
Grinding Aid | W.R. Grace products - MTDA B (CT-3012); MTDA B (CT-2589); LGA N 50-D (CT-2816); HEA2 (GL 272)	Cement clinker grinding compound. DOT Non-hazardous/non-regulated. Reportable components - Methanol (0.15%); Ethylene glycol (0.4 - 0.5%); Diethanolamine (0.4%)		
Masonry Additives | W.R. Grace products - Tytron® A (CT-893); Tytron® WA (CT-3567)	Aqueous solution of surfactants, compound carbohydrates and other ingredients DOT Non-hazardous/non-regulated. Reportable components - Ethylene glycol (0.2%)		
Hydraulic Oil	Tribol 943-32 AW Hydraulic | Paradene AW Hydraulic Oils - DOT Non-hazardous/non-regulated. No component subject to reporting	Examine circumstances. Does it impact stormwater? DEP considers overfills or spills of 25 gallons or more of petroleum products to be reportable.	
Diesel Fuel	DOT - Diesel Fuel | NA1983 (Bulk) or NA1993 (Non-Bulk)		
Heating Fuel | No. 2 Fuel Oil	DOT - Fuel Oil, NA1993		

Ref: USEPA List of Lists
EPA 550-B-19-003 | June 2019
and 25 PA Code

TABLE 19
FIRE EXTINGUISHER LIST
KEYSTONE CEMENT COMPANY

NUMBER	LOCATION	TYPE	POUNDS	AMOUNT
LABORATORY 2ND FLOOR				
1	Chemical Room	CO2	5	
2	Physical Room	ABC	20	
3	Lab Lunch Room	ABC	10	
4	Cool Room	CO2	5	
5	Womens Bathroom	ABC	5	
6	Instrument Lab	CO2	5	
LAB 1ST FLOOR				
7	Front Office	ABC	10	
8	X-ray Room	CO2	5	
9	Hallway	ABC	10	
10	Stone Room	ABC	10	
11	Lab Basement - Stairwell	ABC	20	
12	Shed Wall By Tanks	ABC	20	
13	Outside Boiler Room	ABC	20	
14	Boiler Room	ABC	10	
15	Locker Room - 2nd Floor	ABC	20	
16	Locker Room	ABC	20	
17	Locker Room By Uniforms	ABC	20	
18	Agway Station	ABC	20	
19	Parking Lot Pump House	CO2	5	
20	Oil House Wall - Outside	ABC	20	
21	Oil House Wall - Outside	ABC	20	
22 & 23	Roan Lab	ABC	10	2
REPAIR SHOP				
24	Front Door	ABC	20	
25	On Cage	CO2	5	
26	Back Door	ABC	20 & 5	2
27	Outside Lunch Room	ABC	5	
28	Lunch Room	ABC	5	
CARPENTER SHOP				
29	Inside of Door	ABC	10	
30	Not Assigned			
SOLVENT TRAILER				
31	Inside	GL FFFP	2.5	
32	Outside	PURPLE K	20	
33	Outside	PURPLE K	20	
34	Outside	PK WHEELED UNIT	125	
35	Behind Office	ABC	20	
36	Solvent Pad Shed - Code 345	GL FFFP	2.5	
37	Solvent Pump #2	PURPLE K	20	
38	Solvent Tank Wall	PURPLE K	20	
39	Electric Room	CO2	15	
40	Slurry Transfer Rump Silo	ABC	20	

TABLE 19
FIRE EXTINGUISHER LIST
KEYSTONE CEMENT COMPANY

NUMBER	LOCATION	TYPE	POUNDS	AMOUNT
	KILN #2 BACK END			
41	North Electric Room	CO2	15	
42	Bottom Floor #2 Kiln Backend	ABC	20	
43	Compressor Room - Backend	CO2	20	
44	New Electric Room	CO2	20 & 10	2
45	Mezzanine	ABC	20	
46 & 47	Top	ABC	20	2
--	Emergency Generator by Catwalk	ABC	20	
	TANK BUILDING			
48	Kiln #2 Compressor Room/Tire Storage	ABC	20	
49	Propane Tank	ABC	20	
	COOLER BUILDING 1ST FLOOR			
50	East Wall	ABC	2.5	
51	West Wall	ABC	20	
52	South Column	CO2	20	
53	South West Electric Room	CO2	125	
54	South East Electric Room	ABC	20	
55	Top of South East Steps	ABC	2.5	
56	Outside Elevator	ABC	20	
57	Electric Shop - Store Room	ABC	20	
58	Electric Shop	ABC	15	
59	Electric Shop - Office	CO2	20	
--	5th Floor	ABC	20	
	COOLER BUILDING 2ND FLOOR			
60	Office Hallway	CO2	10	
61	Room 200	CO2	5	
	COOLER BUILDING 3RD FLOOR			
62	Control Room	CO2	15	
63	Control Room	CO2	10	
64	Control Room - Between Doors	CO2	15	
65	Column Outside Control Room	ABC	20	
66	Top of Ramp	ABC	10	
67	Top of Steps	ABE Wheeled Unit	125	
	Rear Office	CO2	10	
	SUB STATION			
68	Rear Door	ABC	20	
69	Electrical Room	CO2	15	
70	By Compressors	CO2	15	
71	Side Wall	CO2	15	
72	Center Control Room	CO2 Wheeled Unit	50	
73	Side Wall	CO2	15	
	SCALE HOUSE			
85	Electric Room Wall	ABE	10	

TABLE 19
FIRE EXTINGUISHER LIST
KEYSTONE CEMENT COMPANY

NUMBER	LOCATION	TYPE	POUNDS	AMOUNT
	STORE ROOM & SHOP			
74	Top of Stairs	ABC	20	
75	Outside Front Entrance	ABC	20	
76 & 77	Maintenance Office	ABC	5 & 10	2
78	Back Entrance	ABC	5	
79	Frst Aid	ABC	5	
80	Welding Area Column	ABC	20	
81	Welding Area Column	ABC	5	
82	Machine Shop Column #5	ABC	20	
83	Machine Shop Column #6	ABC	20	
--	Training Room	ABC	10	
	NEW MILL BUILDING			
86	Pump Room	ABC	20	
87	Outside Electric Room Door	ABC	20	
88 & 90	Electric Room - 1st Floor	CO2	20	2
91 & 92	Electric Room - 2nd Floor	CO2	20	2
93 & 94	Cat Walk - 3rd Level	ABC	10	2
95	Cat Walk - 2nd Level	ABC	10	
96	East Exit - 1st Floor	ABC	20	
97	Center - 1st Floor - By Stairs	ABC	20	
98	Compressor Room - Outside	ABC	20	
99	Compressor Room - Outside	CO2	20	
	PACK HOUSE			
100	Westend Transfer Pump House	ABC	5	
101	5th Floor Elevator Door	ABC	20	
102	4th Floor Elevator Door (Opposite side)	ABC	20	
103	4th Floor East Side Wall	ABC	20	
104	3rd Floor Elevator Door (Opposite side)	ABC	20	
105	2nd Floor Elevator Door	ABC	10	
106	2nd Floor South Wall	ABC	20	
107	1st Floor Stair well	ABC	10	
108	Welding Cart	ABC	5	
109	Oil Room	ABC	20	
110	Outside Lunch Room Wall	ABC	20	
111	West Wall by Stairs	ABC	10	
112	Basement (Bottom of Stairss)	ABC	10	
113	1st Floor N.E. Post	ABC	20	
114 & 115	1st Floor Bay Door	ABC	20	2
116	1st Floor Side Door	ABC	20	
117	1st Floor Back Door	ABC	20	
118	2nd Floor by Machine	ABC	20	
119	3rd Floor Steps	ABC	20	
120	4th Floor Steps	ABC	20	
121	5th Floor Steps	ABC	20	
122	6th Floor Steps	ABC	20	
123 & 124	New Pack House	ABC	20	4

TABLE 19
FIRE EXTINGUISHER LIST
KEYSTONE CEMENT COMPANY

NUMBER	LOCATION	TYPE	POUNDS	AMOUNT
	BULK LOADING STATION			
125	Bottom of Stairs	ABC	20	
126	Control Room	CO2	5	
127	Top of Silo	ABC	10	
128	West Side by Switches	ABC	20	
129	By Blower on Southside	ABC	20	
	MAIN OFFICE			
130	Front Entrance	ABC	10	
131	Office Area	CO2	5	
132	Boiler Room	CO2	15	
133	Basement Stairway	ABC	10	
	QUARRY GARAGE			
134	Battery Shed	ABC	10	
135	Outside West Wall	ABC	20	
136	Fuel Pumps	ABC	20	
137	Antifreeze Tank	ABC	20	
138	Garage Bay	ABC	20 & 5	2
139	Oil Room Door	ABC	20	
140	Parts Room Door	ABC	20	
141	North Wall Exit	ABC	20	
	SUNNY SLOPE			
142	Garage	ABC	20	
143	Garage	ABC	20	
144	Garage	ABC	20	
	"NEW" KAPCO OFFICE			
145	Scale Operator	CO2	5	
146	Lab	ABC	10	
147	Rear Exit	ABC	10	
148	Basement	ABC	10	2
149	Parts Trailer - Ouside	ABC	20	
150	Crusher Control Tower	ABC	20	
151	Bottom of Crusher	ABC	20	
152	Outside * Inside of M.C. Building	ABC	20	2
153	Inside of M.C. Building	CO2	10	
154 & 155	Inside GREEN Trailer	ABC	5	2
156	Outside GREEN Trailer	ABC	20	
157 & 158	Gray Diesel Tank	ABC	20	2

TABLE 19
FIRE EXTINGUISHER LIST
KEYSTONE CEMENT COMPANY

NUMBER	LOCATION	TYPE	POUNDS	AMOUNT
RAW MILL				
North Stairs	New Substation	CO2	15	2
	Lower Electric Room	CO2 CER3	15	2
	Hydraulic Room	ABC	20	2
	Bottom Floor by Outside Airline	ABC	20	
	Upper Electric Room	CO2 CER3	15	2
	Lower Landing by Blower	ABC	20	
	2nd Floor	ABC	20	
	4th Floor	ABC	20	
	4.5 Floor	ABC	20	
	5th Floor	ABC	20	
South Stairs	Out Catwalk by Big Red Tube	ABC	20	
	7th Floor Transfer Belt	ABC	20	
	6th Floor	ABC	20	
	5th Floor	ABC	20	
	4.5 Floor	ABC	20	
	3rd Floor	ABC	20	
	2nd Floor	ABC	20	
	1st Floor Belt Drive	ABC	20	
Silo Transfer Northside				
	1st Floor by Stairs	ABC	20	
	2nd Floor	ABC	20	
	2.5 Floor	ABC	20	
	3rd Floor	ABC	20	
	3.5 Floor	ABC	20	
	5th Floor Stairs	ABC	20	
Silo				
	1st Floor (End of Catwalk)	ABC	20	
	2nd Floor	ABC	20	
	3rd Floor	ABC	20	
Silo Transfer Southside				
	7th Floor	ABC	20	
	6th Floor	ABC	20	
	4th Floor Upper Mezzanine	ABC	20	
	4th Floor Lower Mezzanine	ABC	20	
	3.5 Floor	ABC	20	
	3rd Floor	ABC	20	
	1st Floor	ABC	20	
	ER5 (Lateach Exit(	CO2	15	3
Control Room				
	Back Door	ABC	10	
	Front Door	CO2	10	

TABLE 19
FIRE EXTINGUISHER LIST
KEYSTONE CEMENT COMPANY

NUMBER	LOCATION	TYPE	POUNDS	AMOUNT
	PREHEATER TOWER			
	H16	ABC	20	
	H14	ABC	20	
	H12	ABC	20	2
	H8	ABC	20	2
	H6	ABC	20	2
	H3	ABC	20	2
	H2	ABC	20	2
	H17	ABC & 1PK Wheeled	20	2
	H21	ABC	20	2
	H22	ABC	20	2
	H23	ABC	20	2
	H24	ABC	20	
	H25	ABC	20	2
	CLINKER COOLER			
	Hydraulic Room	ABC	20	
	2nd Floor by West Stairs	ABC	20	
	Clinker Transfer Area	ABC	20	
	Clinker Cooling Fans	ABC	20	
	Cooler Floor	ABC & Pk Wheeled Unit	20 & 125	3 & 1
	2nd Floor East Stairs	ABC	20	
	ER 6 Upper	CO2	15	
	ER 6 Lower	CO2	15	2
	CRUSHER			
	1st Floor	ABC	20	
	2nd Floor East Stairs	ABC	20	
	3rd Floor	ABC	20	
	4th Floor	ABC	20	
	ERI	CO2	15	2
	Compressor Room	ABC	20	
	Outside Work Area	ABC	10	
	BELT TRANSFER AREA			
	Top of Transfer Belt	ABC	20	
	Reclaimer	ABC & CO2	10 & 5	1 & 1
	ER2	CO2	15	2
	ER2a	CO2	20	
	Compressor Room	ABC	20	
	Stacker	CO2	5	
	ADDITIVE BUILDING			
	4th Floor	ABC	20	
	3.5 Floor	ABC	20	
	3rd Floor	ABC	20	
	2nd Floor	ABC	20	
	1st Floor	ABC	20	
	Parking Lot Belt Access	ABC	20	

Table 1A.1: Aboveground Storage Tank

SPCC Unit ID {PPC Ref ID}	Material Stored	Qty	Capacity	Units	Location Details
AST01	Hazardous waste fuel	1	15,000	Gallons	Waste Fuel Tanks Storage Area (1A)
AST02	Hazardous waste fuel	1	15,000	Gallons	Waste Fuel Tanks Storage Area (1B)
AST03	Hazardous waste fuel	1	31,500	Gallons	Waste Fuel Tanks Storage Area (2)
AST04	Hazardous waste fuel	1	31,500	Gallons	Waste Fuel Tanks Storage Area (3)
AST05	Grinding Aid	1	10,000	Gallons*	No. 1 Finish Mill
AST11	Kerosene	1	275	Gallons*	Oil House
AST12	ATF | Dexton II Oil	1	275	Gallons*	Outside Quarry Shop
AST13	Engine Oil [SAE 30 W]	1	275	Gallons*	Outside Quarry Shop
AST14	Gear Oil [SAE 50]	1	275	Gallons*	Outside Quarry Shop
AST15	Engine Oil [15 W 40]	1	500	Gallons*	Outside Quarry Shop
AST16	Hydraulic Oil [10 W]	1	275	Gallons*	Outside Quarry Shop
AST17	Hydraulic Oil [10 W]	1	275	Gallons*	Outside Quarry Shop
AST18	ATF | Transmission Fluid	1	275	Gallons*	Outside Quarry Shop
AST19	Waste Oil	1	500	Gallons*	Outside Quarry Shop
AST20	Diesel Fuel | [Mobile Equipment Fueling]	1	250	Gallons*	KAPCO Storage Building
AST21	Heating Oil (No. 2 Fuel Oil)	1	275	Gallons*	KAPCO Storage Building
AST22	Hydraulic Oil AW 40	1	500	Gallons*	KAPCO Storage Building
AST23	Hydraulic Oil AW 40	1	500	Gallons*	KAPCO Storage Building

NOTES:
* The exact inventory (quantity and materials stored) varies depending on use and delivery schedule. The number of drums noted represents typical quantities of oil/oil products stored on-site.
"{ }" detail Unit or Area IDs associated with additional references within facility PPC Plan. AST/UST ID's same in both ER Plans.

Table 1A.1: Aboveground Storage Tank

SPCC Unit ID {PPC Ref ID}	Material Stored	Qty	Capacity	Units	Location Details
AST24	Hydraulic Oil AW 40	1	275	Gallons*	KAPCO Storage Building
AST25	Engine Oil [15 W 40]	1	275	Gallons	KAPCO Storage Building
AST26	ATF | Transmission Fluid	1	275	Gallons	KAPCO Storage Building
AST27	Oil [SAE 30 W]	1	275	Gallons	KAPCO Storage Building
AST28	Gear Oil [SAE 50]	1	250	Gallons	KAPCO Storage Building
AST29	Diesel Fuel | [Mobile Equipment Fueling]	1	10,000	Gallons*	Outside in the KAPCO Area
AST36	Diesel Fuel | [Mobile Equipment Fueling]	1	2,000	Gallons	Quarry parking area or in the Quarry Shop (mobile tanker truck)
AST38	Aqueous Film-Forming Foam (AFFF)	1	500	Gallons	Foam Storage Building
AST40	Stormwater	1	1,000,000	Gallons	Resource Recover Office (east side)
AST41	Stormwater	1	500,000	Gallons	Resource Recover Office (east side)
AST42	Diesel Fuel | [Emergency Generator]	1	3,000	Gallons	Generator Under Kiln No. 2
AST43	Low sulfur diesel/over road fuel oil	1	500	Gallons	NW corner of plant employee parking lot
AST44	Retarder-Cement Additive	1	10,000	Gallons*	No. 1 Finish Mill
AST45	Heating Oil (No. 2 Fuel Oil)	1	4,000	Gallons	Outside ER6
AST46	Heating Oil (No. 2 Fuel Oil)	1	275	Gallons	Outside (rear) Main Office
AST47	Heating Oil (No. 2 Fuel Oil)	1	275	Gallons	Outside (rear) Main Office
AST48	Heating Oil | Used On-Spec Oil	1	18,000	Gallons	Former Kiln 2 Location
AST49	Heating Oil (No. 2 Fuel Oil)	1	275	Gallons	Outside Laboratory Building

NOTES:
* The exact inventory (quantity and materials stored) varies depending on use and delivery schedule. The number of drums noted represents typical quantities of oil/oil products stored on-site.
"{ }" detail Unit or Area IDs associated with additional references within facility PPC Plan. AST/UST ID's same in both ER Plans.

Table 1A.2: Underground Storage Tank

SPCC Unit ID {PPC Ref ID}	Material Stored	Qty	Capacity	Units	Location Details
~~UST2~~	**Closed in Place Oct 2018** (formerly Heating Oil (No. 2 Fuel Oil))	~~1~~	~~10,000~~	~~Gallons*~~	**Closed in Place Oct 2018** Truck Stagin Area {Closed | Temp}
~~UST3~~	**Closed in Place Oct 2018** (formerly Heating Oil (No. 2 Fuel Oil))	~~1~~	~~8,000~~	~~Gallons~~	**Closed in Place Oct 2018** In Front of Maintenance Shop/Purchasing Area
UST4	Heating Oil (No. 2 Fuel Oil)	1	12,000	Gallons	Outside the Control Room
UST5	Gasoline	1	1,000	Gallons	Outside the Quarry Shop/Vehicle Fueling Area
~~UST6~~	**Closed in Place** [formerly Diesel Fuel]	~~1~~	~~10,000~~	~~Gallons~~	Outside the Quarry Shop/Vehicle Fueling Area {Out of Service | **Closed in Place - 6/24/2014}**

NOTES:
* The exact inventory (quantity and materials stored) varies depending on use and delivery schedule. The number of drums noted represents typical quantities of oil/oil products stored on-site.
"{ }" detail Unit or Area IDs associated with additional references within facility PPC Plan. AST/UST ID's same in both ER Plans.

Table 1B: Drums and Containers

SPCC Unit ID {PPC Ref ID}	Material Stored	Qty	Capacity	Units	Location Details
DSA1.1 {MM2}	Tribol 1750/150 Synthetic Blend Compressor Oil	5	55	Gallons	Pack House
DSA1.2 {MM2}	Tribol 1100/150 Gear Oil	5	55	Gallons	Pack House
DSA10 {MM12}	Glycol	2	55	Gallons	Main Tanker Truck Unloading Area
DSA11 {SA12}	Tribol 1750/150 Synthetic Blend Compressor Oil	2	55	Gallons	Old No. 2 Kiln Precipitator Building
DSA12.1 {SA5, MM19}	Alpha EP 150	10	55	Gallons*	Oil House
DSA12.10 {SA5, MM19}	Tribol Molub-Alloy 860/460-2 Grease	1	55	Gallons*	Oil House
DSA12.11 {SA5, MM19}	Kerosene	1	55	Gallons*	Oil House
DSA12.12 {SA5, MM19}	CRC Multi-purpose Power Lube	1	55	Gallons*	Oil House
DSA12.13 {SA5, MM19}.	TKX All Purpose Lubricant	1	55	Gallons*	Oil House
DSA12.14 {SA5, MM19}	Dexron III/Mecron Automatic Transmission Fluid	1	55	Gallons*	Oil House
DSA12.15 {SA5, MM19}	Houghto-Safe 520 Fire Resistance Fluid-Water Glycol Types	1	55	Gallons*	Oil House
DSA12.2 {SA5, MM19}	Alpha EP 320	2	55	Gallons*	Oil House
DSA12.3 {SA5, MM19}	Tribol 1100/150 Gear Oil TGOA	3	55	Gallons*	Oil House
DSA12.4 {SA5, MM19}	Tribol 1100/320 Gear Oil TGOA	3	55	Gallons*	Oil House
DSA12.5 {SA5, MM19}	Tribol 1750/150 Synthetic Blend Compressor Oil	2	55	Gallons*	Oil House
DSA12.6 {SA5, MM19}	Tribol 800/320 Synthetic Gear Oil	2	55	Gallons*	Oil House
DSA12.7 {SA5, MM19}	Tribol 943/46 AW Hydraulic and Circulating Fluid	2	55	Gallons*	Oil House
DSA12.8 {SA5, MM19}	Tribol 943/32 AW Hydraulic and Circulating Fluid	3	55	Gallons*	Oil House

NOTES:
* The exact inventory (quantity and materials stored) varies depending on use and delivery schedule. The number of drums noted represents typical quantities of oil/oil products stored on-site.
"{ }" detail Unit or Area IDs associated with additional references within facility PPC Plan. AST/UST ID's same in both ER Plans.

Table 1B: Drums and Containers

SPCC Unit ID {PPC Ref ID}	Material Stored	Qty	Capacity	Units	Location Details
DSA12.9 {SA5, MM19}	Tribol Molub-Alloy 860/220-1 Grease	1	55	Gallons*	Oil House
DSA13.1 {SA11, MM20}	Tribol 1750/150 Synthetic Blend Compressor Oil	1	55	Gallons	Building Next to Oil House
DSA13.2 {SA11, MM20}	Mobil Delvac 1240 Motor Oil	1	55	Gallons	Building Next to Oil House
DSA16	Grease and Lube Oil	5	55	Gallons*	Raw Mill Area
DSA17	Grease, Lube Oil and Propylene Glycol Soln (Intercool)	5	55	Gallons*	Laydown/Staging Area
DSA18	Equipment Wash Soln (Bulldozer-Industrial Strength)	2	55	Gallons*	Old Slurry Pump house
DSA19	Tribol 943A W46 Hydraulic Fluid [Aerzen oil 3094-AEDR]	2	55	Gallons	CF Blend Silo
DSA2.1 {SA1}	Tribol 800/460 Synthetic Gear Oil	1	55	Gallons	No. 1 Finish Mill
DSA2.2 {SA1}	Ultra Plas 1488	5	55	Gallons	No. 1 Finish Mill
DSA2.3 {SA1}	Grinding Aid	1	55	Gallons	No. 1 Finish Mill
DSA2.4 {SA1}	Waste Oil	1	55	Gallons	No. 1 Finish Mill
DSA20	Grease, Lube Oil and Propylene Glycol Soln (Intercool)	6	55	Gallons*	Gravel Truck Parking Area (North of RR Lab)
DSA7 {MM18}	Tribol 1750/150 Synthetic Blend Compressor Oil	5	55	Gallons	Power House

NOTES:
* The exact inventory (quantity and materials stored) varies depending on use and delivery schedule. The number of drums noted represents typical quantities of oil/oil products stored on-site.
"{ }" detail Unit or Area IDs associated with additional references within facility PPC Plan. AST/UST ID's same in both ER Plans.

Table 1C: Equipment

SPCC Unit ID {PPC Ref ID}	Material Stored	Qty	Capacity	Units	Location Details
E1	Hydraulic Oil [1100/320]	1	360	Gallons	Norberg Hydraulic System | No. 1 Finish Mill
E12	Hydraulic Oil [943/32]	1	65	Gallons	Hydraulic Slides Pig Pen | Old No. 2 Kiln Stack/Precipitator Area
E13	Hydraulic Oil [Tribol 943 AW68]	1	66	Gallons	131SK01 Hydraulic Reservoir
E14	Hydraulic Oil [Tribol 943 AW68]	1	400	Gallons	321 HY01 Hydraulic Reservoir | Raw Mill Kiln No. 1
E15 {DSA 17/20}	Hydraulic Oil [Tribol 943 AW68]	1	70	Gallons	321 HY02 Swing Out Device Portable Pump | Raw Mill Kiln No. 1
E16	Gear Oil [Tribol 800/100]	4	120	Gallons	Roller Lube Reservoirs (321.LQ01, 02, 03, & 06) | Raw Mill Kiln No. 1
E17	Gear Oil [1100/320]	1	634	Gallons	Flender Gear Lue system (321.LQ04) | Raw Mill Kiln No. 1
E18	Hydraulic Oil [Tribol 943 AW68]	1	1,000	Gallons	441 HY01 Hydraulic Reservoir | MMC Cooler
E19	Hydraulic Oil [Tribol 943 AW68]	1	575	Gallons	441 HY012 Hydraulic Reservoir | HRB
E2	Hydraulic Oil [1100/320}	1	935	Gallons	TCD Drive | No. 1 Finish Mill
E20	Bearing Lube {Tribol 1100/150]	1	320	Gallons	532.LQ01 Fixed Bearing Lube | No. 2 Finish Mill
E21	Bearing Lube {Tribol 1100/150]	1	1,100	Gallons	532.LQ02 Fixed Bearing Lube | No. 2 Finish Mill
E5	Hydraulic Oil 1100/320]	1	200	Gallons	Coal Mill | Old No. 2 Kiln Burner Floor Area

NOTES:
* The exact inventory (quantity and materials stored) varies depending on use and delivery schedule. The number of drums noted represents typical quantities of oil/oil products stored on-site.
"{ }" detail Unit or Area IDs associated with additional references within facility PPC Plan. AST/UST ID's same in both ER Plans.

Table 1D: Transformer

SPCC Unit ID {PPC Ref ID}	Material Stored	Qty	Capacity	Units	Location Details
T1.1	Dielectric Fluid	1	2,134	Gallons	Pad Mount | Substation #3 Main #1
T1.2	Dielectric Fluid	1	2,134	Gallons	Pad Mount | Substation #3 Main #1
T1.3	Dielectric Fluid	1	1,650	Gallons	Pad Mount | Substation #3 Main
T1.4	Dielectric Fluid	4	650	Gallons	Pad Mount | Substation #3 Main
T1.5	Dielectric Fluid	3	67	Gallons	Pad Mount | Substation #3 Main
~~T10~~	~~Dielectric Fluid~~	~~1~~	~~100~~	~~Gallons~~	~~Pad Mount | Crusher Building~~ **{Out of Service}**
~~T11.1~~	~~Dielectric Fluid~~	~~3~~	~~67~~	~~Gallons~~	~~Pole Mount | Crusher Building~~ **{Out of Service}**
~~T11.2~~	~~Dielectric Fluid~~	~~1~~	~~195~~	~~Gallons~~	~~Pad Mount | Crusher Building~~ **{Out of Service}**
~~T12~~	~~Dielectric Fluid~~	~~3~~	~~63~~	~~Gallons~~	~~Pole Mount | Stone Plant~~ **{Out of Service}**
T13.1	Dielectric Fluid	3	67	Gallons	Pole Mount | Quarry No. 2 WA Turbine
T13.2	Dielectric Fluid	3	60	Gallons	Pole Mount | Quarry No. 2
T14	Dielectric Fluid	3	70	Gallons	Pole Mount | Quarry Shop
T15	Dielectric Fluid	1	140	Gallons	Pad Mount | Separator Building
T16	Dielectric Fluid	3	60	Gallons	Pole Mount | KAPCO Lab Building
T17	Dielectric Fluid	2	3,085	Gallons	Pad Mount | Substation #1
T18.1	Dielectric Fluid	1	3,930	Gallons	Pad Mount | Substation #2
T18.2	Dielectric Fluid	1	2,170	Gallons	Pad Mount | Substation #3
T3	Dielectric Fluid	1	140	Gallons	Pad Mount | Outside Substation Yard
T4	Dielectric Fluid	1	162	Gallons	Pad Mount | Outside No. 2 Finish Mill Grinding

NOTES:
* The exact inventory (quantity and materials stored) varies depending on use and delivery schedule. The number of drums noted represents typical quantities of oil/oil products stored on-site.
"{ }" detail Unit or Area IDs associated with additional references within facility PPC Plan. AST/UST ID's same in both ER Plans.

Table 1D: Transformer

SPCC Unit ID {PPC Ref ID}	Material Stored	Qty	Capacity	Units	Location Details
T19	Dielectric Fluid	1	925	Gallons	Pad Mount | New Crusher
T2.1	Dielectric Fluid	1	820	Gallons	Pad Mount | 4160 - Substation Yard
T5	Dielectric Fluid	1	983	Gallons	Pad Mount | Under No. 2 Kiln Drives (Pier 4)
~~T6.1~~	~~Dielectric Fluid~~	~~1~~	~~152~~	~~Gallons~~	~~Pad Mount | Old No. 2 Kiln Precipitator 4B~~ **{Out of Service}**
~~T6.2~~	~~Dielectric Fluid~~	~~1~~	~~152~~	~~Gallons~~	~~Pad Mount | Old No. 2 Kiln Precipitator 4A~~ **{Out of Service}**
~~T6.3~~	~~Dielectric Fluid~~	~~1~~	~~154~~	~~Gallons~~	~~Pad Mount | Old No. 2 Kiln Precipitator 2~~ **{Out of Service}**
~~T6.4~~	~~Dielectric Fluid~~	~~1~~	~~77~~	~~Gallons~~	~~Pad Mount | Old No. 2 Kiln Precipitator 1A~~ **{Out of Service}**
~~T6.5~~	~~Dielectric Fluid~~	~~1~~	~~77~~	~~Gallons~~	~~Pad Mount | Old No. 2 Kiln Precipitator 1B~~ **{Out of Service}**
~~T6.6~~	~~Dielectric Fluid~~	~~1~~	~~152~~	~~Gallons~~	~~Pad Mount | Old No. 2 Kiln Precipitator 3~~ **{Out of Service}**
~~T7.1~~	~~Dielectric Fluid~~	~~1~~	~~112~~	~~Gallons~~	~~Pole Mount | Old No. 2 Kiln Precipitator 1~~ **{Out of Service}**
~~T7.2~~	~~Dielectric Fluid~~	~~1~~	~~112~~	~~Gallons~~	~~Pole Mount | Old No. 1 Kiln Precipitator 2~~ **{Out of Service}**
~~T8~~	~~Dielectric Fluid~~	~~1~~	~~152~~	~~Gallons~~	~~Pad Mount | Old No. 1 Raw Mill~~ **{Out of Service}**
T9	Dielectric Fluid	3	252	Gallons	Pad Mount | Packhouse
T1.6	Dielectric Fluid	3	205	Gallons	Pole Mount | Substation #3 Main #1
T1.7	Dielectric Fluid	3	205	Gallons	Pole Mount | Substation #3 Main #2
T1.8	Dielectric Fluid	6	91	Gallons	Pole Mount | Substation #3 Main
T2.2	Dielectric Fluid	1	170	Gallons	Pad Mount | 4160 - Substation Yard

NOTES:
* The exact inventory (quantity and materials stored) varies depending on use and delivery schedule. The number of drums noted represents typical quantities of oil/oil products stored on-site.
"{ }" detail Unit or Area IDs associated with additional references within facility PPC Plan. AST/UST ID's same in both ER Plans.

Table 1E: Circuit Breaker

SPCC Unit ID {PPC Ref ID}	Material Stored	Qty	Capacity	Units	Location Details
T1.6	Dielectric Fluid	3	205	Gallons	Pole Mount | Substation #3 Main #1
T1.7	Dielectric Fluid	3	205	Gallons	Pole Mount | Substation #3 Main #2
T1.8	Dielectric Fluid	6	91	Gallons	Pole Mount | Substation #3 Main
T2.2	Dielectric Fluid	1	170	Gallons	Pad Mount | 4160 - Substation Yard

NOTES:
* The exact inventory (quantity and materials stored) varies depending on use and delivery schedule. The number of drums noted represents typical quantities of oil/oil products stored on-site.
"{ }" detail Unit or Area IDs associated with additional references within facility PPC Plan. AST/UST ID's same in both ER Plans.

Table 1F: Waste Container Area

SPCC Unit ID {PPC Ref ID}	Material Stored	Qty	Capacity	Units	Location Details
LAB1 {Table 12}	Waste Fuels | PCB Testing Waste	3	5	Gallons	RR Solvent Laboratory {In-Use}
LAB2 {Table 12}	Typical laboratory activities	1	5	Gallons	Cement Lab Next to Oil House {In-Use}
LAB3 {Table 12}	Typical laboratory activities	1	5	Gallons	KAPCO {In-Use}

NOTES:
* The exact inventory (quantity and materials stored) varies depending on use and delivery schedule. The number of drums noted represents typical quantities of oil/oil products stored on-site.
"{ }" detail Unit or Area IDs associated with additional references within facility PPC Plan. AST/UST ID's same in both ER Plans.

EXHIBITS

This discussion supplements information presented in Section B.1 of the PPC Plan.
See the complete Plan for specific details regarding both RCRA and non-RCRA regulated materials.

General Notification Guidelines

The Emergency Coordinator has the authority to commit the resources necessary to respond to any event that may occur at the facility and will, at a minimum, take the following action or designate appropriate personnel to take the following actions:

1. Make an assessment of actual or potential hazards to public health and safety, public welfare and the environment. The Emergency Coordinator may utilize the services of staff experts or 3rd party resources, as appropriate;
2. Notify local emergency response groups and regulatory agencies, including the PADEP's 24-hour Emergency Response Line, if necessary;
3. Notify response contractors and additional Keystone personnel for remedial action;
4. Direct personnel in appropriate response actions to ensure that fires, spills, or other hazards do not occur, recur, or spread to other areas of the facility; and,
5. After a spill, the Emergency Coordinator, or designee, shall ensure that:
   - The affected area is cleaned;
   - Recovered solid waste, contaminated soil or contaminated water is treated, stored or disposed in a manner approved by the PADEP;
   - Testing of the affected area has been accomplished in order to ensure that the contaminants have been adequately removed;
   - Disposal, processing, storage or treatment of waste materials is halted in the area affected by the spill until the area has been cleaned;
   - Affected equipment are replaced or repaired, inspected, and certified prior to return to service;
   - Appropriate incident forms are completed; and,
   - Appropriate reports are submitted to regulatory agencies.

Contact information to secure the response of Keystone Emergency Coordinators and/or to notify or request external parties assistance is detailed in:

- ✓ Exhibit B.1-2 | *Emergency Coordinator Phone Listing*
- ✓ Exhibit D.3-1 | *External Notifications and Resources List*

Personnel are expected to assess the severity and initiate the response to incidents based on guidelines established within this PPC Plan. Exhibit D.1, *Facility-wide Incident Assessment and Response*, providing an overview of these actions, including a guidance flow chart for classification of the incident and a discussion of potential response actions.

PADEP Notification

If an incident occurs that involves an imminent or potential threat to public health, welfare and safety, notification should be made to PADEP's 24-hour Emergency Response Line: 570-826-2511. Also, notification should be made when the facility is back in compliance before restarting the affected systems or equipment. A written report is required to be submitted to the PADEP within 15 days of the incident that required implementation of the PPC Plan. All reports, notifications or other submissions required to be submitted to the PADEP by the Hazardous Waste Permit are to be signed and certified, and sent by certified mail or delivered to the following:

Department of Environmental Protection
Bureau of Land Recycling & Waste Management
2 Public Square
Wilkes-Barre, PA 18711-0790
Attention: Waste Management Program Manager

In the event of a minor incident or a circumstance that compromises the functionality of the site safety measures, such as the foam system or secondary containment system, notification should be made to the appropriate department of the PADEP.

If an incident involves an air quality issue, notification should be made to the PADEP by calling the following list. This list is in priority order. Individual contact names are maintained in the Response Table document kept at the facility.

PADEP District Office - Air Quality Program:	610-861-2070
PADEP Northeast Regional Office - Air Quality Program:	570-826-2511

Procedures for addressing the response to excess visible emissions or the failure / malfunction of air pollution equipment are detailed in the facility MACT EEE compliance *Start-up, Shutdown & Malfunction* and *Operations & Maintenance* Plans.

If an incident involves a waste management issue, notification should be made to PADEP by calling the following list. This list will also be updated as necessary. Individual contact names are maintained in the Response Table document kept at the facility.

PADEP Northeast Regional Office Land Recycling and Waste Management Program:	570-826-2511
PADEP District Office Land Recycling and Waste Management Program:	610-861-2070

Any event that that may either endanger human health or the environment, or creates an instance of non-compliance with the Hazardous Waste Management Permit (PAD002389559) for the Site, shall require Keystone to contact the PADEP within twenty-four (24) hours from the time that the circumstances were initially observed. A written submission shall be provided to PADEP within five (5) days (although the PADEP may extend it to 15 days) of the time that Keystone became aware of the circumstances. All submissions and reports must comply with all applicable reporting

requirements established within the Hazardous Waste Permit.

Review and Notification of Storage Tank (AST | UST) and Container Releases

Once a release is under control, the Emergency Coordinator, or designee, will determine if the release is reportable. There are only four (4) specific situations in which a release from an AST or UST does not have to be reported:

1. A release to the interstitial space of a double-walled aboveground or underground storage tank;
2. A release of less than 25 gallons to a containment area, structure or facility around an aboveground storage tank;
3. A release of less than five gallons to a synthetic surface, such as asphalt or concrete, which prevents migration of the regulated substance to surface water, groundwater, bedrock, soil or sediment; and,
4. A release of less than one gallon to surface soils.

A release from an AST or UST falling under any of these exclusions must meet the following criteria:

- The spill is under control at all times,
- It is completely contained, **and**
- It is completely recovered or removed within 24 hours of its occurrence.

If the Emergency Coordinator, or designee, determines that these conditions will not be met, the release would then become reportable.

If the release is reportable, the Emergency Coordinator, or designee, must notify, by telephone, the PADEP within two (2) hours of confirming the release. When notifying the PADEP, the following information must be included:

1. The regulated substance involved;
2. The quantity of the regulated substance involved;
3. Time of release;
4. Relevant, available information concerning the contamination of surface water, groundwater, soil or sediment; and,
5. Interim remedial actions planned, initiated, or completed.

Within 15 days of the telephone notice, the Emergency Coordinator, or designee, must follow-up with a written notification to the PADEP regional office and to the local municipalities in which the release occurred.

Review and modification of this PPC Plan will be conducted by the Primary Emergency Coordinator(s) and Manager, Environmental Compliance, or their designees, in the event of any personnel change in management or supervisory positions, equipment changes, or at any such time that the emergency plan is required to be updated.

Any reportable emergency event (e.g., fire, explosion, etc.) that requires implementation of this PPC Plan will be reported in writing by Keystone to the PADEP within 15 days. Other agencies will be notified as necessary. This notification will include:

- Name, address, and telephone number of the owner;
- Name, address, and telephone number of the facility;
- Date, time, and type of incident;
- Type and quantity of material(s) involved;
- The extent of the injuries, if any;
- An assessment of actual or potential hazards to human health or to the environment; and,
- The estimated quantity and disposition of recovered material that resulted from the incident.

Pursuant to federal regulation 40 CFR Section 112.4, a report must be submitted to the United States Environmental Protection Agency (USEPA) Regional Administrator, if a single release from an AST or UST has occurred discharging more than 1,000 U.S. gallons of oil into or upon the navigable waters of the U.S., or discharged oil in two (2) reportable spill events occurring within any twelve (12) month period.

FOLLOWING THE INITIAL ASSESSMENT OF A SPILL | ENVIRONMENTAL INCIDENT NOTIFY ENVIRONMENTAL DEPARTMENT STAFF AS SOON AS POSSIBLE VIA TELEPHONE TO ALLOW APPROPRIATE REPORTING ACTIONS TO BE INITIATED.

Instructions: In coordination with spill response efforts and/or as soon as possible following actions to address immediate hazards or impacts – document the incident using this form. Complete for any type of petroleum product or hazardous materials/waste spill or associated Environmental incident. Please provide a copy of this report to the Environmental Department by end of shift.

1. General Spill | Incident Information:

General Description of Incident: _____

_____

Spilled Substance: _____

Incident Type: ☐RCRA[i] [Waste Fuels Tank / Unloading or Containerized HW] ☐Non-RCRA [Oils, Haz Mat'ls]

Quantity Spilled (Estimated Total): _____

Date of Spill: _____/_____/_____

Time Spill/Incident: Started: _____ AM / PM Stopped: _____ AM / PM

2. Spill Location and Conditions:

Area(s) Impacted [Check all that apply] Cement Plant:☐ Quarry:☐ Off-Site Impact:☐

Specific Location of Spill: _____

Weather Conditions: _____

If Spill to Surface Water _____ N/A ☐

Describe Discharge Structure | Potential Conveyance: _____

(e.g., catch basin; drainage ditch/swale; culvert, outfall, etc...) _____

Identify the NPDES Discharge Point - Cement Plant: ☐002 ☐003 ☐004 ☐005 ☐006

Quarry: ☐001 ☐002 ☐004

Estimate Flow Rate (i.e., slow, moderate, or fast | Est'd gpm): _____

Describe Environmental Impact: _____

(e.g., discoloration; sheen; fish kill?) _____

3. Actions Taken:

To Contain Spill: _____

To Cleanup Spill: _____

To Document Cleanup: (e.g., Photos, Operating Data, and Records) _____

To Properly Containerize/Accumulate Spill Clean-up Media: _____

_____

To Prevent Reoccurrence: _____

_____

4. Keystone Personnel Involved in Spill/Incident:

EC Name: _____ Title: _____

Witness (es): _____

5. Reporting the Spill:

See Exhibit B.1-1 for Telephone Numbers | Contact Info

Department | Mgmt Team Notifications:

- ☐ Environmental Mgr or Coordinator - Date: _____ Time: _____
- ☐ Department Manager - Date: _____ Time: _____
- ☐ Plant Manager - Date: _____ Time: _____

CONTACT TO OUTSIDE PARTIES WILL BE COORDINATED WITH THE DIRECTION OF FACILITY and/or CORPORATE ENVIRONMENTAL DEPARTMENT STAFF.

Spills to water: Immediately call the National Response Center (1-800-424-8802), Emergency Management (1-800-258-5990), and the PADEP. Follow Notification Requirements as Outlined in Keystone's PPC and SPCC Plans.
Spills to soil that may be an immediate threat to health or the environment (i.e., explosive, flammable, toxic vapors, shallow groundwater, nearby creek, etc.): Follow Reporting Requirements in Keystone's PPC and SPCC Plans.

List all agencies contacted; include names, dates, and phone numbers for people you spoke with:

_____

_____

_____

6. Personnel or 3rd Party Responsible for Managing Termination/Closure of Incident or Spill:

Name and Phone Number(s): _____

_____

_____

7. Additional Notes/Information:

(As appropriate to document the circumstances; cause; and/or response to the incident):

8. Person Submitting the Report:

Name: _____ Title: _____

Signature: _____ Date: _____

[1] RCRA incidents, when involving the operation and/or integrity of the waste fuels unloading, transfer, storage and/or firing systems, must be addressed and documented in accordance with facility Waste Fuels Department Standard Operating Procedures – SOP WF-31, *Tank System Incident Response*.

EXHIBIT B.1-2 | EMERGENCY COORDINATOR PHONE LISTING

KEYSTONE CEMENT COMPANY (PPC) PLAN | PAD002389559

	NAME	JOB TITLE	CELLULAR #	OTHER #
		PRIMARY		
	STUART GUINTHER	Plant Manager	**484-934-6613**	**518-225-2886**
	OPEN	Manager, Env. Compliance		
		SECONDARY		
[Environmental]	LAUREN QUINTRELL	E. H. & S. Compliance Coordinator	**484-239-2196**	**267-255-0916**
[Safety]	DAVE REPPERT	Safety Director	**610-721-1300**	**610-261-0243**
[Production]	TYLER ECK	Production Manager	**570-419-4246**	**570-419-4246**
	GLENN COVINGTON	Shift Supervisor	**484-546-6834**	**610-419-6779**
	ANTHONY HAMEL	Shift Supervisor	**484-239-2746**	**484-387-0900**
	LOU HASSAY, JR.	Shift Supervisor	**484-239-2666**	**610-865-0651**
	MARK READ	Shift Supervisor	**424-972-3874**	**610-762-2490**
	RON ROTH	Shift Supervisor	**484-546-6810**	**610-390-6962**
	RON WEDDE	Production Coordinator	**484-239-0074**	**484-239-0074**
	MICHAEL SMITH	Quarry Manager	**484-546-6739**	**610-730-0140**
[Maintenance]	CRAIG LAWRENCE	Maintenance Manager	**484-546-6800**	**610-759-5489**
	JASON HOUSER	Maintenance Supervisor	**610-972-8486**	**484-788-8970**
	ALEX MILLER	Maintenance Supervisor	**484-747-4735**	**484-225-7386**
	HERB HEIMBACH	Electrical Maint. Supervisor	**484-239-0913**	**570-977-8662**
	CONTROL ROOM	CRO | Operations	**610-972-2068** [Mobile] **610-837-2240** [Direct] 610-837-1881 Ext. 8340	
[Resource Recovery]	MECHELLA SABA	Fuels Laboratory Manager	**484-456-8282**	**610-533-5133**

EXHIBIT B.1-3 | EMERGENCY COORDINATOR CONTACT INFORMATION DETAILS

KEYSTONE CEMENT COMPANY (PPC) PLAN | PAD002389559

The following is a detailed listing of contact information for all of the designated KEYSTONE Primary and Secondary Coordinators as of the time of the most recent review of this Plan.

PRIMARY COORDINATORS

MAIN OFFICE: 610-837-1881

Stuart Guinther
Plant Manager | x8331
5759 Burning Tree Lane
Macungie, PA 18062
484-934-6613 (Cell)
518-225-2886 (Other)

OPEN
Manager, Environmental Compliance

SECONDARY COORDINATORS

MAIN OFFICE: 610-837-1881

Environmental and Safety Staff

David Reppert
Safety Manager | x8307
109 Meadow Lane
Northampton, PA 18067
610-721-1300 (Cell)
610-261-0243 (Home)

Lauren Quintrell
E. H. & S. Compliance Coordinator | x8394
732 Lyons Street
Bethlehem, PA 18018
484-239-2196 (Cell)
267-255-0916 (Other)

Production | Operations Staff

MAIN OFFICE: 610-837-1881

Tyler Eck
Production Manager | x8342
437 E. Belvidere Street Apt F2
Nazareth, PA 18067
570-419-4246 (Cell)
570-419-4246 (Other)

Glenn Covington
Shift Supervisor | x8317
1218 W. Lehigh Street Apt 7
Bethlehem, PA 18018
484-546-6834 (Cell)
928-821-2820 (Other)

Anthony Hamel
Shift Supervisor | x8317
2202 Siegfried Avenue
Northampton, PA 18067
484-239-2746 (Cell)
484-387-0900 (Other)

Louis Hassay, Jr.
Shift Supervisor | x8317
1059 Johnston Drive
Bethlehem, PA 18017
484-239-2666 (Cell)
610-865-0651 (Other)

Mark Read
Shift Supervisor | x8317
529 E. Main Street
Bath, PA 18014
610-972-3874 (Cell)
610-762-2490 (Other)

Ronald Roth
Shift Supervisor | x8317
831 S. Cottonwood Road
Walnutport, PA 18088
484-546-6810 (Cell)
610-390-6962 (Other)

Production | Operations Staff (continued)

MAIN OFFICE: 610-837-1881

Ronald Wedde
Production Coordinator | x8317
2727 Buss Road
Bath, PA 18014
484-239-0074 (Cell)
484-239-0074 (Other)

Mechella Saba
Fuels Laboratory Manager | x8312
117 S. Bradford Street
Allentown, PA 18109
484-456-8282 (Cell)
610-533-5133 (Other)

Michael Smith
Quarry Manager | 8303
4911 Glenview Street
Schnecksville, PA 18078
484-546-6739 (Cell)
610-730-0140 (Home)

Maintenance Department Staff

MAIN OFFICE: 610-837-1881

Craig Lawrence
Maintenance Manager | x8316
4618 Hillview Drive
Nazareth, PA 18064
484-546-6800 (Cell)
610-759-5489 (Home)

Jason Houser
Maintenance Supervisor | x8349
406 Forge Street
Bowmanstown, PA 18030
610-972-8486 (Cell)
484-788-8970 (Other)

Alexander Miller
Maintenance Supervisor | x8348
44 Market Street
Freemansburg, PA 18017
484-747-4735 (Cell)
484-225-7386 (Other)

Herb Heimbach
Mechanical Maintenance Supervisor | x8393
809 Mohawk Trail
Stroudsburg, PA 18360
484-239-0913 (Cell)
570-977-8662 (Home)

GCHI ENVIRONMENTAL OFFICES

654 Judge Street
Harleyville, SC 29448
803-496-2282
803-496-2281 (S. Holt)

EXHIBIT B.1-4

Underground Storage Tank Emergency Procedures

Keystone Cement Company

Route 329, Bath, PA 18014

Subject: Underground Storage Tank Procedures

Procedure #: UST 02 | Emergency Response Procedures

1.0 Facility Information

Facility ID:	48-23776
Site ID:	451528
Facility Name:	Keystone Cement Company ("Keystone")
Address:	Route 329
	Bath, PA 18014
Municipality:	East Allen Township
County:	Northampton

2.0 Emergency Response Phone Numbers

Control Room: 610-837-2240

Class C Operator(s) can be reached via Control Room

The Control Room Operator or trained assignee will follow the chain of command described in Keystone's PPC Plan for upward notification in the event of an emergency, e.g., Class C, B or A. See Exhibit D.1, *Facility-wide Incident Assessment and Response* for a discussion of guidance for determining the severity of an incident.

The current listing of trained UST Operators is detailed within underground storage tank procedure UST 02 | *PADEP Trained Operator Listing.*

Emergency response telephone numbers are programmed into the Control Room telephone speed-dial directory. A listing of these emergency numbers is also posted in the Control Room, Operations Administration and Main Office. Emergency contact information for both Keystone personnel and external parties is presented within the PPC Plan (see Exhibits B.1 and D.3).

3.0 Incident Responses

All Types of Incidents:

In the event of a spill of product, immediately notify the Control Room and provide as much of the following information as possible:

1. Exact location
2. Name of person reporting and call back telephone number
3. Material(s) involved

4. Estimated quantity of materials involved
5. Potential hazards
6. What intervention is in progress

Minor Incident Spill Response | Class C

- If safe to do so, take immediate measures to control or stop any release (e.g., activate pump shut-off)
- Eliminate any potential ignition sources (e.g., automobiles and cigarettes)
- Use absorbent material to contain manageable spills of material
- Cleanup the used absorbent material and place in a properly labeled and sealed container.
- Pump or remove any materials released to secondary containment. Store recovered materials, unless suitable for their intended use, in a properly labeled and sealed container.
- Arrange for proper disposal of waste container(s)

Major Incident Spill Response | Class A or B

- Evacuate the area, if necessary; and,
- Await further direction from Shift Supervisor and/or Emergency Coordinator

Suspected Leak Response

If a leak is suspected notify the Control Room and provide as much of the following information as possible:

1. Exact location
2. Name of person reporting and call back telephone number
3. Tank, piping, dispenser, and/or Material involved
4. Symptom
5. Potential hazards

The facility shall initiate and complete an investigation of any suspected leak.

The following symptoms indicate a possible leak in an underground storage tank and/or associated piping.

1. The interstitial leak detection reservoir totally drains
2. The sudden or unexpected loss of a regulated substance from a storage tank, or the unexplained presence of water in a storage tank
3. Diesel fuel dispenses very slow due to the activation of a line leak detector
4. Gasoline dispenser meter skipping, erratic fuel flow, pump operation without fuel dispensing
5. Liquid is detected in the containment sumps

4.0 Release Reporting

The documentation and reporting of UST releases shall be in agreement with established PA DEP requirements.

Reference: PA DEP Bureau of Waste Management, Form 2550-FM-BWM0082, *Notification of Reportable Release (Owners and Operators)*.

Revision History

Revision	Date	Description | Document #
B	10/25/12	Reformatting of existing emergency procedure. Formal assignment of procedure numbering - Storage Tank Management Procedures | UST02

NOTIFICATION OF RELEASE *(Owners and Operators)*

FACILITY I.D. NUMBER ____-_____

☐ Initial
☐ Follow-Up

NOTIFICATION OF CONTAMINATION *(Certified Installers and Inspectors)*

INFORMATION FOR OWNERS AND OPERATORS (O/O)

The Storage Tank Program's Corrective Action Process (CAP) regulations establish requirements for owners and operators of storage tank systems and storage tank facilities to report confirmed releases and, in certain cases, suspected releases.

Suspected Release Reporting: Upon the completion of a suspected release investigation from which it could not be determined whether a release has occurred, the owner or operator must, within 15 days of the indication of the suspected release, complete and submit this form to the appropriate regional office of the Department (Subsection 245.304(c)(2)).

Confirmed Release Reporting: The owner or operator must notify the appropriate regional office of the Department by telephone as soon as practicable, but no later than 24 hours, after the confirmation of a release (Subsections 245.305(a) and (b)). Within 15 days of that telephone notification, the owner or operator must complete and submit this form to the appropriate regional office of the Department, to each municipality in which the release occurred, and to each municipality where that release has impacted environmental media or water supplies, buildings, or sewer or other utility lines (Subsections 245.305(c) and (e)). And if new impacts to environmental media or water supplies, buildings, or sewer or other utility lines are discovered after that initial written notification, the owner or operator must, within 15 days of the discovery of the new impact, complete and submit this form to the Department and to each impacted municipality (Subsections 245.305(d) and (e)).

INFORMATION FOR CERTIFIED INSTALLERS AND INSPECTORS (I/I)

In accordance with the Storage Tank Program's certification regulations, certified installers and inspectors must complete and submit this form to the Department within 48 hours of observing any of the following while performing services as a certified installer or inspector: a release of a regulated substance; suspected or confirmed contamination of soil, surface or groundwater from regulated substances; or a regulated substance in a containment structure or facility (Subsections 245.132(a)(4) and 245.132(a)(6)).

INSTRUCTIONS

Record the storage tank facility I.D. number at the top right-hand corner of each page of this form.

Owners and Operators (O/O): Indicate if this is an initial or follow-up notification by marking the appropriate box found in the top right-hand corner of this page.

- To report a Suspected Release, complete all information in Sections I, II, IIIA, IIIC, VI, VIII and IX.
- To report a Confirmed Release, complete all information in Sections I, II, IIIA, IIIB, IIIC, IV, V, VIII and IX.

Certified Installers and Inspectors (I/I): Complete all information in Sections I, II, IIIA, IIIC, VI or VII, VIII, and IX. Attach a copy of the failed, valid tightness test results, if applicable.

PLEASE SEND COMPLETED ORIGINAL FORM TO:
PA Department of Environmental Protection
Environmental Cleanup and Brownfields Program
Storage Tank Section
(and the appropriate address below, depending on where the FACILITY is located)

Northwest Region	North-central Region	Northeast Region
230 Chestnut Street Meadville, PA 16335-3481 PHONE: 814-332-6945 / 800-373-3398 FAX: 814-332-6121	208 W. Third Street, Suite 101 Williamsport, PA 17701 PHONE: 570-327-3636 FAX: 570-327-3420	2 Public Square Wilkes-Barre, PA 18701-1915 PHONE: 570-826-2511 FAX: 570-820-4907
Counties: Armstrong, Butler, Clarion, Crawford, Elk, Erie, Forest, Indiana, Jefferson, Lawrence, McKean, Mercer, Venango, Warren	**Counties:** Bradford, Cameron, Centre, Clearfield, Clinton, Columbia, Lycoming, Montour, Northumberland, Potter, Snyder, Sullivan, Tioga, Union	**Counties:** Carbon, Lackawanna, Lehigh, Luzerne, Monroe, Northampton, Pike, Schuylkill, Susquehanna, Wayne, Wyoming
Southwest Region	**South-central Region**	**Southeast Region**
400 Waterfront Drive Pittsburgh, PA 15222 PHONE: 412-442-4000 FAX: 412-442-4194	909 Elmerton Avenue Harrisburg, PA 17110 PHONE: 717-705-4705 / 866-825-0208 FAX: 717-705-4830	2 East Main Street Norristown, PA 19401 PHONE: 484-250-5900 FAX: 484-250-5961
Counties: Allegheny, Beaver, Cambria, Fayette, Greene, Somerset, Washington, Westmoreland	**Counties:** Adams, Bedford, Berks, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Mifflin, Perry, York	**Counties:** Bucks, Chester, Delaware, Montgomery, Philadelphia

I. FACILITY INFORMATION (Both O/O and I/I)

Facility Name | Facility I.D. Number -

Street Address (P.O. Box not acceptable)

City | State PA | Zip Code -

County | Municipality

Contact Person | Telephone Number ( ) -

II. OWNER/OPERATOR INFORMATION (Both O/O and I/I)

Owner Name

Address

City | State | Zip Code -

Telephone Number ( ) -

Operator Name | Telephone Number ( ) -

III. REGULATED SUBSTANCE INFORMATION

A. Type of Product(s) Involved (Mark All That Apply ☒): Both O/O and I/I		B. Quantity (Gallons) of Product(s) Released: O/O Only	C. Contamination Suspected [S] or Confirmed [C] (Mark All That Apply ☒): Both O/O and I/I	
Leaded Gasoline	☐	___ ___, ___ ___ ___, ___ ___ ___	☐ [S]	☐ [C]
Unleaded Gasoline	☐	___ ___, ___ ___ ___, ___ ___ ___	☐ [S]	☐ [C]
Aviation Gasoline	☐	___ ___, ___ ___ ___, ___ ___ ___	☐ [S]	☐ [C]
Kerosene	☐	___ ___, ___ ___ ___, ___ ___ ___	☐ [S]	☐ [C]
Jet Fuel	☐	___ ___, ___ ___ ___, ___ ___ ___	☐ [S]	☐ [C]
Diesel Fuel	☐	___ ___, ___ ___ ___, ___ ___ ___	☐ [S]	☐ [C]
New Motor Oil	☐	___ ___, ___ ___ ___, ___ ___ ___	☐ [S]	☐ [C]
Used Motor Oil	☐	___ ___, ___ ___ ___, ___ ___ ___	☐ [S]	☐ [C]
Fuel Oil No. 1	☐	___ ___, ___ ___ ___, ___ ___ ___	☐ [S]	☐ [C]
Fuel Oil No. 2	☐	___ ___, ___ ___ ___, ___ ___ ___	☐ [S]	☐ [C]
Fuel Oil No. 4	☐	___ ___, ___ ___ ___, ___ ___ ___	☐ [S]	☐ [C]
Fuel Oil No. 5	☐	___ ___, ___ ___ ___, ___ ___ ___	☐ [S]	☐ [C]
Fuel Oil No. 6	☐	___ ___, ___ ___ ___, ___ ___ ___	☐ [S]	☐ [C]
Other (Specify) _____	☐	___ ___, ___ ___ ___, ___ ___ ___	☐ [S]	☐ [C]
Unknown	☐	___ ___, ___ ___ ___, ___ ___ ___	☐ [S]	☐ [C]

IV. CONFIRMED RELEASE INFORMATION (O/O Only)

Date Release was Confirmed: ___ / ___ / ___ (m d y)

Date Owner/Operator Verbally Notified Appropriate Regional Office of Confirmed Release and Office Notified:

Date: ___ / ___ / ___ (m d y) Office _____

Date Owner/Operator Sent Copy of this Written Notification to Local Municipality(ies) and Name of Municipality(ies) Notified:

Date: ___ / ___ / ___ (m d y) Municipality _____

Date: ___ / ___ / ___ (m d y) Municipality _____

Source (Mark All That Apply ☒):		How Discovered (Mark All That Apply ☒):		Environmental Media Affected and Impacts (Mark All That Apply ☒):	
Tank (DEP Assigned Nos. _____)	☐	During Closure	☐	Soil	☐
Piping System (Aboveground Regulated)	☐	Lining Installation	☐	Sediment	☐
Piping System (Underground Regulated)	☐	Routine Leak Detection	☐	Surface Water	☐
Piping System (Non-Regulated)	☐	Third Party Inspection	☐	Ground Water	☐
Dispenser/Dispensing Equipment	☐	Tightness Testing Activities	☐	Bedrock	☐
Spill Prevention Equipment	☐	Visible Product or Odor Reports	☐	Water Supplies	☐
Submersible Turbine Pump Head/Fittings	☐	Water in Tank	☐	Vapors/Product in Buildings	☐
Containment/Sump Failure	☐	Construction	☐	Vapors/Product in Sewer/Utility Lines	☐
Other (Specify) _____	☐	Upgrade/Repair	☐	Ecological Receptors	☐
Unknown	☐	Supply Well Sample Results	☐		
Cause (Mark All That Apply ☒):		Monitoring Well Sample Results	☐		
Faulty Installation	☐	Property Transfer	☐		
Corrosion	☐	Other (Specify) _____	☐		
Physical/Mechanical Failure	☐	Unknown	☐		
Spill During Delivery	☐				
Overfill at Delivery	☐				
Vehicle Gas Tank Overfill	☐				
Product Delivery Hose Rupture	☐				
Accident/Natural Disaster	☐				
Other (Specify) _____	☐				
Unknown	☐				

V. INTERIM REMEDIAL ACTIONS (O/O Only)

Indicate the Interim Remedial Actions Planned, Initiated or Completed (Mark All That Apply ☒):

	Planned	Initiated	Completed	Not Applicable
Regulated Substance Removed from Storage Tanks	☐	☐	☐	☐
Fire, Explosion and Safety Hazards Mitigated	☐	☐	☐	☐
Contaminated Soil Excavated	☐	☐	☐	☐
Free Product Recovered	☐	☐	☐	☐
Water Supplies Identified and Sampled	☐	☐	☐	☐
Temporary Water Supplies Provided	☐	☐	☐	☐
Other (Specify) _____	☐	☐	☐	☐

VI. SUSPECTED RELEASE / CONTAMINATION INFORMATION (Both O/O and I/I)

Date the Indication of a Suspected Release / Contamination was Observed: ____ / ____ / _____ (m / d / y)

Indication of Suspected Release / Contamination (Mark All That Apply ☒):

- ☐ Unusual Level of Vapors
- ☐ Erratic Behavior of Product Dispensing Equipment
- ☐ Release Detection Results Indicate a Release
- ☐ Discovery of Holes in the Storage Tank
- ☐ Containment Sump Test Failure
- ☐ Spill Prevention Equipment Test Failure
- ☐ Other (Specify) _____

VII. CONFIRMED CONTAMINATION INFORMATION (I/I Only)

Date the Confirmed Contamination was Observed: ____ / ____ / _____ (m / d / y)

Extent of Confirmed Contamination (Mark All That Apply ☒):

- ☐ Product Stained or Product Saturated Soil or Backfill
- ☐ Ponded Product
- ☐ Free Product or Sheen on Ponded Water
- ☐ Free Product or Sheen on the Ground Water Surface
- ☐ Free Product or Sheen on Surface Water
- ☐ Other (Specify) _____

VIII. ADDITIONAL INFORMATION (Both O/O and I/I)

Provide any additional, relevant, available information concerning the release or contamination. If reporting a confirmed release, include specific details about the source and cause of the release, the affected environmental media, and any impacts to water supplies, buildings, or sewer or other utility lines. Owners or Operators reporting a suspected release should describe what procedures were followed to investigate the indication(s) of the suspected release noted in Section VI. Provide both DEP-assigned and owner/operator-assigned tank number(s), where applicable. Use additional 8½" x 11" sheets of paper, if necessary.

IX. CERTIFICATION (Both O/O and I/I)

OWNER OR OPERATOR CERTIFICATION

I, _____, hereby certify, under penalty of law as provided in 18 Pa.
(Print Name)

C.S.A. §4904 (relating to unsworn falsification to authorities) that I am the owner or operator of the above referenced storage tank facility and that the information provided by me in this notification is true, accurate and complete to the best of my knowledge and belief.

_____ Signature of Owner or Operator

_____ / / _____ Date

CERTIFIED INSTALLER CERTIFICATION

I, _____, hereby certify, under penalty of law as provided in 18 Pa.
(Print Name)

C.S.A. §4904 (relating to unsworn falsification to authorities) that I am the certified installer who performed tank handling activities at the above referenced storage tank facility and that the information provided by me in this notification is true, accurate and complete to the best of my knowledge and belief.

_____ Signature of Certified Installer

_____ / / _____ Date

_____ Installer Certification Number

_____ Company Certification Number

CERTIFIED INSPECTOR CERTIFICATION

I, _____, hereby certify, under penalty of law as provided in 18 Pa.
(Print Name)

C.S.A. §4904 (relating to unsworn falsification to authorities) that I am the certified inspector who performed inspection activities at the above referenced storage tank facility and that the information provided by me in this notification is true, accurate and complete to the best of my knowledge and belief.

_____ Signature of Certified Inspector

_____ / / _____ Date

_____ Inspector Certification Number

_____ Company Certification Number

A. The First Responder to arrive at the incident location shall quickly assess the overall situation and contact the Shift Supervisor, either directly or through the Control Room Operator. The First Responder shall pass on as much of the following information as possible:
   - The nature of the incident;
   - The location of the incident; and,
   - What intervention is in progress.

B. The Shift Supervisor shall contact the Emergency Coordinator (Primary or Secondary if Primary is unavailable) and instruct the Control Room Operator to begin a log of events and monitor incident related communications.

C. The Shift Supervisor shall begin to direct response actions until relieved or instructed otherwise by the Emergency Coordinator.

D. Upon arrival to the affected area, the Emergency Coordinator shall respond to the incident and take over the emergency coordination responsibilities.

   The Emergency Coordinator, or designee, shall assess the overall situation, determine the severity of the incident and classify the incident according to the following:

   Class A - High Degree of Danger

   Any fire or major incident where outside assistance or backup support will be required.

   Class B - Moderate Degree of Danger

   An incident with the potential to increase in severity where outside assistance could be required to assist or back up facility personnel.

   Class C - Low Degree of Danger

   An incident that can be handled and controlled on site without outside intervention or assistance.

   Further discussion and examples of these incident classes is presented on the next page.

E. For Class A and B incidents, the Shift Supervisor, Emergency Coordinator, or designee, shall call for outside assistance using the emergency notification system. When an emergency situation occurs, regardless of the severity of the incident, the Plant Manager and Manager, Environmental Compliance will be contacted.

F. The Emergency Coordinator, or designee, may order an evacuation of the facility or specific areas of the facility. All personnel shall follow the evacuation plan as outlined in the PPC Plan. The signal for evacuation is one long blast from the electric horn alarm system.

G. If outside assistance is utilized, upon arrival at the scene, the local fire chief shall take over directing the incident response actions. The Emergency Coordinator will assist the fire chief with mobilizing Keystone personnel and equipment. The Emergency Coordinator, or designee, will also continue to ensure that the proper authorities are notified as necessary.

The Incident Response Guidance Chart is presented in Attachment D.1-A.

To aid in understanding the use of these classifications consider the following:

- ✓ **"A"** – Assistance Immediately Required
- ✓ **"B"** – Backup Potentially or Likely Required
- ✓ **"C"** – Controlled Incident Managed by Keystone Cement | GCHI

Examples

Class A:

- A fire or explosion.
- Hazardous waste storage tank thermocouple temperature reading is ≥ 200^F.
- The temperature measured by one of the other instruments increases by 50^F or more for two (2) consecutive 5-min readings.
- Release of a hazardous substance that will impact navigable waterways, i.e., Monacacy Creek. Notification of the National Response Center (NRC) is required ASAP – immediately means within 30 minutes.

Class B:

- Conditions indicate a fire or explosion is likely to occur.
- A large release within the containment that may require outside assistance.
- A release to the soil or surface water. Downstream Notification may be required (see Table 14).

Class C:

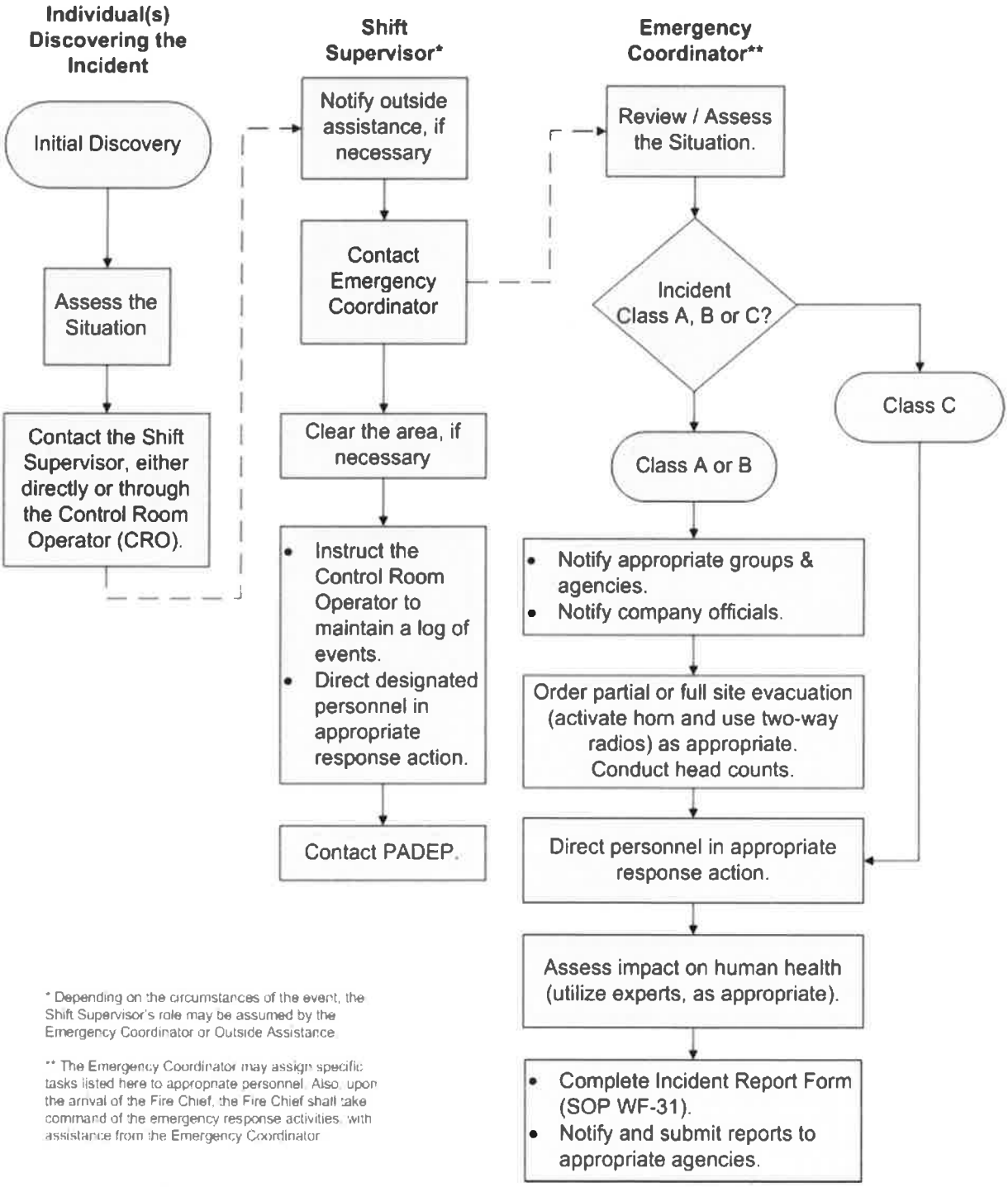
- A "small"[1] release that is contained and controlled.
- A release that results in VOC readings at any location of ≥ 10,000 ppm.

Referenced Documents:

- Attachment D.1-A *Incident Response Guidance Chart*
- Attachment D.1-B *Response Actions & Recommended Notification / Reporting Scenarios*

1 A "small" release may commonly be considered a volume of less than 5 – 10 gallons of material. However, the nature of the material spilled and circumstances of incident will dictate the aggressiveness of the response and need for additional resources. Gauging a spill as "small" or "large" should not be of immediate concern – evaluating the hazard and determining the potential for the incident to impact personnel health and safety at Keystone Cement and/or that of our neighbors and the environment is of utmost importance.

Incident Response Guidance Chart
for
Keystone Cement Company
Bath, Pennsylvania



* Depending on the circumstances of the event, the Shift Supervisor's role may be assumed by the Emergency Coordinator or Outside Assistance.

** The Emergency Coordinator may assign specific tasks listed here to appropriate personnel. Also, upon the arrival of the Fire Chief, the Fire Chief shall take command of the emergency response activities, with assistance from the Emergency Coordinator.

See Attachment D.1.B for possible response actions and recommended notification/reporting scenarios.

This attachment provides examples of potential response actions and possible incident threshold notification and reporting scenarios. Consult the full details of the PPC Plan for additional information on facility operations, equipment and/or hazardous materials.

Potential Response Actions:

- Define the scope and hazard of the incident – continue to reevaluate as the incident progresses.
- ALWAYS ensure the safety of personnel **first** before and during any response action.
- Position personnel at plant entrances to direct outside emergency response personnel to the incident scene.
- Shut off power | De-energize equipment and power circuits.
- Shut down pumps | Close valves | Lock-out / blind pipeline flows (upstream and downstream) to isolate the release.
- Haul absorbent material, i.e., kiln dust, to the scene of the incident.
- Secure and employ absorbent materials and spill booms/socks to contain and absorb the release.
- Secure | set-up portable pumps to transfer material into other available waste fuel tanks.
- Monitor fugitive emissions of VOCs from leaking waste fuel tank, pipeline(s) or equipment.
- Purge vapor lines with nitrogen | clear out blocked lines.
- If incompatible or reactive materials involved, e.g., peroxides are detected in a storage tank, stop agitation and remove.
- Contact KCC Leadership Team | GCHI Corporate office as required. Direct members of the media or other non-emergency third-parties to designed location. Use liaison person(s) to manage contact with such individuals.

Potential Follow-up Activities: [Trained 3rd Party Response Contractor likely needed for these Actions]

- Remove any remaining waste material from isolated pipelines, tanks, equipment and from secondary containment in as timely a manner as possible (within 24 hours of the release).
- Delineate extent of contamination | Excavate contaminated soils and segregate from unaffected materials.
- Accumulate/store and manage contaminated clean-up materials according to PADEP and RCRA regulations, including: proper marking/labeling, accumulation times, secondary containment, etc...
- **Inspect systems and all affected components to determine the cause of the incident/release.**
- Repairs |
  - Major – Obtain certification by an independent, qualified and registered professional prior to returning tank systems or other hazardous waste fuel system equipment into use. Permitted systems may only be replaced/repair with "in-kind" equipment – changes require authorization according to the permit.
  - Minor – Complete repair. Inspect and test prior to return to service.
- Clean and/or replace/restock response equipment – including PPE, fire extinguishers, first aid supplies, containment booms, etc....
- Conduct post incident critique – assess the efficacy of the PPC Plan and amend as appropriate.
- Complete follow-up to incident as appropriate – correcting potential shorting comings in equipment or procedures to eliminate hazard or improve response in the future.

The table on the next page details likely incident thresholds and required notification / reporting.

INCIDENT NOTIFICATION AND REPORTING SCENARIOS

Group | Agency	Incident Threshold[1]	Action Required	Time Frame
Downstream Notification List (Table 14)	A reportable release[2] to the Monocacy Creek *Downstream users, counties and municipalities within 20 miles downstream	Notification | Telephone Report	Within 2 hours, based on proximity of the user With annual written notice of inventory
MSHA	Fire or explosion related to the mining operations	Notification | Telephone	Immediately
Northampton County EMS	A reportable release[2] from an aboveground or underground storage tank and when support services are needed.	Notification | Telephone Report	Immediately Within 14 days
Northampton School District	When there is a potential condition that is perceived to pose an off-site risk to human health	Notification | Telephone	As soon as appropriate
PA Fish Commission	A release to surface water is in violation of discharge permits	Notification | Telephone	As soon as possible
PADEP	Any reportable event occurs (see thresholds listed in this table)	Report	Within 15 days
PADEP	Emergency vehicles are on-site, e.g., response to fire / potential release.	Notification | Telephone	Immediately
PADEP - Bureau of Mining & Reclamation	Injury or fatality related to mining operations	Notification | Telephone Report	Immediately Following investigation
PADEP – Bureau of Air Quality	VOCs $\geq$ 10,000 ppm for more than 1 hour or the material release to the air is $\geq$ 1 pound	Notification | Telephone	Within 24 hours
PADEP – Bureau of Water Quality	Any release of a pollutant into surface or groundwater	Notification | Telephone Report	Immediately Upon request
PADEP – Waste Management	A release or potential release of any hazardous or residual waste from the facility or a potential or actual fire or explosion at the facility that may endanger public drinking water supply sources or may threaten the environment or human health	Notification | Telephone Report	Within 24 hours Within 5 days
PADEP – Waste Management	A reportable release[2] from an aboveground or underground storage tank	Notification | Telephone Report (See UST 02)	Within 24 hours Within 15 days

INCIDENT NOTIFICATION AND REPORTING SCENARIOS

Group | Agency	Incident Threshold[1]	Action Required	Time Frame
PADEP – Waste Management	Hazardous material or petroleum product release to the environment is ≥ 1 pound; waste solidification, polymer-ization, physical/chemical reactions, or system component malfunctions that require major repairs	Notification | Telephone Report	Within 24 hours Within 30 days
PEMA	A reportable release[2] from an aboveground or underground storage tank and when support services are needed	Notification | Telephone Report	Immediately Within 14 days
US EPA / National Response Center	A release to surface water that could result in a violation of the water quality standards, a sheen or discoloration, or sludge or emulsion; a release of ≥ 5 gallons to the environment; an explosion or fire; a death or injury; or when support services are needed.	Notification | Telephone Report	Immediately, as practicable Following clean-up activities
US EPA Region 3 – Regional Administrator	A single release of ≥ 1,000 gallons of oil into or upon navigable waters of the US or 2 discharges of oil in reportable events within any 12-month period	Report	Within 60 days

Endnotes

[1] Incidents at higher levels than indicated in the *Incident Threshold* column and other major events that affect the discipline covered by the agency are to be reported to applicable agencies as appropriate.

[2] A *reportable release* is a release to the environment that is meet criteria set forth by USEPA and PADEP. **Environmental Dept** reporting could be initiated for hazardous substances / materials of an unknown amount, ≥ 1 gallon to surface soils or in quantities greater than the CERCLA reportable quantity (RQ) – See PPC Plan Table 18 for information on hazardous waste derived fuels managed at Keystone.

EXHIBIT D.3-1 | EXTERNAL NOTIFICATIONS AND RESOURCES LIST

KEYSTONE CEMENT COMPANY (PPC) PLAN | PAD002389559

ALL CALLS TO OUTSIDE AUTHORITIES (i.e., 911) SHALL BE PLACED THROUGH THE CONTROL ROOM.

REFERENCE THE PHYSICAL ADDRESS FOR THE SPECIFIC PLANT AREA AT WHICH THE INCIDENT OCCURS.

AGENCY | OUTSIDE AUTHORITY	DESCRIPTION | AFFILIATION	TELEPHONE NUMBER
Fire Department	**East Allen Township** Non-Emergency Bath Borough Fire Department	**911** 610-262-6700 610-837-6400
Ambulance	**East Allen Township**	**911**
Police	**PA State Police** Non-Emergency	**911** 610-861-2026
Hospital	**LV – Muhlenberg** (Main Line) **Emergency Room** **St. Luke's Hospital** (Main Line) **Emergency Room**	484-884-2200 **484-884-2521** 610-954-4000 **610-954-4531**
PA Dept of Env Protection (PADEP)	**Bethlehem Office** **Wilkes-Barre Office | 24 Hr**	**610-861-2070** **570-826-2511**
PA Emergency Mgmt Agency (PEMA)	**Northampton County | Eastern Area** Anthony Camillocci – Area Director	**610-562-3003** **800-372-7362**
Emergency Mgmt Services Northampton County	**Nazareth Operations Center** Todd Weaver - Director	**610-759-2600** 610-746-3194 x3224
Northampton School District	**Emergency Coordinator** Joseph Kovalchik - Superintendent	**610-262-7811**
PA Fish Commission	**Pollution Hotline**	**855-347-4545**
PA Bureau of Mining & Reclamation	**Pottsville, PA** **Incident Reporting**	**570-621-3118** **800-541-2050**
National Response Center		**800-424-8802**
U.S. EPA – Region 3	**Philadelphia, PA**	**215-814-3255**
MSHA – Mine Safety & Health Administration	**Emergency Incident Reporting** (Reporting under direction of Safety Dept.)	**800-746-1553**
Electric Power Suppliers	**PPL** | Quarry Tube Belt & Main Plant **FirstEnergy MetEd** | KAPCO & Crusher	**800-342-5775** **888-544-4877**
Rapid Response [1st Call for 3rd Party Response Services]	**3rd Party Response Provider 24/7** **Emergency**	**877-460-1038** **484-275-6900**
Elk Environmental Services	**3rd Party Response Provider 24/7**	**800-851-7156** **610-372-4760**
CONTEC Systems	DAHS | CEM Systems Support 1566 Medical Drive Suite 310 Pottstown, PA 19464	**610-326-3235** Pat Luybli | Ext. 12 Cell #: 610-393-9148 Dale Kolarz | Ext. 13
Aon Risk Services South	**Company Insurance Provider**	**866-283-7122**
GCHI Corporate Offices	654 Judge Street Harleyville, SC 29448	**803-496-5033**

EXHIBIT D.3-2 | EXTERNAL NOTIFICATIONS PRIMARY CONTACTS SUMMARY

KEYSTONE CEMENT COMPANY (PPC) PLAN | PAD002389559

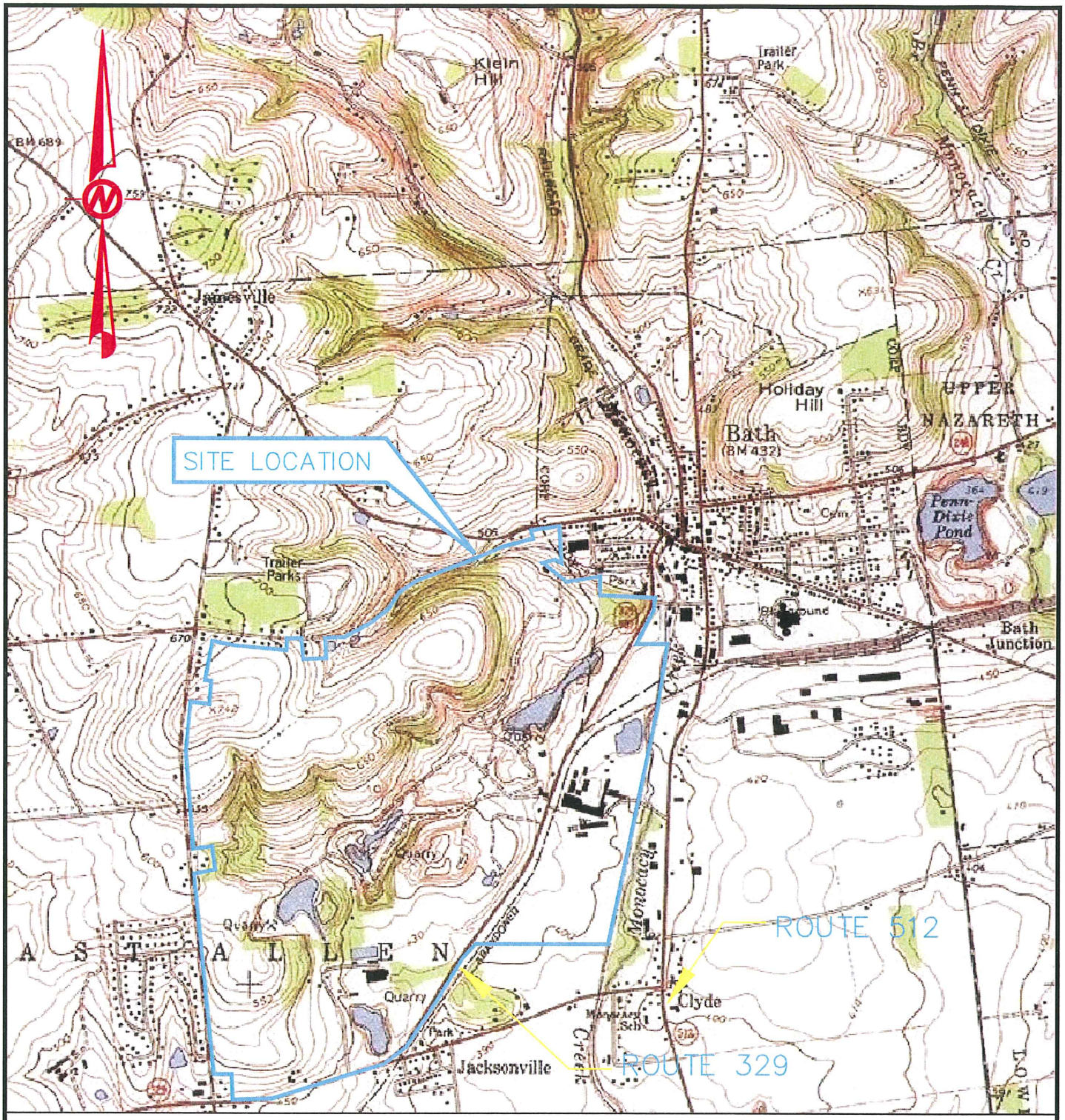
The following parties have been provided a copy of this Plan.

AGENCY | OUTSIDE AUTHORITY	ADDRESS	CONTACT
Fire Department	**East Allen Township Fire Department** 5354 Nor-Bath Blvd Northampton, PA 18067 Office: 610-262-6700	**Mr. Barry Frantz** *Fire Chief* **Mr. Raymond Anthony** *Fire Marshall/Safety Officer*
Police	**PA State Police** 2930 Airport Road Bethlehem, PA 18017 Office: 610-861-2026	**Capt. Richard H. D'Ambrosio** *Commander, Staff Services Section*
Emergency Management Services	**County of Northampton** 100 Gracedale Avenue Nazareth, PA 18064 Office: 610-746-3194	**Mr. Todd Weaver x3224** *Director* **Mr. Michael Rinker x3231** *EM Planning Manager*
PA DEP	**Bethlehem District Office** 4530 Bath Pike Bethlehem, PA 18017 Office: 610-861-2070 **Northeast Region Office** 2 Public Square Wilkes-Barre, PA 18711-0790 Office: 570-826-2511	**Part B Permit | Inspector** Ms. Amy Faulch *Solid Waste Supervisor* **Mr. Roger Bellas** *Waste Management Program Manager*
Borough of Bath	**Administrative Offices** 215 E. Main Street Bath, PA 18014 Office: 610-837-6525	**Fiorella Reginelli-Mirabito** *Mayor | 484-357-4366* **Bradford Flynn** *Manager | 610-837-1648*

The following parties provide 3rd party services to KEYSTONE in support of facility preparedness and emergency response.

Rapid Response [1st Call - Emergency Response]	14 Brick Kiln Court Northampton, PA 18067	**877-460-1038** *Mr. Michael Acker, President* Office: **484-275-6900**
Elk Environmental [Emergency Response]	1420 Clarion Street Reading, PA 19601	**800-851-7156** *Mr. Harry O'Neil, CEO* *Office:* ***610-372-4760***

FIGURES



REFERENCE

1.) BASE MAP TAKEN FROM U.S.G.S. 7.5 MINUTE QUADRANGLE OF CATASAUQUA, PENNSYLVANIA, DATED 1992.

2000 0 2000

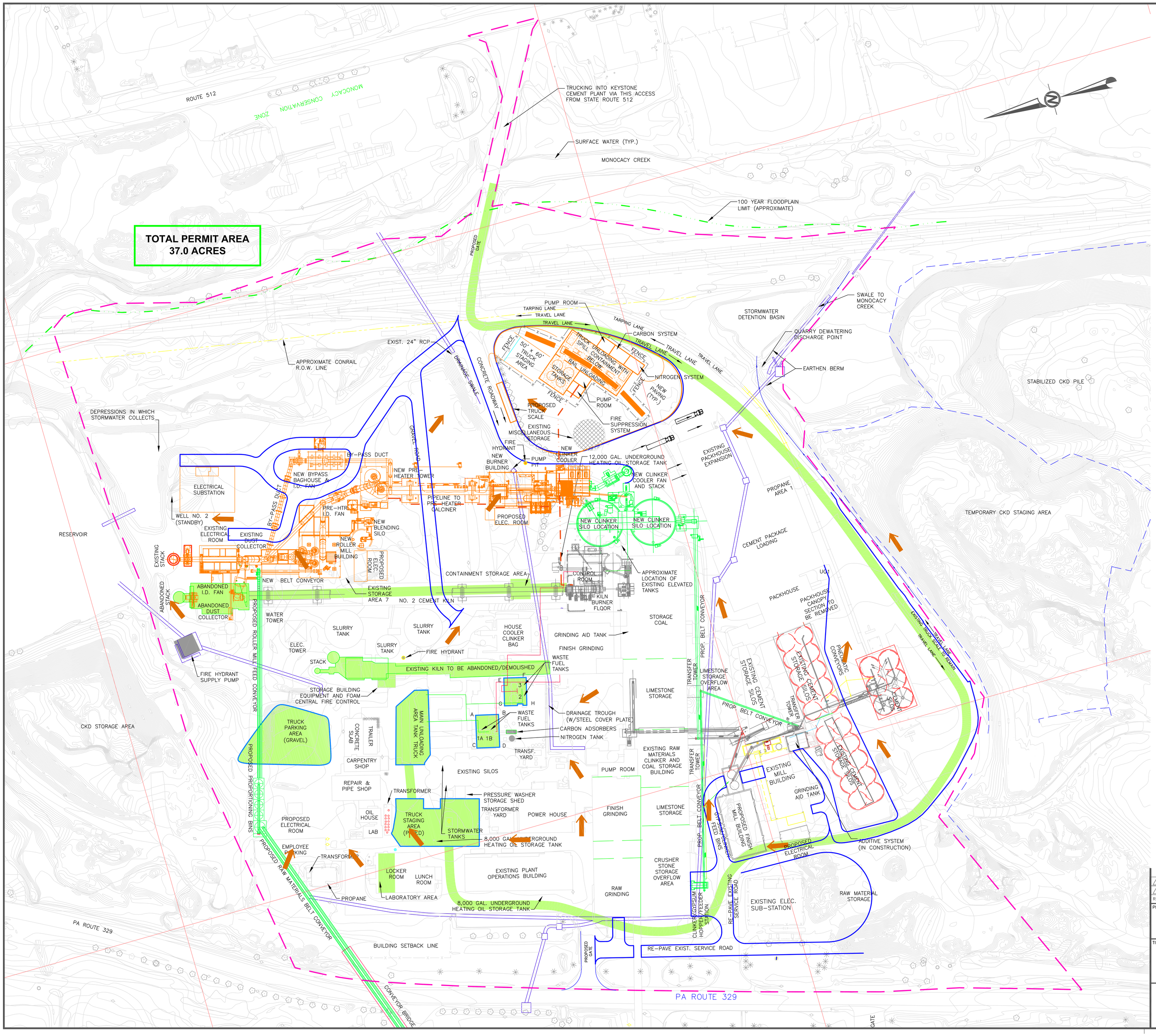
SCALE FEET

NOTES

1.) THIS SITE IS LOCATED IN EAST ALLEN TOWNSHIP, NORTHAMPTON COUNTY, PENNSYLVANIA.

2.) THE PLANT FACILITY NPDES ID# IS PA-0011517.

KEYSTONE	SCALE	AS SHOWN	TITLE
	DATE	11/19/08	PPC PLAN SITE LOCATION MAP
	CADD	ARL	
FILE No. 0236111D001	CHECK	LHS	
PROJECT No. 023-6111 REV.	REVIEW	SPH	KEYSTONE CEMENT COMPANY — FIGURE 1



REFERENCE POINT LOCATIONS		
POINT	NORTHING	EASTING
A	512,426	2,620,209
B	512,389	2,620,199
C	512,440	2,620,155
D	512,410	2,620,145
E	512,363	2,620,256
F	512,326	2,620,247
G	512,375	2,620,210
H	512,338	2,620,201

LEGEND

- EXISTING STRUCTURE OR BUILDING
- RAILROAD TRACKS (EXISTING)
- RCRA PART B PERMIT AREA
- RCRA PART B PERMIT FACILITIES (EXISTING)
- RCRA PART B PERMIT FACILITIES (PROPOSED)
- OTHER KILN 3 RELATED CONSTRUCTION (PROPOSED)
- WASTE FUELS LINES PROPOSED
- WASTE FUELS LINES
- WASTE FUELS UNLOADING LINES
- CKD STORAGE AREA
- FLOOD PLAIN LIMIT (APPROXIMATE)
- FENCE
- SURFACE WATER
- SURFACE WATER DETENTION AREA SHOWING NO WATER AT TIME OF AERIAL SURVEY
- SURFACE FLOW DIRECTION
- STORMWATER DRAINAGE SYSTEM (LOCATIONS ARE APPROXIMATE AND NOT TO SCALE. SYSTEM SHOWN FOR FLOW PURPOSES ONLY.)
- RCRA HAZARDOUS WASTE (PART I) FACILITY
- DRAINAGE SWALE

NOTES

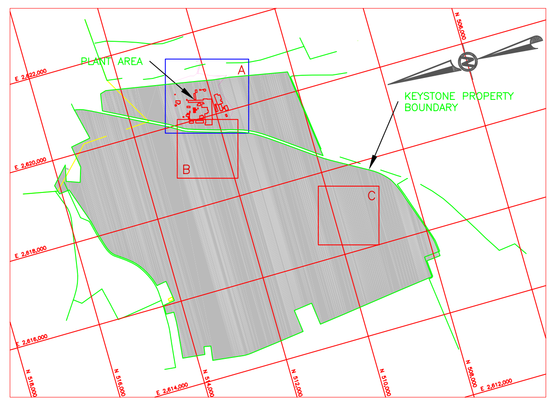
1.) ASTs: SEE TABLE 9 FOR A LISTING OF CAPACITIES AND PRODUCTS IN ABOVEGROUND STORAGE TANKS.

REFERENCES

1.) BASE TOPOGRAPHY COMPILED BY PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY EXPOSED ON APRIL 9, 2005, PROVIDED BY LAND & MAPPING SERVICES. HORIZONTAL DATUM IS THE PENNSYLVANIA STATE PLANE COORDINATE SYSTEM OF 1983 (NAD83). VERTICAL DATUM IS THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

2.) ALL OTHER SITE FEATURES ARE TAKEN FROM A DRAWING PREPARED BY THE MARTINSON GROUP, INC., ENTITLED "LIQUID FUELS HANDLING AND STORAGE FACILITY", DATED JUNE 12, 2006.

3.) SITE FEATURES ARE TAKEN FROM A DRAWING PREPARED BY GOLDER ASSOCIATES, ENTITLED "PART I FACILITIES – A (HAZARDOUS WASTE AREAS", DATED AUGUST 24, 2006.



KEY MAP

2000 0 2000
SCALE FEET

60 0 60 120
SCALE FEET

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW
2	03/18/08	ARL	PPC PLAN UPDATE	ARL	LHS	SPH
1	08/24/06	BJE	UPDATED TOPOGRAPHY	LKO	CBM	BJE

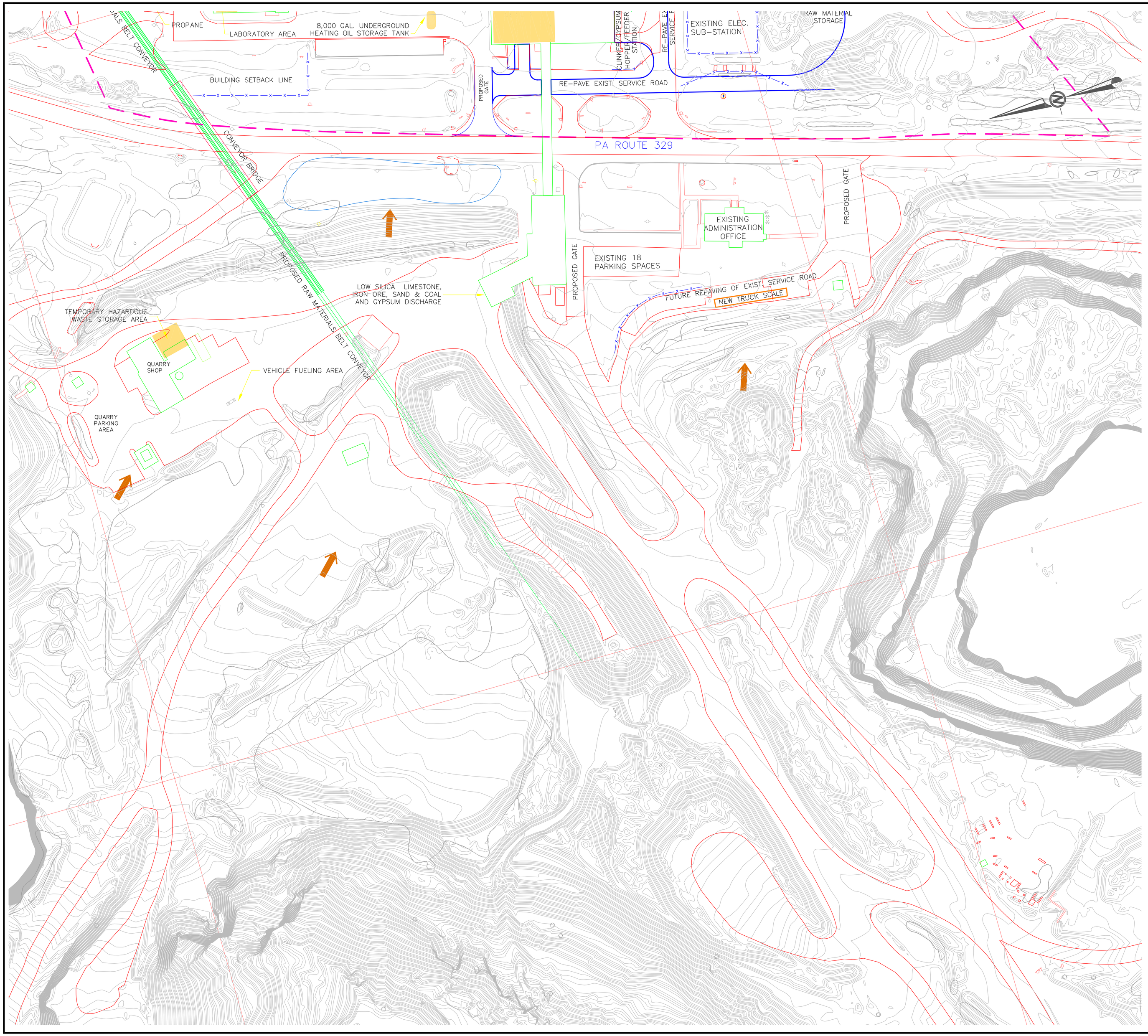
PROJECT
KEYSTONE CEMENT COMPANY
PPC PLAN
BATH, PENNSYLVANIA

TITLE
PART I FACILITIES - A (HAZARDOUS WASTE AREAS)

KEYSTONE

PROJECT No.	023-6111		FILE No.	0236111D002	
DESIGN	BJE	06/08/05	SCALE	AS SHOWN	REV. 2
CADD	MJS	06/17/05			
CHECK	BJE	06/17/05			
REVIEW	BJE	06/17/05			

FIGURE 2A



REFERENCE POINT LOCATIONS		
POINT	NORTHING	EASTING
A	512,426	2,620,209
B	512,389	2,620,199
C	512,440	2,620,155
D	512,410	2,620,145
E	512,363	2,620,256
F	512,326	2,620,247
G	512,375	2,620,210
H	512,338	2,620,201

LEGEND

- EXISTING STRUCTURE OR BUILDING
- RCRA PART B PERMIT AREA
- RCRA PART B PERMIT FACILITIES (PROPOSED)
- OTHER KILN 3 RELATED CONSTRUCTION (PROPOSED)
- FLOOD PLAIN LIMIT (APPROXIMATE)
- FENCE
- SURFACE WATER
- SURFACE WATER DETENTION AREA SHOWING NO WATER AT TIME OF AERIAL SURVEY
- RCRA HAZARDOUS WASTE (PART I) FACILITY
- SURFACE FLOW DIRECTION

NOTES

1.) MMS: SEE TABLE 6 FOR A LISTING OF SATELLITE AREAS FOR EQUIPMENT MAINTENANCE MATERIALS.

2.) ASTS: SEE TABLE 9 FOR A LISTING OF CAPACITIES AND PRODUCTS IN ABOVEGROUND STORAGE TANKS.

3.) USTS: SEE TABLE 10 FOR A LISTING OF CAPACITIES AND PRODUCTS IN UNDERGROUND STORAGE TANKS.

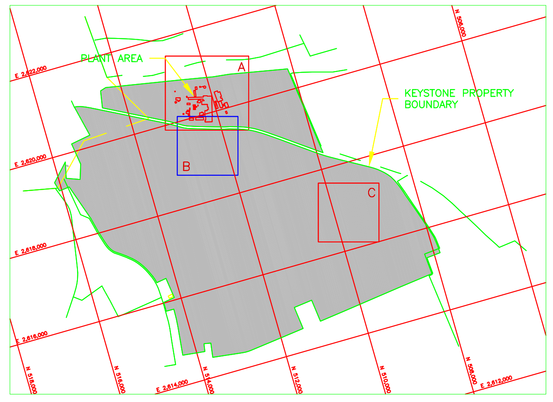
4.) MISCS: SEE TABLE 13 FOR A LISTING OF MISCELLANEOUS UNITS.

REFERENCES

1.) BASE TOPOGRAPHY COMPILED BY PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY EXPOSED ON APRIL 9, 2005, PROVIDED BY LAND & MAPPING SERVICES.

2.) LIQUID FUELS HANDLING AND STORAGE FACILITY, DATED JUNE 12, 2006, PREPARED BY THE MARTINSON GROUP INC.

3.) SITE FEATURES TAKEN FROM A DRAWING PREPARED BY GOLDER ASSOCIATES, ENTITLED "PART I FACILITIES – B (HAZARDOUS WASTE AREAS)", AUGUST 24, 2006.



KEY MAP

2000 0 2000
SCALE FEET

60 0 60 120
SCALE FEET

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW
2	11/18/08	SPH	PPC PLAN UPDATE	ARL	LHS	SPH
1	08/24/06	BJE	UPDATE TOPOGRAPHY	LKO	CBM	BJE

PROJECT

KEYSTONE CEMENT COMPANY PPC PLAN
BATH, PENNSYLVANIA

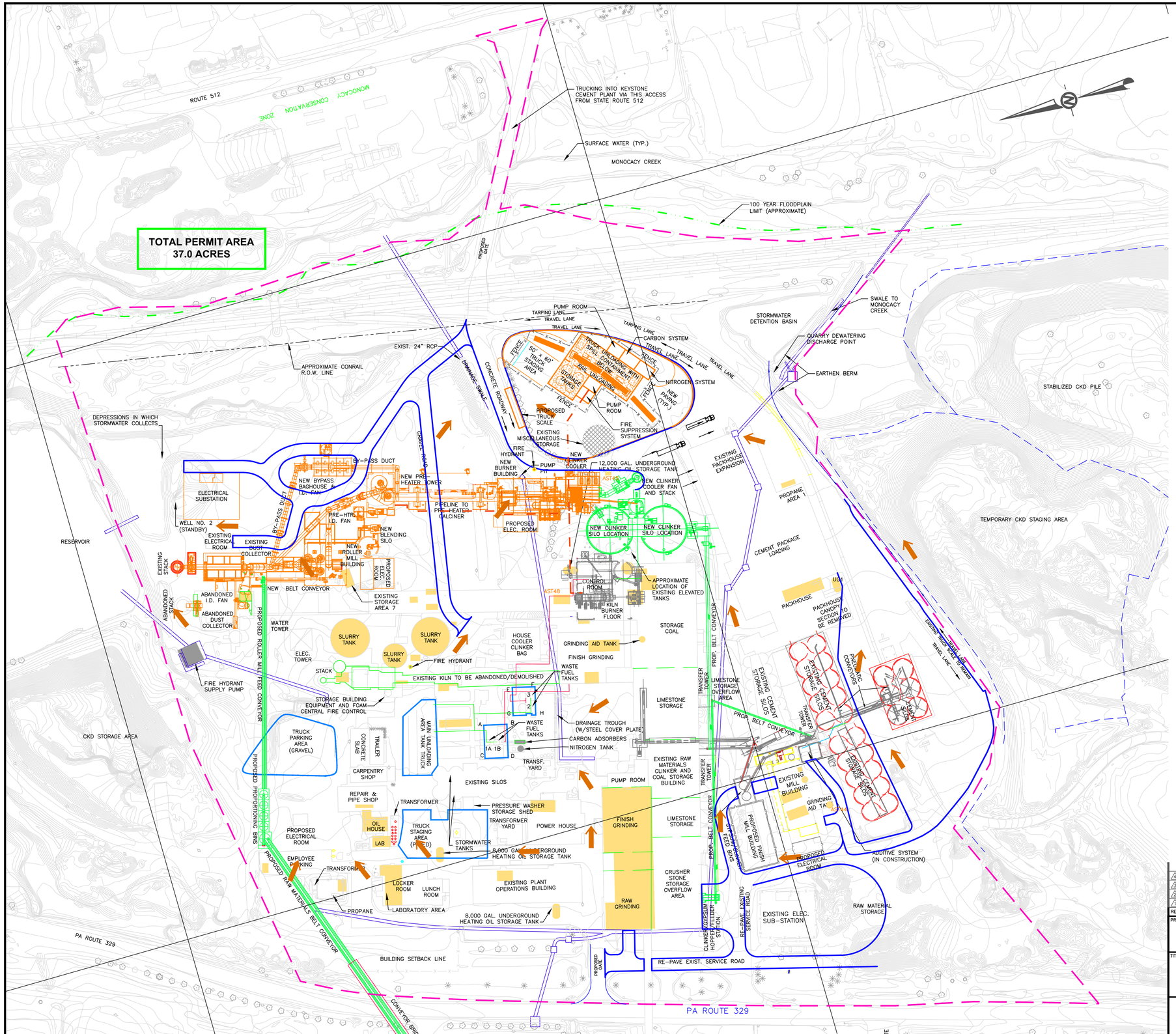
TITLE

PART I FACILITIES - B (HAZARDOUS WASTE AREAS)

KEYSTONE

PROJECT No.		023-6111	FILE No.	023611 1D009
DESIGN	KCE	05/12/03	SCALE AS SHOWN	REV. 2
CADD	AM	05/16/03		
CHECK				
REVIEW				

FIGURE 2B



REFERENCE POINT LOCATIONS		
POINT	NORTHING	EASTING
A	512,426	2,620,209
B	512,389	2,620,199
C	512,440	2,620,155
D	512,410	2,620,145
E	512,363	2,620,256
F	512,326	2,620,247
G	512,375	2,620,210
H	512,338	2,620,201

LEGEND

- EXISTING STRUCTURE OR BUILDING
- RAILROAD TRACKS (EXISTING)
- RCRA PART B PERMIT AREA
- RCRA PART B PERMIT FACILITIES (EXISTING)
- RCRA PART B PERMIT FACILITIES (PROPOSED)
- OTHER KILN 3 RELATED CONSTRUCTION (PROPOSED)
- WASTE FUELS LINES PROPOSED
- WASTE FUELS LINES
- WASTE FUELS UNLOADING LINES
- CKD STORAGE AREA
- FLOOD PLAIN LIMIT (APPROXIMATE)
- FENCE
- SURFACE WATER
- SURFACE WATER DETENTION AREA SHOWING NO WATER AT TIME OF AERIAL SURVEY
- SURFACE FLOW DIRECTION
- STORMWATER DRAINAGE SYSTEM (LOCATIONS ARE APPROXIMATE AND NOT TO SCALE. SYSTEM SHOWN FOR FLOW PURPOSES ONLY.)
- PPC PLAN PART II FACILITIES
- DRAINAGE SWALE

NOTES

1.) MMS: SEE TABLE 6 FOR A LISTING OF SATELLITE AREAS FOR EQUIPMENT MAINTENANCE MATERIALS.

2.) SAS: SEE TABLE 7 FOR A LISTING OF GENERAL STORAGE AREAS.

3.) PS: SEE TABLE 8 FOR A LISTING OF PROPANE STORAGE AREAS.

4.) ASTS: SEE TABLE 9 FOR A LISTING OF CAPACITIES AND PRODUCTS IN ABOVEGROUND STORAGE TANKS.

5.) USTS: SEE TABLE 10 FOR A LISTING OF CAPACITIES AND PRODUCTS IN UNDERGROUND STORAGE TANKS.

6.) SPS: SEE TABLE 11 FOR A LISTING OF STOCKPILE AREAS.

7.) LABS: SEE TABLE 12 FOR A LISTING OF LABORATORY ACTIVITY AREAS.

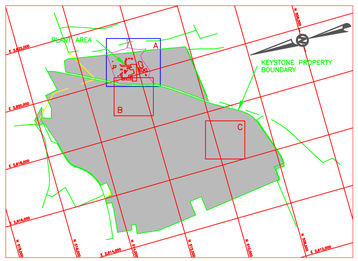
8.) MISCS: SEE TABLE 13 FOR A LISTING OF MISCELLANEOUS UNITS.

REFERENCES

1.) BASE TOPOGRAPHY COMPILED BY PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY EXPOSED ON APRIL 9, 2005, PROVIDED BY LAND & MAPPING SERVICES. HORIZONTAL DATUM IS THE PENNSYLVANIA STATE PLANE COORDINATE SYSTEM OF 1983 (NAD83). VERTICAL DATUM IS THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

2.) ALL OTHER SITE FEATURES ARE TAKEN FROM A DRAWING PREPARED BY THE MARTINSON GROUP, INC., ENTITLED "LIQUID FUELS HANDLING AND STORAGE FACILITY", DATED JUNE 12, 2006.

3.) ALL OTHER SITE FEATURES ARE TAKEN FROM A DRAWING PREPARED BY THE GOLDER ASSOCIATES, ENTITLED "PART II FACILITY – A", DATED AUGUST 24, 2006.



KEY MAP

2000 0 2000
SCALE FEET

60 0 60 120
SCALE FEET

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW
4	05/11/12	SPH	PPC PLAN UPDATE	ARL	LHS	SPH
3	03/18/08	SPH	PPC PLAN UPDATE	ARL	LHS	SPH
2	08/24/06	BJE	UPDATED TOPOGRAPHY	RG	CBM	BJE
1	04/04/05	KCE	ADDED AST42	RG	KCE	BJE

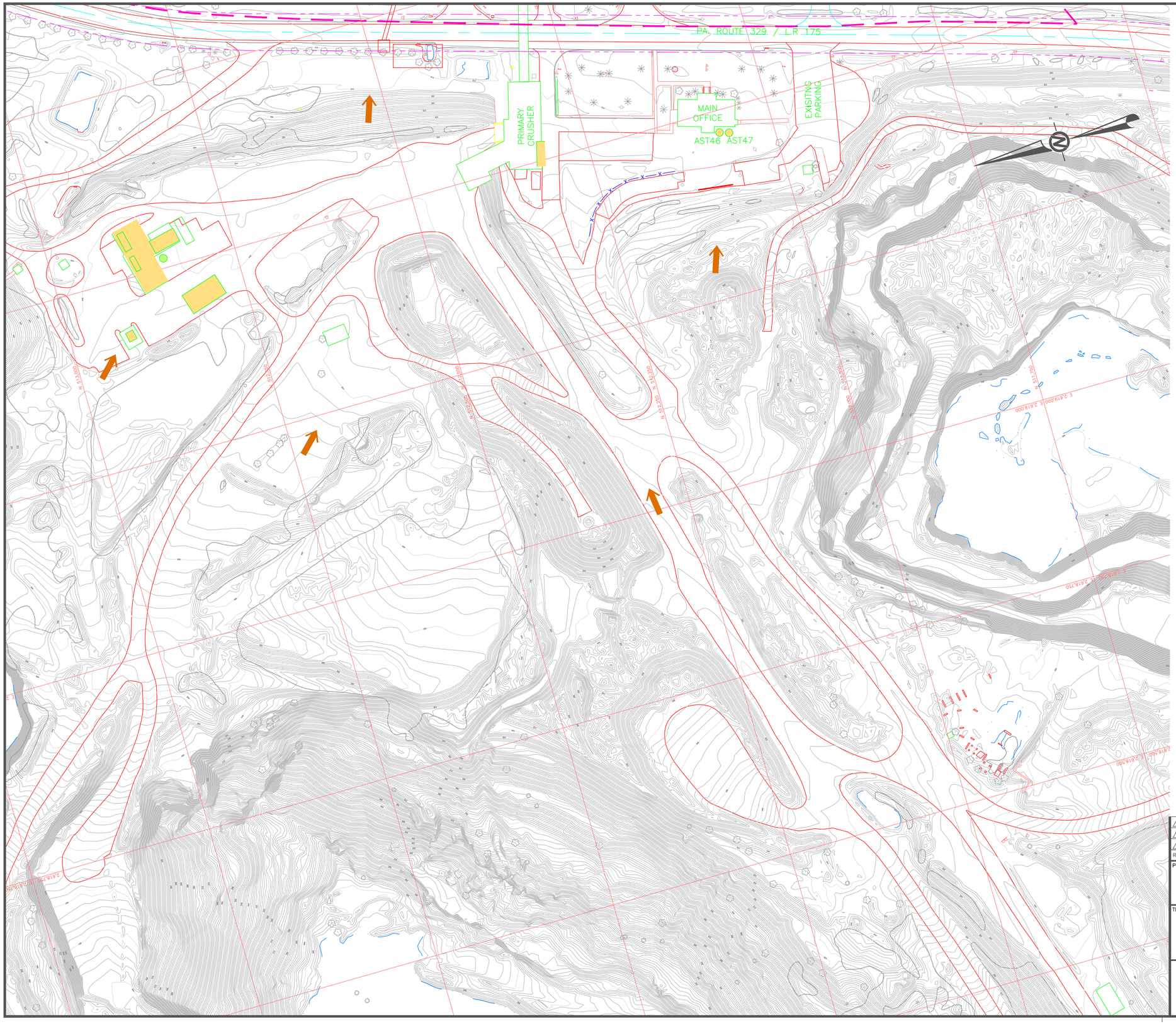
PROJECT
KEYSTONE CEMENT COMPANY
PPC PLAN
BATH, PENNSYL□ANIA

TITLE
PART II FACILITIES - A (NON-HAZARDOUS WASTE AREAS WITH HIGHER POTENTIALS FOR RELEASE)

KEYSTONE

PROJECT No.		023-6111	FILE No.	0236111D003
DESIGN	KCE	05/12/03	SCALE AS SHOWN	REV. 4
CADD	AM	05/16/03		
CHECK	VEF	07/21/03		
REVIEW	BJE	07/21/03		

FIGURE 3A



REFERENCE POINT LOCATIONS		
POINT	NORTHING	EASTING
A	512,426	2,620,209
B	512,389	2,620,199
C	512,440	2,620,155
D	512,410	2,620,145
E	512,363	2,620,256
F	512,326	2,620,247
G	512,375	2,620,210
H	512,338	2,620,201

LEGEND

- EXISTING STRUCTURE OR BUILDING
- RCRA PART B PERMIT AREA
- SURFACE WATER
- ACCESS ROAD
- SURFACE FLOW DIRECTION
- PPC PLAN PART II FACILITIES

NOTES

1.) MMS: SEE TABLE 6 FOR A LISTING OF SATELLITE AREAS FOR EQUIPMENT MAINTENANCE MATERIALS.

2.) ASTS: SEE TABLE 9 FOR A LISTING OF CAPACITIES AND PRODUCTS IN ABOVEGROUND STORAGE TANKS.

3.) USTS: SEE TABLE 10 FOR A LISTING OF CAPACITIES AND PRODUCTS IN UNDERGROUND STORAGE TANKS.

4.) MISCS: SEE TABLE 13 FOR A LISTING OF MISCELLANEOUS UNITS.

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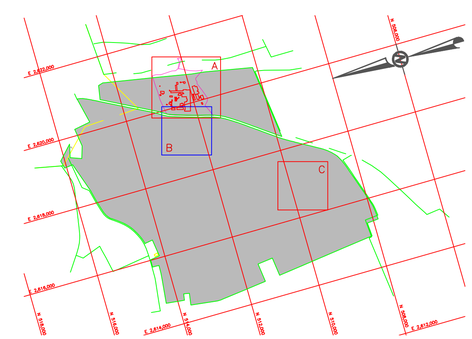
2.) LIQUID FUELS HANDLING AND STORAGE FACILITY, DATED JUNE 12, 2006, PREPARED BY THE MARTINSON GROUP INC.

3.) ALL SITE FEATURES ARE TAKE FROM A DRAWING PREPARED BY GOLDER ASSOCIATES, ENTITLED "PART II FACILITIES – B (AREAS WITH HIGHER POTENTIALS FOR RELEASE)", DATED AUGUST 24, 2006.



KEY MAP

2000 0 2000
SCALE FEET

60 0 60 120
SCALE FEET

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW
3	05/11/12	ARL	PPC PLAN UPDATE	ARL	LHS	SPH
2	03/18/08	ARL	PPC PLAN UPDATE	ARL	LHS	SPH
1	8/24/06	BJE	UPDATE TOPOGRAPHY	RG	CBM	BJE

PROJECT

KEYSTONE CEMENT COMPANY
PCC PLAN
BATH, PENNSYL□ANIA

TITLE

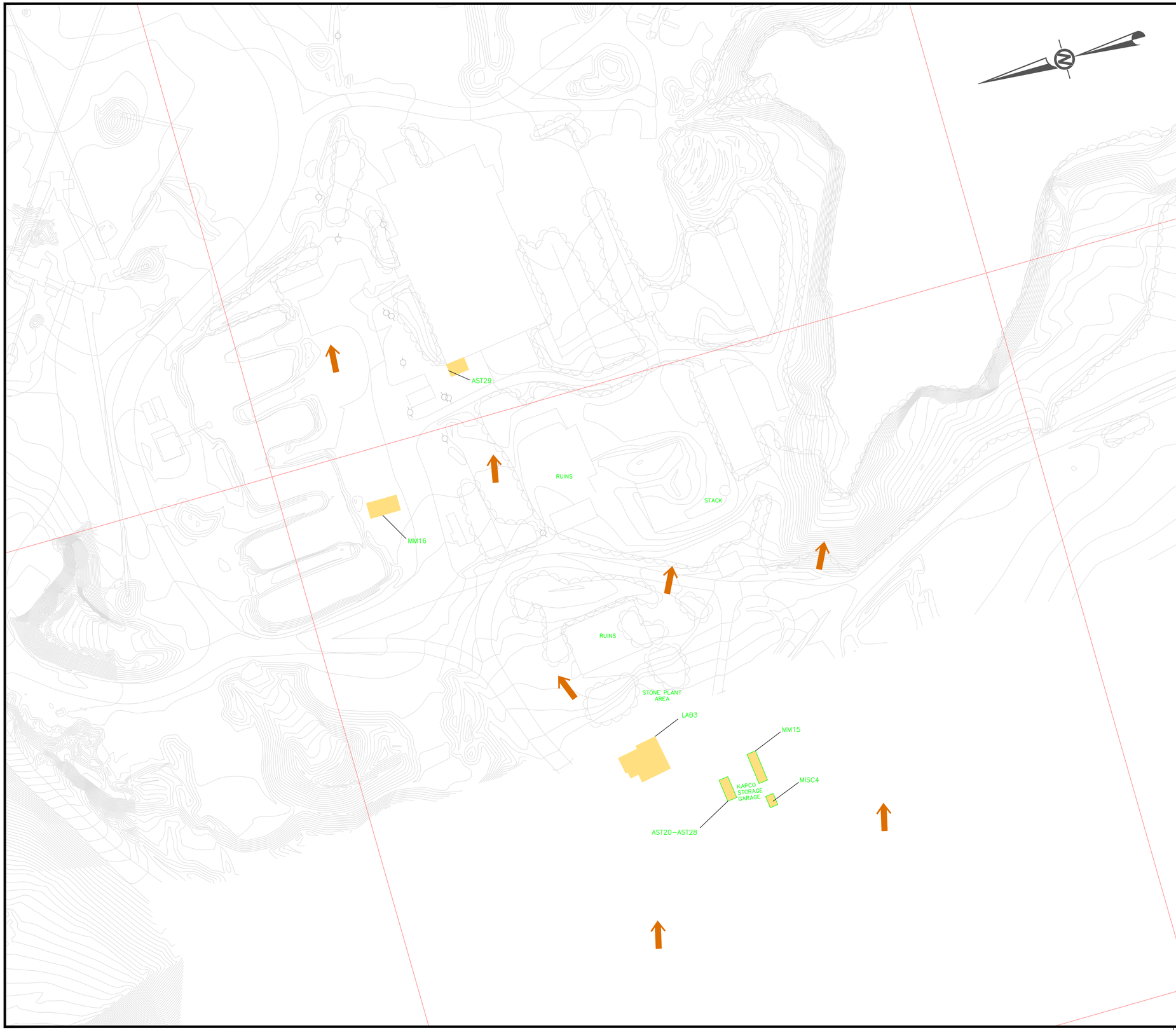
PART II □ACILITIES □B
□AREAS WITH HIGHER POTENTIALS □OR RELEASE□

KEYSTONE

PROJECT No.		023-6111
DESIGN	KCE	05/12/03
CADD	AM	05/16/03
CHECK		
REVIEW		

FILE No. 0236111D004
SCALE AS SHOWN REV. 3

□IGURE 3B



REFERENCE POINT LOCATIONS		
POINT	NORTHING	EASTING
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B	512,389	2,620,199
C	512,440	2,620,155
D	512,410	2,620,145
E	512,363	2,620,256
F	512,326	2,620,247
G	512,375	2,620,210
H	512,338	2,620,201

LEGEND

- EXISTING STRUCTURE OR BUILDING
- SURFACE WATER
- SURFACE WATER DETENTION AREA SHOWING NO WATER AT TIME OF AERIAL SURVEY
- SURFACE FLOW DIRECTION
- PPC PLAN PART II FACILITIES

NOTES

1.) MMS: SEE TABLE 6 FOR A LISTING OF SATELLITE AREAS FOR EQUIPMENT MAINTENANCE MATERIALS.

2.) ASTS: SEE TABLE 9 FOR A LISTING OF CAPACITIES AND PRODUCTS IN ABOVEGROUND STORAGE TANKS.

3.) LABS: SEE TABLE 12 FOR A LISTING OF LABORATORY ACTIVITY AREAS.

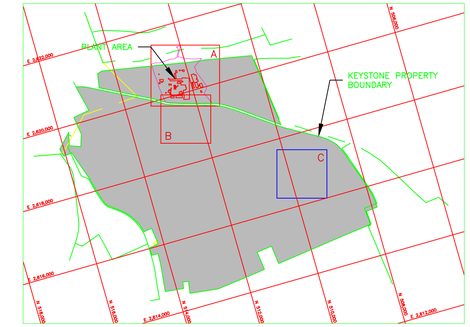
4.) MISCS: SEE TABLE 13 FOR A LISTING OF MISCELLANEOUS UNITS.

REFERENCES

1.) BASE TOPOGRAPHY COMPILED BY PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY EXPOSED ON APRIL 9, 2005, PROVIDED BY LAND & MAPPING SERVICES. HORIZONTAL DATUM IS THE PENNSYLVANIA STATE PLANE COORDINATE SYSTEM OF 1983 (NAD83). VERTICAL DATUM IS THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

2.) ALL OTHER SITE FEATURES ARE TAKEN FROM A DRAWING PREPARED BY THE MARTINSON GROUP, INC., ENTITLED "LIQUID FUELS HANDLING AND STORAGE FACILITY", DATED JUNE 12, 2006.

3.) SITE FEATURES ARE TAKEN FROM A DRAWING PREPARED BY GOLDER ASSOCIATES, ENTITLED "PART II FACILITIES – C (AREAS WITH HIGHER POTENTIALS FOR RELEASE), DATED AUGUST 24, 2006.



KEY MAP

2000 0 2000
SCALE FEET

60 0 60 120
SCALE FEET

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW
2	03/18/08	ARL	PPC PLAN UPDATE	ARL	LHS	SPH
1	08/24/06	BJE	UPDATED TOPOGRAPHY	LKO	CBM	BJE

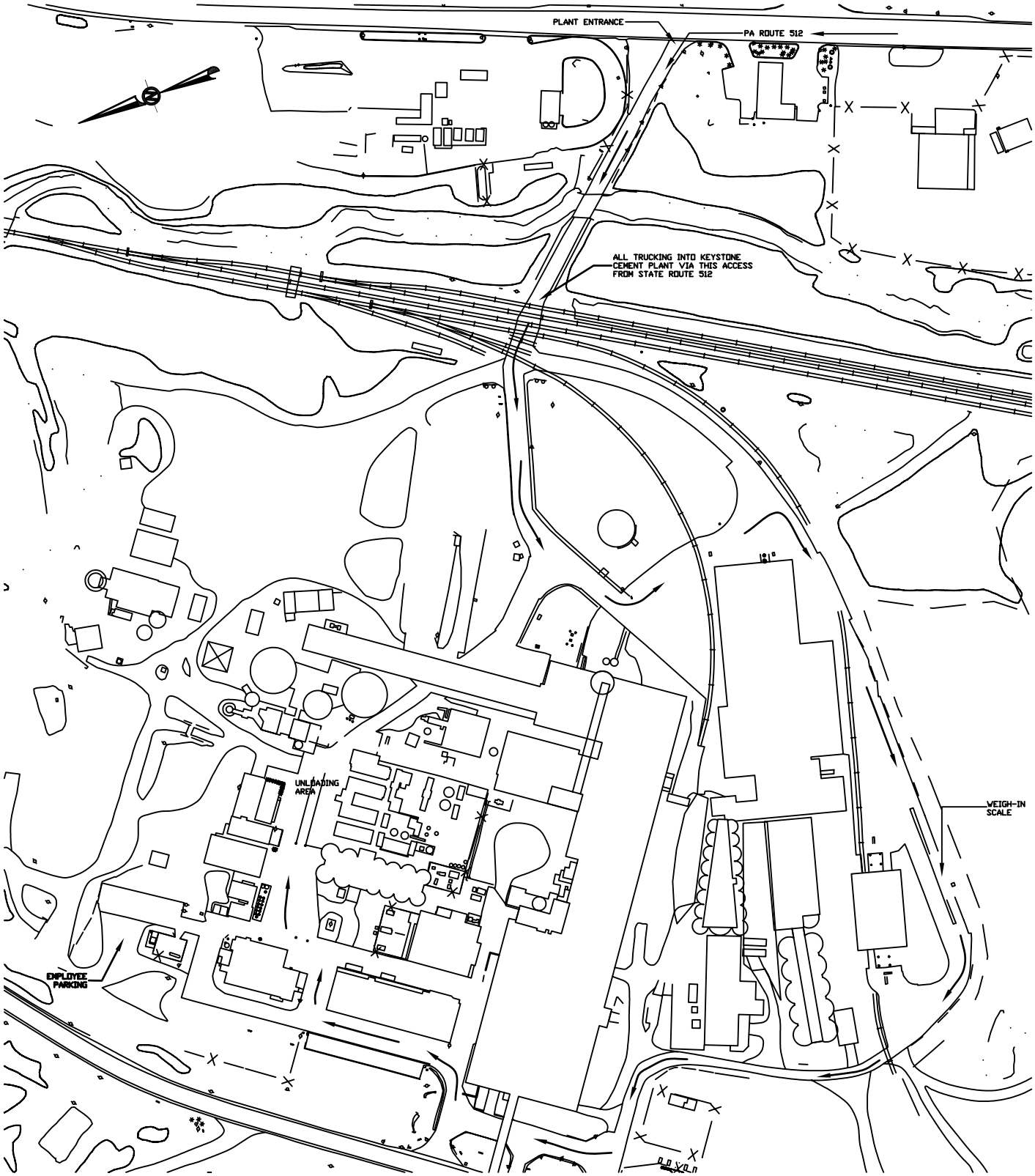
PROJECT
KEYSTONE CEMENT COMPANY
PCC PLAN
BATH, PENNSYL□ANIA

TITLE
PART II FACILITIES - C (AREAS WITH HIGHER POTENTIALS FOR RELEASE)

KEYSTONE

PROJECT No.		023–6111	FILE No.	0236111D005
DESIGN	KCE	05/12/03	SCALE AS SHOWN	REV. 2
CADD	AM	05/16/03		
CHECK				
REVIEW				

FIGURE 3C



LEGEND

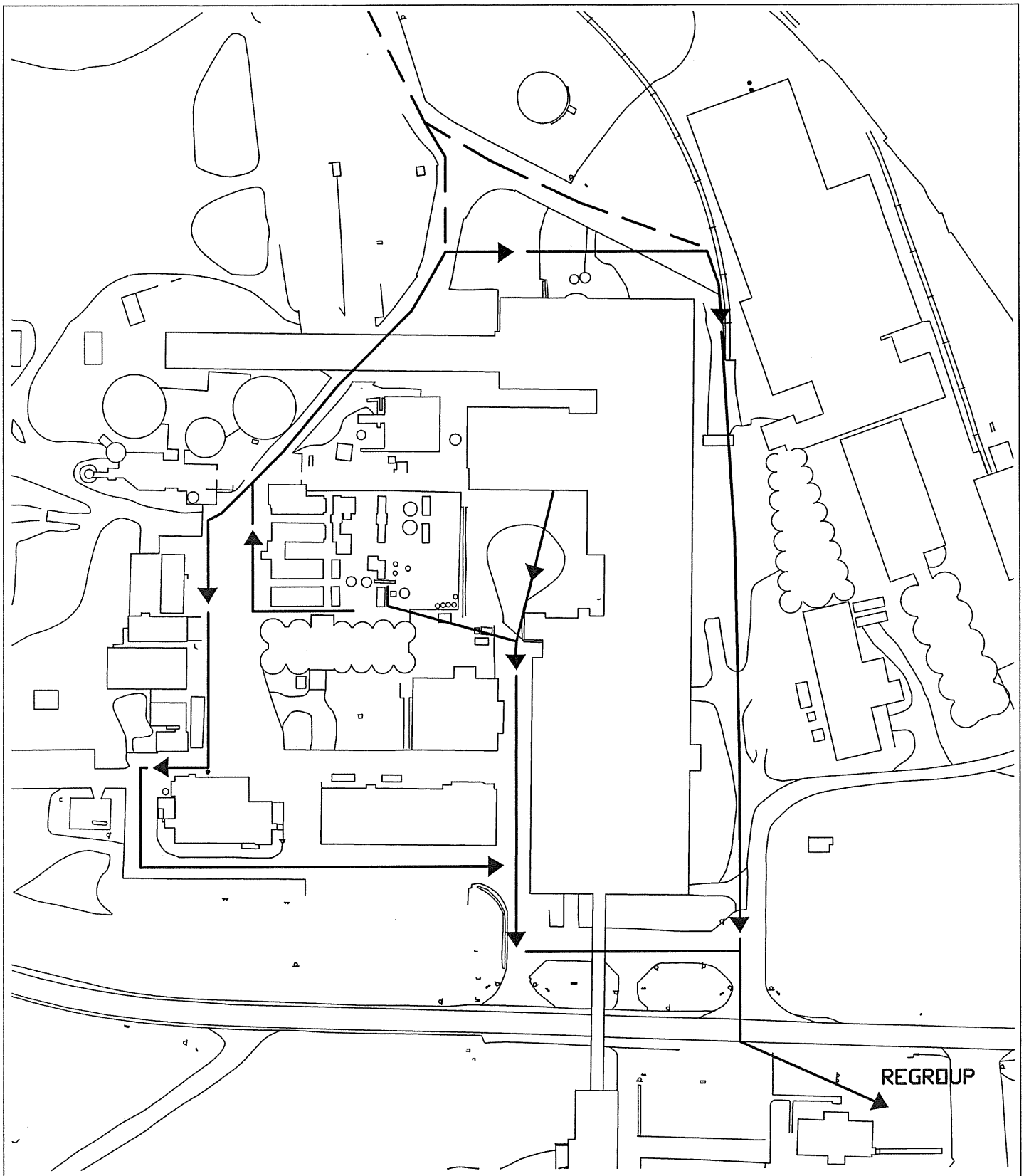
- EXISTING STRUCTURE/BLDG.
- EXISTING ACCESS ROAD
- EXISTING RAILROAD TRACKS
- INCOMING TRUCK ROUTE

REFERENCE

1.) MAP TAKEN FROM THE PREPAREDNESS, PREVENTION AND CONTINGENCY PLAN, TITLED "INCOMING TRUCK ROUTE", DATED APRIL 1, 1999.

KEYSTONE	SCALE	AS SHOWN	TITLE
	DATE	05/28/08	**PPC PLAN - INCOMING TRAFFIC ROUTE**
	CADD	ARL	
FILE No. 0236111D006	CHECK	SPH	
PROJECT No. 023-6111 REV. 0	REVIEW	LHS	KEYSTONE CEMENT COMPANY — FIGURE 4

BASE MAP PROVIDED BY: GOLDER ASSOCIATES

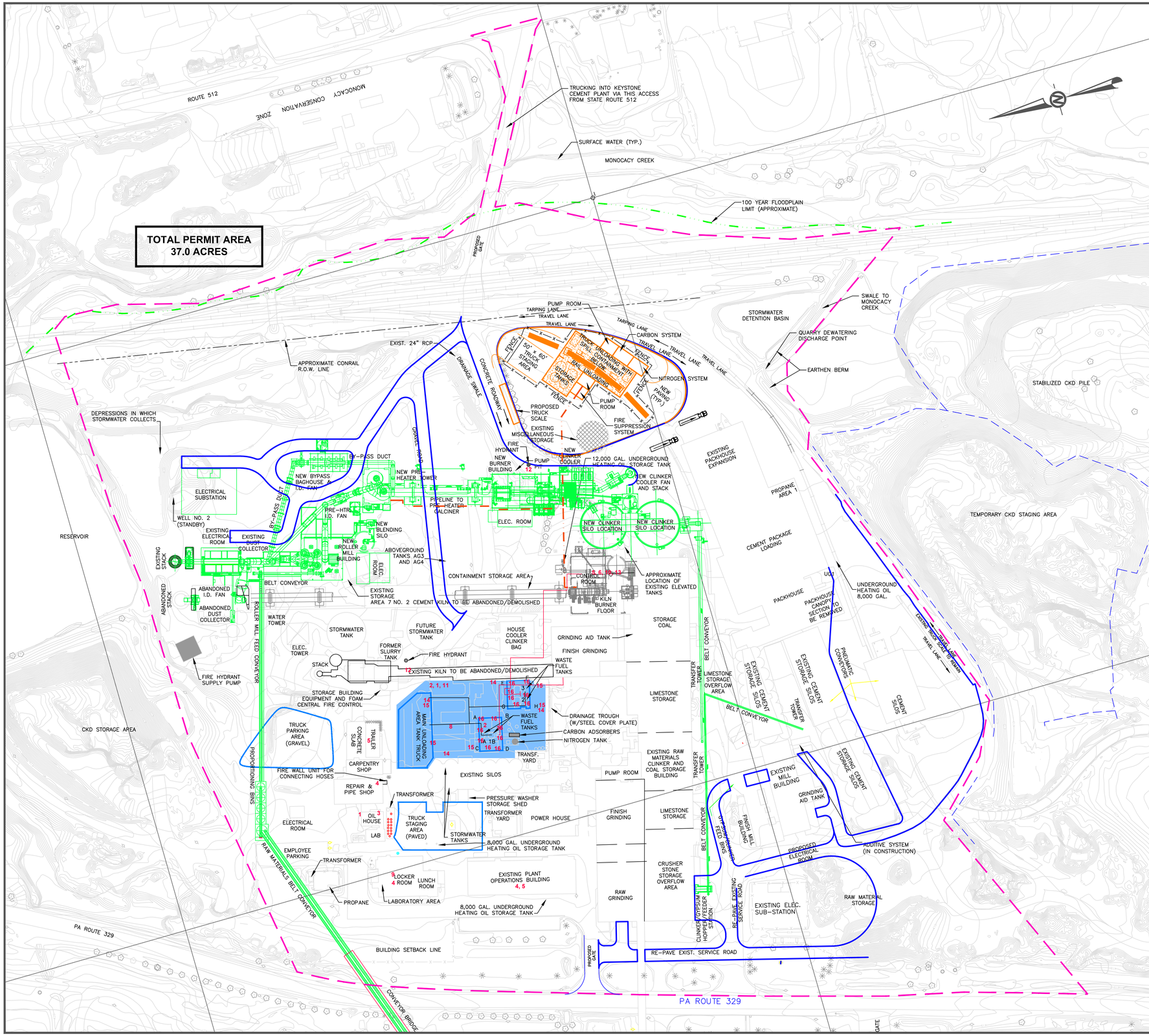


REFERENCE

1.) FIGURE SCANNED FROM 1991 PART B PERMIT APPLICATION, SECTION G.

KEYSTONE	SCALE AS SHOWN	TITLE	PPC PLAN - EVACUATION ROUTE
	DATE 05/28/08		
	CADD ARL		
FILE No. 0236111D007	CHECK SPH	KEYSTONE CEMENT COMPANY	FIGURE 5
PROJECT No. 023-6111 REV. 0	REVIEW LHS		

BASE MAP PROVIDED BY: GOLDER ASSOCIATES



REFERENCE POINT LOCATIONS		
POINT	NORTHING	EASTING
A	512,426	2,620,209
B	512,389	2,620,199
C	512,440	2,620,155
D	512,410	2,620,145
E	512,363	2,620,256
F	512,326	2,620,247
G	512,375	2,620,210
H	512,338	2,620,201
I	512,000	2,621,000

LEGEND

- EXISTING STRUCTURE OR BUILDING
- RAILROAD TRACKS (EXISTING)
- RCRA PART B PERMIT AREA
- RCRA PART B PERMIT FACILITIES (EXISTING)
- RCRA PART B PERMIT FACILITIES (PROPOSED)
- OTHER KILN 3 RELATED CONSTRUCTION (PROPOSED)
- WASTE FUELS LINES PROPOSED
- WASTE FUELS LINES
- WASTE FUELS UNLOADING LINES
- CKD STORAGE AREA
- FLOOD PLAIN LIMIT (APPROXIMATE)
- FENCE
- SURFACE WATER
- SURFACE WATER DETENTION AREA SHOWING NO WATER AT TIME OF AERIAL SURVEY
- WASTE FUELS AREA

1 ABSORBENT MATERIAL, SPILL BOOMS, AND OVERPACK DRUMS
2 FIRE SUPPRESSANT FOAM SYSTEM
3 WATER SPRINKLER SYSTEM
4 MATERIAL SAFETY DATA SHEETS (MSDS'S)
5 FIRST AID KIT
6 STRETCHER
7 FM 200 SUPPRESION SYSTEM
8 PERSONAL PROTECTION EQUIPMENT
9 EMERGENCY SHOWER AND EYEWASH STATION
10 LISTING OF EMERGENCY NOTIFICATION PERSONNEL
11 WASTE FUELS RESPONSE DESIGNATED EQUIPMENT
12 FIRE HYDRANT
13 HALON FIRE SUPPRESSANT SYSTEM
14 HOSE REEL (SEE REFERENCE 3)
15 FIRE SUPPRESSION RELEASE LEVER (SEE REFERENCE 3)
16 FOAM NOZZLES (SEE REFERENCE 3)

NOTES

1.) LOCATIONS OF EMERGENCY EQUIPMENT FOR FUTURE FACILITIES HAVE NOT YET BEEN DETERMINED.

2.) THERE ARE OVER 200 FIRE EXTINGUISHERS LOCATED THROUGHOUT THE FACILITY. THEIR LOCATIONS ARE NOT SHOWN ON THIS FIGURE.

3.) REFERENCE POINT LOCATIONS ARE RELATIVE TO LOCATION I.

REFERENCE

1.) BASE TOPOGRAPHY COMPILED BY PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY EXPOSED ON APRIL 9, 2005, PROVIDED BY LAND & MAPPING SERVICES. HORIZONTAL DATUM IS THE PENNSYLVANIA STATE PLANE COORDINATE SYSTEM OF 1983 (NAD83). VERTICAL DATUM IS THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

2.) ALL OTHER SITE FEATURES ARE TAKEN FROM A DRAWING PREPARED BY THE MARTINSON GROUP, INC., ENTITLED "LIQUID FUELS HANDLING AND STORAGE FACILITY", DATED JUNE 12, 2006.

3.) LOCATIONS FROM KEYSTONE CEMENT COMPANY DRAWINGS J13040A97-FP-1 AND J13040A97-FP-3.

4.) ALL OTHER SITE FEATURES ARE TAKEN FROM A DRAWING PREPARED BY THE GOLDER ASSOCIATES, ENTITLED "PART II FACILITY - A", DATED AUGUST 24, 2006.

60 0 60 120
SCALE FEET

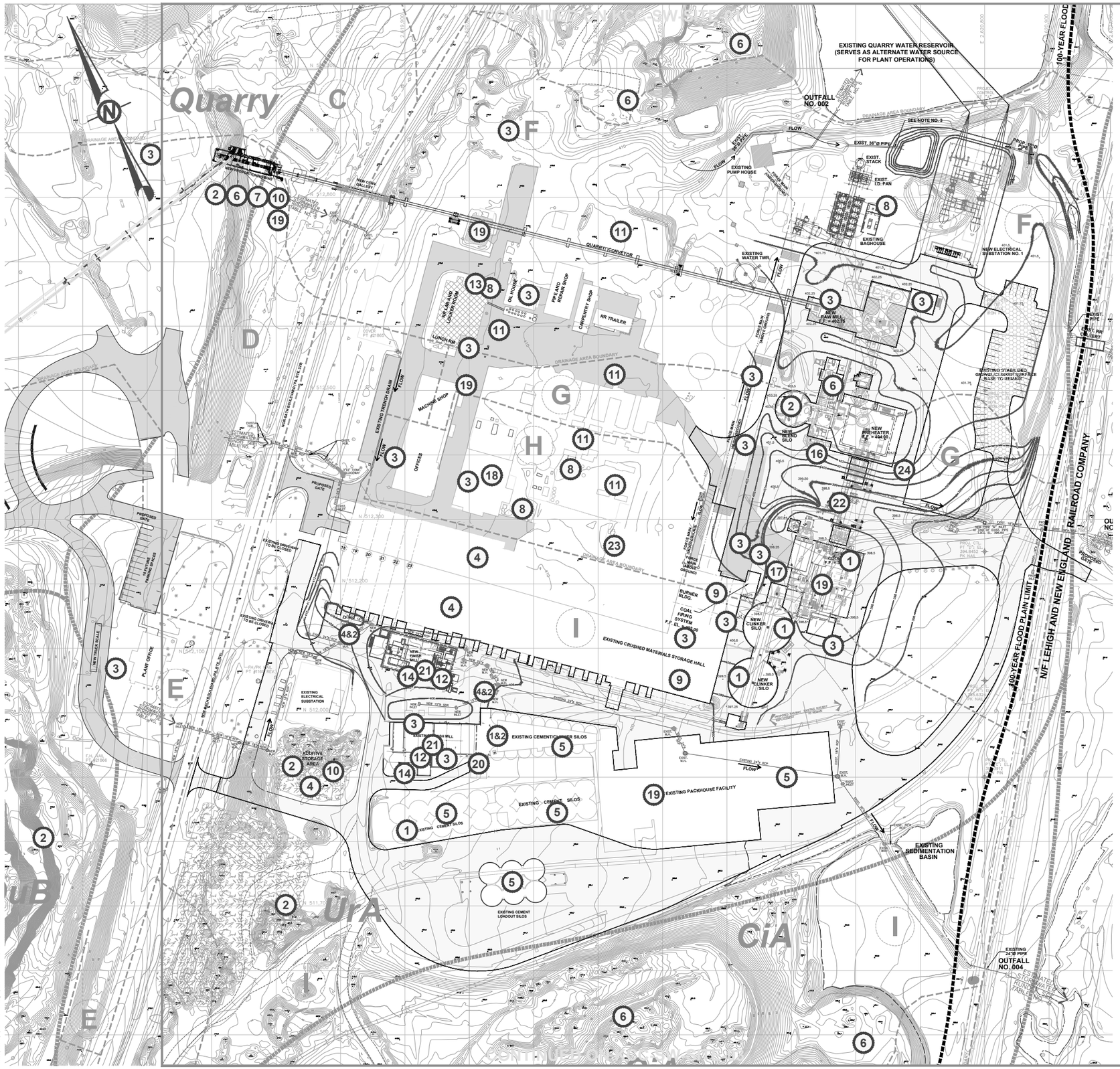
REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW
3	11/11/09	SPH	PPC PLAN UPDATE	ARL	LHS	SPH
2	03/18/08	SPH	PPC PLAN UPDATE	ARL	LHS	SPH
1	08/24/06	BJE	UPDATE TOPOGRAPHY AND GENERAL REVISIONS	RG	CBM	BJE

PROJECT
KEYSTONE CEMENT COMPANY
PPC PLAN
BATH, PENNSYLVANIA

TITLE
RESPONSE RELATED SYSTEMS AND EQUIPMENT

KEYSTONE

PROJECT No.		023-6111	FILE No.	02361110008
DESIGN	KCE	05/12/03	SCALE AS SHOWN	REV. 3
CADD	AM	05/16/03		
CHECK	VEF	07/21/03	FIGURE 6	
REVIEW	BJE	07/21/03		



TIER II CHEMICAL STORAGE AREAS

1. CLINKER
2. PROCESSED AND/OR PURCHASED LIMESTONE AGGREGATE
3. PETROLEUM HYDROCARBONS (E.G., GASOLINE & FUEL OILS)
4. SYNTHETIC GYPSUM
5. CEMENT
6. CEMENT KILN DUST/STABLESORB
7. IRON OXIDE MILL SCALE
8. NITROGEN (LIQUID/GAS)
9. BITUMINOUS COAL
10. SAND
11. WASTE–DERIVED FUEL
12. CEMENT GRINDING AID
13. LIQUID ARGON
14. CEMENT RETARDER / ACCELERATOR
15. RESERVED
16. HYDRATED LIME
17. CARBON DIOXIDE
18. RESERVED
19. PROPANE
20. SLAG
21. MASONRY ADDITIVE
22. ON–SPEC USED OIL
23. NATURAL GYPSUM
24. 19% AQUEOUS AMMONIA

LEGEND

- EXISTING TOPOGRAPHIC CONTOUR
- EXISTING TREELINE
- EXISTING WATER/SWAMP
- EXISTING FENCE
- EXISTING RAILROAD
- PROPOSED RAILROAD
- RETAINING WALL
- PROPOSED GRADE — PROPOSED SPOT ELEVATION
- DRAINAGE AREA BOUNDARY — EXISTING SPOT ELEVEATION
- 100 YEAR FLOOD PLAIN LIMITS
- SOIL TYPE LIMITS
- PROPOSED ROAD
- EXISTING STABILIZRED GRAVEL/CLINKER SURFACE BASE TO REMAIN

FACILITY ID# 03695

LAT: 40°42'58.17" LONG: -75°24'2.33"

NOTE

1.) PROPOSED CONTOURS REPRESENT TOP OF FINISHED SURFACE.
2.) THE ILLUSTRATED 100–YEAR FLOOD PLAIN LIMITS ARE DERIVED BY APPROXIMATION FROM THE FIRM FLOOD INSURANCE RATE MAPS NO. 42095C0232D (APRIL 6, 1002) PANEL 232 OF 355 AND NO. 42095C0235D (APRIL 6, 2001) PANEL 235 OF 235 FOR A WATERWAY FLOOD PLAIN ESIMATED UNDER THE PROVISIONS OF ZONE "A" (UNDETERMINED FLOOD ELEVATION).

REFERENCE

1.) BASE TOPOGRAPHY SHOWN TAKEN FROM DIGITAL FILE KCC–GA–SITE–01–TO–03–R11.dwg, DRAWING NUMBERS GA–SITE–01, GA–SITE–02, AND GA–SITE–03, CREATED BY RT CONSULTING & ENGINEERING, INC.

50 0 50 100
SCALE FEET

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW
17	02/11/21		REVISED FOR TIER II SUBMITTAL	ARL	RLO	RLO
16	02/20/15		REVISED FOR TIER II SUBMITTAL	ARL	JPK	JPK
15	02/21/13		REVISED FOR TIER II SUBMITTAL	ARL	JPK	JPK
14	01/20/12		REVISED FOR TIER II SUBMITTAL	ARL	JPK	JPK
13	04/08/11		UPDATE TO CHEMICAL STORAGE AREAS	ARL	JPK	JPK
12	02/09/11		REVISED FOR TIER II SUBMITTAL	ARL	JPK	JPK
11	02/09/10		REVISED FOR TIER II SUBMITTAL	ARL	JPK	JPK
10	12/09/09		REVISED PER AS BUILT CODITIONS	JEL	RMT	RMT
9	02/06/09		REVISED AS PER KCC REVIEW	JPW	RMT	RMT

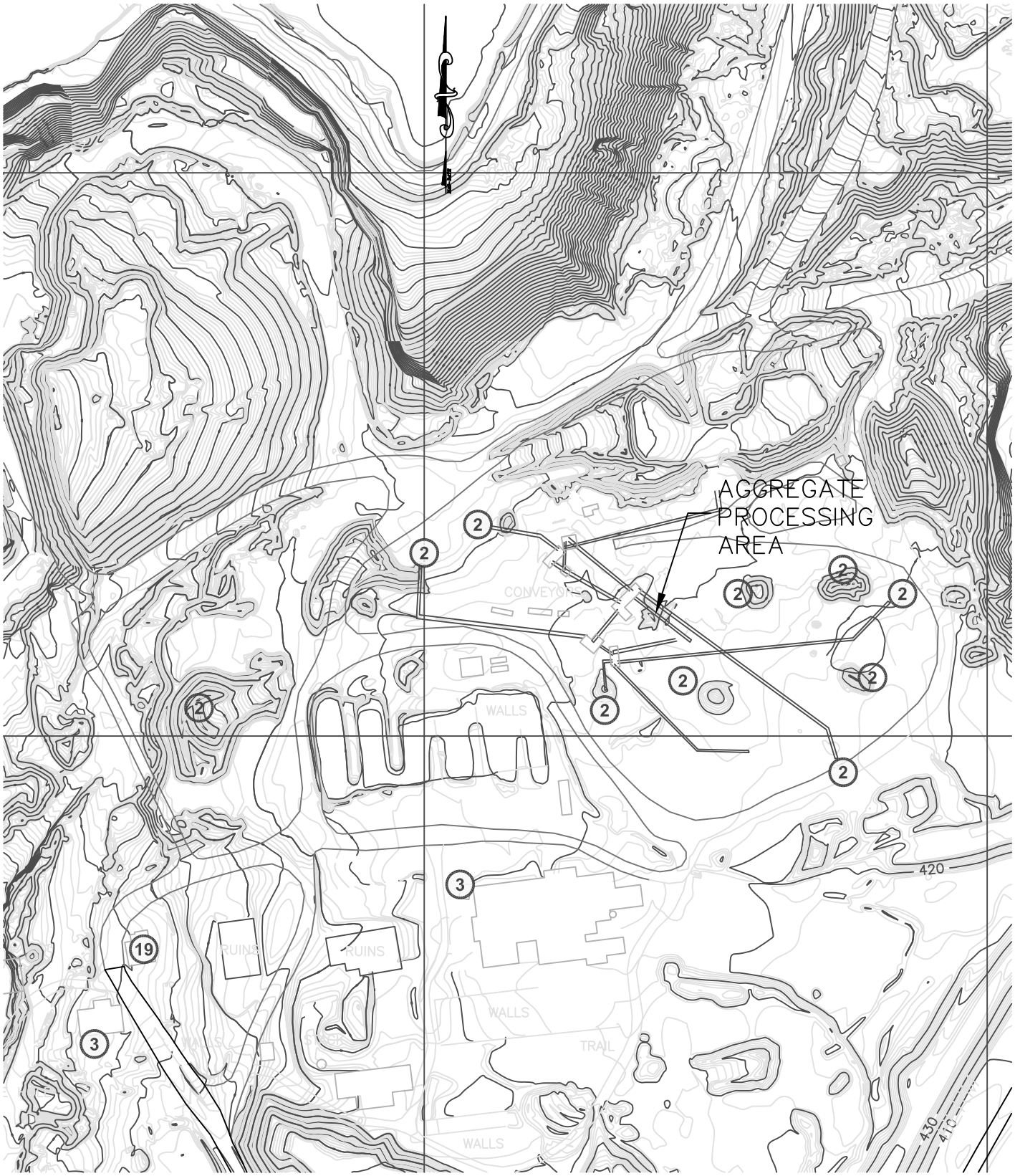
PROJECT

KEYSTONE CEMENT COMPANY
PA ROUTE 329
EAST ALLEN TOWNSHIP, NORTHAMPTON COUNTY, PA

TITLE

2014 TIER II EMERGENCY AND HAZARDOUS CHEMICAL INVENTORY SITE PLAN

			PROJECT No.	27004	CAD FILE
DESIGN	JMT	6/28/07	SCALE	1"=50'	REV. 17
CADD	JMT	6/28/07	DWG.	FIGURE 1	
CHECK	RMT	6/28/07		FACILITY LAYOUT PLAN	
REVIEW	RMT	6/28/07			



TIER II CHEMICAL STORAGE AREAS

- (2) PROCESSED AND/OR PURCHASED LIMESTONE AGGREGATE
- (3) PETROLEUM HYDROCARBONS (E.G., GASOLINE AND FUEL OILS)
- (19) PROPANE

REFERENCE

1.) PHOTOGRAMMETRIC DIGITAL MAPPING BY LAND & MAPPING SERVICES, DATE OF PHOTOGRAPHY 04/09/2005.

2.) BASE TAKEN FROM FIGURE TITLED "FACILITY LAYOUT PLAN, SHEET 2 OF 2", WHICH WAS EDITED BY ERG, INC. 02/20/08.

DRAWN BY: –	CHECKED BY: –	FIGURE 2 FACILITY LAYOUT PLAN SHEET 2 OF 2
DATE: 02/20/2015	PROJECT NO: –	2014 TIER II EMERGENCY AND HAZARDOUS CHEMICAL INVENTORY SITE PLAN KEYSTONE CEMENT COMPANY PA ROUTE 329, EAST ALLEN TWP., NORTHAMPTON COUNTY, PA FACILITY ID# 03695 LAT: 40°42'58.17" LONG: −75°24'2.33"
DRAWING SCALE: 1" = 600'		

FIGURE 7B - PPC PLAN | July 2019

APPENDIX A

NOTIFICATIONS TO AGENCIES and AGENCY AGREEMENTS

APPENDIX A:
Following approval by the PADEP, final copies of the PPC Plan will be distributed to:

1. Northampton County Emergency Management Agency, Nazareth
2. East Allen Township Fire Department
3. Borough of Bath
4. Pennsylvania State Police, Bethlehem
5. PA Department of Environmental Protection
    a. Engineering & Facilities Section
    b. Part B Repository

A-1: Agreements for Emergency Assistance

Information contained here-in may represent previous/existing agreements while updated agreements with providers are being negotiated and/or updated.

Copies of any such updates to be provided as available.

AGREEMENT FOR EMERGENCY ASSISTANCE
BY AND BETWEEN
KEYSTONE CEMENT COMPANY
AND
ELK ENVIRONMENTAL SERVICES

This agreement has been prepared to make arrangements for emergency services to be provided by ELK ENVIRONMENTAL SERVICES in the event of emergencies that might result from fires, explosions, or major releases involving hazardous wastes at KEYSTONE CEMENT COMPANY, Route 329, Bath, PA 18014.

Any request for emergency assistance will be issued by the Emergency Coordinator, and Alternate Emergency Coordinator, or his designee by means of telephone communication.

The supplemental fuels received are mostly xylene, toluene, methyl ethyl ketone, acetone, & mixed hydrocarbon compounds which are contaminated with pigments, plasticizers, sludges, and small quantities of other solvents. If an emergency arises, the specific compounds involved will be immediately identified by consulting material inventory and analysis records. A copy of Keystone's contingency plan, which describes emergency equipment and sets forth reporting and emergency assistance requirements, will be sent to ELK ENVIRONMENTAL SERVICES once the plan and this agreement are fully executed.

ELK ENVIRONMENTAL SERVICES is prepared to provide emergency assistance to Keystone Cement at their request.

KEYSTONE CEMENT COMPANY

By: Scott C. McGoldrick

Scott C. McGoldrick

Title: Manager, Environmental Compliance

Date: 6/30/19

ELK ENVIRONMENTAL SERVICES

By: Harry O'Neil

Title: Chief Executive Officer

Date: 6/9/19

AGREEMENT FOR EMERGENCY ASSISTANCE
BY AND BETWEEN
KEYSTONE CEMENT COMPANY
AND
RAPID RESPONSE, INC.

This agreement has been prepared to make arrangements for emergency services to be provided by RAPID RESPONSE, INC in the event of emergencies that might result from fires, explosions, or major releases involving hazardous wastes at KEYSTONE CEMENT COMPANY, Route 329, Bath, PA 18014.

Any request for emergency assistance will be issued by the Emergency Coordinator, and Alternate Emergency Coordinator, or his designee by means of telephone communication.

The supplemental fuels received are mostly xylene, toluene, methyl ethyl ketone, acetone, & mixed hydrocarbon compounds which are contaminated with pigments, plasticizers, sludges, and small quantities of other solvents. If an emergency arises, the specific compounds involved will be immediately identified by consulting material inventory and analysis records. A copy of Keystone's contingency plan, which describes emergency equipment and sets forth reporting and emergency assistance requirements, will be sent to RAPID RESPONSE, INC. once the plan and this agreement are fully executed.

RAPID RESPONSE, INC. is prepared to provide emergency assistance to Keystone Cement at their request.

KEYSTONE CEMENT COMPANY

By: Scott C. McGoldrick
Scott C. McGoldrick

Title: Manager, Environmental Compliance

Date: 6/30/19

RAPID RESPONSE, INC.

By: Ryan Shelly

Title: Emergency Response Manager

Date: 6/27/19

A-2: Notifications to Agencies

Evidence of Completed Notifications to appropriate parties is to be maintained within the Permit Binder Copy of this PPC Plan, which may be found at the Main Offices of Keystone Cement Company, Bath, PA

APPENDIX B

LISTING OF MATERIAL SAFETY DATA SHEET INFORMATION ACCESS

APPENIDIX B:
SOURCES FOR MATERIAL SAFETY DATA SHEET (MSDS) INFORMATON

1. Company Intranet | Network Drive – ***Y: Drive | Keystone MSDS***

2. SIRI MSDS Online Index
   - https://www.hazard.com/msds

3. Limited hardcopies filed at locations with information specific to their activities:
   - Resource Recovery (RR) Laboratory – Hazardous Waste Fuels Testing
   - Resource Recovery (RR) Trailer – Hazardous Waste Fuels Receipt, Permitted Storage and Use

APPENDIX C

ANNUAL STORMWATER INSPECTION REPORT | CERTIFICATION OF NON-STORMWATER DISCHARGE

3800-PM-WSFR0083v Rev. 7/2009
Annual Inspection

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER STANDARDS AND FACILITY REGULATION

ANNUAL INSPECTION FORM FOR NPDES PERMITS FOR DISCHARGES OF STORMWATER ASSOCIATED WITH INDUSTRIAL ACTIVITIES

1. Date of Inspection November 7, 2019

3. NPDES Permit # PA0011517

2. Facility Owner/Operator Name and Address:
Keystone Cement Company
Route 329
Bath, PA 18014-0058
Tel: 610-837-1881 Fax: 610-837-2267

4. Facility Address and Location
Street Route 329
Municipality East Allen Township County Northampton

VISUAL INSPECTION

Provide the following information for the storm event

5. Duration ~9 Hours

6. Estimation of rainfall (in inches) † 0.37"

† The annual inspection should be conducted after a storm event that is greater than 0.1 inches in magnitude and that occurred at least 72 hours from the previous 0.1 inch storm event.

7. Estimate the time between the previous rain event Last measurable rain event occurred November 1, 2019 (1.56 inches) >72 hours

8. Estimate the total volume (in gallons) for each outfall and report it in item 9.
Volume = C x I A,
where C is the runoff coefficient (i.e, 0.9 for paved and 0.5 for unpaved)
I is the rainfall amount (in ft), and
A is the area (square feet) drained to the outfall inspected
(convert from cubic feet to gallons by multiplying by 7.481).

9. Estimate the size of the drainage area (in square feet) for each outfall.

Outfall #	Drainage Area	% Paved	% Unpaved	Volume in gallons
002	9.40 AC (409,464.0 SF)	C=0.444	Per Permit Plans	41,935.21
003	6.086 AC (265,106.16 SF)	C=0.850	Per Permit Plans	51,977.92
004	61.745 AC (2,689,612.2 SF)	C=0.444	Per Permit Plans	275,456.34
005	16.23 AC (706,978.8 SF)	C=0.26	Per Permit Plans	42,399.42
006	15.68 AC (683,020.8 SF)	C=0.444	Per Permit Plans	69,951.50

Complete the following information for each outfall inspected (items 10 through 15)

VISUAL INSPECTION OF OUTFALL NUMBER - 002

10. Description of area(s) that drains to outfall. See Drainage area C & F on DWG. KCC-SW-SITE-01 from permit application. Area includes portions of quarry area, CKD storage, raw materials storage and handling, paved parking and drives, gravel surfaces, cement manufacturing equipment and ancillary structures. Discharge to Monocacy Creek from 7 million gallon on-site reservoir.

11. Description of stormwater management practices, erosion and sedimentation control practices, and other structural control measures that are in place to control pollutants from running off-site.
Implementation of Preparedness, Prevention, and Contingency (PPC) Plan and Spill Prevention, Control and Countermeasures (SPCC) Plan; ongoing seeding to maintain stabilization; rock lined and vegetated channels; roadway sweeper, water truck for unpaved roadways and water cannon for material piles, dust control collection systems, use of enclosed buildings for raw materials storage when possible, sedimentation basins/detention ponds, and practice good housekeeping.

12. Is there visible flow from the pipe? ☒ Yes ☐ No (Go to number 14) Pipe Dia. (inches) 10" Steel
    a. ODOR: Chemical Musty Sewage Rotten Eggs Other NONE
    b. COLOR: **Clear** Red Yellow Brown Other
    c. CLARITY: **Clear** Cloudy Opaque Suspended Solids Other
    d. FLOATABLES: Suds Oily Film Garbage Sewage Other NONE
    e. DEPOSITS/STAINS: **None** Oily Sediment Other
    f. VEGETATION: None **Normal** Excessive Inhibited Other

13. Is there standing water present? ☒ Yes ☐ No (Go to number 16)
    a. ODOR: Chemical Musty Sewage Rotten Eggs Other NONE
    b. COLOR: **Clear** Red Yellow Brown Other
    c. CLARITY: **Clear** Cloudy Opaque Suspended Solids Other
    d. FLOATABLES: Suds Oily Film Garbage Sewage Other NONE
    e. DEPOSITS/STAINS: **None** Oily Sediment Other
    f. VEGETATION: None **Normal** Excessive Inhibited Other

14. Is there any evidence of or potential for any pollutant being discharged at this outfall? ☐ Yes ☒ No
Describe: There were no indications of potential pollution associated with this outfall.

If yes, identify substances present in the sediment (if possible). None.

15. Description of corrective measures taken or planned to remove sediments or debris if found during inspection. Please provide a schedule if actions are planned.
Routine monitoring of this Outfall will be conducted throughout calendar year 2020. Corrective measures will be conducted should the need arise.

3800-PM-WSFR0083t Rev. 11/2010
Additional Information

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER STANDARDS AND FACILITY REGULATION

ADDITIONAL INFORMATION FOR THE REPORTING OF STORMWATER DISCHARGE MONITORING

(This form must be completed and submitted with the DMR form for each outfall sampled)

A. PERMITTEE'S NAME: Keystone Cement Company	OUTFALL/DISCHARGE NO.: 002
FACILITY/LOCATION: Route 329 PO Box A Bath, PA 18014	
B. SAMPLED STORM EVENT	
Provide the date of storm event: 11/7/19	Provide the duration (in hours) of storm event: Approx. 9 Hours
Estimate rainfall measurements (in inches) of the storm which generated the sample runoff: 0.37 Inches	Estimate the duration between the storm event sampled and the end of the previous measurement (greater than 0.1 inch rainfall) storm event: 6 days
Drainage area and volume of runoff (1) Paved area 38,850 square feet x 0.9 (estimated runoff coefficient) x rainfall 0.37 inches x 0.6234 = 8,064.96 gallons (2) Unpaved area 370,614 square feet x 0.5 (estimated runoff coefficient) x rainfall 0.37 inches x 0.6234 = 42,742.54 gallons Total area 409,464 square feet	Total volume of discharge 50,807.50 gallons
C. GRAB SAMPLE METHODOLOGY	
If a grab sample during the first 30 minutes of the discharge was impracticable, and the sample was instead taken during the first hour of the discharge, describe the circumstances: Samples collected withing the first 30 minutes of discharge. See attached analytical results for the analysis required per NPDES Permit #PA0011517. Reported pH values are field measured values. NOTE: The calculated volume of stormwater runoff depicted above is based on the PADEP specified runoff coefficents of 0.9 for paved surfaces and 0.5 for unpaved surfaces. The calculated volume of stormwater depicted on the Annual Inspection Form represents a weighted runoff coefficent based on site specific conditions.	
D. SAMPLE WAIVER	
If samples could not be collected due to adverse climatic conditions, describe why samples could not be collected. Attach available documentation of the event. Samples were collected as required by NPDES Permit #PA0011517.	
If monitoring data submitted is being used to represent other substantially identical outfalls, summarize on a drainage area and volume of runoff under item B. above for each outfall.	

Complete the following information for each outfall inspected (items 10 through 15)

VISUAL INSPECTION OF OUTFALL NUMBER - 003

10. Description of area(s) that drains to outfall. See Drainage area G on DWG. KCC-SW-SITE-02 from permit application. Area includes portions of quarry area, lab building, paved parking and drives, gravel surfaces, cement manufacturing equipment and ancillary structures. [North of kiln – Former Finish Mills]

11. Description of stormwater management practices, erosion and sedimentation control practices, and other structural control measures that are in place to control pollutants from running off-site.
Implementation of Preparedness, Prevention, and Contingency (PPC) Plan and Spill Prevention, Control and Countermeasures (SPCC) Plan; ongoing seeding to maintain stabilization; rock lined and vegetated channels; roadway sweeper, water truck for unpaved roadways and water cannon for material piles, dust control collection systems, use of enclosed buildings for raw materials storage when possible, sedimentation basins/detention ponds, and practice good housekeeping.

12. Is there visible flow from the pipe? ☒ Yes ☐ No (Go to number 14) Pipe Dia. (inches) 18" RCP
    a. ODOR: Chemical Musty Sewage Rotten Eggs Other NONE
    b. COLOR: **Gray** Red Yellow Brown Other
    c. CLARITY: Clear **Cloudy** Opaque **Suspended Solids** Other
    d. FLOATABLES: Suds Oily Film Garbage Sewage Other NONE
    e. DEPOSITS/STAINS: None Oily **Sediment** Other
    f. VEGETATION: None **Normal** Excessive Inhibited Other

13. Is there standing water present? ☒ Yes ☐ No (Go to number 16)
    a. ODOR: Chemical Musty Sewage Rotten Eggs Other NONE
    b. COLOR: **Gray** Red Yellow Brown Other Turbid with sediment
    c. CLARITY: Clear **Cloudy** Opaque Suspended Solids Other
    d. FLOATABLES: Suds Oily Film Garbage Sewage Other NONE
    e. DEPOSITS/STAINS: **None** Oily Sediment Other
    f. VEGETATION: None **Normal** Excessive Inhibited Other

14. Is there any evidence of or potential for any pollutant being discharged at this outfall? ☒ Yes ☐ No
Describe: Runoff during storm event contained some sediment. Minimal flow from discharge pipes during inspection.

If yes, identify substances present in the sediment (if possible). None. Only sediment observed.

15. Description of corrective measures taken or planned to remove sediments or debris if found during inspection. Please provide a schedule if actions are planned.
Channel and Rock filter is routinely restored as needed. Outfall will be inspected periodically throughout 2020. Improvements will be implemented as needed.

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ADDITIONAL INFORMATION FOR THE REPORTING OF STORMWATER DISCHARGE MONITORING

(This form must be completed and submitted with the DMR form for each outfall sampled)

A. PERMITTEE'S NAME: Keystone Cement Company	OUTFALL/DISCHARGE NO.: 003
FACILITY/LOCATION: Route 329 PO Box A Bath, PA 18014	
B. SAMPLED STORM EVENT	
Provide the date of storm event: 11/7/19	Provide the duration (in hours) of storm event: 9 Hours
Estimate rainfall measurements (in inches) of the storm which generated the sample runoff: 0.37 Inches	Estimate the duration between the storm event sampled and the end of the previous measurement (greater than 0.1 inch rainfall) storm event: 6 days
Drainage area and volume of runoff (1) Paved area 32,300 square feet x 0.9 (estimated runoff coefficient) x rainfall 0.37 inches x 0.6234 = 6,705.23 gallons (2) Unpaved area 232,806.16 square feet x 0.5 (estimated runoff coefficient) x rainfall 0.37 inches x 0.6234 = 26,849.30 gallons Total area 265,106.16 square feet	Total volume of discharge 33,554.53 gallons
C. GRAB SAMPLE METHODOLOGY	
If a grab sample during the first 30 minutes of the discharge was impracticable, and the sample was instead taken during the first hour of the discharge, describe the circumstances: Samples collected withing the first 30 minutes of discharge. See attached analytical results for the analysis required per NPDES Permit #PA0011517. Reported pH values are field measured values. NOTE: The calculated volume of stormwater runoff depicted above is based on the PADEP specified runoff coefficents of 0.9 for paved surfaces and 0.5 for unpaved surfaces. The calculated volume of stormwater depicted on the Annual Inspection Form represents a weighted runoff coefficent based on site specific conditions.	
D. SAMPLE WAIVER	
If samples could not be collected due to adverse climatic conditions, describe why samples could not be collected. Attach available documentation of the event. Samples were collected as required by NPDES Permit #PA0011517	
If monitoring data submitted is being used to represent other substantially identical outfalls, summarize on a drainage area and volume of runoff under item B. above for each outfall.	

Complete the following information for each outfall inspected (items 10 through 15)

VISUAL INSPECTION OF OUTFALL NUMBER - 004

10. Description of area(s) that drains to outfall. See Drainage area D, E, & I on DWG. KCC-SW-SITE-03 from permit application. Area includes portions of quarry area, CKD storage, raw materials storage and handling, paved parking and drives, gravel surfaces, cement manufacturing equipment and ancillary structures. [Finish Packaging]

11. Description of stormwater management practices, erosion and sedimentation control practices, and other structural control measures that are in place to control pollutants from running off-site.
Implementation of Preparedness, Prevention, and Contingency (PPC) Plan and Spill Prevention, Control and Countermeasures (SPCC) Plan; ongoing seeding to maintain stabilization; rock lined and vegetated channels; roadway sweeper, water truck for unpaved roadways and water cannon for material piles, dust control collection systems, use of enclosed buildings for raw materials storage when possible, sedimentation basins/detention ponds, and practice good housekeeping.

12. Is there visible flow from the pipe? ☒ Yes ☐ No (Go to number 14) Pipe Dia. (inches) 24" RCP
    a. ODOR: Chemical Musty Sewage Rotten Eggs Other NONE
    b. COLOR: **Clear** Red Yellow Brown Other
    c. CLARITY: Clear **Cloudy** Opaque Suspended Solids Other Some sediment in discharge
    d. FLOATABLES: Suds Oily Film Garbage Sewage Other NONE
    e. DEPOSITS/STAINS: **None** Oily Sediment Other
    f. VEGETATION: None **Normal** Excessive Inhibited Other

13. Is there standing water present? ☒ Yes ☐ No (Go to number 16) Detention Pond
    a. ODOR: Chemical Musty Sewage Rotten Eggs Other NONE
    b. COLOR: **Clear** Red Yellow Brown Other
    c. CLARITY: Clear **Cloudy** Opaque Suspended Solids Other
    d. FLOATABLES: Suds Oily Film Garbage Sewage Other NONE
    e. DEPOSITS/STAINS: **None** Oily Sediment Other
    f. VEGETATION: None **Normal** Excessive Inhibited Other

14. Is there any evidence of or potential for any pollutant being discharged at this outfall? ☒ Yes ☐ No
Describe: Potential Sediment – Portions of Stabilized CKD storage pile have been previously exposed due to erosion. Overall, vegetation continues to grow and provide increasing coverage. The exposed areas were stabilized in 2017, however, it is recognized that additional stabilization may be required and could be conducted in 2020.

If yes, identify substances present in the sediment (if possible). None.

15. Description of corrective measures taken or planned to remove sediments or debris if found during inspection. Please provide a schedule if actions are planned.
Areas along stabilized pile planned as needed within 2020 plant expense budget. Continued removal of any debris and inspection of absorbent booms in raceway throughout 2020. Replace absorbent booms as necessary and if needed in 2020.

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ADDITIONAL INFORMATION FOR THE REPORTING OF STORMWATER DISCHARGE MONITORING

(This form must be completed and submitted with the DMR form for each outfall sampled)

A. PERMITTEE'S NAME: Keystone Cement Company	OUTFALL/DISCHARGE NO.: 004
FACILITY/LOCATION: Route 329 PO Box A Bath, PA 18014	
B. SAMPLED STORM EVENT	
Provide the date of storm event: 11/7/19	Provide the duration (in hours) of storm event: 9 Hours
Estimate rainfall measurements (in inches) of the storm which generated the sample runoff: 0.37 Inches	Estimate the duration between the storm event sampled and the end of the previous measurement (greater than 0.1 inch rainfall) storm event: 6 days
Drainage area and volume of runoff (1) Paved area 164,301 square feet x 0.9 (estimated runoff coefficient) x rainfall 0.37 inches x 0.6234 = 34,107.61 gallons (2) Unpaved area 2,525,311.20 square feet x 0.5 (estimated runoff coefficient) x rainfall 0.37 inches x 0.6234 = 291,241.62 g Total area 2,689,612.20 square feet	Total volume of discharge 325,349.23 gallons
C. GRAB SAMPLE METHODOLOGY	
If a grab sample during the first 30 minutes of the discharge was impracticable, and the sample was instead taken during the first hour of the discharge, describe the circumstances: Samples collected withing the first 30 minutes of discharge. See attached analytical results for the analysis required per NPDES Permit #PA0011517. Reported pH values are field measured values. NOTE: The calculated volume of stormwater runoff depicted above is based on the PADEP specified runoff coefficents of 0.9 for paved surfaces and 0.5 for unpaved surfaces. The calculated volume of stormwater depicted on the Annual Inspection Form represents a weighted runoff coefficent based on site specific conditions.	
D. SAMPLE WAIVER	
If samples could not be collected due to adverse climatic conditions, describe why samples could not be collected. Attach available documentation of the event. Samples were collected as required by NPDES Permit #PA0011517	
If monitoring data submitted is being used to represent other substantially identical outfalls, summarize on a drainage area and volume of runoff under item B. above for each outfall.	

Complete the following information for each outfall inspected (items 10 through 15)

VISUAL INSPECTION OF OUTFALL NUMBER - 005

10. Description of area(s) that drains to outfall. See drainage areas J & K on DWG. KCC-SW-SITE-03 from permit application. Area includes portions of CKD storage and former contractor laydown yard.

11. Description of stormwater management practices, erosion and sedimentation control practices, and other structural control measures that are in place to control pollutants from running off-site.
Implementation of Preparedness, Prevention, and Contingency (PPC) Plan and Spill Prevention, Control and Countermeasures (SPCC) Plan; ongoing seeding to maintain stabilization; rock lined and vegetated channels; roadway sweeper, water truck for roadways and water cannon for material piles, dust control collection systems, use of enclosed buildings for raw materials storage when possible, sedimentation basins/detention ponds, and practice good housekeeping.

12. Is there visible flow from the pipe? ☒ Yes ☐ No (Go to number 14) Pipe Dia. (inches) 24" RCP
    a. ODOR: Chemical Musty Sewage Rotten Eggs Other NONE
    b. COLOR: **Clear** Red Yellow Brown Other
    c. CLARITY: Clear **Cloudy** Opaque Suspended Solids Other
    d. FLOATABLES: Suds Oily Film Garbage Sewage Other NONE
    e. DEPOSITS/STAINS: **None** Oily Sediment Other
    f. VEGETATION: None **Normal** Excessive Inhibited Other

13. Is there standing water present? ☐ Yes ☒ No (Go to number 16)
    a. ODOR: Chemical Musty Sewage Rotten Eggs Other NONE
    b. COLOR: Clear Red Yellow Brown Other NONE
    c. CLARITY: Clear Cloudy Opaque Suspended Solids Other NONE
    d. FLOATABLES: Suds Oily Film Garbage Sewage Other NONE
    e. DEPOSITS/STAINS: None Oily Sediment Other NONE
    f. VEGETATION: None Normal Excessive Inhibited Other NONE

14. Is there any evidence of or potential for any pollutant being discharged at this outfall? ☒ Yes ☐ No
Describe: Evidence of sediment deposition at the outlet of RCP from detention basin. Evidence of some sediment disposition from Outfall 005 pipe to Monocacy Creek. Minimal flow from discharge pipe during inspection.

If yes, identify substances present in the sediment (if possible).

15. Description of corrective measures taken or planned to remove sediments or debris if found during inspection. Please provide a schedule if actions are planned.
On-going stormwater management activities incorporated into overall facility PPC Plan.

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ADDITIONAL INFORMATION FOR THE REPORTING OF STORMWATER DISCHARGE MONITORING

(This form must be completed and submitted with the DMR form for each outfall sampled)

A. PERMITTEE'S NAME: Keystone Cement Company	OUTFALL/DISCHARGE NO.: 005
FACILITY/LOCATION: Route 329 PO Box A Bath, PA 18014	
B. SAMPLED STORM EVENT	
Provide the date of storm event: 11/7/19	Provide the duration (in hours) of storm event: 9 Hours
Estimate rainfall measurements (in inches) of the storm which generated the sample runoff: 0.37 Inches	Estimate the duration between the storm event sampled and the end of the previous measurement (greater than 0.1 inch rainfall) storm event: 6 days
Drainage area and volume of runoff (1) Paved area 0 square feet x 0.9 (estimated runoff coefficient) x rainfall 0.37 inches x 0.6234 = 0 gallons (2) Unpaved area 706,978.8 square feet x 0.5 (estimated runoff coefficient) x rainfall 0.37 inches x 0.6234 = 81,535.16 gallons Total area 706,978.8 square feet	Total volume of discharge 81,535.16 gallons
C. GRAB SAMPLE METHODOLOGY	
If a grab sample during the first 30 minutes of the discharge was impracticable, and the sample was instead taken during the first hour of the discharge, describe the circumstances: Samples collected withing the first 30 minutes of discharge. See attached analytical results for the analysis required per NPDES Permit #PA0011517. Reported pH values are field measured values. NOTE: The calculated volume of stormwater runoff depicted above is based on the PADEP specified runoff coefficents of 0.9 for paved surfaces and 0.5 for unpaved surfaces. The calculated volume of stormwater depicted on the Annual Inspection Form represents a weighted runoff coefficent based on site specific conditions.	
D. SAMPLE WAIVER	
If samples could not be collected due to adverse climatic conditions, describe why samples could not be collected. Attach available documentation of the event. Samples were collected as required by NPDES Permit #PA0011517	
If monitoring data submitted is being used to represent other substantially identical outfalls, summarize on a drainage area and volume of runoff under item B. above for each outfall.	

Complete the following information for each outfall inspected (items 10 through 15)

VISUAL INSPECTION OF OUTFALL NUMBER – 006

10. Description of area(s) that drains to outfall. See Drainage area C & F on DWG. KCC-SW-SITE-01 from permit application. Area includes portions of quarry area, CKD storage, raw materials storage and handling, paved parking and drives, gravel surfaces, cement manufacturing equipment and ancillary structures.

11. Description of stormwater management practices, erosion and sedimentation control practices, and other structural control measures that are in place to control pollutants from running off-site.
Implementation of Preparedness, Prevention, and Contingency (PPC) Plan and Spill Prevention, Control and Countermeasures (SPCC) Plan; ongoing seeding to maintain stabilization; rock lined and vegetated channels; roadway sweeper, water truck for roadways and water cannon for material piles, dust control collection systems, use of enclosed buildings for raw materials storage when possible, sedimentation basins/detention ponds, and practice good housekeeping.

12. Is there visible flow from the pipe? ☒ Yes ☐ No (Go to number 14) Pipe Dia. (inches) 18" Pipe to RR Culvert
   a. ODOR: Chemical Musty Sewage Rotten Eggs Other NONE
   b. COLOR: **Clear** Red Yellow Brown Other
   c. CLARITY: Clear **Cloudy** Opaque Suspended Solids Other
   d. FLOATABLES: Suds Oily Film Garbage Sewage Other NONE
   e. DEPOSITS/STAINS: **None** Oily Sediment Other
   f. VEGETATION: None **Normal** Excessive Inhibited Other

13. Is there standing water present? ☒ Yes ☐ No (Go to number 16)
   a. ODOR: Chemical Musty Sewage Rotten Eggs Other NONE
   b. COLOR: **Clear** Red Yellow Brown Other
   c. CLARITY: **Clear** Cloudy Opaque Suspended Solids Other
   d. FLOATABLES: Suds Oily Film Garbage Sewage Other NONE
   e. DEPOSITS/STAINS: **None** Oily Sediment Other
   f. VEGETATION: None **Normal** Excessive Inhibited Other

14. Is there any evidence of or potential for any pollutant being discharged at this outfall? ☒ Yes ☐ No
Describe: Evidence of minimal sediment deposition at the outlet of RCP. Minimal flow from discharge pipe during inspection.

If yes, identify substances present in the sediment (if possible). None. Only minimal sediment observed.

15. Description of corrective measures taken or planned to remove sediments or debris if found during inspection. Please provide a schedule if actions are planned.
Continue to monitor sediment accumulation in basin located adjacent to kiln stack.

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ADDITIONAL INFORMATION FOR THE REPORTING OF STORMWATER DISCHARGE MONITORING

(This form must be completed and submitted with the DMR form for each outfall sampled)

A. PERMITTEE'S NAME: Keystone Cement Company	OUTFALL/DISCHARGE NO.: 006
FACILITY/LOCATION: Route 329 PO Box A Bath, PA 18014	
B. SAMPLED STORM EVENT	
Provide the date of storm event: 11/7/19	Provide the duration (in hours) of storm event: 9 Hours
Estimate rainfall measurements (in inches) of the storm which generated the sample runoff: 0.37 Inches	Estimate the duration between the storm event sampled and the end of the previous measurement (greater than 0.1 inch rainfall) storm event: 6 days
Drainage area and volume of runoff (1) Paved area 38,850 square feet x 0.9 (estimated runoff coefficient) x rainfall 0.37 inches x 0.6234 = 8,064.96 gallons (2) Unpaved area 644,170.80 square feet x 0.5 (estimated runoff coefficient) x rainfall 0.37 inches x 0.6234 = 74,291.57 gallons Total area 683,020.80 square feet	Total volume of discharge 82,356.53 gallons
C. GRAB SAMPLE METHODOLOGY	
If a grab sample during the first 30 minutes of the discharge was impracticable, and the sample was instead taken during the first hour of the discharge, describe the circumstances: Samples collected withing the first 30 minutes of discharge. See attached analytical results for the analysis required per NPDES Permit #PA0011517. Reported pH values are field measured values. NOTE: The calculated volume of stormwater runoff depicted above is based on the PADEP specified runoff coefficents of 0.9 for paved surfaces and 0.5 for unpaved surfaces. The calculated volume of stormwater depicted on the Annual Inspection Form represents a weighted runoff coefficent based on site specific conditions.	
D. SAMPLE WAIVER	
If samples could not be collected due to adverse climatic conditions, describe why samples could not be collected. Attach available documentation of the event. Samples were collected as required by NPDES Permit #PA0011517	
If monitoring data submitted is being used to represent other substantially identical outfalls, summarize on a drainage area and volume of runoff under item B. above for each outfall.	

COMPREHENSIVE SITE COMPLIANCE EVALUATION

16. Do drainage maps reflect current conditions? ☒ Yes ☐ No

If no, provide your comments.

Comments: As previously noted – the 18" RCP inlet proposed for the south side of Route 512 entrance proposed to extend beneath Route 512 entrance was not constructed. Theses structures are depicted in plan KCC-SW-SITE-02. The stormwater from this area is conveyed south along the railroad tracks toward Outfall 004.

17. Based on review of PPC Plan (including Housekeeping Measures), are any changes, corrections or updates necessary? ☐ Yes ☒ No

If yes, provide your comments.

Comments:

18. Have you inspected all structural stormwater controls used to implement the PPC Plan to determine if they are adequate? ☒ Yes ☐ No

If no, provide your comments.

Comments: The annual solvent fuel system structural audit was conducted by Pany & Lentz Engineering Company in November 2019. A draft report of findings was received in early December 2019 – Final report will be issued to PADEP upon receipt. Follow-up actions as deemed appropriate expected in 2020.

19. Have you inspected the entire site to determine if erosion and sedimentation control measures are adequate? ☒ Yes ☐ No

If no, provide your comments.

Comments:

20. Summarize corrective actions/measures completed or planned to correct any deficiencies found as a result of the inspection. Please provide a schedule if actions are planned.

A planned review of plant wide Best Management Practices (BMP's) is planned for sometime in 2020 with required improvements implemented by end of 2020.

21. Signature of Inspector

Name of Inspector: Scott C. McGoldrick

Date Report Prepared: December 12, 2019

Signature of Inspector: Scott C. McGoldrick

24. Signature of Owner/Operator of Facility

Stephen P. Holt, P.E. V.P., EH&S
Name/Title Principal Executive Officer

Signature: Stephen P. Holt

Date: 12/11/2019

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION. I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT SEE 18 Pa. C.S. §4904 (relating to unsworn falsification).

APPENDIX D

ENGINEER'S CERTIFICATION

CERTIFICATION STATEMENT

The PPC Plan for the Keystone Cement Facility in Bath, Pennsylvania was prepared by Keystone Cement Company to satisfy the requirements listed in the PADEP document entitled "Guidelines for the Development and Implementation of Environmental Emergency Response Plans" revised August 2005. Additionally, to confirm that the items outlined in the PPC Plan continue to be accurate, the revisions released in this update (January 2020) are based upon personal knowledge of the site; including my review of former revisions of the PPC Plan and follow-up with site personnel. It is my belief that the document is complete and accurate as of the date noted below. It is my opinion that this PPC Plan, including the attached Figures and Exhibits, is in general conformance with the requirements of the above-cited Guidance.

KEYSTONE CEMENT COMPANY
Company Name

Engineer's Signature

01/16/2020
Date

Stephen P. Holt, P.E.
Name

Vice President, Environmental, Health, & Safety
Title

PE 072081
P.E. Number

(SEAL)
Professional Engineer Seal is on file at the plant.

APPENDIX E

CONTINGENCY PLAN NARRATIVE, SECTION G from the June 2001 Part B Permit Application

G-0 SECTION G: CONTINGENCY PLAN

Included in Appendix 4 is Keystone's integrated Preparedness, Prevention, and Contingency (PPC) Plan. This PPC Plan was issued to PADEP on April 1, 1999, and addresses both the RCRA regulated operations and non-RCRA regulated operations. Any incident that triggers the implementation of the PPC Plan must be noted on Keystone's operation record. The note must include the time, date, and details of the incident. Copies of the PPC Plan are maintained at the Keystone facility and have been submitted to local authorities.

The complete text of the PPC Plan is included with this permit application for completeness and clarification purposes. Those sections that are relevant to this permit application are listed in Section G-1. Some of these sections and additional sections have been modified for this submittal to reflect changes and imminent changes at the Keystone facility. The modified sections are listed and discussed in Section G-2.

G-1 Relevant Sections to the RCRA Part B Permit Application

INTRODUCTION
PART I – RCRA REGULATED OPERATIONS

G-2 Sections Modified as Part of the RCRA Part B Permit Application

Drawing, Figure, Table, Attachment, and Appendix reference numbers were changed throughout the document for clarification purposes. Also, all drawings, figures and tables were moved to the appendices.

INTRODUCTION
The date of the DEP Guidance document was updated.

IA.1 DESCRIPTION OF INDUSTRIAL ACTIVITY
A brief description of the hazardous waste units' stormwater exposure prevention means was added.

IA.2 DESCRIPTION OF EXISTING EMERGENCY RESPONSE PLANS
The date of the previous plan was updated.

IA.3.1 Waste Fuel Operations
Description of the two planned storage tanks was added. Also, the waste unloading areas were added to the list of principal hazardous waste management units.

IA.3.2 Miscellaneous Hazardous Waste Storage
This subsection was added for the purpose of describing the two temporary hazardous waste storage areas.

IA.4 POLLUTION INCIDENT HISTORY
This section was updated.

IB.1.1 Notification/Reporting Requirements
The 717 area code was updated to 570 in the PADEP contact phone numbers. Also, Christopher Smolar replaced Dean Fisher as a Waste Management contact.

IC.1 PRE-RELEASE PLANNING
Descriptions of the planned railcar unloading containment pad, the planned piping of the waste fuel from the railcars to the kilns, and the two temporary storage areas were added. Also, the surface water run-off description was modified for correctness. Furthermore, descriptions of potential stormwater pollution contributions were added for the various hazardous waste units.

IC.3 INSPECTION AND MONITORING PROGRAM
Description of the inspection practices for stormwater control structures (secondary containment walls and berms) was added.

IC.5 HOUSEKEEPING PROGRAM
A description of housekeeping measures to prevent stormwater contamination was added.

ID.1.1 Waste Fuels Operations: Liquid Waste Unloading and Loading Operations
The railcars were added as delivery containers.

ID.1.1 Waste Fuels Operations: General Emergency and Evacuation Response
Editorial changes were made. The list of contacts was shortened and reference was made to Section ID.3 where those contacts are listed in full.

ID.2 COUNTERMEASURES TO BE UNDERTAKEN BY CONTRACTORS
The address and phone number of Environmental Products & Services was updated.

ID.3 INTERNAL AND EXTERNAL COMMUNICATIONS AND ALARM SYSTEMS
The phone numbers of Muhlenberg Hospital Center and the Harrisburg PA Emergency Management Agency were updated. The Northampton County PA Emergency Management Agency's phone number was added.

ID.5 EMERGENCY EQUIPMENT AVAILABLE FOR RESPONSE
Reference to CKD for use as absorbent material was deleted because CKD has not been approved by PADEP for this use.

IE. EMERGENCY SPILL CONTROL NETWORK
The phone numbers of Muhlenberg Hospital Center and the Harrisburg PA Emergency Management Agency were updated. The Northampton County PA Emergency Management Agency's phone number was added. Also, language and format was modified to distinguish between downstream surface water intakes and downstream counties and municipalities.

IIA.2 DESCRIPTION OF EXISTING EMERGENCY RESPONSE PLANS
The date of the previous plan was updated.

IIA.4 POLLUTION INCIDENT HISTORY
Editorial changes were made.

IIB.1 Notification/Reporting Requirements
The 717 area code was updated to 570 in the PADEP contact phone numbers. Also, Christopher Smolar replaced Dean Fisher as a Waste Management contact.

IIC.1 PRE-RELEASE PLANNING
A description of the CKD piles was added. Also, the surface water run-off description was modified for correctness.

IIC.5 HOUSEKEEPING PROGRAM
A description of housekeeping measures to prevent stormwater contamination was added.

IID.1.3 Emergency Response: General Emergency and Evacuation Response
Editorial changes were made. The list of contacts was shortened and reference was made to Section IID.3 where those contacts are listed in full.

IID.2 COUNTERMEASURES TO BE UNDERTAKEN BY CONTRACTORS
The address and phone number of Environmental Products & Services was updated.

IID.3 INTERNAL AND EXTERNAL COMMUNICATIONS AND ALARM SYSTEMS
The phone numbers of Muhlenberg Hospital Center and the Harrisburg PA Emergency Management Agency were updated. The Northampton County PA Emergency Management Agency's phone number was added.

IID.5 EMERGENCY EQUIPMENT AVAILABLE FOR RESPONSE
Reference to CKD for use as absorbent material was deleted because CKD has not been approved by PADEP for this use.

IIE. EMERGENCY SPILL CONTROL NETWORK
The phone numbers of Muhlenberg Hospital Center and the Harrisburg PA Emergency Management Agency were updated. The Northampton County PA Emergency Management Agency's phone number was added. Also, language and format was modified to distinguish between downstream surface water intakes and downstream counties and municipalities.

APPENDIX F

RISK MANAGEMENT PLAN SUBMISSION to USEPA and PADEP

Beth Rinaldi

From: helpdesk@epacdx.net
Sent: Friday, June 14, 2019 8:16 PM
To: Scott McGoldrick
Subject: Risk Management Plan (RMP) submission has been CERTIFIED

Your Risk Management Plan (RMP) submission has been PREPARED, CERTIFIED and SENT to U.S. EPA for the facility shown below.

If you require assistance please contact the RMP Reporting Center at 703-227-7650 or RMPRC@epacdx.net.

Reference Transaction ID:	16845
Prepared by:	Scott McGoldrick (SMCGOLDRICK)
Date Submitted:	06/14/2019
Certifying Official:	Stephen Holt (STEPHENHOLT)
Certifier's Email:	sholt@elementia.com
Date Certified and Sent to EPA:	06/14/2019
Submission Type:	Resubmission
5 Year Anniversary Date:	06/14/2024

This is the date by which your next full RMP re-submission must be completed, unless you must re-submit earlier due to changes in your regulated process(es) (see 40 CFR Part 68.190(b)). If you have submitted an RMP correction, your 5-year anniversary date has not changed. RMP corrections are used for minor administrative changes, and do not set a facility's 5-year anniversary date.

EPA Facility ID: 1000 0006 4958

Facility:
Keystone Cement Company
Route 329
Bath, PA 18014

You may wish to print a copy of this receipt and keep it for your records.
Do NOT send this receipt to EPA.

United States Environmental Protection Agency
Central Data Exchange

Section 1. Registration Information

1.1 Source Identification	
1.1.a. Facility Name	Keystone Cement Company
1.1.b. Parent Company #1 Name	Giant Cement Holding, Inc.
1.1.c. Parent Company #2 Name	
1.2 EPA Facility Identifier	100000064958
1.3 Other EPA Systems Facility Identifier	PAD002389559
1.4 Dun and Bradstreet Numbers (DUNS)	
1.4.a. Facility DUNS	869563304
1.4.b. Parent Company #1 DUNS	869563304
1.4.c. Parent Company #2 DUNS	
1.5 Facility Location	
1.5.a. Street - Line 1	Route 329
1.5.b. Street - Line 2	
1.5.c. City	Bath
1.5.d. State	PA
1.5.e. Zip Code - Zip +4 Code	18014-0058
1.5.f. County	NORTHAMPTON
1.5.g. Facility Latitude (in decimal degrees)	40.716028
1.5.h. Facility Longitude (in decimal degrees)	-075.398750
1.5.i. Method for determining Lat/Long	Interpolation - Map
1.5.j. Description of location identified by Lat/Long	Storage Tank
1.5.k. Horizontal Accuracy Measure (meters)	12.2
1.5.l. Horizontal Reference Datum Code	North American Datum of 1927
1.5.m. Source Map Scale Number	24000
1.6 Owner or Operator	
1.6.a. Name	Keystone Cement Company
1.6.b. Phone	(610) 837-1881
1.6.c. Street - Line 1	P.O. Box A
1.6.d. Street - Line 2	
1.6.e. City	Bath
1.6.f. State	PA
1.6.g. Zip Code - Zip +4 Code	18014-0058
Foreign Country	
Foreign State/Province	
Foreign Zip/Postal Code	
1.7 Name, title and email address of person or position responsible for RMP (part 68) implementation	
1.7.a. Name of person	Scott McGoldrick
1.7.b. Title of person or position	Manager, Environmental Compliance
1.7.c. Email address of person or position	smcgoldrick@elementia.com

Section 1. Registration Information

1.8 Emergency Contact	
1.8.a. Name	Stuart Guinther
1.8.b. Title of person or position	Plant Manager
1.8.c. Phone	(610) 837-1881
1.8.d. 24-Hour Phone	(484) 934-6613
1.8.e. 24-Hour Phone Extension/PIN #	8331
1.8.f. Email address for emergency contact	sguinther@elementia.com
1.9 Other Points of Contact	
1.9.a. Facility or Parent Company E-mail Address	
1.9.b. Facility Public Contact Phone Number	
1.9.c. Facility or Parent Company WWW Homepage Address	www.elementia.com
1.10 Local Emergency Planning Committee (LEPC)	Northampton County LEPC
1.11 Number of fulltime equivalent (FTEs) employees on site	130
1.12 Covered by	
1.12.a. OSHA PSM	
1.12.b. EPCRA section 302	Y
1.12.c. CAA Title V Air Operating Permit Program	Y
1.12.d. Air Operating Permit ID #	48-00003
1.13 OSHA Star or Merit Ranking	
1.14 Last Safety Inspection (by an External Agency) Date	03/21/2019
1.15 Last Safety Inspection Performed by an External Agency	MSHA
1.16 Will this RMP involve Predictive Filing?	Y
1.18 RMP Preparer Information	
1.18.a. Name	
1.18.b. Phone	
1.18.c. Street - Line 1	
1.18.d. Street - Line 2	
1.18.e. City	
1.18.f. State	
1.18.g. Zip	
Foreign Country	
Foreign State/Province	
Foreign Zip Code	

Section 1. Registration Information

Section 1.17 Process Specific Information

Process 1

Process ID #	**1000100538**
Process Description	**Haz. Waste Storage**
1.17.a. Program Level	1
1.17.b. NAICS Code(s)	
562211 (Hazardous Waste Treatment and Disposal)	
1.17.c. Chemical(s)	

	Chemical Name	CAS Number	Quantity
	Ammonia (anhydrous)	7664-41-7	23088
	Acrylonitrile [2-Propenenitrile]	107-13-1	57720
	Allyl alcohol [2-Propen-1-ol]	107-18-6	23088
	Carbon disulfide	75-15-0	69264
	Chloroform [Methane, trichloro-]	67-66-3	115440
	Vinyl acetate monomer [Acetic acid ethenyl ester]	108-05-4	230880

Section 2. Toxics: Worst Case

Scenario 1

Process Name	Haz. Waste Storage
2.1 Chemical	
2.1.a. Name	Ammonia (anhydrous)
2.1.b. Percent Weight of Chemical	2
2.2 Physical State	Liquid
2.3 Model Used	HGSYSTEM
2.4 Scenario	Liquid spill and vaporization
2.5 Quantity Released (lbs)	5600
2.6 Release Rate (lbs/min)	5600
2.7 Release Duration (mins)	1
2.8 Wind Speed (meters/sec)	1.5
2.9 Atmospheric stability class	F
2.10 Topography	Urban
2.11 Distance to endpoint (miles)	0.1
2.12 Estimated residential population within distance to endpoint (numbers)	0
2.13 Public receptors within distance to endpoint	
2.13.a. Schools	
2.13.b. Residences	
2.13.c. Hospitals	
2.13.d. Prison/Correctional Facilities	
2.13.e. Recreational Areas	
2.13.f. Major commercial, office or industrial areas	
2.13.g. Other	
2.14 Environmental receptors within distance to endpoint	
2.14.a. National or State Parks, Forests or Monuments	
2.14.b. Officially Designated Wildlife Sanctuaries, Preserves or Refuges	
2.14.c. Federal Wilderness Area	
2.14.d. Other	
2.15 Passive mitigation considered	
2.15.a. Dikes	Y
2.15.b. Enclosures	
2.15.c. Berms	
2.15.d. Drains	
2.15.e. Sumps	
2.15.f. Other	
2.16 Graphic file	

Section 9. Emergency Response

9.1 Written emergency response (ER) plan	
9.1.a. Is your facility included in the written community emergency response plan?	Y
9.1.b. Does your facility have its own written emergency response plan?	Y
9.2 Does your facility's ER plan include specific actions to be taken in response to accidental releases of regulated substances?	Y
9.3 Does your facility's ER plan include procedures for informing the public and local agencies responding to accidental releases?	Y
9.4 Does your facility's ER plan include information on emergency health care?	Y
9.5 Date of most recent review or update of your facility's ER plan	12/01/2017
9.6 Date of most recent ER training for your facility's employees	05/01/2019
9.7 Local agency with which your facility's ER plan or response activities are coordinated	
9.7.a. Name of agency	Northampton Emergency Mgmt.
9.7.b. Phone number	(610) 759-2600
9.8 Subject to	
9.8.a. OSHA Regulations at 29 CFR 1910.38	
9.8.b. OSHA Regulations at 29 CFR 1910.120	
9.8.c. Clean Water Act Regulations at 40 CFR 112	Y
9.8.d. RCRA Regulations at 40 CFR 264, 265, 279.52	Y
9.8.e. OPA-90 Regulations at 40 CFR 112, 33 CFR 154, 49 CFR 194, 30 CFR 254	Y
9.8.f. State EPCRA Rules of Laws	Y
9.8.g. Other	

Executive Summary

Keystone Cement operates a portland cement manufacturing operation on an approximate 850 acre parcel of land, located in Bath, PA. The facility operates a dry process preheater/precalciner and associated raw and finished material processing operations in the production of portland cement. Raw material is mined on site and processed in preparation for use in the production of portland cement.

The Keystone Cement facility also includes a fully permitted waste fuel storage tank facility. Waste fuel is received at the facility via tanker truck from off site and pumped into one of four waste fuel storage tanks.

The tank farm facility consists of four storage tanks, associated ancillary equipment, and tanker truck unloading area on the solvent pad. Waste fuel is transferred to the cement kilns via aboveground pipeline. The storage tanks and tanker truck unloading area are interconnected via pipelines and are also considered co-located within the tank farm and therefore, for purposes of compliance with 40 CFR Part 68, the Keystone Cement facility is considered to have one regulated process, the tank farm storage facility.

The threshold quantity determination performed at the Keystone Cement facility used several conservative assumptions as outlined in the EPA RMP guidance document for warehousing (1/99). From this threshold determination, the facility developed a list of regulated substances that could potentially (although unlikely) be present in the regulated process above the applicable threshold quantity as follows: acrylonitrile, allyl alcohol, ammonia, carbon disulfide, chloroform, and vinyl acetate monomer.

An off-site consequence analysis was performed in accordance with EPA guidance to determine the distances to the endpoints for each substance. From this analysis, it was determined that the facility did not have any public receptors within the distance to the endpoint for the worst-case toxic release scenario. In addition, the facility has not had any regulated accidents under RMP and therefore, the facility is subject to the RMP Program 1 requirements.

However, it should be noted that although the facility is subject to the Program 1 requirements of RMP (and is reporting accordingly), to prevent accidental releases of regulated substances at the stationary source, Keystone has implemented an internal Risk Management Program using the Program 2 Prevention Program requirements as a guide. The Risk Management Program is designed to address all potential hazards and comply with the general duty clause of Section 112(r) of the Clean Air Act.

The Keystone prevention program includes 1) the development of a management system to oversee the implementation of the risk management program, 2) the performance of a hazard review, 3) the development of standard operating procedures for the regulated process (including maintenance procedures), 4) the implementation of a risk management program training plan, 5) the performance of compliance audits and incident investigations, and 6) procedures for maintaining and updating safety information for the process and regulated constituents.

In addition, as a RCRA permitted facility, Keystone Cement has implemented a Prevention, Preparedness, and Contingency Plan in accordance with the Federal RCRA regulations at 40 CFR Part 264 and the Pennsylvania RCRA regulations at PA Code, Title 25, Chapter 264a. This plan is maintained on site and has been coordinated with the local emergency response agencies.

Planned changes to improve safety at the facility include ongoing training of employees involved in the operation and maintenance of the regulated process. The training incorporates, but is not limited to, safe handling practices, hazard prevention, and emergency response. Regular safety meetings are held at the facility to discuss site safety procedures and continually evaluate existing safety procedures. Off-site contractors are provided safety training as appropriate and response equipment is regularly maintained for immediate use if necessary.

APPENDIX G

PADEP LETTER REGARDING REPORTING REQUIREMENTS

KEYSTONE CEMENT CO
QUESTIONNAIRE
PAD 002389559

Pennsylvania Department of Environmental Protection

2 Public Square
Wilkes-Barre, PA 18711-0790
October 6, 1998

Northeast Regional Office

717-826-2516

Mr. Michael J. Luybli
Vice-President, Environmental Affairs
Keystone Cement Company
P.O. Box A
Bath, PA 18014-0058

Re: Keystone Cement Company
August 19, 1998 Keystone Cement Letter
PAD002389559
East Allen Township, Northampton County

Dear Mr. Luybli:

The Department has reviewed the 8/18/98 Keystone Cement letter with the attached Tank Incident Reports. The cover letter requested Department concurrence that certain specific incident reports covered "non-reportable" incidents. This letter has been written to clarify the Keystone Cement request, and relevant requirements.

1. Keystone Cement identified 4 "non-reportable" incidents:

   a. Incident Report I8001: Power failure of HW system PLC. The power supply was subsequently replaced.

   b. Incident Report I8002: Epoxy Coating peeling on unloading area & Tanks #1A & 1B containment. The Department was notified but no corrective action undertaken immediately although epoxy coating was to be reapplied in August/September.

   c. Incident Report I8004: Crack in Tank #2 containment area (top of block, outside/southside). There was no corrective action as Keystone did not think that the cracks affected integrity of the containment area.

   d. Incident Report I8007: Tanks #1A & 1B containment area expansion joints were cracking and lifting. The crack was fixed.

The Department concurs that these incident reports did not have to be submitted. However, there are other reporting/notification requirements that may require some additional contact with the Department. The Department has summarized (below) the relevant reporting and/or notification requirements as they are set forth in the regulations, permit and submitted PPC Plan/SOPs:

I. The Department regulations have the following notification/reporting requirements:

a. Chapter 264.56.a.2: Notification in event of imminent or actual emergency situation.

b. Chapter 264.56.d.2: Notification in event of fire, explosion, emission or discharge which could threaten human health or the environment outside the facility. Any circumstance that compromises the functionality of the site safety measures such as the foam system or secondary containment system must be reported to the Department.

c. Chapter 264.56.i: The Department must be notified whenever the facility is back in compliance before restarting if one of the above subsection events occurred.

d. Chapter 264.56.j: Within 15 days of an incident that requires implementation of the site contingency plan (i.e. PPC Plan), a written report must be submitted to the Department. Please note that this report does not have to be an "incident report", but some form of written notification is required for such incidents that release or could potentially release emissions into the environment or that threaten public health, welfare or safety.

e. Chapter 264.72.b (Manifest): If any significant manifest discrepancy is not resolved within 3 days of receiving the waste, the Department is to be immediately notified by phone, followed up with a letter describing the discrepancy, attempts to resolve it and a copy of the manifest or shipping paper.

f. Chapter 264.76 (Unmanifested waste receipt): If the facility accepts an unmanifested load, the Department is to be notified within 15 days via a written report.

g. Chapter 264.77 (Additional Reports): The owner/operator shall report any emission, discharge, fire or explosion or closure certification to the Department.

h. Chapter 264.99 & 100 (Compliance monitoring program): In event of that groundwater monitoring detects impact on groundwater quality, the Department is to be notified within 7 days. Within 30 days, a groundwater assessment plan is required. There are additional requirement for notification for any corrective action plan.

i. Chapter 264.196.4 (leak/spill & unfit for use tank system): Any release to the environment must be reported to the Department within 24 hours (unless both less than 1 pound and immediately cleaned up). There is an additional report requirement within 30 days of incident.

j. Chapter 264.196.6: A certification must be submitted for major repairs of the tank system if extensive repairs are needed (examples being installation of new secondary containment or ruptured primary/secondary containment vessels).

2. Permit Requirements (PAD#002389559):

a. Part I.H.10, page 8: Immediate notification is required for any planned changes such as physical alteration or addition.

b. Part I.H.11, page 8: Immediate notification is required for any anticipated noncompliance due to planned changes or site activities such as if vents had to be opened for inspection with some volatiles then escaping from the tank or required repairs to the foam system.

c. Part I.H.13, page 8: There is a 24 hour notice requirement in event of any noncompliance with Act, regulations or permit conditions. The condition specifically mentions releases, potential releases that may endanger drinking water supplies, or release/discharge from the facility, or potential/actual fire or explosion which may affect the environment or public health. Furthermore, noncompliance with the approved permit application in terms of design and operations would be covered under this condition. There is a further 5 day written notification requirement as well.

d. Part I.H.14, page 9: Other noncompliance events are to reported in the monitor reports for the site. Noncompliance events include minor problems in the tank system that do not include emissions and/or make the tank system or tank system component unfit for use but without danger of emissions and without affecting safe operations at this facility.

e. Part I.G, pages 12-13 references the PPC Plan regulatory requirements including those cited above. Please note that the PPC Plan should cover the entire facility per the Department guidelines.

f. Part I.M.1, page 15: The Department is to be notified at least four weeks in advance of receipt of foreign (non-US) wastes.

g. Part III.E, page 18: The permittee must maintain the containment structure as required by regulations (Chapter 264.194.e for runoff) and the approved permit plans and specs in Attachment 6 (Tank Data sheets). Failure to do so will be a noncompliance event that should be reported to the Department per the other subsections.

3. HWF Operations Plan SOP WF-31 (Tank System Incident Response):

   a. Section I: This SOP was created to help implement the PPC Plan for the HWF Operations area. The PPC Plan, section D.1, Emergency Response, C identified the Classes of event.

      1. Class A is "high degree of danger" such as "any fire, or other major incident where outside assistance or backup support will be required". Class A incidents will be managed per the PPC Plan guidelines per the SOP.

      2. Class B is "moderate degree of danger" which is "an incident with the potential to increase in severity where outside assistance could be required to assist or back up facility personnel". Class B incidents will be managed per the PPC Plan guidelines per the SOP.

      3. Class C is "low degree of danger" which is "an incident that can be handled and controlled on site without outside intervention or assistance". This presumably includes the need for outside contractors. Class C incidents at the HWF Operations area will be managed per this SOP.

   c. Section IV.C (Incident Reporting and Notification): This section states that all incidents listed in Section I, IV.A & IV.B require incident reports. These incidents include spills/leaks, emissions, inoperable tank system components. The 24 hour notification requirement (and 30 day written report follow-up) was limited to releases to environment outside of secondary containment that are either >1 pound or which cannot be quantified, plus incidents including waste solidification, polymerization, physical/chemical reaction or system component repairs which require major repairs.

   d. Major repairs were identified in Section IV.D as "structural damage to a tank vessel or secondary containment areas or changes in equipment following failure, malfunction, or release" while excluding periodic/routine replacement of like kind tank system components installed per manufacturer's recommendations and properly inspected/calibrated prior to use.

In conclusion, the notification requirements are extensive, but do not always involve an Incident Report. In addition, the Department should be informed whenever a noncompliance situation cannot be resolved immediately. Noncompliance with the approved design, operations and regulations

require notification per the above regulatory and permit citations. The Department will require that any minor noncompliance problem that requires outside contractor assistance, result in written notification of the Department along with a written schedule for repair and/or certification. For example, future problems such as what happened to the truck unloading area's epoxy coating should be so handled. Written follow-up would then be submitted to verify that the problem has been resolved by Keystone Cement per the schedule. If you have any further questions, please contact this office at the above telephone number.

Sincerely,

Robert C. Wallace
Chief, Engineering & Facilities Section
Waste Management Program

cc: John Egan

APPENDIX H

DEPARTMENT OF HOMELAND SECURITY STANDARDS

Memo

TO:	FILE	DATE:	8/22/08
COPY:	M. DEYO, J. KLEINLE, S. HOLT, L. SMITH		
FROM:	ROCCO MARINARO	SUBJECT:	DHS CHEMICAL FACILITY ANTI-TERRORISM STANDARDS

On April 9, 2007, the Department of Homeland Security (DHS) promulgated the Chemical Facility Anti-Terrorism Standards (CFATS) at 6 CFR Part 27. Keystone Cement Company (Keystone) reviewed the CFATS and its applicability under the Standards and has determined that the facility does not possess CFATS Chemicals of Interest (COIs) at levels above the Screening Threshold Quantities (STQs) detailed in Appendix A of the CFATS. Therefore, the Keystone facility is currently not subject to the CFATS. The following memo provides a summary of the CFATS, the applicability analysis performed by Keystone, and the procedures implemented by the facility to continue to track its applicability under the rule.

1.0 Executive Summary:

Section 550 of the Department of Homeland Security Act of 2007 (the Act) requires the Secretary of Homeland Security to promulgate interim final regulations "establishing risk-based performance standards for security of chemical facilities" by April 4, 2007.[1] On April 9, 2007, the DHS promulgated the "Chemical Facility Anti-terrorism Standards" (CFATS) at 6 CFR Part 27. The regulations define "Chemical Facility" at 6 CFR 27.105 as follows:

> "...any establishment that possesses or plans to possess, at any relevant point in time, a quantity of a chemical substance determined by the Secretary to be potentially dangerous or that meets other risk-related criteria identified by the department..."

The April 9, 2007 rule included a preliminary list of "Chemicals of Interest" (COI) as Appendix A of Part 27. The Appendix A was finalized on November 20, 2007 and included a comprehensive list of chemicals identified as potentially dangerous based on the potential for a release, theft, or sabotage.[2] The final list of chemicals also included minimum screening threshold quantities (STQs) for each chemical under varying security scenarios. Based on a preliminary review of the chemicals listed in the Appendix A, Keystone determined that it could be considered a "chemical facility" under the standards.

Under the CFATS, owners and operators are required to first determine if their facility possesses COIs at or above the STQs. Facilities who do possess COIs at or above these thresholds are then required to submit a "Top Screen" within 60 days of the effective date of the final Appendix A. Based on the information included in this "Top Screen," the DHS will then assess the facility's relative risk and notify the facility of its preliminary determination as to the facility's placement on a risk-based tier (ranging

[1] 72 FR. No. 67, April 9, 2007, Page 17689
[2] 72 FR. No. 223, November 20, 2007

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from high risk facilities in Tier 1 to low risk facilities in Tier 4). Each facility is then required to complete and submit a Security Vulnerability Assessment within 90 calendar days of the written notice from the Department. Based on this Security Vulnerability Assessment, the DHS will then notify the facility of its final placement within the risk-based tier system and may require the facility to submit a Site Security Plan.

Keystone performed a detailed review of its operations and determined that it presently does not possess any of the COIs at or above the STQs detailed in Appendix A of the rule. Therefore, Keystone determined that it was not required to submit a "Top Screen" to the DHS. The following paragraphs detail the applicability analysis performed by Keystone and the procedures implemented to ensure that the facility continues to properly track its applicability under the rule.

2.0 Applicability Analysis:

As detailed above, the CFATS apply to facilities that possess COIs at or above the screening thresholds detailed in Appendix A of the rule. The regulation details several exemptions and specific guidance on determining the threshold quantities. The following paragraphs detail the specific exemptions and threshold quantity calculation guidance applicable to the Keystone facility as well as the procedures initially implemented by Keystone to determine if the facility possessed such chemicals at these threshold levels:

2.1 General Exemptions:

Section 27.203 details several procedures for the performance of screening threshold calculations, including several specific exemptions. A complete re-iterance of the procedures listed in Section 27.203 is not included in this memo. However, excerpted text from 27.203(a) detailing several of the more relevant exemptions is provided as follows.

> "*General.* In calculating whether a facility possesses a chemical of interest that meets the STQ for any security issue, a facility need not include chemicals of interest:
>
> 1. Used as a structural component;
> 2. Used as products for routine maintenance;
> 3. ...
> 6. Contained in articles, as defined in 40 CFR 68.3;...
> 7. In solid waste (including hazardous waste) regulated under the RCRA, except for waste described in 40 CFR 261.33..."

2.2 Minimum Concentrations By Security Issue:

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Section 27.204 details the minimum concentration guidelines for calculating the screening thresholds under each Security Issue. Table 2-1 provides a summary of the minimum concentration guidance detailed in Section 27.204.

Table 2-1:
Minimum Concentrations and Associated Threshold Calculation Procedures

Security Issue	Threshold Quantity	Threshold Calculation Procedure
Release-Toxic	1%	- If >1%, utilize quantity of constituent only in determination - If <1%, facility need not include the quantity of the chemical in the mixture.[5]
Release-Flammable	1% and NFPA 4 Rating	If >1% and the mixture has an NFPA 4 rating, facility must include weight of entire mixture in the threshold determination NFPA 1, 2, or 3 liquids need not be included in the determination.
Release- Explosive	ACG or Listed Concentration	Facility shall count the total quantity of all commercial grades of the COI, unless a specific minimum concentration is listed in Appendix A, in which case the facility should count the total quantity of all commercial grades of the COI at the specified minimum concentration.
Theft/Diversion – CW & CWP[1]	CUM 100g[4] or Listed Concentration	- If COI is listed as "CUM 100g", the STQ is the TOTAL quantity of all such designated chemicals - For COIs not designated as "CUM 100g," and at concentrations in a mixture at or above the listed minimum concentration, the facility shall count the quantity of the entire mixture toward the STQ.
Theft/Diversion – WME[2]	Listed Concentration	For COIs at concentrations in a mixture at or above the listed concentration, the facility shall count the quantity of the entire mixture toward the STQ.
Theft/Diversion – EXP/IEDP[3]	ACG or Listed Concentration	- If listed "ACG," facility shall count the total quantity of all commercial grades of the COI toward the STQ - If a minimum concentration is listed, the facility shall count the total quantity of all commercial grades of the chemical at the specified minimum concentration
Sabotage and Contamination	ACG	The facility shall count the total quantity of all commercial grades of the chemical toward the STQ.

[1] Chemical Weapons and Chemical Weapons Precursors
[2] Weapons of Mass Effect
[3] Explosives/Improvised Explosive Device Precursor
[4] Cumulative STQ of 100 grams of all such designated COIs
[5] Chemicals >1% (except for oleum), but having a partial pressure less than 1 mm Hg need not be included in the threshold determination

2.3 Facility Applicability Procedures:

2.3.1 Chemical Products:

The first step in determining Keystone's applicability under the CFATS was to determine if the facility possessed, either in pure form, or as ingredients in chemical products, any of the

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chemicals listed in Appendix A of the CFATS Facility employees reviewed MSDSs and queried personnel in all departments to assess the presence of these chemicals Based on this review, the facility determined that it did possess several of the chemicals listed in Appendix A A complete listing of the chemicals of interest that are maintained at the site is included in Attachment 1 of this memo.

For each COI present at the site, Keystone then summed all of the quantities present at the site in all products in accordance with the procedures detailed at 6 CFR 27.204 and Table 2-1 above, to determine if it possessed the chemical at quantities in excess of the STQ.

During this review it was determined that the facility DID NOT possess any of these chemicals at or above the STQs detailed in Appendix A. A comparison of the quantities of materials stored at the site versus the associated screening threshold quantity is also included in Attachment 1 of this memo

2.3.2 Waste Fuel:

In addition to the storage of chemical products at the facility, Keystone also operates a RCRA permitted waste fuels storage and blending facility at the Bath facility. To assess the presence of chemicals of interest in the wastes processed at the facility, Keystone performed a review of the waste material profile forms for the materials processed at the facility. Based on an initial review of the waste fuels managed at the site, Keystone determined that it did manage hazardous wastes that could contain several of the chemicals of interest listed in Appendix A of the rule However, as detailed above and at 6 CFR, 27.203(7), "...a facility need not include chemicals of interest:.... (7) In solid waste (including hazardous waste) regulated under the Resource Conservation and Recovery Act..... , except for the waste described in 40 CFR 261.33.

The EPA further clarified this requirement in CSAT FAQ No. 1398 dated April 28, 2008, which reads as follows:

"1398: Are Chemicals of Interest (COIs) in hazardous waste to be counted towards an STQ?

COIs in solid and hazardous wastes do not count towards the COIs' STQs, except for wastes described in 40 CFR § 261.33 (e.g. off-specification wastes.) Such wastes are typically designated as P and U code wastes by EPA. Some facilities may receive and use mixed wastes which may contain small and indeterminate amounts of P and U code wastes, as well as many other wastes that need not be counted toward any STQ However, if a facility possesses a quantity of unblended P or U code waste or other mixed waste primarily containing

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wastes described in 40 CFR § 261.33, the facility is within the scope of DHS regulations and must count the COI in such wastes to determine if a Top-Screen would be required."

A further review of the COIs contained in the waste fuel received at Keystone revealed that none of these COIs is presently received as unblended "P or U code waste" or as "mixed waste primarily containing wastes described in 40 CFR § 261.33." Therefore, we have determined that the Keystone facility does not presently process COIs in its hazardous waste fuel subject to the CFATS. A copy of CSAT FAQ No. 1398 and related correspondence with the DHS is provided in Attachment 2 of this memo.

3.0 Ongoing Compliance Activities:

3.1 Chemical of Interest Threshold Tracking:

As detailed in Section 2.3, Keystone has determined that it does not presently possess any COIs at or above the STQs listed in Appendix A of the rule. However, Keystone has implemented several procedures to ensure that the facility continues to properly track the chemicals of interest present at the site and to ensure that it either 1) does not possess chemicals of interest at or above the STQs detailed in the rule or 2) identifies COIs that will be possessed at or above the STQs and properly registers for those constituents. The following details the specific procedures implemented by Keystone to ensure that it continues to track the COIs and their threshold quantities at the site:

3.1.1 Product Tracking:

At Keystone, all chemicals are purchased through the Purchasing Department. To ensure that COIs (or mixtures containing COIs) not previously managed at the facility are properly identified prior to their arrival at the facility, all personnel responsible for purchasing chemical products at the facility have been trained on the applicability requirements under the CFATS. In the event that a new COI is proposed for purchase at the facility, the purchaser is trained to notify the facility's environmental manager of such purchase. The Environmental Manager will then perform a new applicability determination on the COI or mixture and determine the required actions prior to the chemicals arrival at the facility. No new COIs will be managed at the facility without the approval of the facility's Environmental Manager.

In addition, to ensure that existing COIs are not managed at levels greater than those used in the initial applicability analysis, all managers in departments possessing such COIs have also been trained in the applicability requirements under the CFATS. In the event that a department is proposing to increase its management of COIs to levels above those

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used in the applicability analysis, the department manager will notify the Environmental Manager of such a situation. The Environmental Manager will then perform a new applicability determination on the COI or mixture and determine the required actions prior to the chemicals arrival at the facility. No increases in the amount of COIs managed at the site will be allowed without the approval of the facility's Environmental Manager.

3.1.2 Waste Fuel Tracking:

As detailed in Section 2.3.2 above, only COIs present as unblended P or U code wastes (or wastes consisting of primarily the P or U code listed COI) are subject to the threshold determination under the CFATS. The Keystone facility will screen all future waste shipments at two levels: 1) during waste fuel pre-qualification and 2) during incoming shipment acceptance testing.

During the pre-qualification phase, any COIs present as P or U code wastes are identified for further review. If the waste material represents a COI as an unblended P or U code waste, or if the waste consists primarily of the P or U coded COI, the facility will not approve the waste for shipment to the facility. For purposes of this rule, Keystone considers waste to "primarily contain" P or U code waste as wastes containing greater than 80 percent of the P or U code listed COI.

In the event that a waste arrives at the facility and Keystone determines that the material either represents un-blended P or U code COIs, or the waste contains primarily the P or U code COIs, the shipment will be rejected from the facility. In the event that it is determined that a generator inappropriately ships wastes meeting these criteria, and the tanker or railcar has been removed from the motive force (i.e.- tractor or train) before this determination is made, the facility will make plans to remove the tanker or railcar from the site as soon as practicable.

3.2 CSAT:

To assist regulated facilities in the different steps of complying with the CFATS (e.g.- determining rule applicability and facility risk, developing a Security Vulnerability Assessment (if necessary), and developing a facility's Site Security Plan), the DHS has developed a web-based Chemical Security Assessment Tool (CSAT). To access CSAT, each user must be issued unique usernames and passwords. There are three user roles for which access is granted: "Preparer", "Submitter", and "Authorizer." While performing its initial applicability analysis, Keystone assigned three people to fill these roles and registered these personnel as a precautionary measure in the event that Keystone determined it possessed COIs at levels above the STQs and was required to submit a Top Screen Analysis. In the event that the facility possesses a COI above a STQ at some time in the future, these

WARNING: This record contains Chemical-terrorism Vulnerability information controlled by 6 CFR 27.400. Do not disclose to persons without a "need to know" in accordance with 6 CFR 27.400(e). Unauthorized release may result in civil penalties or other action. In any administrative or judicial proceeding, this information shall be treated as classified information in accordance with 6 CFR 27.400(h) and (i).

personnel are registered to access CSAT. Facility personnel registered as the Preparer, Submitter, and Authorizer at the time of this memo are detailed as follows (note that as facility personnel changes occur, these registered personnel will change as necessary):

- Preparer: Jon Kleinle
- Submitter: Rocco Marinaro
- Authorizer: Stephen Holt

3.3 Chemical-terrorism Vulnerability Information:

As part of the CFATS process, the DHS has developed a new category of protected information entitled "Chemical-terrorism Vulnerability Information" (CVI). CVI includes Security Vulnerability Assessments and Site Security Plans (including any DHS documents related to the DHS's review and approval of these documents), Alternative Security Programs (if applicable), documentation relating to inspections or audits, records required to be created or retained under §27.255, sensitive portions of orders, notices or letters under §27.300, information developed pursuant to §§27.200 and 27.205, and other information developed for chemical facility security purposes that the DHS determines is similar to the information detailed above.

To ensure the confidential handling of CVI, each person who has a "need to know" CVI or each person who otherwise gains access to what they know or should reasonably know constitutes CVI, is subject to the standards governing the maintenance, safeguarding, and disclosure of this information. Specifically, each person subject to the CVI requirements are required to complete training provided on the DHS CSAT web-site. Although Keystone has determined that it does not presently possess any COIs at levels in excess of their STQs, Keystone conservatively elected to have company personnel complete the CVI training in the event that it does possess COIs above the STQ levels in the future. Keystone performed an assessment of individuals that should receive this CVI training and the following types of personnel were required to complete the training:

- Facility Environmental Department Personnel
- Corporate Environmental Staff Members
- Vice President of Environmental

Each employee requiring training under the CVI requirements of CFATS has received a training certificate documenting completion of the CVI training. Copies of the training certificates are maintained in the facility files. Copies of the training certificates at the time of this memo are provided in Attachment 3 of this memo.

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August 22, 2008

CHEMICAL-TERRORISM VULNERABILITY INFORMATION

Attachment 1

Keystone Cement Company
Chemical of Interest Inventory and Threshold Comparison

WARNING: This record contains Chemical-terrorism Vulnerability information controlled by 6 CFR 27 400 Do not disclose to persons without a "need to know" in accordance with 6 CFR 27.400(e) Unauthorized release may result in civil penalties or other action In any administrative or judicial proceeding, this information shall be treated as classified information in accordance with 6 CFR 27 400(h) and (i)

Attachment 1
CFATS Chemical of Interest
Site Inventory

Chemicals of Interest (COI)	Chemical Abstract Service (CAS) #	Location on-Site	Quantity on-Site (lbs)	Concentration On-Site	Release		Theft		Sabotage		Security Issue							Applicability Analysis
					Minimum Concentration (%)	Screening Threshold Quantities (in pounds)	Minimum Concentration (%)	Screening Threshold Quantities (in pounds unless otherwise noted)	Minimum Concentration (%)	Screening Threshold Quantities	Release - Toxic	Release - Flammables	Release - Explosives	Theft - CW/CWP	Theft - WME	Theft - EXP/IEDP	Sabotage/Contamination	
Acetylene	74-86-2	Various Facility Locations	<10,000	100%	1.00	10,000						X						**Exempt** - Material present at quantities less than release screening threshold
Ammonium nitrate, solid (nitrogen concentration of 23% nitrogen or greater)	6484-52-2	RR Lab	5.51	>98%			33.00	2,000								X		**Exempt** - Material present at quantities less than theft screening threshold
Hydrochloric acid (conc. 37% or greater)	7647-01-0	RR Lab	78.65	32-38%	37.00	15,000					X							**Exempt** - Material present at quantities less than release screening threshold
Hydrogen	1333-74-0	RR Lab	6.00	100%	1.00	10,000						X						**Exempt** - Material present at quantities less than release screening threshold
Hydrogen peroxide (concentration at at least 35%)	7722-84-1	RR Lab	43.32	20-40%			35.00	400								X		**Exempt** - Material present at quantities less than theft screening threshold
Methane	74-82-8	KCC Lab	38.12	10%	1.00	10,000						X						**Exempt** - Material present at quantities less than release screening threshold
Nitric acid	7697-37-2	RR Lab	185.06	20-70%	80.00	15,000	68.00	400			X					X		**Exempt** - Material present at concentrations less than release minimum concentrations. Material also present at quantities less than release and theft screening thresholds
Propane	74-98-6	Various Facility Locations	N/A*	100%	1.00	60,000						X						**Exempt** - Material present at quantities less than release screening threshold
Sodium nitrate	7631-99-4	RR Lab	1.10	100%			ACG	400								X		**Exempt** - Material present at quantities lesas than theft screening threshold

*Under 6 CFR § 27.203 (b) (3) of the CFATS rule, a facility need not include propane in tanks of 10,000 pounds or less. The largest on-site propane tank is 4,260 lbs; therefore, no on-site quantities of propane contribute to the screening threshold quantity.

Attachment 2

CFATS FAQ No. 1398
and Related DHS Correspondence

WARNING: This record contains Chemical-terrorism Vulnerability information controlled by 6 CFR 27 400 Do not disclose to persons without a "need to know" in accordance with 6 CFR 27.400(e). Unauthorized release may result in civil penalties or other action In any administrative or judicial proceeding, this information shall be treated as classified information in accordance with 6 CFR 27 400(h) and (i).

Total On-site Quantity

1398. Are Chemicals of Interest (COI's) in hazardous waste to be counted towards an STQ?

COI's in solid and hazardous wastes do not count towards the COIs' STQs, except for wastes described in 40 CFR § 261.33 (e g. off-specification wastes) Such wastes are typically designated as P and U code wastes by EPA Some facilities may receive and use mixed wastes which may contain small and indeterminate amounts of P and U code wastes, as well as many other wastes that need not be counted toward any STQ. However, if a facility possesses a quantity of unblended P or U code waste or other mixed waste primarily containing wastes described in 40 CFR § 261.33, the facility is within the scope of DHS regulations and must count the COI in such wastes to determine if a Top-Screen would be required.

Last modified: April 28, 2008

CKRC
CEMENT KILN RECYCLING COALITION

January 11, 2008

Robert B. Stephan
Office of Infrastructure Protection
National Protection and Programs Directorate
United States Department of Homeland Security
Washington DC 20528

Dennis Deziel
United States Department of Homeland Security
Chemical Security and Compliance Division
Mail Stop 8100
Washington DC 20528-8100

Dear Mr. Stephan and Mr. Deziel:

I am writing today to request a 90-day extension for compliance with the Chemical Security Top-Screen/CSAT submission for the following members of the Cement Kiln Recycling Coalition: Ash Grove Cement Company, Lafarge-North America, Systech Environmental Corp., Holcim, Geocycle, Giant Cement Holding, Inc., Giant Resource Recovery, Texas Industries, Essroc Materials, Continental Cement Co., Buzzi Unicem, Safety-Kleen Systems, Inc., Ashland Distribution Co., Pollution Control Industries, and Philip Services Corp.

The Cement Kiln Recycling Coalition ("CKRC") is a trade association including cement manufacturers who recycle wastes by using them as fuel in cement kilns and blending facilities who process waste materials into fuels used by the cement industry. Our review of the Chemical Security regulations leads us to believe that certain CKRC members are not subject to the Top-Screen requirement, but there is some confusion stemming from the treatment of P and U code wastes in the DHS regulations.

The use of waste fuels at cement kilns reduces reliance on fossil fuels and provides for safe disposition of wastes. These wastes are considered "hazardous" by the U.S. EPA and the facilities are fully regulated under the Resource Conservation and Recovery Act, the Clean Air Act, and state regulations.

As you know, the DHS regulations exempt solid and hazardous wastes from inclusion in the calculation of Screening Threshold Quantities (STQs) for chemicals of interest except for "the waste described in 40 CFR 261.33." This referenced section of the EPA regulations describes discarded commercial chemical products, off specification products, container residues, and spill residues. These types of wastes are typically called "P-code" and "U-code" wastes. DHS included these wastes in the STQ calculation because "this type of waste can include virtually pure chemicals ... that have been discarded. DHS thinks it is important for facilities to include this waste in the STQ calculation, because this waste is a potential source of COI that would be just as attractive to a terrorist as the chemical product itself." 72 Fed. Reg. 65398 (Nov. 20, 2007).

The wastes and waste-derived fuels that these CKRC members receive contain a mixture of many types of waste. The wastes generally come from many sources and include myriad types of

• PO Box 7553 • Arlington, VA 22207 • 703-534-0892 • www.ckrc.org

energy-bearing wastes, possibly including, at times, small amounts of P-code and U-code wastes. The waste-derived fuel used by CKRC member cement kilns is never "virtually pure," and we think it would have low value to a terrorist.

Our confusion arises because of an EPA RCRA regulatory concept known as "waste-code carry through." In other words, if multiple types of waste, each with its own waste code, are blended together, the resulting mixture carries with it an aggregation of waste codes --- the list of each individual waste code of each constituent. Therefore, if a CKRC member receives waste or waste-derived fuel to which some amount of P or U-code waste was added, the P-code or U-code applies to the waste, along with dozens of other waste codes regardless of how much of the substance is present in the mixture. This raises the question of whether waste-derived fuel falls within the scope of the STQ calculation. Most of these facilities do not have any other chemicals of interest on site, and would not otherwise need to complete a Top-Screen. Moreover, it would be considerably burdensome for these companies to sample their fuels for chemicals of interest, to continuously monitor for P and U code wastes, and to try to determine the quantity of each chemical of interest present in the blended fuel.

Of course, if a quantity of unblended P or U code waste were received at a facility, that would place the facility within the scope of the DHS regulations and a Top-Screen would be required.

It seems from the DHS preamble of November 20, 2007 that it is not the Department's intent to include waste recyclers in the Chemical Security regulations. We are seeking clarification on this issue from DHS, and are happy to facilitate introductions to knowledgeable EPA staff if that would be helpful. In the meantime, CKRC is requesting a 90-day extension for the hazardous waste fuel facilities operated by the above-listed member companies to allow sufficient time to clarify the applicability and intent of this rule.

Thank you for your assistance. In the interest of time, please communicate a response via email to mbenoit@ckrc.org or by telephone to (603) 367-1012.

Best regards,

Michel R. Benoit
Executive Director, Cement Kiln Recycling Coalition

cc: Richard G. Stoll (Foley & Lardner LLP)
Katherine E. Lazarski (Foley & Lardner LLP)

Attachment 3

Keystone Cement Company
CSAT Training Certificates

WARNING: This record contains Chemical-terrorism Vulnerability information controlled by 6 CFR 27 400 Do not disclose to persons without a "need to know" in accordance with 6 CFR 27.400(e) Unauthorized release may result in civil penalties or other action. In any administrative or judicial proceeding, this information shall be treated as classified information in accordance with 6 CFR 27 400(h) and (i)

Office of Infrastructure Protection

This Certificate has been awarded to

Stephen P. Holt

Authorized User Number CVI-20071218-1004138
this 18th day of December 2007

by the Chemical Security Compliance Division to
acknowledge that the recipient is an Authorized User of
Chemical-terrorism Vulnerability Information.

Robert B Stephan

Robert Stephan, Assistant Secretary
Infrastructure Protection

Office of Infrastructure Protection

This Certificate has been awarded to

Lane H. Smith

Authorized User Number CVI-20071217-1004000
this 17th day of December 2007

by the Chemical Security Compliance Division to
acknowledge that the recipient is an Authorized User of
Chemical-terrorism Vulnerability Information.

Robert B. Stephan

Robert Stephan, Assistant Secretary
Infrastructure Protection

Office of Infrastructure Protection

This Certificate has been awarded to

Michael T. Deyo

Authorized User Number CVI-20071220-1004298
this 20th day of December 2007

by the Chemical Security Compliance Division to
acknowledge that the recipient is an Authorized User of
Chemical-terrorism Vulnerability Information.

Robert B. Stephan

Robert Stephan, Assistant Secretary
Infrastructure Protection

Office of Infrastructure Protection

This Certificate has been awarded to

Alicia R. Lee

Authorized User Number CVI-20080103-1004852
this 3rd day of January 2008

by the Chemical Security Compliance Division to
acknowledge that the recipient is an Authorized User of
Chemical-terrorism Vulnerability Information.

Robert B Stephan

Robert Stephan, Assistant Secretary
Infrastructure Protection

APPENDIX D
INSPECTION FORMS

KEYSTONE CEMENT COMPANY HWF TANK FARM

CARBON ABSORPTION

Daily VOC Reading

		Comments
TIME		
BACKGROUND READING		
< 180 ppm ABOVE BACKGROUND **		
"DID NOT UNLOAD INTO TANK FARM"		

** Must be unloading while taking reading.

This certifies that I have completed the daily meter reading.

TITLE: Environmental Technician

NAME (print): _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS_____ DATE _____

KEYSTONE CEMENT COMPANY **WASTE LIQUID FUEL**

CEM CALIBRATION CHECK

Daily Inspection

Component	Status	Comments/Action Taken
PRINTER (ROOM 201)		(specify unit)
THC CALIBRATED		
THC CALIBRATION PASS		
THC CALIBRATION DATA		
THC NO OUT-OF-CONTROL MESSAGE		
THC PROPER OPERATION		
O2 CALIBRATED		
O2 CALIBRATION PASS		
O2 CALIBRATION DATA		
O2 NO OUT-OF-CONTROL MESSAGE		
O2 PROPER OPERATION		
STACK FLOW KWSCFM CALIBRATED		
STACK FLOW KWSCFM CALIBRATION PASS		
STACK FLOW KWSCFM CALIBRATION DATA		
STACK FLOW KWSCFM NO OUT-OF-CONTROL MESSAGE		
STACK FLOW KWSCFM PROPER OPERATION		

This certifies that I have completed these daily inspections.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY WASTE LIQUID FUEL

CO AND OXYGEN - HWF TANK FARM

Daily Inspection

Component	Status	Comments/Action Taken
ANALYZER FLOW RATE		

This certifies that I have completed this daily inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY WASTE LIQUID FUEL

CONTROL ROOM MONITORS #1 & #2

Daily Inspection

Component	Status		Comments/Action Taken
	1	2	(specify unit 1 or 2)
DATA SCREENS			
RECEIVING DATA			
CLOCK TIME			

This certifies that I have completed this daily inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY

DAILY ENVIRONMENTAL INSPECTION FORM

Area of Inspection	Acceptable	Unacceptable	Free From Gaps or Cracks	Comments
Hazardous waste storage area Pier 2, Kiln 2				

This certifies that I have completed the daily inspection of these areas.

TITLE: ENVIRONMENTAL TECHNICIAN

NAME _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS _____ DATE _____

KEYSTONE CEMENT COMPANY WASTE LIQUID FUEL

GAS CEM (THC and O2) SAMPLE SYSTEM

Daily Inspection

Component	Kiln 1	Comments/Action Taken
PROPER FLOW		
PROPER OPERATION		

This certifies that I have completed these daily inspections.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY

Resource Recovery Department

Daily Instrumentation Log

Signature _____ **Date** _____

Instrument			Time	Value	Acceptable
Temperature	Tanks [<30° Above Ambient]	1A			
		1B			
		2			
		3			
	Ambient				
	Carbon Cannisters	1			
		2			
		3			
	Pumps [<130° F]	1 Feed			
		1 Recirc.			
		2 Feed			
		2 Recirc.			

Instrument			Time	Value	Acceptable
Nitrogen Pressure to Mechanical Seals	Unloading Pumps	2			
		3			
	Pumps	1 Feed			
		1 Recirc.			
		2 Feed			
		2 Recirc.			

Nitrogen Pressure to the Tank Blanketing Valves	1A & 1B			
	2 & 3			

Nitrogen Flow to the Agitator Seals	1A		Floating	
	1B			
	2		Floating	
	3		Floating	

Pressure	Tanks [<1.8 psig]	1A			
		1B			
		2			
		3			

Liquid Tank Levels	Nitrogen				
	1A				
	1B				
	2				
	3				

Carbon Readings	O_2 [<5%]				
	CO [<500 ppm]				

Vent Line	#1				
	#2				

KEYSTONE CEMENT COMPANY - INSTRUMENTATION LOG

Date	Time :	Values						Action Points
		11:00PM	1:00AM	3:00AM	5:00AM			
Temperature (°F)	Tank 1A							30° > Ambient
	Tank 1B							30° > Ambient
	Tank 2							30° > Ambient
	Tank 3							30° > Ambient
	Carbon 1							> 150°
	Carbon 2							> 150°
	Carbon 3							> 150°
	#1 Feed							> 120°
	#1 Recirc.							> 120°
	#2 Feed							> 120°
	#2 Recirc.							> 120°
	Ambient Air							N/A
Pressure (psig)	Tank 1A							> 1.8
	Tank 1B							> 1.8
	Tank 2							> 1.8
	Tank 3							> 1.8
	#1 Feed							> 235
	#2 Feed							> 235
Air Flow (CFM)	Carbon							N/A
	Trucks							N/A
O2 Carbon (%)								> 2%
CO Carbon (ppm)								> 500ppm
Nitrogen Pressure to Mechanical Seals (psi)	Unload 2							< 15psi or > 35psi
	Unload 3							< 15psi or > 35psi
	#1 Feed							< 60psi or > 120psi
	#1 Recirc.							< 15psi or > 35psi
	#2 Feed							< 60psi or > 120psi
	#2 Recirc.							< 30psi or > 55psi
Nitrogen Press to Blanketing Valves (psi)	Tank 1A & 1B							< 40psi or > 100psi
	Tank 2 & 3							< 40psi or > 100psi
Nitrogen Flow Agitator Seals (CFH)	Tank 1A	Floating	Floating	Floating	Floating			If Ball is Floating
	Tank 1B							If Ball is Floating
	Tank 2	Floating	Floating	Floating	Floating			If Ball is Floating
	Tank 3	Floating	Floating	Floating	Floating			If Ball is Floating
	Level (in.)							< 50 in.
Measuring Devices (gal)	Tank 1A							N/A
	Tank 1B							N/A
	Tank 2							N/A
	Tank 3							N/A
Vent Line	Pressure							> 1.1 psi
	Vacuum							< 3 psi
CO / O_2 Selector Switch (which is it monitoring)	Carbon							N/A
	Trucks (only when offloading)							N/A
Waste Fuel Piping (time of inspection)	Kiln							Any Leak
	DDC							Any Leak

Signature : _____

KILN RESIDUE EQUIPMENT DAILY INSPECTION FORM
TANKS, PIPING, ASSOCIATED AREAS AND DEVICES

Date: **Time:** **Signature:**

ITEM	POTENTIAL PROBLEMS (Criteria for Acceptable Status (ACC))	ACC	UN-ACC	DATE/NATURE OF REPAIR OR CORRECTIVE ACTION
Tank	Valve leakage			
	Tank leakage			
Bypass Dust Handling System	Cyclone			
	Conveyors			
	Baghouse			
	Elevator			
Surrounding Area	Any accumulation of dust			

COMMENTS: _____

_____

_____

Date of Manifest(s) _____

Waste codes on manifests match waste codes on Quarterly Report Yes _____ No _____

Number of trucks on Quarterly Report _____*

Number of trucks on Daily Solvent Summary _____*

(*numbers must match)

Comments: _____

_____

_____

_____

Directions:

1. Compare waste codes on manifest(s) to the Generator Quarterly Summary on a nightly basis.

2. To print Generator Quarterly Summary:
   a. In Manifest System Program, go to 'Activities', go to 'Reports'
   b. Scroll down to 'Generator Quarterly Summary'
   c. Adjust the calendar to the day you require
   d. Print

3. If the waste codes found on the manifest(s) do not match the Summary, the codes were not entered correctly into the manifest system and must be corrected.

4. All waste codes for rejected trucks should NOT be removed from the manifest system.

5. Daily Summary printouts will be saved for the entire quarter.

6. Initial each line that you review.

7. Describe an error if one is found.

Signature _____ Date_____

HAZARDOUS WASTE FUEL MXING SYSTEM

TANKER TRUCK AND ASSOCIATED MIXING SYSTEM EQUIPMENT INSPECTIONS

Date: **Time:** **Signature:**

ITEM	POTENTIAL PROBLEMS (Criteria for Acceptable Status (ACC))	ACC	UN-ACC	DATE/NATURE OF REPAIR OR CORRECTIVE ACTION
INITIAL INSPECTION | TANKER TRUCK ARRIVAL				
	Tanker Truck Properly Secured (Yes)			
	Corrosion of shell, damage, signs of leakage (No)			
PRE-UNLOADING INSPECTION				
Mixing System Tankers	Grounding Wires Secured (Yes)			
	Tank openings properly secured? (Yes)			
	Connections to Mixing System Secure? (Yes)			
Mixing System Equipment	Automation System Operational			
	Platform Secure (Yes)			
	Mixers Aligned With Tanker Truck (Yes)			
	Vapor Vent System Working Properly (Yes)			
DURING UNLOADING INSPECTION				
Mixing System Equipment	Mixers Working Properly (Yes)			
	Automation System Operating Properly (Yes)			
	Vapor Vent System Working Properly (Yes)			
	Valves to and from HWF Tanks (No Leakage)			
POST-UNLOADING (AND DAILY) INSPECTION				
Mixing System	Mixing System Pump Operating Properly (Yes)			
	Leaking Connections to Pump System (No)			
	Piping or flange leakage - liquid fuel? (No)			
	Piping or flange leakage - solvent vapors? (No)			
	Seals (No leakage)			
	Pump oil level (Operational)			

COMMENTS:

ON SPEC / OFF SPEC OIL TANK DAILY INSPECTIONS

TANKS, PIPING, ASSOCIATED AREAS AND DEVICES

		POTENTIAL PROBLEMS (Criteria for Acceptable Status - ACC)										Date / Nature of Repair or Corrective Action
		Tank Leakage		Piping Leakage		Sump Pit	Spill Protection		Tank Volume			
		Valve	Tank	Valve	Tank	Liquid free	In place	Liquid free	Measurement	Gallons	Time	
Mon	ACC											
	UNACC											
		Date:				Signature:						
Tue	ACC											
	UNACC											
		Date:				Signature:						
Wed	ACC											
	UNACC											
		Date:				Signature:						
Thur	ACC											
	UNACC											
		Date:				Signature:						
Fri	ACC											
	UNACC											
		Date:				Signature:						
Sat	ACC											
	UNACC											
		Date:				Signature:						
Sun	ACC											
	UNACC											
		Date:				Signature:						

KEYSTONE CEMENT COMPANY **WASTE LIQUID FUEL**

PURGE AIR PRESSURE

Daily Inspection

Panel	Air Pressure	Comments
KILN		
CALCINER		

This certifies that I have completed this daily inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY WASTE LIQUID FUEL

ROOM 201 SERVER #1, #2 SCREENS

Daily Inspection

Component	Status		Comments/Action Taken
	1	2	(specify unit 1 or 2)
ALL INDICATORS PROPERLY DISPLAYED ON SCREEN			

This certifies that I have completed this daily inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

SOLVENT FACILITY DAILY INSPECTION FORM
EMERGENCY EQUIPMENT, TANKS, ASSOCIATED AREAS AND DEVICES

Date: **Time:** **Signature:**

EM	POTENTIAL PROBLEMS (Criteria for Acceptable Status (ACC))	ACC	UN-ACC	DATE/NATURE OF REPAIR OR CORRECTIVE ACTION
Emergency Equipment				
Containment Devices	Cracked or spalled? (No)			
	Liquid in containment pad/sump? (No)			
	Staining of surrounding area? (No)			
Safety Devices and Equipment	Signs missing/illegible/damaged? (No)			
	Fire extinguishers missing/not charged or inspected/obstructed? (No)			
	First-aid supplies missing/damaged/inaccessible? (No)			
	Contingency plan available? (Yes)			
	Eyewash/shower (Fluid present in eyewash and shower not damaged)			
	Telephone/radios/pager system (Available and operational)			
	Lighting/cameras/TV monitor (Working and unobstructed)			
	Clean-up supplies missing/depleted? (No)			
Foam System	Light on foam system control panel (Working and green)			
	Piping (No leaks or damage)			
	Bladder tank and pump (No leaks or damage)			
Tank	Corrosion of shell (No leaks or rust flakes)			
	Overflow or overflow staining? (No)			
	Valve leakage? (No)			
	Tank openings properly secured? (Yes)			
	Tank temperature (<30 deg. above ambient & pressure <1.8 psig)			
	Flame detonation (No stains or leaks)			
	Agitators (Operational)			
ank Trucks	Visible openings (None)			
Pump & Piping	Piping or flange leakage - liquid fuel? (No)			
	Piping or flange leakage - solvent vapors? (No)			
	Seals (No leakage)			
	Buffer tank air pressure (Operational)			
	Pump oil level (Operational)			
Yard Roadways	Waste spilled on roadways? (No)			
	Stained areas? (No)			
Surrounding Area	Contaminated rags/trash around? (No)			
	Retaining wall clean? (Yes)			
Carbon System	CO and O_2 (CO < 500, O_2 < 5%)			
	Flame arrestor (No stains or leaks)			
	Canister (No stains or leaks & at least one spare available)			
	Thermocouples (Operational)			
	Pressure relief (No stains or leaks)			
Nitrogen System	Vessel and heat exchanger (N level > 30 psig and operational)			
	Blanketing valve (Not damaged or malfunctioning)			
Drums	All containers closed, properly sealed, and in containment area? (Yes)			
	Containers labeled? (Yes)			

Comments: _____

_____

_____

_____

Work Place Exam	Signature
1st Shift	_____
2nd Shift	_____
3rd Shift	_____

KEYSTONE CEMENT COMPANY WASTE LIQUID FUEL

TELEMETRY SYSTEM

Daily Inspection

Component	Status	Comments/Action Taken
MODEM / PC ANYWHERE		
FILE SERVER DATE AND TIME		
FILE SERVER DATA		

This certifies that I have completed these daily inspections.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY **WASTE LIQUID FUEL**

THC AND OXYGEN

Daily Inspection

Component	Status	Comments/Action Taken
ALARM CONDITION		
FUEL AND CALIBRATION GAS PRESSURE		

This certifies that I have completed this daily inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY
TVA 1000A CALIBRATION

INSPECTOR: _____

SERIAL NUMBER: **4917061**

SYSTEM SELF TEST: ACCEPTABLE _____ UNACCEPTABLE _____ DID NOT UNLOAD _____

CARBON TANK CALIBRATION (PID) n/a _____

ZERO AIR	ACCEPTABLE _____	UNACCEPTABLE _____
ISOBUTYLENE	ACCEPTABLE _____	UNACCEPTABLE _____

SUBPART BB (FID) n/a _____

ZERO AIR	ACCEPTABLE _____	UNACCEPTABLE _____
METHANE	ACCEPTABLE _____	UNACCEPTABLE _____

SPAN CHECK (after taking readings)

	What ppm is the Calibration gas	What is the Acceptable TVA Reading	Limit	
Methane	_____	_____	+/- 10%	Acceptable _____
				Unacceptable _____

SIGNATURE: _____

DATE: _____

TIME: _____

DATE:

	YES	NO
1. Are unloading pumps locked-out in MCC?		
2. Are all valves on the unloading pad closed and locked?		
3. Is there any seepage coming out of unloading hoses?		
4. Is there a slight purge on carbon tank?		
5. Is there any pressure in pit hogs? (If so, bleed-off).		
6. Are all thermocouples attached to feed pumps and recirculating pump?		
7. Are all unloading buckets on the unloading pad empty and do they have lids?		
8. Are sample bottles and wipes in shanty?		
9. Are all gates around the solvent area closed?		
10. Are inventory supplies sufficient (rubber gloves, suits, respirators, cartridges, 3" and 4" gaskets)?		

1. How full is PPE drum?	
2. When was the last time carbon canister got liquid nitrogen?	

Tank	Burning from Tank _?_	Gallons per Minute	Time of Panel Change	Length of and Reason for any Downtime
#1A				
#1B				
#2				
#3				

KEYSTONE CEMENT COMPANY HWF TANK FARM

VENT LINE CONDENSATE DRAINS

Daily Inspection

Location	YES	NO	Comments
CARBON TANK 1			
CARBON TANK 2			
VAPOR BALANCE 1 Unloading Pad East			
VAPOR BALANCE 2 Unloading Pad West			
VAPOR BALANCE 3 Containment Pad – Tanks 2 & 3			

This certifies that I have completed this daily inspection.

TITLE: Environmental Technician

NAME (print): _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS _____ **DATE** _____

KEYSTONE CEMENT COMPANY **HWF TANK FARM**

CO and OXYGEN

Weekly Inspection

Component	Status				Comments/Action Taken
	1	x	x	x	
CALIBRATE ANALYZER					
ALARM OPERATION					
CONDITION OF FILTERS					
CONDITION OF FLOWMETER TUBES					
CALIBRATION GAS PRESSURE					

This certifies that I have completed this weekly inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY **WASTE LIQUID FUEL**

KILN & CALCINER INTERLOCK PARAMETER RAW FEED METER

Weekly Inspection

Component	Status	Comments/Action Taken
CLEAN & VISUAL		

This certifies that I have completed this weekly inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY - WASTE LIQUID FUEL

TANK FARM

Weekly Inspection

Initials

AGITATOR	Tank				Comments/Action Taken
	1A	1B	2	3	(specify unit)
FILTERS CLEANED ON VOC METER	YES		NO		
KILN FEED/COAL/ FUEL OIL ANALYTICAL ENTERED INTO MACC EEE (EVERY MONDAY)	YES		NO		
REVIEW KILN FEED/COAL/FUEL OIL ANALYTICAL ENTERED INTO MACC EEE	YES		NO		
MANIFESTS INSPECTED AND READY TO MAIL FOR THURSDAYS & MONDAYS	WED		SUN		
REVIEW MANIFESTS READY FOR MAIL	WED		SUN		

Please initial the inspection you completed. The person completing the inspection of the last item shall sign the form.

TITLE: *ENVIRONMENTAL TECHNICIAN*

NAME (print): _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS _____ *DATE* _____

KEYSTONE CEMENT COMPANY

WELLS

Weekly Inspection[1]

Well Name | Location	Inspected Condition of Meter and/or Well?	Record Meter Totalizer / Depth to Water / and Comments (if applicable)
LAB PUMPHOUSE (KP2)		
QUARRY SHOP (KP3)		
KAPCO OFFICE (KP6)		
#1 FINISH MILL (DW7)		

This certifies that I have completed the weekly inspection of these wells.

TITLE: *ENVIRONMENTAL TECHNICIAN*

NAME (print): _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

[1] Water level monitoring locations and frequency updated in agreement with facility mining and/or water quality permits as of December 2012. The noted wells are monitored in agreement ACT 220 Water Resource planning requirements – with data recording frequency as specified in 25 Pa. Code § 110.502.

KEYSTONE CEMENT COMPANY
BATH, PENNSYLVANIA
SUBPART H LEAK DETECTION AND REPAIR PROGRAM
MONTHLY PUMP MONITORING/REPAIR LOG

Monitoring Date: _____

SYST. ID	EQPT. ID	LEAK DETECTED (≥1,000 ppm)?			CORRECTIVE ACTION (Note: Repair required if instrument reading is 2,000 ppm or greater)	REPAIR DATE (First attempt)	REPAIR DATE (Final)	FINAL METHOD 21 LEVEL	REPAIR INITIALS
		YES	NO	LEVEL					
11	26								
14	14								
31	24								
32	15								
33	7								
34	26								

KEYSTONE CEMENT COMPANY
BATH, PENNSYLVANIA
SUBPART H LEAK DETECTION AND REPAIR PROGRAM
AGITATOR MONITOR/REPAIR LOG

Monitoring Date: _____

SYST. ID	EQPT. ID	LEAK DETECTED (≥10,000 ppm)?			CORRECTIVE ACTION	REPAIR DATE (First attempt)	REPAIR DATE (Final)	FINAL METHOD 21 LEVEL	REPAIR INITIALS
		YES	NO	LEVEL					
21	A-1A								
22	A-1B								
23	A-2								
24	A-3								

KEYSTONE CEMENT COMPANY

MONTHLY INTERSTITIAL MONITORING
OF
UNDERGROUND STORAGE TANKS

Tank ID / Location	Interstitial Monitor Type	Liquid Media Level Acceptable	Liquid Media Level Unacceptable	Comments / Action Taken
004 / Purchasing	Reservoir Monitor			
007 / Washhouse	Reservoir Monitor			
008 / Core Building	Scald Test Report	PASS	FAIL	

This certifies that I have completed the monthly inspection for these units.

Name (Print): _____

Signature: _____

Title: _____

Date: _____

*Print and attach SCALD Test Report to complete form

KEYSTONE CEMENT COMPANY HWF TANK FARM

VAPOR RETURN

Monthly Continuity Reading

		Comments
TIME		**Resistance < 10 Ω Acceptable**
UNLOADING HOSE #1		
UNLOADING HOSE #2		
UNLOADING HOSE #3		
UNLOADING HOSE #4		
UNLOADING HOSE #5		
UNLOADING HOSE #6		
VAPOR STATION #2		
VAPOR STATION #3		
SAMPLING RODS		
CARBON TANK		
TANKER SQUEEGEE		

This certifies that I have completed the monthly meter reading.

TITLE: _____

NAME (print): _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY HWF TANK FARM

HWF VAPOR VENT LINE TO KILN

Monthly Inspection

	COMPLETED	ISSUES YES/NO	CORRECTION/ADJUSTMENTS
DATE & TIME			
CONNECTION TO COMMON VENT LINE			
VENT LINE INSPECTION			
CONNECTION TO CLINKER COOLER UNDERGRATE FAN			
PRESSURE FAN INSPECTION			
DAMPER INSPECTION			
FLAME ARRESTOR INSPECTION			
FRESH AIR/VACUUM BREAKER INSPECTION			
NITROGEN BLANKET INSPECTION			
COMPUTER AUTOMATION INSPECTION			

This certifies that I have completed the daily meter reading.

TITLE: Environmental Technician

NAME (print): _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS _____ **DATE** _____

KEYSTONE CEMENT COMPANY HWF TANK FARM

AGITATOR

Quarterly Inspection

Component	Tank				Comments/Action Taken
	1A	1B	2	3	(specify unit)
OIL LEVEL					
VISUAL INSPECTION					
COUPLING ALIGNMENT					
FAN GUARD					

This certifies that I have completed this quarterly inspection.

TITLE ENVIRONMENTAL TECHNICIAN

NAME (print) _____

SIGNATURE _____

DATE _____

DOCUMENT COORDINATOR'S INITIALS _____ DATE _____

KEYSTONE CEMENT COMPANY WASTE LIQUID FUEL

EMERGENCY EQUIPMENT

Quarterly Inspection

Component	Unit	Comments/Action Taken
TELPEHONE DIAL TONE		
BATTERIES		
SPEED DIAL PROGRAMMED CORRECTLY		
EYE-WASH BOTTLES SOLVENT LAB		
SOLVENT TRAILER (2)		
SOLVENT PAD (BLUE BUILDING) (2)		

This certifies that I have completed the quarterly inspection for this unit.

TITLE ***ENVIRONMENTAL TECHNICIAN***

NAME (print) _____

SIGNATURE _____

DATE _____

DOCUMENT COORDINATOR'S INITIALS _____ ***DATE*** _____

KEYSTONE CEMENT COMPANY WASTE LIQUID FUEL

EMERGENCY SIREN

Quarterly Inspection

Component	Location		Comments/Action Taken
	SUBSTATION	CONTROL ROOM	(specify which location)
SIREN			

This certifies that I have completed this quarterly inspection.

TITLE ENVIRONMENTAL TECHNICIAN

NAME (print) _____

SIGNATURE _____

DATE _____

DOCUMENT COORDINATOR'S INITIALS _____ DATE _____

KEYSTONE CEMENT COMPANY WASTE LIQUID FUEL

FOAM SYSTEM

Quarterly Inspection

Component	Status	Comments/Actions Taken (specify which location)
FOAM SYSTEM		

This certifies that I have completed this quarterly inspection.

TITLE ENVIRONMENTAL TECHNICIAN

NAME (print) _____

SIGNATURE _____

DATE _____

DOCUMENT COORDINATOR'S INITIALS _____ DATE _____

KEYSTONE CEMENT COMPANY WASTE LIQUID FUEL

GRINDERS

Quarterly Inspection

Component	Location						Comments
	Unload 2	Unload 3	Feed 1	Feed 2	Recirc 1	Recirc 2	
DATE :							
GRINDER							

This certifies that I have completed this quarterly inspection.

TITLE ENVIRONMENTAL TECHNICIAN

NAME (print) _____

SIGNATURE _____

DATE _____

DOCUMENT COORDINATOR'S INITIALS _____ DATE _____

KEYSTONE CEMENT COMPANY WASTE LIQUID FUEL

HIGH LEVEL 2 ALARM

Quarterly Inspection

Component	Status				Comments/Action Taken
	1A	1B	2	3	(specify unit - 1A, 1B, 2, or 3)
DATE :					
UNLOADING PAD HIGH LEVEL 2 ALARM					
UNLOADING PAD HIGH LEVEL 2 LIGHT					
CONTROL ROOM HIGH LEVEL 2 ALARM					
CONTROL ROOM HIGH LEVEL 2 LIGHT					
PUMP SHUT OFF					

This certifies that I have completed this quarterly inspection.

TITLE ENVIRONMENTAL TECHNICIAN

NAME (print) _____

SIGNATURE _____

DATE _____

DOCUMENT COORDINATOR'S INITIALS _____ DATE _____

KEYSTONE C. T COMPANY
BATH, PENNSYLVANIA
SUBPART H LEAK DETECTION AND REPAIR PROGRAM
VALVE MONITORING/REPAIR LOG

Monitoring Date: _____

SYST. ID	EQPT. ID	LEAK DETECTED (≥500 ppm)?			CORRECTIVE ACTION	REPAIR DATE (First attempt)	REPAIR DATE (Final)	FINAL METHOD 21 LEVEL	REPAIR INITIALS
		YES	NO	LEVEL					
SYSTEM ID NO. 11									
11	1								
11	2								
11	14								
11	24								
11	27								
11	29								
11	37								
11	38								
11	40								
11	42								
11	52								
11	54								
11	55								
11	58								
11	60								
11	64								
11	65								
11	71								
11	73								
SYSTEM ID NO. 12									
12	1								
12	6								
12	8								
SYSTEM ID NO. 13									
13	1								
13	4								
13	6								
SYSTEM ID NO. 14									
14	1								
14	2								
14	12								
14	19								
14	22								
14	28								
14	31								
14	36								

KEYSTONE C[illegible]T COMPANY
BATH, PENNSYLVANIA
SUBPART H LEAK DETECTION AND REPAIR PROGRAM
VALVE MONITORING/REPAIR LOG

Monitoring Date: _____

SYST. ID	EQPT. ID	LEAK DETECTED (≥500 ppm)?			CORRECTIVE ACTION	REPAIR DATE (First attempt)	REPAIR DATE (Final)	FINAL METHOD 21 LEVEL	REPAIR INITIALS
		YES	NO	LEVEL					
SYSTEM ID NO. 14 (continued)									
14	40								
14	46								
14	47								
14	49								
14	54								
14	56								
14	61								
14	64								
14	67								
14	69								
SYSTEM ID NO. 21									
21	15								
21	18								
21	20								
21	23								
SYSTEM ID NO. 22									
22	15								
22	18								
22	20								
22	23								
SYSTEM ID NO. 23									
23	12								
23	13								
SYSTEM ID NO. 31									
31	2								
31	4								
31	8								
31	13								
31	14								
31	17								
31	18								
31	20								
31	21								
31	23								

KEYSTONE C COMPANY
BATH, PENNSYLVANIA
SUBPART H LEAK DETECTION AND REPAIR PROGRAM
VALVE MONITORING/REPAIR LOG

Monitoring Date: _____

SYST. ID	EQPT. ID	LEAK DETECTED (≥500 ppm)?			CORRECTIVE ACTION	REPAIR DATE (First attempt)	REPAIR DATE (Final)	FINAL METHOD 21 LEVEL	REPAIR INITIALS
		YES	NO	LEVEL					
SYSTEM ID NO. 32									
32	4								
32	9								
32	11								
32	12								
32	14								
32	17								
32	18								
32	23								
32	27								
SYSTEM ID NO. 33									
33	3								
33	4								
33	6								
33	8								
33	10								
33	14								
33	15								
33	19								
33	25								
33	26								
33	29								
SYSTEM ID NO. 34									
34	12								
34	12								
34	12								
34	12								
34	12								
34	12								
34	12								
34	12								
34	12								
34	12								

KEYSTONE C. . COMPANY
BATH, PENNSYLVANIA
SUBPART H LEAK DETECTION AND REPAIR PROGRAM
VALVE MONITORING/REPAIR LOG

Monitoring Date: _____

SYST. ID	EQPT. ID	LEAK DETECTED (≥500 ppm)?			CORRECTIVE ACTION	REPAIR DATE (First attempt)	REPAIR DATE (Final)	FINAL METHOD 21 LEVEL	REPAIR INITIALS
		YES	NO	LEVEL					
SYSTEM ID NO. 42									
42	2								
42	5								
42	6								
42	11								
42	13								
42	15								
42	17								
42	18								
42	19								
42	20								
SYSTEM ID NO. 51									
51	2								
51	4								
51	5								
51	7								
51	9								
51	17								
51	23								
51	24								
51	25								
51	26								
51	27								
51	30								
51	31								
51	33								
51	35								
SYSTEM ID NO. 52									
52	2								
52	3								
52	4								
52	6								
52	8								
52	9								
52	14								

KEYSTONE C. [illegible] COMPANY
BATH, PENNSYLVANIA
SUBPART H LEAK DETECTION AND REPAIR PROGRAM
VALVE MONITORING/REPAIR LOG

Monitoring Date: _____

SYST. ID	EQPT. ID	LEAK DETECTED (≥500 ppm)?			CORRECTIVE ACTION	REPAIR DATE (First attempt)	REPAIR DATE (Final)	FINAL METHOD 21 LEVEL	REPAIR INITIALS
		YES	NO	LEVEL					
SYSTEM ID NO. 52 (continuted)									
52	15								
52	16								
52	19								
52	21								
52	23								
52	24								
52	26								
SYSTEM ID NO. 61									
61	1								
61	3								
61	8								
61	11								
61	14								
61	16								
61	18								
61	21								
61	24								
61	26								
61	28								
61	30								
61	34								
61	36								
61	38								
61	39								
61	46								
61	50								
61	55								
61	57								
61	59								
61	61								
61	63								
61	64								
61	65								
61	67								
61	74								
61	75								

KEYSTONE C[illegible] COMPANY
BATH, PENNSYLVANIA
SUBPART H LEAK DETECTION AND REPAIR PROGRAM
VALVE MONITORING/REPAIR LOG

Monitoring Date: _____

SYST. ID	EQPT. ID	LEAK DETECTED (≥500 ppm)?			CORRECTIVE ACTION	REPAIR DATE (First attempt)	REPAIR DATE (Final)	FINAL METHOD 21 LEVEL	REPAIR INITIALS
		YES	NO	LEVEL					
SYSTEM ID NO. 62									
62	1								
62	4								
62	9								
62	13								
62	16								
62	17								
62	20								
62	23								
62	25								
62	27								
62	29								
62	31								
62	33								
62	35								
62	41								
62	42								
62	47								
62	53								
62	54								
62	56								
62	57								
62	59								
62	60								
62	63								
62	65								
62	67								
62	69								
62	72								
62	76								
62	78								
SYSTEM ID NO. 71									
71	2								
71	4								
71	6								
71	8								

KEYSTONE C[illegible]T COMPANY
BATH, PENNSYLVANIA
SUBPART H LEAK DETECTION AND REPAIR PROGRAM
VALVE MONITORING/REPAIR LOG

Monitoring Date: _____

SYST. ID	EQPT. ID	LEAK DETECTED (≥500 ppm)?			CORRECTIVE ACTION	REPAIR DATE (First attempt)	REPAIR DATE (Final)	FINAL METHOD 21 LEVEL	REPAIR INITIALS
		YES	NO	LEVEL					
SYSTEM ID NO. 72									
72	2								
72	3								
72	5								
72	7								
72	9								
72	11								
72	12								
72	14								
72	15								
SYSTEM ID NO. VB									
VB	19								
VB	21								
VB	35								
VB	36								
VB	39								
VB	42								
VB	49								
VB	50								
VB	56								
VB	62								
SYSTEM ID NO. VR									
VR	22								
VR	50								
VR	51								
VR	60								
VR	61								
VR	62								
VR	68								
VR	69								
VR	80								
VR	81								
VR	84								
VR	85								
VR	96								
VR	97								
VR	101								
VR	102								

KEYSTONE CEMENT COMPANY **WASTE LIQUID FUEL**

TANK LEVEL ALARMS - (Unloading Pad)

Quarterly Inspection

Component	Status				Comments/Action Taken
	1A	1B	2	3	(specify unit - 1A, 1B, 2, or 3)
PUMP SHUT OFF					
LOW LEVEL LIGHT					
LOW LEVEL ANNUNCIATOR					
HIGH LEVEL 1 LIGHT					
HIGH LEVEL 1 ANNUNCIATOR					
HIGH LEVEL 3 LIGHT					
HIGH LEVEL 3 ANNUNCIATOR					

This certifies that I have completed this quarterly inspection.

TITLE ENVIRONMENTAL TECHNICIAN

NAME (print) _____

SIGNATURE _____

DATE _____

DOCUMENT COORDINATOR'S INITIALS _____ DATE _____

KEYSTONE CEMENT COMPANY **WASTE LIQUID FUEL**

BAGHOUSE INTERLOCK PARAMETER TEMPERATURE TRANSMITTERS

Quarterly Inspection

Component	Status		Comments/Action Taken
	1	2	(specify unit 1 or 2)
CLEAN & TIGHT			

1 = Main Baghouse Inlet Temperature **2 = Bypass Baghouse Inlet Temperature**

This certifies that I have completed this quarterly inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY WASTE LIQUID FUEL

BAGHOUSE INTERLOCK PARAMETER THERMOCOUPLES

Quarterly Inspection

Component	Main	Bypass	Comments/Action Taken
CLEAN & TIGHT			
CALIBRATION			
STANDARD READING #1			
STANDARD READING #2			
THERMOCOUPLE READING			
HIGHEST % OF DEVIATION			

This certifies that I have completed this quarterly inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY **WASTE LIQUID FUEL**

CALCINER INTERLOCK PARAMETER PRESSURE TRANSMITTER

Quarterly Inspection

Component	Status	Comments/Action Taken
CLEAN & TIGHT		

This certifies that I have completed this quarterly inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY **HWF TANK FARM**

CO and OXYGEN

Quarterly Inspection

Component	Status				Comments/Action Taken
	1	x	x	x	
FAN FILTER ELEMENT CLEAN / REPLACE					
REPLACE SAMPLE FILTER ELEMENT					
CLEAN EXTERIOR OF THE ANALYZER					
REPLACE ANALYZER FILTER ELEMENT					

This certifies that I have completed this quarterly inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY **WASTE LIQUID FUEL**

KILN INTERLOCK PARAMETER
KILN HOOD PRESSURE TRANSMITTER

Quarterly Inspection

Component	Status	Comments/Action Taken
CLEAN & TIGHT		

This certifies that I have completed this quarterly inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY **WASTE LIQUID FUEL**

KILN/CALCINER INTERLOCK PARAMETER TEMPERATURE TRANSMITTERS

Quarterly Inspection

Component	Status		Comments/Action Taken
	1	2	(specify unit 1 or 2)
CLEAN & TIGHT			

1 = Kiln Combustion Zone Temperature 2 = Calciner Combustion Zone Temperature

This certifies that I have completed this quarterly inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY **WASTE LIQUID FUEL**

KILN/CALCINER INTERLOCK PARAMETER THERMOCOUPLES

Quarterly Inspection

Component	Kiln	Calciner	Comments/Action Taken
CLEAN & TIGHT			
CALIBRATION			
STANDARD READING #1			
STANDARD READING #2			
THERMOCOUPLE READING			
HIGHEST % OF DEVIATION			

This certifies that I have completed this quarterly inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY **WASTE LIQUID FUEL**

KILN & CALCINER INTERLOCK PARAMETER PLANT AIR PRESSURE (ATOMIZATION) SWITCH

Quarterly Inspection

Component	Status	Comments/Action Taken
CLEAN & TIGHT		

This certifies that I have completed this quarterly inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY WASTE LIQUID FUEL

KILN 1 - STACK FLOW AIR MONITOR

Quarterly Inspection

Component	Kiln 1	Comments/Action Taken
MAINTENANCE LEAK CHECK		

This certifies that I have completed this quarterly inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY **WASTE LIQUID FUEL**

THC AND OXYGEN

Quarterly Inspection

Component	Status		Comments/Action Taken
	THC	O2	
FAN FILTER ELEMENT CLEAN/REPLACE		N/A	
REPLACE SAMPLE FILTER ELEMENT		N/A	
CLEAN EXTERIOR OF THE ANALYZER			

This certifies that I have completed this quarterly inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY **WASTE LIQUID FUEL**

KILN & CALCINER INTERLOCK PARAMETER PLANT AIR PRESSURE (ATOMIZATION) SWITCH

Twice-yearly Inspection

Component	Status	Comments/Action Taken
CALIBRATION		

This certifies that I have completed this twice-yearly inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY **WASTE LIQUID FUEL**

HAZARDOUS WASTE FUEL SENSOR TRANSMITTER KILN & CALCINER

Twice-yearly Inspection

Component	Status		Comments/Action Taken
	Kiln	Calciner	(specify unit)
VERIFY TRANSMITTERS HAVE A SIGNAL			

This certifies that I have completed this twice-yearly inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY **WASTE LIQUID FUEL**

CALCINER INTERLOCK PARAMETER PRESSURE TRANSMITTER

Twice-yearly Inspection

Component	Status	Comments/Action Taken
CALIBRATION		

This certifies that I have completed this twice-yearly inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY **WASTE LIQUID FUEL**

KILN INTERLOCK PARAMETER
KILN HOOD PRESSURE TRANSMITTER

Twice-yearly Inspection

Component	Status	Comments/Action Taken
CALIBRATION		

This certifies that I have completed this twice-yearly inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY **WASTE LIQUID FUEL**

BAGHOUSE INTERLOCK PARAMETER TEMPERATURE TRANSMITTERS

Twice-yearly Inspection

Component	Status		Comments/Action Taken
	1	2	(specify unit 1 or 2)
CALIBRATION			

1 = Main Baghouse Inlet Temperature 2 = Bypass Baghouse Inlet Temperature

This certifies that I have completed this twice-yearly inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY **WASTE LIQUID FUEL**

KILN/CALCINER INTERLOCK PARAMETER TEMPERATURE TRANSMITTERS

Twice-yearly Inspection

Component	Status		Comments/Action Taken
	1	2	(specify unit 1 or 2)
CALIBRATION			

1 = Kiln Combustion Zone Temperature 2 = Calciner Combustion Zone Temperature

This certifies that I have completed this twice-yearly inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY HWF TANK FARM

AGITATOR

Yearly Inspection

Component	Tank				Comments/Action Taken
	1A	1B	2	3	(specify unit)
OIL SAMPLE					

This certifies that I have completed this yearly inspection.

TITLE ENVIRONMENTAL TECHNICIAN

NAME (print) _____

SIGNATURE _____

DATE _____

DOCUMENT COORDINATOR'S INITIALS _____ DATE _____

KEYSTONE CEMENT COMPANY **WASTE LIQUID FUEL**

CALCINER INTERLOCK PARAMETER
COAL FEED METER

Yearly Inspection*

Component	Status	Comments/Action Taken
CALIBRATION		

***Inspection conducted annually, typically in conjunction with plant shutdown.**

This certifies that I have completed this yearly inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY **WASTE LIQUID FUEL**

KILN INTERLOCK PARAMETER
COAL FEED METER

Yearly Inspection*

Component	Status	Comments/Action Taken
CALIBRATION		

***Inspection conducted annually, typically in conjunction with plant shutdown.**

This certifies that I have completed this yearly inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY HWF TANK FARM

EMERGENCY/CONSERVATION VENTS

Yearly Inspection

Component	Tank				Comments/Action Taken
	1A	1B	2	3	(specify unit)
CLEAN PALLETS					
VISUAL INSPECTION					

This certifies that I have completed this yearly inspection.

TITLE: _____

NAME (print): _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS _____ DATE _____

KEYSTONE CEMENT COMPANY HWF TANK FARM

EMERGENCY/PRESSURE RELIEF

Yearly Inspection

Component	Tank				Comments/Action Taken
	1A	1B	2	3	(specify unit)
CLEAN PALLETS					
VISUAL INSPECTION					

This certifies that I have completed this yearly inspection.

TITLE: _____

NAME (print): _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS _____ DATE _____

KEYSTONE CEMENT COMPANY HWF TANK FARM

FLAME DETONATOR/ARRESTOR

Yearly Inspection

Component	Vapor Balance		Carbon Tanks		Comments/Action Taken
	1	2	1	2	(specify tank or kiln #)
CLEAN AND INSPECT					

This certifies that I have completed this yearly inspection.

TITLE: _____

NAME (print): _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS _____ DATE _____

KEYSTONE CEMENT COMPANY **WASTE LIQUID FUEL**

FUEL OIL FLOW METER

Yearly Inspection*

Component	Status		Comments/Action Taken
	Kiln	Calciner	(specify unit)
CALIBRATION			

***Inspection conducted annually, typically in conjunction with plant shutdown. Inspection requires the monitor to be sent to the manufacturer.**

This certifies that I have completed this yearly inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY **WASTE LIQUID FUEL**

HAZARDOUS WASTE FUEL FLOW METER

Yearly Inspection*

Component	Status		Comments/Action Taken
	Kiln	Calciner	(specify unit)
CALIBRATION			

***Inspection conducted annually, typically in conjunction with plant shutdown. Inspection requires the monitor to be sent to the manufacturer.**

This certifies that I have completed this yearly inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY HWF TANK FARM

PRESSURE RELIEF DEVICE

Yearly Inspection

Component	Location			Comments/Action Taken
	CARBON 1	CARBON 2	CARBON 3	(specify which location)
VISUAL INSPECTION				
TEST DEVICE				

This certifies that I have completed this yearly inspection.

TITLE: _____

NAME (print): _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS _____ DATE _____

KEYSTONE CEMENT COMPANY HWF TANK FARM

PRESSURE TRANSMITTERS

Yearly Inspection

Component	Tank Level				Tank Pressure				Comments/Action Taken
	1A	1B	2	3	1A	1B	2	3	(specify unit)
CALIBRATION									

This certifies that I have completed these yearly inspections.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY **HWF TANK FARM**

PRESSURE TRANSMITTERS VAPOR BALANCE SYSTEM

Yearly Inspection

Component	Status		Comments/Action Taken
	Positive	Negative	
CALIBRATION			

This certifies that I have completed this yearly inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY **WASTE LIQUID FUEL**

KILN & CALCINER INTERLOCK PARAMETER RAW FEED METER

Yearly Inspection*

Component	Status	Comments/Action Taken
CALIBRATION		
SELF TEST		

***Inspection conducted annually, typically in conjunction with plant shutdown.**

This certifies that I have completed this yearly inspection.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

KEYSTONE CEMENT COMPANY HWF TANK FARM

TEMPERATURE TRANSMITTERS

Yearly Inspection

Component	Tank				Carbon			Amb	Comments/Action Taken
	1A	1B	2	3	1	2	3	1	(specify unit)
CALIBRATION									

This certifies that I have completed these yearly inspections.

TITLE: _____

NAME: (print) _____

SIGNATURE: _____

DATE: _____

DOCUMENT COORDINATOR'S INITIALS: _____ ***DATE:*** _____

APPENDIX E
CLOSURE PLAN AND FINANCIAL REQUIREMENTS

APPENDIX E-1
PARTIAL CLOSURE PLAN
KEYSTONE CEMENT COMPANY

Prepared for:

Keystone Cement Company
P.O. Box A
Route 329
East Allen Township, Bath, Pennsylvania 18014-0058

August 2006 (Golder Associates, Inc.)
Revised September 2007 (Golder Associates, Inc.)
Revised October 2008 (Golder Associates, Inc.)
Revised April 2015 (Keystone Cement Company)
Revised August 2018 (Keystone Cement Company)
Revised December 2022 (Keystone Cement Company)

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1.0 GENERAL

1.1 Introduction

Keystone Cement Company (Keystone) operates a hazardous waste processing, storage and treatment facility, in Bath, Pennsylvania. The facility is located on an over 800-acre tract of land in East Allen Township, Northampton County, one mile south of the Borough of Bath. The facility burns liquid hazardous waste material (i.e., waste derived fuel, solvent, hazardous waste derived fuel) in addition to conventional fuels for energy recovery in a cement kiln pursuant to the Federal Clean Air Act National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Hazardous Waste Combustors Maximum Achievable Control Technology Rule at 40 CFR Part 63, Subpart EEE (HWC MACT). The storage of the liquid hazardous waste on-site is permitted by Keystone's Resource Conservation and Recovery Act (RCRA) Part B Permit (PAD002389559). Federal regulation 40 CFR §270.14 provides the general requirements for the contents of a RCRA Part B application or a RCRA Part B modification application. The general requirements include a copy of the facility's closure plan and the most recent closure cost estimate for the facility. This Partial Closure Plan meets the requirements of 40 CFR §270.14 and the other federal regulations referenced therein. In addition, it meets the requirements of 25 Pa Code 264.a.166 related to closure certifications.

The purpose of this Partial Closure Plan is to outline the procedures necessary to completely close the existing permitted hazardous waste management units (HWMU) contained within the facility (i.e. existing tank farm storage facility with four (4) aboveground storage tanks, any associated piping (that is not reused), associated secondary containment structures, and ancillary equipment). These existing HWMUs will be closed and dismantled following the construction of the Final Operating Scenario which includes the planned waste derived fuel storage and rail unloading facility (i.e. tank farm storage facility with six (6) aboveground storage tanks[1], railcar unloading facility (with one (1) aboveground storage tank), associated piping, associated secondary containment structures, existing truck staging area, existing truck unloading area, existing truck parking area, and ancillary equipment that may contact hazardous waste such as the vapor phase

[1] It is anticipated that Keystone may close its four existing aboveground storage tanks at different times. The existing Tanks 1A, 1B, 2, and 3 will remain in service until the end of life or when the tank integrity is diminished so that the tank can no longer store hazardous waste. Keystone may decide to construct a portion of the expanded tank farm and continue to operate the existing tank farm. At no time will the tank storage capacity on-site exceed 220,000 gallons.

carbon adsorption units) and the planned direct transfer line and mixing system that will be located on the existing truck unloading pad.

The closure of the Planned tank farm, associated railcar unloading area (and associated tank), associated piping, associated secondary containment structures, existing truck unloading area, the existing truck staging area, existing truck parking area, and ancillary equipment as well as the vapor vent line to the kiln, and planned mixing system are presented in the Full Closure Plan for Final Operating Scenario provided as Appendix E-2 The Full Closure Plan also includes closure of the General Hazardous waste storage areas (i.e. 90-day storage areas) including the existing containment area where demolished Kiln No. 2 was located and the cement kiln dust (CKD) Contingency area located near the Quarry Shop.

The closure of the existing HWMUs will be conducted during several stages throughout the operating life of the facility. This Partial Closure Plan will incorporate the stages of closure that occur at the time that the HWMUs covered under the Full Closure Plan for Final Operating Scenario are constructed and operational.

The Partial Closure will include the closure of the existing four (4) hazardous waste storage tanks, some associated piping (including a portion of the vapor vent line to the kiln), associated secondary containment structures, and ancillary equipment. This Partial Closure Plan also includes a determination as to whether storage tanks and silos used for stormwater management will require closure as HWMU. The closure of this stage will occur upon the completion of construction of the planned waste derived fuel storage tanks and railcar unloading facility for the Final Operating Scenario. The hazardous wastes and hazardous waste constituents will be removed or fully decontaminated at time of closure leaving the area in an uncontaminated condition suitable for other uses (i.e., non-hazardous waste). The existing tanks or equipment will be either reused for waste oil or sent off-site for recycle/disposal. Keystone does not intend to abandon the tank farm and its associated equipment in place. The closure of these HWMUs will be performed in accordance with 25 Pa. Code Chapter 264a Subchapter G (Closure and Postclosure), 40 CFR Part 264 Subpart G (Closure and Postclosure), 40 CFR §264.173 (Container Closure), and 40 CFR §246.197 (Tanks Closure and Postclosure Care).

Keystone is presently submitting to the Department a RCRA Part B Permit Renewal Application that includes the previously approved construction of planned facilities on Site that are identified

as a Final Operating Scenario. As part of the requirements of the permit renewal application, this Partial Closure Plan is being reviewed by Keystone, and includes the HWMUs currently permitted on-site that are anticipated to be removed during the Final Operating Scenario and subsequent closure stages. This Partial Closure Plan was approved by the Department most recently on October 29, 2015.

A written Partial Closure Plan is required to be submitted with the permit renewal application and must be approved by the Department as part of the permit issuance (40 CFR §270.14). Keystone will notify the Department in writing at least 45 days prior to the date final closure of the HWMUs are expected to begin (40 CFR §264.112). Keystone will maintain a copy of the approved Partial Closure Plan on-site until the Certification of Closure has been submitted to and accepted by the Department (25 Pa. Code 264a.166). Within 60 days of completion of closure activities, Keystone must submit to the Department, by registered mail, a certification that the closure activities have been completed and conducted in accordance with the specifications in the approved Partial Closure Plan (40 CFR §264.115). This certification must be signed by Keystone and by an independent registered Professional Engineer.

1.2 Closure Performance Standard

In accordance with 40 CFR §264.111 (Closure Performance standards), 40 CFR §264.113a (Closure), 40 CFR §246.114 (Disposal or decontamination of equipment, structures, and soils), 40 CFR §264.178 (Closure standards for containers), and 40 CFR §264.197 (Closure standards for tanks), Keystone has developed a detailed Partial Closure Plan for the HWMUs at the Site. Only existing permitted equipment that will be closed during the construction of the new tank farm and railcar unloading facility in the Final Operating Scenario is included in this Partial Closure Plan. During the lifetime of the facility, Keystone will amend the Closure Plan whenever changes in operating procedures or facility design affect the Plan, including addition of future equipment, or whenever there is a change in the expected year of closure.

The facility has been designed and is operated in a manner which minimizes the potential for the discharge or spill of hazardous materials and reduces a potential hazard to the health and safety of the public or environment. The HWMUs that will be addressed in this Partial Closure Plan are as follows:

1) Four (4) waste derived fuel storage tanks. The four (4) waste derived fuel storage tanks in the tank farm area are aboveground tanks that currently store waste derived fuels.

   A. Two of the Existing, Tanks (1A and 1B) which are 15,000-gallon capacity tanks, may be decontaminated, tested, and reused for waste oil storage.

   B. The other two tanks, Tanks 2 and 3 which are 31,500-gallon working capacity tanks, may also be decontaminated, tested, and reused for waste oil storage.

2) Secondary Containment Structures:

   A. The secondary containment area for Tanks 1A and 1B will be decontaminated for clean closure, tested and reused for containment of 1A and 1B for storing waste oil. The underlying soils will be tested in the event that cracks are present and it is determined that these cracks have breached the concrete containment as detailed in Section 3.4.

   B. The secondary containment area for Tanks 2 and 3 will be decontaminated for clean closure, tested and reused for containment of 2 and 3 for storing waste oil. The underlying soils will be tested in the event that cracks are present and it is determined that these cracks have breached the concrete containment as detailed in Section 3.4.

3) Liquid Fuels Transfer Piping, Pumps and related equipment including:

   A. Unloading piping associated with the transfer of materials to Tanks 1A and 1B will be reused for the new tank farm and/or removed and disposed of offsite;

   B. Unloading piping associated with the transfer of materials to Tanks 2 and 3 will be reused for the new tank farm and/or removed and disposed of offsite;

4) Vapor Phase Carbon Adsorption System and related vapor phase piping will be decontaminated, removed and disposed of off-site or reused in the new tank farm; and

5) A portion of the waste derived fuel vapor vent line to the kiln from storage tanks 1A, 1B, 2, and 3 will be reused for the new tank farm and/or removed and disposed of offsite.

Ancillary equipment that does not contact hazardous waste constituents, such as the nitrogen system, are not subject to closure.

The operations of Keystone to manufacture portland and masonry cement have been designed and are operated in a manner which minimizes the potential for contamination of the facility structure, equipment, and surrounding property. The facility design, coupled with the frequent inspections and facility maintenance, provides for a safe daily operation and minimizes the need for clean-up and decontamination at closure.

The procedures, regulations, and sequencing plans that have been incorporated into this Partial Closure Plan are intended to: (1) ensure that the facility will not require post-closure maintenance and control following closure of the various HWMUs listed above; (2) minimize any threats to human health or the environment; (3) reduce the potential for any post-closure escape of hazardous waste or hazardous waste constituents to groundwater, surface waters, or the atmosphere; and, (4) comply with other applicable closure requirements for the storage tanks and ancillary equipment or facilities.

Samples will be taken of the decontamination materials and surrounding soils, as necessary, and analyzed to verify that hazardous constituents do not remain above concentrations that exceed the decontamination standards after closure of the various HWMUs. Specific sampling procedures and verification criteria are included in Sections 3 and 4 of this plan. If required, soils and other media will be tested for the constituents that are typically present in the waste streams accepted by the facility. This list is included in Tables 1 and 2 of the Waste Analysis Plan and incorporated as part of Keystone's RCRA permit. The proposed test parameters will include volatile organics, semi-volatile organics, and metals.

Keystone may submit a reduced analytical parameter list to the Department for approval 90 days prior to implementation of partial or full closure. Information to be included with the request shall include historical data including a listing and evaluation of all previously approved waste streams Module 1/Form U plus historical sampling and analysis data contained in the facility operating record.

Rinseate from the decontamination of structures that will remain onsite for reuse, such as tanks and secondary containment structures, will be tested. If the rinseate concentrations are reported to be non-detect, the structure will be considered decontaminated and closed.

The rinseate water will be from a potable water source and the potable water source will be tested. Rinseate concentrations reported to be greater than non-detect will be compared to the concentrations of the potable water source. If rinseate water concentrations are equal to the potable water source, then the structure will be considered decontaminated and closed. If the rinseate water contains concentrations greater than the potable water source, then the difference between the two will be compared to the lowest standard presented in either:

- The Universal Treatment Standards for wastewater (40 CFR §268.48);
- The Department's Division of Drinking Water Management Maximum Contaminant Level (MCL); or,
- The Department's groundwater clean-up standards as published in Appendix A of PADEP §250.708.

Keystone may determine after cleaning that these standards cannot be achieved and Keystone may desire to reuse the equipment for uses other than storing and handling waste derived fuels. For example, Keystone may desire to handle used oil in the tanks. In that instance, Keystone will submit the rinseate test results, the proposed use of the equipment and an evaluation of the impacts that reuse of the equipment may have on the environment to the Department for approval of decontamination and closure.

The soil investigation results will be compared to applicable Pennsylvania Act 2 Land Recycling and Environmental Remediation Standards. The Act 2 program provides a set of cleanup standards based on health risks including:

1) background standards;
2) statewide health standards; or
3) site-specific standards.

For the statewide health standards (SHS), medium specific concentrations (MSC) have been established for residential and non-residential use. Because the end-use of the Keystone Site will be industrial, the non-residential SHS will be used for soil and groundwater data comparisons.

For soils, a two-step comparison process is required. First, the results will be compared to direct contact numeric values for non-residential use. Depending on the depth of the soil sample, the results will be compared to the surface (0-2 ft) or subsurface (2-15 ft) direct contact numeric values. Second, the numbers will be compared to Soil to Groundwater numeric values. The Used Aquifer, TDS less than or equal to 2,500 ug/L, non-residential values will be used. Notably, the soil to groundwater non-residential SHS have two sets of values that can be used. These are 100 times the groundwater MSC and a Generic Value that is based upon a soil to groundwater equilibrium equation. Under the Act 2 regulations, the property owner can select either of these

subsets to use on a chemical specific basis.

For constituents routinely accepted by Keystone that do not have ACT 2 standards, then the EPA Region III Risk Based Concentrations or other published standard will be used.

1.3 Partial and Final Closure Activities

During the partial and final closure periods, the contaminated equipment, structures and soils must be properly disposed of or decontaminated. By removing any hazardous wastes or hazardous constituents during partial and final closure, Keystone may generate hazardous waste and must handle that waste in accordance with the applicable requirements.

Partial closure of various HWMUs of the facility will be conducted as referred to in this Partial Closure Plan. A Final Closure Plan, provided as Appendix E-2, will be in existence for the entire hazardous waste facility, which will cover the Final Operating Scenario, and will be in existence for the lifetime of the facility. The Full Closure Plan, and subsequent partial closures may be undertaken as one of the tanks, unloading/loading, associated pipes, associated secondary containment structures, rotary cement kiln, ductwork, stack and prime mover for the kiln, or ancillary equipment is taken out of service in the future. In such event, the closure procedures provided herein would be followed for only the equipment being removed from service. Any modifications to the facility equipment, structures, or procedures related to the facility operation (including partial closure) which affect the overall Closure Plan will result in Keystone revising the Final Closure Plan and associated closure costs accordingly. It is anticipated that if the closure of the facility occurs prior to the completion of the Final Operating Scenario, then the complete closure of the facility may incorporate the combined Partial Closure Plan and Full Closure Plan.

Keystone will dispose of the on-site hazardous waste inventories, and, except as provided in Section 5.0 of this plan, the equipment will be tested as necessary to certify their uncontaminated condition. Except as provided in Section 5.0, transfer piping, valves and pumps would be flushed free of hazardous constituents and tested as necessary to certify their uncontaminated condition or disposed of as a hazardous waste. In addition, secondary containment and surrounding soils (as necessary) will be verified to be sufficiently free of contamination that they do not pose a risk to the environment. Activities conducted in the partial closure are more fully described in

subsequent sections of this Plan. Final closure will fully comply with the Closure Performance Standard as stated above and more fully described under the Final Closure Plan.

1.4 Maximum Waste Inventory

The maximum inventories of hazardous waste at any time for the various HWMUs covered under this Partial Closure Plan are estimated as follows:

- Waste derived fuel Storage Tanks - 4 existing, totaling 93,000 gallons of storage capacity; and,
- Storage Tank Containment Area - no storage, containment only for potential leaks.

Keystone will only burn in the kiln the waste derived fuel inventory present in the waste derived fuel tanks at the time of closure that have been accepted in accordance with the Waste Analysis Plan. All waste derived fuels will be burned following the approved Standard Operating Procedures.

Within 90 days after receiving the final volume of hazardous wastes, Keystone must treat, remove or dispose of the hazardous wastes in accordance with the approved Partial Closure Plan (40 CFR §264.113).

2.0 SCHEDULE FOR CLOSURE

It is forecasted that partial closure activities will not occur until: 1) the completion of construction of the Final Operating Scenario or 2) in phases when a tank reaches its end of life. Any hazardous waste residuals generated from closure activities, such as rinseate, will not be accumulated at the facility for greater than 90 days.

2.1 Time Allowed for Closure

The estimated time of closure of the facility is 180 days from the date of final receipt of waste. The Department will be notified 45 days prior to beginning closure. When the closure activities are complete, final closure will be certified by an independent registered Professional Engineer in addition to a principal corporate officer of Keystone.

2.2 Certification of Closure

Within 60 days of completion of closure of the HWMUs referred to in this Partial Closure Plan, Keystone must submit to the Department, by registered mail, a certification that the HWMUs have been closed in accordance with the specifications in the approved Partial Closure Plan. This certification must be signed by Keystone and by an independent registered Professional Engineer.

3.0 CLOSURE PROCEDURES

3.1 Inventory, Removal, Disposal or Decontamination of Equipment

Closure of the referred to HWMUs will be conducted in a manner which ensures removal of the waste and complete decontamination of the equipment described in Section 1.0 above. The equipment used during closure activities will be decontaminated in a safe and professional manner by trained, qualified hazardous materials technicians using procedures and safety gear appropriate for the closure procedures. The contaminated surfaces of closure equipment will be scrubbed with solutions designed to remove contaminants. The surfaces will then be rinsed with water. This process will be repeated as often as necessary to ensure complete surface decontamination. Sampling and analysis will be conducted to verify that decontamination has been effective at each of the hazardous waste management units referred to in this Partial Closure Plan. Where decontamination cannot be affected, the contaminated material or equipment determined to be hazardous as a result of laboratory analytical testing, will be handled and disposed of as a hazardous waste at an appropriate off-site facility.

Except as detailed in Section 5.0, closure procedures include cleaning and decontamination of tanks, flushing of piping and transfer lines, and testing to ensure no hazardous wastes or hazardous constituents remain in equipment. Wastes flushed from transfer lines, as well as any solvents which may be used for decontamination, will be collected for disposal.

The piping and transfer operations to and from referred to hazardous waste process/storage/ treatment units will be dismantled and decontaminated. Pumping equipment and process machinery (i.e. valves, flow meters, etc.) will be thoroughly cleaned and if tested as non-hazardous, either sold for scrap or removed for re-use.

Soil contamination at the site is expected to be minimal since storage and processing areas are located in lined containment areas. Visual inspections of the soils surrounding the HWMUs will be conducted to determine if stained or odor releasing soils are present, indicating the possible release of hazardous waste. If there is indication of soil contamination, the area will be sampled to determine if remediation is required, or excavation and removal of affected soils will take place followed by verification sampling and analysis. If the closure activities result in the spillage of hazardous materials, such occurrences will be handled by immediately excavating the contaminated aggregate or soil and sending it for disposal at a permitted hazardous waste facility.

Closure procedures will be conducted by facility personnel or outside contractors following comprehensive safety procedures to ensure employee safety during clean-up. The clean-up work will be supervised and performed using qualified facility personnel, or outside contractors. Appropriate personnel protection will be utilized during closure operations, consistent with the applicable National Institute for Occupational Safety and Health (NIOSH) and Mining Safety and Health Administration (MSHA) regulations in effect at the time closure is implemented. Equipment that may be required include, but is not limited to, solvent resistant coveralls, head protection, pre-coated gloves, boots resistant to solvents, and respirators with organic vapor and acid gas filter cartridges that seal directly to the mask. The personnel decontamination activities will be administered under the direction of Keystone's Environmental Manager or designee. The personnel will be instructed as to the required safety equipment and decontamination procedures to be used during closure. Although utilizing facility personnel is the preferred clean-up method, the more costly scenario of using outside contractors is used as the basis for the determination of the facility closure cost estimate.

Where the possibility exists for combustible vapors, their presence will be monitored with the combustible gas/oxygen meters. Non-sparking tools will be available should their use be warranted. Strict supervision will ensure that no open flames, hot surfaces, nor smoking are present in or around the work areas during clean-up and testing.

Prior to leaving any site locations undergoing decontamination, contaminated personnel protective clothing will be collected and placed in approved containers to be disposed of at an approved hazardous waste disposal facility. Specific closure procedures for closing the HWMUs covered under this Partial Closure Plan are provided in the following sections.

3.2 Closure of Tanks, Pipes, Transfer Lines, and Other Ancillary Equipment in Tank Storage System

The waste derived fuel is pumped from the truck unloading area to the waste derived fuel storage tanks. The transfer piping includes the valves, reducers, filters, gauges, and flanges. From the storage tanks, the waste derived fuel is then delivered to the kiln by pumps through a piping system with valves, reducers, gauges, and flanges. Keystone utilizes three (3) transfer pumps with grinders to transfer the acceptable waste derived fuel from the tank trucks to the waste derived fuel storage tanks. To deliver the waste derived fuel from the storage tanks to the kilns,

Keystone utilizes three feed pumps. Two (2) circulating pumps are also present and operational in the transport of waste derived fuel through the piping conveyance system.

3.2.1 Closure Procedures

The storage tanks vary in size and are aboveground steel tanks with secondary containment. The tanks are supported by a reinforced concrete floor, which comprises part of the secondary containment area. The closure of the secondary containment area is discussed further in Section 3.4 below. Closure procedures of the four (4) storage tanks consist of disposing of the hazardous waste inventory, removing and disposing of any non-pumpable residue from the tanks, cleaning and decontaminating the tanks and the ancillary equipment, and laboratory testing of final rinse water. Keystone plans to decontaminate the four (4) waste storage tanks until the final rinse water meets the criteria detailed in Section 1.2 of this closure plan.

The type of hazardous waste previously stored in the tanks and currently permitted to accept will indicate the appropriate hazardous constituent(s) expected to remain in the tank. After ensuring that the tanks are empty of the liquid wastes, they will be opened at the manway and visually inspected. The internal portion of the tanks will be tested prior to entry. It is recommended that the tanks be cleaned prior to removal from the tank supports or foundation to eliminate the potential for releases.

Confined space entry procedures will be initiated prior to any tank cleaning activities, which require personnel to enter a tank. Tanks will be vented for several days prior to entry, the fire department will be notified, pre-entry inspection monitoring will be performed, and notice posted in the work area. Appropriate valves will be locked out to isolate the tank as a precaution. Meter readings of carbon monoxide (CO), oxygen (O_2), and lower explosion limit (LEL) will be taken before opening the tank, when the manhole is opened, and every hour while work inside the tank continues. If meter readings warrant, a fan will be used to exhaust vapors from the tank.

The following procedures will be implemented to affect closure of the tanks:

A. Terminate the additions of hazardous waste shipments from off-site to the storage tanks;

B. Stored wastes will be removed from the tanks and either burned in the kiln or transferred off-site to a permitted TSDF. If the waste becomes un-pumpable due to setting of solids, waste from other tanks will be added and the mixture will be agitated before pumping

from the tanks. If insufficient waste is available in other tanks for the process, mineral spirits, other solvents, or other non-hazardous material will be purchased to accomplish the task. Liquid material remaining below the outlet ports will be removed by a mobile vacuum unit and transported to a suitable permitted hazardous waste management facility;

C. At closure of the tank system, Keystone must remove or decontaminate the waste residues, contaminated containment system components, contaminated soils, if any, and structures and equipment contaminated with waste, and manage them as hazardous waste;

D. Sludge will be removed from the bottom of the tanks. Should any sludge build-up occur that cannot be removed by procedure (B) above, the sludge will be physically removed from the tank. If other residual materials are also adhering to the tank sides, they will be physically removed at this time. The tanks will be cleaned with mineral spirits or other solvents applied by hand pump and any material adhering to the inside walls will be removed by hand scrubbing. This material will be removed by a mobile vacuum unit and containerized prior to disposal. The sludge material will be disposed of at an appropriate hazardous waste management facility;

E. The surface area of the tank will be cleaned manually using brushes and scrapers. Any over-spray or dropped residue will be contained by the tank containment structure, and collected for proper disposal;

F. Prior to the work and procedures to be conducted within the tank, an individual will be stationed outside any tank that has been entered during cleaning and sampling procedures;

G. After the sludge has been removed, the tank will be entered by personnel equipped with prescribed protective equipment. The internal walls, dome, floors, and nozzles will be cleaned with scrapers, brushes, and compatible detergents or cleaned with high pressure washing and steam cleaning, as appropriate;

H. The internal tank and piping surface areas will be inspected to identify any visual evidence of remaining contamination and re-cleaned as necessary;

I. Transfer lines will be flushed with mineral spirits, other solvents, or other non-hazardous material purchased to accomplish the task. The flush solvents will be removed with a mobile vacuum unit, handled as hazardous waste, and disposed of accordingly;

J. After solvent flushing, transfer lines will be flushed with water containing a non-ionic surfactant at the manufacturers recommended concentration. After the detergent flush, transfer lines and mixing tanks will be rinsed with facility tap water. Again, for each of these procedures the rinse volume will be at least equal the total volume of the lines and mixing tanks. The detergent rinseate will be managed as a hazardous waste and transported off-site to a permitted hazardous waste management facility. Tap water rinseate will be managed as specified in Step (L) below;

K. The tank internal surfaces will be further rinsed with a high pressure, low volume water spray. The specifications for the pressure cleaner will be sufficient to effect closure of the tanks;

L. A representative sample of the rinseate from each tank [Step (K)] as well as a sample of rinseate from the final tap water rinse of transfer lines [Step (J)] will be analyzed as specified in Section 3.7.1. Analytical results will be used to determine whether the tank meets the closure decontamination standard as specified in Section 1.2. Rinseate which does not demonstrate the closure decontamination standard will be managed as hazardous waste and transported off-site to a permitted hazardous waste management facility. Rinseate which does demonstrate the decontamination standard will be disposed as non-hazardous wastewater;

M. For any tank which does not demonstrate the closure decontamination standard, steps (J) and (K) above will be repeated until the decontamination standard is met. Alternatively, the tank may be closed in accordance with the procedures detailed in Section 4.4 or disposed in accordance with procedures specified in Section 5;

N. Internal surfaces will be tested by sampling the rinseate or by a "wipe test" method as specified in Section 3.7.1. If the wipe test method is used, three wipe samples per tank will be analyzed for waste constituents previously determined from the waste type stored in the tank;

O. The results of the wipe test will determine whether the tank has been sufficiently cleaned and decontaminated. If contamination remains, Keystone will reclean those areas using other techniques, such as high pressure sandblasting, and retest as described previously or close the areas in accordance with Sections 4.4 or 5.0;

P. The contaminated safety gear or debris generated by this activity will be disposed of as hazardous waste off-site in accordance with RCRA regulations; and,

Q. The tanks will be resealed and sold, or cut up for sale as scrap, depending on their condition. Alternately, Keystone may dispose of the scrap in an approved RCRA Subtitle C or D facility.

3.3 Closure of Secondary Containment for Tank Storage System

In the area of the tank storage system, the tanks are supported by an epoxy-coated, reinforced concrete floor, which comprises part of the secondary containment area. Closure of the Secondary Containment Area surrounding the Tank Storage System will not commence until final closure is conducted for all four (4) of the previously referenced storage tanks.

Stormwater that accumulates in the secondary containment area will be tested. If closure occurs while the kiln system is operational, the stormwater will be handled in accordance with SOP WF-12. If the kiln is not operational, the stormwater will be tested for the waste constituents accepted onsite. Stormwater that meets the Universal Treatment Standards (UTS) for wastewater (40 CFR

§268.48) will be sent offsite for treatment and disposal of a non-hazardous wastewater. Stormwater that does not meet the UTS for stormwater will be sent offsite for treatment and disposal as a hazardous wastewater.

3.3.1 Closure Procedures

The secondary containment surfaces will be decontaminated as follows:

(A) The secondary containment walls and floor will be cleaned with brooms and an abrasive material such as fine mesh lightweight aggregate, and the materials will be disposed of properly;

(B) The containment surface will be thoroughly inspected for cracks or gaps. The cracks in the containment will be identified and filled with a material, such as epoxy sealant, before washing;

(C) The entire secondary containment surface will be cleaned using a standard commercial steam-cleaning unit. The steam condensate will be managed as hazardous waste and transported off-site to a permitted hazardous waste management facility;

(D) The entire secondary containment surface will be further rinsed with a high pressure, low volume water spray. The specifications for the pressure cleaner will be sufficient to effect closure of the containment surface;

(E) A representative sample of the rinseate from the containment surface will be analyzed as specified in Section 3.7.1. Analytical results will be used to determine whether the containment surface meets the closure decontamination standard as specified in Section 1.24. Rinseate which does not demonstrate the closure decontamination standard will be managed as hazardous waste and transported off-site to a permitted hazardous waste management facility. Rinseate, which does demonstrate the decontamination standard, will be disposed as non-hazardous wastewater;

(F) If the containment surface does not demonstrate the closure decontamination standard, step (D) and (E) above will be repeated until the decontamination standard is met. Alternatively, the containment may be closed in accordance with the procedures in Section 4.4 or disposed in accordance with procedures specified in Section 5;

(G) After decontamination procedures have been completed any cracks or gaps, which were identified in step (B), above, will be further investigated. The concrete will be core drilled with a 6-inch bit. If the crack breaches the concrete, soil samples will be obtained from beneath the crack. Soil will be sampled and analyzed as specified in Section 3.7.2. Analytical results will be used to determine whether the soil meets the closure decontamination standard as specified in Section 1.24; and,

(H) Should soil samples not meet the closure decontamination standard, additional soil sampling and analysis, followed by soil removal, will be undertaken until the contaminated soil is identified and removed. Procedures for additional soil sampling and removal will be as specified in Section 3.7.5.

3.4 Equipment Decontamination

The equipment used in closing each component of the hazardous waste management system, including shovels, sampling tools, and buckets, will be washed with a detergent solution and rinsed twice with clean water in accordance with ASTM D5088-90. The equipment will be washed prior to each use at a different sampling location in containers or on an impermeable surface which allows for the collection of the rinseate in tanks or secondary containers. The rinseate used in the decontamination will be collected and managed as hazardous waste. Alternatively, the rinseate wash may be sampled and analyzed and compared to the universal treatment standards. If hazardous waste constituents are below the universal treatment standards, the rinse water will be managed as non-hazardous wastewater.

Expendable items used in the decontamination process of any of the hazardous waste units, such as mops, brooms, gloves, coveralls, and boots, will be collected, containerized and properly disposed of as hazardous waste. Such expendable items which have only been in contact with wash solutions and/or rinseate which subsequent analyses have shown do not display a hazardous characteristic or do not contain any listed hazardous constituents, may be disposed of as non-hazardous waste.

All non-hazardous wastes will be kept segregated from hazardous wastes and managed as residual waste in the State of Pennsylvania.

3.5 Certificate of Closure and Post-Closure Notices

The closure procedures described in this subsection will be completed within 180 days by Keystone personnel or outside contractors after the final volumes of hazardous wastes are properly disposed of (40 CFR §264.113). Closure certifications will be submitted to the agency in accordance with 25 Pa. Code 264a.165 – 264a.167 and 40 CFR Part 264, Subpart G.

An independent registered professional engineer will certify closure as described in Section 3.8. As part of their certification, the engineer will be required to make a thorough visual check of the site to spot discoloration or other evidence of unmitigated spills. Cleanup of such areas will be required before the certification can be made.

No later than 60 days after the Certification of Closure, Keystone must submit to the local zoning authority, or the authority with jurisdiction over local land use, and to the Department a record of the type, location, and quantity of hazardous wastes that were disposed of within the Site or other hazardous waste management facility (40 CFR §264.119). The closure records must be retained for a period of three (3) years.

3.6 Sampling and Analysis

3.6.1 Rinseate Sampling

The equipment used in closing each component of the hazardous waste management system, including shovels, sampling tools, and buckets, will be washed with a detergent solution and rinsed twice with clean water in accordance with ASTM D5088-90 as described in Section 3.5.

Rinseate which will undergo analysis for the purpose of demonstrating the closure decontamination standard for the sampling equipment, hazardous waste storage tanks, associated secondary containment, associated piping, and ancillary equipment, or which Keystone wishes to demonstrate that it does not contain hazardous constituents will be analyzed for the parameters identified in Section 1.2 and compared to the closure criteria detailed in Section 4.3 of this plan. Sample bottles are to be provided by the laboratory. Rinseate from separate procedures will be collected separately to prevent possible cross-contamination. A representative sample from each procedure will then be collected for subsequent analysis and cleaning/rinsing procedures would be continued until the appropriate standards are met. Once the rinseate meets the standards detailed in Section 4.3, the equipment will be considered decontaminated and ready for disposal, reuse or recycling.

Collection of up to 12 rinseate samples was assumed for the determination of the facility closure cost estimate. It was assumed that two rinseate samples would be collected from the following six (6) locations:

- Four (4) waste derived fuel storage tanks (Tank 1A,1B, 2, and 3);
- One (1) Tank 1A/1B containment area; and,
- One (1) Tank 2/3 containment area.

In the event a first rinseate sample does not meet the closure criteria, the cost assumes that a second sample will be collected in each area upon completion of additional cleaning activities.

The wipe test method can be used in place of the rinseate testing method for most of the internal and external surfaces of the sampling equipment, hazardous waste storage tanks, associated secondary containment, associated piping, and ancillary equipment. Some internal and external surfaces within the associated piping and ancillary equipment (i.e., solvent piping system, carbon adsorption system, vapor balancing system, and vapor vent line to the kiln) may be inaccessible to the wipe test method. For the internal surfaces of the hazardous waste storage tanks a wipe test should be performed at 3 different heights, near the bottom, middle, and top of the tank. Wipe tests would be performed as an alternative to sampling of the rinseate and/or used on structures such as buildings, containment walls and ancillary equipment such as nitrogen tanks.

The wipe testing procedures will be as follows:

(A) In sampling for Volatiles per EPA method 8260, Methanol must be applied to the wipe before sampling. Volatiles must be sampled before Methylene Chloride is used for item B sampling below;

(B) In sampling for BNA Semi-Volatiles per EPA method 8270, Organochlorine Pesticides by Cap Column GC per EPA method 8081A, Chlorinated Herbicides by GC + Cap Column per EPA 8151A, and Methylene Chloride must be applied to the wipe before sampling;

(C) In sampling for Metals per EPA method 6010/7470, diluted Nitric Acid must be applied to the wipe before sampling;

(D) In sampling for Ignitability per EPA method 1010/1030, deionized water must be applied to the wipe before sampling; and,

(E) In sampling for extraction – nonvolatile and volatile per EPA method 1311, hexane must be applied to the wipe before sampling.

A surface would be considered decontaminated or free of contamination if the results of the wipe test were non-detect.

3.6.2 Soil Sampling

In the event that soil sampling is required as detailed above, the soil sampling beneath containment structures will be completed in accordance with 40 CFR §246.114 (Disposal or

decontamination of equipment, structures, and soils), 25 Pa. code, 250.708, Appendix A (Post Remediation Care Attainment), and 25 Pa. code, 139 (Sampling and Testing). The soils will be tested for the parameters listed in Section 3.7.3 and the test results will be compared to 25 Pa. code, 250.708, Appendix A, for medium specific concentrations for non-use, non-residential aquifers, or alternate risk-based standard. Sample locations will be selected based on staining, beneath key features (i.e. piping, sumps, tanks) unless these features are to remain in service. If cracks or gaps in the surface of the secondary containment of the tank farm have been identified and are determined to have breached the concrete containment pursuant to procedures in Sections 3.4 of this Partial Closure Plan, at least one soil sample will be obtained from beneath each crack or gap. Additional samples will be taken every 10 linear feet from beneath any such features (i.e. crack or gap greater than 10 feet in length. A minimum of 1 sample will be collected. At each sampling point the concrete slab will be core drilled and soil sample will be removed from the top 6 inches, taking care to avoid mixing of the soil. If the initial soil sample does not meet the standard, then remediation (i.e. excavation) and additional sampling (i.e. post excavation sampling) will be required as presented in Section 3.7.5.

Soil samples will be collected at points below the hazardous pipeline route outside of the secondary containment area where evidence of historical leaks is present and beneath or near vapor piping condensate traps. These areas include any areas showing surface staining, stressed vegetation, etc. Any paved or concrete areas will be sampled if there is any evidence of surface staining. The paved material will be sampled and analyzed in the same manner as those for the concrete secondary containment areas.

The collection of up to 22 soil samples was assumed for the determination of the facility closure cost estimate as follows:

- 11 samples along the hazardous waste pipelines to be located in areas of observed stained pavement and/or areas of known historical spills (the number of samples taken along the hazardous waste pipelines may change if the pipelines are reused with the new hazardous waste tank farm);
- 3 samples beneath or in the vicinity of the vapor piping condensate traps located outside of the containments;
- 4 samples to be located in the Tank 1A/1B containment area at locations to be field selected as described above; and,

- 4 samples to be located in the Tank 2/3 containment area at locations to be field selected as described above.

Although the number and location of soil samples are subject to change based on current site conditions at the time of closure, the locations of the proposed sample locations are presented in Figure E-1-1.

The soil probe will be decontaminated between sampling points to avoid cross-contamination. Decontamination will be performed by washing with a non-phosphate detergent solution, followed by a tap water rinse and distilled water rinse.

3.6.3 Analytical Constituents and Methods

The rinseate and soil samples taken pursuant to this Partial Closure Plan will be analyzed for the hazardous constituents accepted and stored at Keystone. Samples will be analyzed for the constituents in Tables 1 and 2 of the WAP. The testing requirements will be in accordance with 25 Pa. code, 250.708, Appendix A, for medium specific concentrations for non-use, non-residential aquifers, or alternate risk-based standard. The statistical background analysis is described in Sections 4.3.2.1 - 4.3.2.4.

The methods and equipment used for sampling waste materials will vary with the form and consistency of the waste material that is being sampled. The methods are from the USEPA document *SW-846 Test Methods for Evaluating Solid Waste*, 3rd Edition, 1986, as updated (SW-846). Representative samples will be collected using protocols listed below for materials with similar properties (40 CFR §261 – Appendix I):

Extremely viscous liquid	ASTM Standard D 140-70
Crushed/Powdered material	ASTM Standard D 346-75
Soil/rock-like material	ASTM Standard D 420-69
Soil-like material	ASTM Standard D 1452-65
Fly Ash-like material	ASTM Standard D 2234-76
Containerized liquid wastes	COLIWASA

At the time of closure, Keystone may petition the Department for a reduced constituent list. If a unit, tank or other piece of equipment has managed its final volume of hazardous waste and Keystone can demonstrate that one or more constituents could not have been present in any of the wastes managed in that particular unit, tank or piece of equipment, then the Department may

agree to remove those constituents as analytical requirements for that particular item. Keystone may demonstrate that a constituent could not have been present by use of the facility operating record. The operating record must show that the unit, tank, or piece of equipment never managed wastes bearing hazardous waste identification numbers associated with a particular hazardous constituent. Keystone will submit a reduced parameter list to the Department at least 90 days prior to implementation of partial or full closure. Information to be included with the request shall include historical data including a listing and evaluation of all previously approved waste streams Module 1/Form U plus historical sampling and analysis data contained in the facility operating record.

3.6.4 Quality Assurance and Quality Control

Sampling and analytical quality control and quality assurance will, at a minimum, be consistent with the applicable requirements of Chapter One of SW-846. The procedures presented in that document will be followed to assure that the analytical results will be accurate and representative.

In addition to the procedures of Chapter One of SW-846, in order to evaluate the acceptability of the field sampling program, at least one duplicate sample, one equipment blank and one trip blank will be prepared each day on which sampling occurs. The duplicate sample will be prepared by splitting a sufficient quantity of soil, rinseate or any other substance from one of the sample locations into two equal parts. Each part will be placed in appropriate sample containers. An equipment blank will be prepared by pouring organic free deionized water through the decontaminated sampling device. The water will be collected in appropriate sample containers. The trip blank will be a quantity of organic free deionized water that will be shipped to the site with the empty sample containers and returned to the laboratory with the samples. The duplicate sample and the blanks will be analyzed for the constituents pursuant to Section 3.6.3 above.

3.6.5 Additional Soil Sampling and Removal Protocol

Should any subsurface soil sample exceed the closure decontamination standard for any constituent the contaminated soil will be removed. If applicable, the overlying concrete in the vicinity of soil sampling location will first be removed and soil will be excavated to a depth at which the decontamination standard is achieved then post excavation samples will be collected. If samples from the same coring at which the standard was exceeded at a greater depth achieve the decontamination standard, soil will be excavated to that depth. Post excavation soil samples

need only be analyzed for those constituents in the upper level samples which did not meet the decontamination standard.

The areal extent of the soil excavation will include the linear extent of any observed staining or crack underneath a containment structure from which a sample did not achieve the decontamination standard, or to the point at which another sample taken from under the same crack successfully achieved the decontamination standard. Soil will also be excavated for ten feet on each side of the linear extent of the crack or a noted exceedance of the standard.

Under PADEP Technical Document entitled, "Closure Requirements for Aboveground Storage Tank Systems", effective October 12, 2002, any contaminated soil or earthen material being excavated within 3 feet of the tank system in any direction, and does not impact water during excavation is considered localized contamination. If contaminated soil is located more than 3 feet beyond the tank system or foundation, or impacts water, it is considered as an extensive contamination, and remedial activity may be considered. In the case of extensive contamination, additional site characterization and corrective action measures may be required.

Excavation vehicles used to remove contaminated soil will be decontaminated by scraping and/or brushing solids from the blades and tires which touched the contaminated soil. The scrapings will be properly disposed of as hazardous waste. Vehicles will then be washed and rinsed using the decontamination procedures for equipment. Vehicles will be washed on an impervious surface which allows for the collection of the rinseate in containers or tanks.

The rinse water generated during decontamination of vehicles will be collected and managed as hazardous waste. Alternatively, the rinseate may be sampled and analyzed in accordance with Section 3.7.1, above. If no hazardous waste or hazardous waste constituents are identified in the rinse water it will be managed as non-hazardous wastewater.

3.7 Duties of the Professional Engineer

An independent registered professional engineer will observe closure activities of the HWMUs throughout the closure time period. As part of the certification, the engineer will be required to make a thorough visual check of the site (permit boundaries) to inspect for stored materials, spot discoloration or other evidence of unmitigated spills. These areas will specifically include

beneath the overhead vapor and waste derived fuels piping located outside of containment, the scale area, vehicle access roads and the laboratory. The engineer will direct whether sampling and or cleanup of areas will be required before the certification can be made.

The engineer will monitor the closure activities and will visit the site frequently to specifically view the following activities:

- Final inventory elimination;
- Tank and equipment decontamination;
- Secondary containment crack determination;
- Secondary containment decontamination;
- Rinseate sampling procedures; and,
- Soil sampling procedures.

A certification of closure of each HWMU contained in this Partial Closure Plan is required to be signed by an independent registered professional engineer upon the inspection and approval of closure by the independent registered professional engineer in accordance sections from 25 Pa. Code 264a, Subpart G (Closure and Postclosure), 40 CFR Part §264.197 (Closure and Postclosure Care), and 40 CFR §270.11.

Prior to signing the certification that the facility has been closed in accordance with this Partial Closure Plan, the engineer will also review the analytical data, laboratory reports, and calculations, which demonstrate that closure decontamination standards have been achieved. Such review will address demonstrations that appropriate Quality Assurance and Quality Control procedures, as described in Section 3.6.4, have been observed that the appropriate equations have been applied and correctly calculated.

3.8 Closure of Stormwater Storage Tanks and Silos

The Stormwater Storage Tanks and Silos are not permitted as HWMUs and thus closure of these units as HWMU will depend upon a determination as to whether they will be classified as hazardous waste units at the time of closure. The existing silos and storage tanks are not currently considered HWMU's since the stormwater has never been tested to be a hazardous

waste. If stormwater continues to pass acceptance testing, then the stormwater storage silos would not need to be included in closure activities. As part of the closure activities for the facility, a final determination whether closure of one or more of the stormwater storage tanks or silos will be based on a review of past sampling data. If a future stormwater test fails acceptance testing, then that stormwater storage silo or tank would be identified for closure. Closure would include wipe testing of the storage tank internal walls, as specified in Section 3.6.1. If the wipe tests indicate the presence of contamination, then the storage tanks or silos will be decontaminated using the same procedures as those for the waste derived fuels storage tanks as described in Section 3.2.1. If the wipe testing does not indicate the presence of contamination, then the tanks would be recycled or remain in place for reuse or disposed of offsite.

4.0 DECONTAMINATION STANDARDS

Pursuant to 40 CFR Part 264, Subpart I, §264.178 and §264.197, the hazardous waste and hazardous waste residue shall be removed or decontaminated. In the area of the tank system, the contaminated soils, components, structures and equipment contaminated with waste must be managed as hazardous waste (40 CFR §264.197). Closure requirements for above ground storage tank systems are also described in PADEP Guidance Document No. 257-4200-001, dated October 12, 2002 and entitled, "Closure Requirements for Aboveground Storage Tank Systems."

4.1 Clarification

The liquid inventory is to be removed from the tanks and piping systems as indicated in Section 3.2.1. A tank is classified as being empty when no more than 1 inch or 0.3 percent by weight of its total capacity of residue remains in the tank (PADEP Technical Document No. 257-4200-001). Once this remaining residue is removed using applicable industry standards, the tank and piping are considered "clean."

It is anticipated that soil contamination at the site will be minimal since storage and processing areas are located in lined containment areas. Therefore, any contamination of the soil in the areas of the storage tanks and piping system is assumed to be localized contamination and will not be extensive. Localized contamination is classified as contamination that does not extend more than three (3) feet beyond the tank system, in any direction, and does not impact water in the excavation. If there is no obvious contamination, or where there is localized contamination, confirmatory sampling procedures must be conducted in conformance with the PADEP Technical Document No. 257-4200-001, entitled, "Closure Requirements for Aboveground Storage Tank Systems." PADEP may exclude or limit confirmatory soil sampling based on several criteria, such as, if there are no significant signs of staining of the soil or breaching of the containment area. The excavation and removal of any soils or earthen material located more than three (3) feet beyond the tank system or foundation in any direction may be considered as remedial activity.

When it is not promptly determined whether a material is classified as a hazardous waste, the material shall be managed as a hazardous waste until it can be adequately determined. If the waste is no longer classified as hazardous, the materials will become subject to regulations for residual waste. For the materials to be classified as hazardous waste they must meet or exceed the minimum concentration levels for each constituent described in 25 Pa. code, 250.708,

Appendix A, for medium specific concentrations for non-use, non-residential aquifers or alternate risk based standards.

The confirmatory sampling will be performed for the hazardous constituents accepted by Keystone (those constituents detailed in Tables 1 and 2 of the WAP).

4.2 Generator of Waste

As closure procedures continue, Keystone may generate hazardous waste that must be managed in accordance with the applicable requirements. The hazardous waste can be temporarily stored in the existing tanks, tank trucks, and DOT approved steel drums or plastic containers. They may accumulate hazardous waste on-site for a period of 90 days or less without a permit, or without interim status, provided that the waste is stored in compliance with 40 CFR §262.34. Within 90 days Keystone must treat, remove or dispose of the hazardous waste in accordance with 40 CFR §246.113.

4.3 Decontamination Procedures and Standards

4.3.1 Non-Detection and Comparison to Standards

If analysis of a rinseate sample from a tank, containment area, or piece of equipment should result in analytical non-detection of the constituents analyzed pursuant to Section 3.7.3 that item will have met the closure decontamination standard. Should low concentrations of constituents be detected in the rinseate, then risk based standards will be used to evaluate if the decontaminated equipment poses a threat to human health and the environment. The clean-up standards are presented in Section 1.2.

Should the results of the deepest soil sample at each location result in non-detection of the constituents analyzed pursuant to Section 3.7.3, that sampling location shall be deemed to be uncontaminated. Alternatively, as described in Section 1.2 should the results of the soil sample be less than the appropriate Pennsylvania Clean-up Standard (i.e. ACT II non-residential clean-up standards) or alternate risk based standard, the soil will have met the closure decontamination standard. Should some soil samples demonstrate contamination above standards, further soil sampling and removal will be conducted pursuant to Section 3.6.5 of this Closure Plan.

4.3.2 Comparison to Background

Alternatively, if the standards measured in soil cannot be met, attainment of the closure decontamination standard may be demonstrated through the use of a statistical comparison of hazardous constituent concentrations in soil samples. As allowed under the PADEP ACT II standards, soil samples may be compared to those of uncontaminated background samples as described in Sections 4.3.2.1 - 4.3.2.4. If background is selected as the clean-up standard, Keystone will submit specific background locations to the Department for approval at least 90 days prior to conducting background sampling.

4.3.2.1 Collection of Background Samples

Background samples will be collected in a manner identical to that of the closure samples from the analogous matrix, including the sampling Quality control procedures. The location of the background sampling will be approved by the Department prior to sampling.

(A) Background rinseate samples will be obtained from a concrete structure at the facility, or adjoining facility, which has not been exposed to any hazardous waste. The background sampling surface will be washed and rinsed in a manner identical to that for tank and containment surfaces. The final rinse will be sampled in a manner identical to the collection of samples of rinseate from the waste management units.

At the Permittee's discretion, instead of the above procedure, background rinseate samples may be taken directly from clean unused facility tap water.

(B) Background soil samples will be obtained from an area unaffected by hazardous waste management activities and from a soil of similar geology and soil type as the unit subsoil. Background soil samples will collected from a depth of 0.2 feet below the ground surface and at a lower depth, if contamination is detected.

4.3.2.2 Calculation of Upper Tolerance Limits

If a statistical comparison is used, a tolerance limit procedure may be used to demonstrate decontamination. For this procedure a minimum of eight background samples will be collected and analyzed for the necessary constituents pursuant to Section 3.7.3. Background samples of uncontaminated media will be taken as described in Sections 4.3.2.1, above. Using the data from the analyses of the eight background samples, an upper confidence limit (UTL) for each constituent will be calculated as:

$$UTL = x + (K_{95}(0.95,n) * s)$$

Where: x = the mean of the measured values

s = the standard deviation of the measured values

The parameter K95(0.95,n) establishes the UTL such that there is a 95% chance that at least 95% of the time the actual constituent background concentration will be below the this upper bound. Table GG-2 identifies the value of this parameter a function of n. The value of K for eight samples (n = 8) is 3.188.

4.3.2.3 Comparisons to Upper Tolerance Limits

The results of the analyses of each rinse water sample from a tank, containment area or piece of equipment will be compared to the appropriate UTL for the constituents analyzed pursuant to Section 3.7.3. If the concentration of every analyte in a sample is below the appropriate UTL, then that item will have met the closure decontamination standard.

The results of the analyses of each soil sample will be compared to the appropriate UTL for the constituents analyzed pursuant to Section 3.7.3. If the concentration of every analyte from the depths of a soil sample is below the appropriate UTL, that sampling location will be deemed to be uncontaminated. Should the soil samples be uncontaminated in this fashion, the soil will have met the closure decontamination standard. Should some soil samples demonstrate contamination, further soil sampling and removal will be conducted pursuant to Section 3.6.5 of this closure plan.

The tolerance limit method may only be used when the background data are normally distributed. Normality of the analytical results will be demonstrated by use of the Coefficient-of-Variation test, Probability Plots, or the Chi-squared test as specified in Chapter 1 of the EPA document "Statistical Analysis of Ground-Water Monitoring Data at the RCRA Facilities" Addendum to Interim Final Guidance, April 1992. Analytical non-detections will be managed consistent with the recommendations in Chapter 2 of the EPA guidance document cited above.

4.3.2.4 Alternate Statistical Procedure

Should the background data be non-normally distributed, an alternate statistical procedure may be used. For this procedure at least five samples of rinse water from each area and five samples of rinse water from a concrete surface unexposed to hazardous waste will be analyzed for the constituents specified in Section 3.6.3. The concentrations of each constituent will be compared to the background concentration using the Student's t-Test with one-tailed t values at the 0.05 level of significance. Decontamination of an area will be demonstrated by no significant difference for the constituents.

4.4 Alternative Treatment Standards for Hazardous Debris

Alternative treatment standards for hazardous debris specified under 40 CFR Part 268.45 may be used to demonstrate decontamination of a tank, secondary containment area, or a piece of equipment prior to disposal off-site. The performance and/or design and operating standard for various technologies is presented and provides treatment to a clean debris surface as specified and defined in 40 CFR Part 268.45.

Any hazardous debris that has been treated using one of the specified Extraction or Destruction Technologies specified in Table 1 (Alternative Treatment Standards for Hazardous Debris) of 40 CFR Part 268.45, and after treatment, does not exhibit a characteristic of hazardous waste, is not classified as a hazardous waste and shall not be managed in a RCRA permitted treatment storage or disposal (TSD), Subtitle C facility.

If the alternative treatment standards are performed to demonstrate decontamination prior to removal and off-site disposal, the closure report is required to specify the description of the technology used, and a detail of the decontamination activities for the extraction, destruction, or immobilization technology that was used. In addition, the closure report is required to specify the observed physical condition of the final cleaned surfaces based upon the inspection and description by the independent registered professional engineer.

The alternative treatment standards for hazardous debris will be considered acceptable to the Department only upon the inclusion of an additional certification statement by an independent registered professional engineer that the closure has been completed in accordance with criteria, and the purpose and intent of the alternative treatment standard specified in 40 CFR Part 268.45, and that the debris, after treatment, does not exhibit a characteristic of hazardous waste identified under 40 CFR Part 261, Subpart C.

5.0 ALTERNATIVE T0 DECONTAMINATION OF WASTE MANAGEMENT STRUCTURES AND EQUIPMENT

As an alternative to further decontamination procedures, at any time in the closure procedures Keystone may elect to demolish any equipment or portions of the hazardous waste management facility and manage the equipment or debris as hazardous waste prior to transporting off-site for disposal at a permitted hazardous waste facility. Any tanks or equipment which are disposed of as hazardous waste will be rendered unusable by cutting them in half or cutting several large holes in them prior to disposal. Keystone Cement may elect to drain, remove, cut, containerize and dispose of piping and related ancillary equipment as a hazardous waste. Should this alternative be selected for a containment area, the sampling and analysis of underlying soils, which is prescribed by this plan, will still be carried out to confirm compliance with the clean closure decontamination standards.

6.0 FINANCIAL ASSURANCE FOR CLOSURE

6.1 Closure Cost Estimate

In accordance with the terms of closure and financial requirements implemented by the State and Federal regulatory agencies, a cost estimate for closure has been developed. This cost estimate has been prepared based upon the procedures outlined in this Closure Plan. Attachment No. 2 shows a complete breakdown of the estimated costs for closure contained in this Partial Closure Plan for the closure of existing HWMUs using the Department's Bonding Worksheets. The estimated costs have been calculated based on a point in time in the facility's active life when the extent and manner of its operation would make closure the most expensive.

The cost estimate has been conservatively estimated to develop a worst case cost and considers the following:

1) Completion of all activities by a third party under the direction of the Department and not Keystone including the application of a 10% administrative fee for the Department to administer the work;
2) That existing facilities and services (such as water and electrical) will be paid for by the Department;
3) A contingency of 12.5% to account for unknown conditions; and,
4) That all materials must be decontaminated and disposed of offsite. This assumption assumes that materials cannot be reused or disposed of in the existing kiln (i.e. cement kiln brick must be disposed of off-site and not used for raw material; and the tanks cannot be sold for reuse or salvage (i.e. per §264.14 the closure costs do not incorporate any reduction for salvage value of recycled scrap metal).
5) It was assumed that piping would be dismantled and disposed of as a hazardous waste.

These cost estimates are kept on file at Keystone site and will be revised accordingly when a change in the Closure Plan affects the cost of closure. During the active life of the facility, the estimate must be adjusted by Keystone to reflect the addition or removal of devices and/or units, as necessary. In addition, the closure cost estimate must be adjusted for inflation within 60 days prior to the anniversary date of the establishment of the financial instrument used to comply with

the established regulations pertaining to closure. This revised amount, adjusted for inflation will reflect the current closure cost estimate for the current hazardous waste management facility. If the closure plan is modified and approved by the Department, Keystone must revise the closure cost estimate no later than 30 days after the approval.

6.2 Financial Assurance Mechanism

Keystone must establish financial assurance for closure of the hazardous waste facility. Many of the financial requirements for closure of planned, yet unconstructed, facilities are not necessary until the time of construction. Thus, the documentation provided in Attachment No. 1 covers existing facilities, most of which are not covered by the Full Closure Plan activities because they will be closed under the Partial Closure Plan. In accordance with the requirements of Pa. Code 264a.156 within 60 days prior to the initial receipt of hazardous wastes in any new units, Keystone will acquire the necessary financial requirements and submit the documentation to PADEP for approval.

Several mechanisms for financial assurance are available and are specified in Pa. Code 264a.145 and Pa. Code 264a.156. Keystone has historically complied with the regulations of the Commonwealth of Pennsylvania by providing documentation detailing the collateral bonds pledged in the form of a "bank letter of credit". This letter of credit complies with the requirements of Pa. Code 264a.156(d). An example of Keystone's trust mechanism is found in Attachment No. 1.

7.0 LIABILITY INSURANCE

7.1 Liability Insurance

In addition to the financial assurance mechanisms for closure discussed in Section 6.2, in accordance with Pa Code Section 264a.147, Keystone maintains sudden accidental liability insurance coverage that meets the financial requirements of the Pa Code. As required, Keystone updates this insurance coverage policy on an annual basis. An example of the Certificate of Liability Insurance maintained by Keystone is included in Attachment No. 4.

FIGURES

APPENDIX E
CLOSURE PLAN AND FINANCIAL REQUIREMENTS

APPENDIX E-1
PARTIAL CLOSURE PLAN
KEYSTONE CEMENT COMPANY

Prepared for:

Keystone Cement Company
P.O. Box A
Route 329
East Allen Township, Bath, Pennsylvania 18014-0058

August 2006 (Golder Associates, Inc.)
Revised September 2007 (Golder Associates, Inc.)
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1.0 GENERAL

1.1 Introduction

Keystone Cement Company (Keystone) operates a hazardous waste processing, storage and treatment facility, in Bath, Pennsylvania. The facility is located on an over 800-acre tract of land in East Allen Township, Northampton County, one mile south of the Borough of Bath. The facility burns liquid hazardous waste material (i.e., waste derived fuel, solvent, hazardous waste derived fuel) in addition to conventional fuels for energy recovery in a cement kiln pursuant to the Federal Clean Air Act National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Hazardous Waste Combustors Maximum Achievable Control Technology Rule at 40 CFR Part 63, Subpart EEE (HWC MACT). The storage of the liquid hazardous waste on-site is permitted by Keystone's Resource Conservation and Recovery Act (RCRA) Part B Permit (PAD002389559). Federal regulation 40 CFR §270.14 provides the general requirements for the contents of a RCRA Part B application or a RCRA Part B modification application. The general requirements include a copy of the facility's closure plan and the most recent closure cost estimate for the facility. This Partial Closure Plan meets the requirements of 40 CFR §270.14 and the other federal regulations referenced therein. In addition, it meets the requirements of 25 Pa Code 264.a.166 related to closure certifications.

The purpose of this Partial Closure Plan is to outline the procedures necessary to completely close the existing permitted hazardous waste management units (HWMU) contained within the facility (i.e. existing tank farm storage facility with four (4) aboveground storage tanks, any associated piping (that is not reused), associated secondary containment structures, and ancillary equipment). These existing HWMUs will be closed and dismantled following the construction of the Final Operating Scenario which includes the planned waste derived fuel storage and rail unloading facility (i.e. tank farm storage facility with six (6) aboveground storage tanks[1], railcar unloading facility (with one (1) aboveground storage tank), associated piping, associated secondary containment structures, existing truck staging area, existing truck unloading area, existing truck parking area, and ancillary equipment that may contact hazardous waste such as the vapor phase

[1] It is anticipated that Keystone may close its four existing aboveground storage tanks at different times. The existing Tanks 1A, 1B, 2, and 3 will remain in service until the end of life or when the tank integrity is diminished so that the tank can no longer store hazardous waste. Keystone may decide to construct a portion of the expanded tank farm and continue to operate the existing tank farm. At no time will the tank storage capacity on-site exceed 220,000 gallons.

carbon adsorption units) and the planned direct transfer line and mixing system that will be located on the existing truck unloading pad.

The closure of the Planned tank farm, associated railcar unloading area (and associated tank), associated piping, associated secondary containment structures, existing truck unloading area, the existing truck staging area, existing truck parking area, and ancillary equipment as well as the vapor vent line to the kiln, and planned mixing system are presented in the Full Closure Plan for Final Operating Scenario provided as Appendix E-2 The Full Closure Plan also includes closure of the General Hazardous waste storage areas (i.e. 90-day storage areas) including the existing containment area where demolished Kiln No. 2 was located and the cement kiln dust (CKD) Contingency area located near the Quarry Shop.

The closure of the existing HWMUs will be conducted during several stages throughout the operating life of the facility. This Partial Closure Plan will incorporate the stages of closure that occur at the time that the HWMUs covered under the Full Closure Plan for Final Operating Scenario are constructed and operational.

The Partial Closure will include the closure of the existing four (4) hazardous waste storage tanks, some associated piping (including a portion of the vapor vent line to the kiln), associated secondary containment structures, and ancillary equipment. This Partial Closure Plan also includes a determination as to whether storage tanks and silos used for stormwater management will require closure as HWMU. The closure of this stage will occur upon the completion of construction of the planned waste derived fuel storage tanks and railcar unloading facility for the Final Operating Scenario. The hazardous wastes and hazardous waste constituents will be removed or fully decontaminated at time of closure leaving the area in an uncontaminated condition suitable for other uses (i.e., non-hazardous waste). The existing tanks or equipment will be either reused for waste oil or sent off-site for recycle/disposal. Keystone does not intend to abandon the tank farm and its associated equipment in place. The closure of these HWMUs will be performed in accordance with 25 Pa. Code Chapter 264a Subchapter G (Closure and Postclosure), 40 CFR Part 264 Subpart G (Closure and Postclosure), 40 CFR §264.173 (Container Closure), and 40 CFR §246.197 (Tanks Closure and Postclosure Care).

Keystone is presently submitting to the Department a RCRA Part B Permit Renewal Application that includes the previously approved construction of planned facilities on Site that are identified

as a Final Operating Scenario. As part of the requirements of the permit renewal application, this Partial Closure Plan is being reviewed by Keystone, and includes the HWMUs currently permitted on-site that are anticipated to be removed during the Final Operating Scenario and subsequent closure stages. This Partial Closure Plan was approved by the Department most recently on October 29, 2015.

A written Partial Closure Plan is required to be submitted with the permit renewal application and must be approved by the Department as part of the permit issuance (40 CFR §270.14). Keystone will notify the Department in writing at least 45 days prior to the date final closure of the HWMUs are expected to begin (40 CFR §264.112). Keystone will maintain a copy of the approved Partial Closure Plan on-site until the Certification of Closure has been submitted to and accepted by the Department (25 Pa. Code 264a.166). Within 60 days of completion of closure activities, Keystone must submit to the Department, by registered mail, a certification that the closure activities have been completed and conducted in accordance with the specifications in the approved Partial Closure Plan (40 CFR §264.115). This certification must be signed by Keystone and by an independent registered Professional Engineer.

1.2 Closure Performance Standard

In accordance with 40 CFR §264.111 (Closure Performance standards), 40 CFR §264.113a (Closure), 40 CFR §246.114 (Disposal or decontamination of equipment, structures, and soils), 40 CFR §264.178 (Closure standards for containers), and 40 CFR §264.197 (Closure standards for tanks), Keystone has developed a detailed Partial Closure Plan for the HWMUs at the Site. Only existing permitted equipment that will be closed during the construction of the new tank farm and railcar unloading facility in the Final Operating Scenario is included in this Partial Closure Plan. During the lifetime of the facility, Keystone will amend the Closure Plan whenever changes in operating procedures or facility design affect the Plan, including addition of future equipment, or whenever there is a change in the expected year of closure.

The facility has been designed and is operated in a manner which minimizes the potential for the discharge or spill of hazardous materials and reduces a potential hazard to the health and safety of the public or environment. The HWMUs that will be addressed in this Partial Closure Plan are as follows:

1) Four (4) waste derived fuel storage tanks. The four (4) waste derived fuel storage tanks in the tank farm area are aboveground tanks that currently store waste derived fuels.

   A. Two of the Existing, Tanks (1A and 1B) which are 15,000-gallon capacity tanks, may be decontaminated, tested, and reused for waste oil storage.

   B. The other two tanks, Tanks 2 and 3 which are 31,500-gallon working capacity tanks, may also be decontaminated, tested, and reused for waste oil storage.

2) Secondary Containment Structures:

   A. The secondary containment area for Tanks 1A and 1B will be decontaminated for clean closure, tested and reused for containment of 1A and 1B for storing waste oil. The underlying soils will be tested in the event that cracks are present and it is determined that these cracks have breached the concrete containment as detailed in Section 3.4.

   B. The secondary containment area for Tanks 2 and 3 will be decontaminated for clean closure, tested and reused for containment of 2 and 3 for storing waste oil. The underlying soils will be tested in the event that cracks are present and it is determined that these cracks have breached the concrete containment as detailed in Section 3.4.

3) Liquid Fuels Transfer Piping, Pumps and related equipment including:

   A. Unloading piping associated with the transfer of materials to Tanks 1A and 1B will be reused for the new tank farm and/or removed and disposed of offsite;

   B. Unloading piping associated with the transfer of materials to Tanks 2 and 3 will be reused for the new tank farm and/or removed and disposed of offsite;

4) Vapor Phase Carbon Adsorption System and related vapor phase piping will be decontaminated, removed and disposed of off-site or reused in the new tank farm; and

5) A portion of the waste derived fuel vapor vent line to the kiln from storage tanks 1A, 1B, 2, and 3 will be reused for the new tank farm and/or removed and disposed of offsite.

Ancillary equipment that does not contact hazardous waste constituents, such as the nitrogen system, are not subject to closure.

The operations of Keystone to manufacture portland and masonry cement have been designed and are operated in a manner which minimizes the potential for contamination of the facility structure, equipment, and surrounding property. The facility design, coupled with the frequent inspections and facility maintenance, provides for a safe daily operation and minimizes the need for clean-up and decontamination at closure.

The procedures, regulations, and sequencing plans that have been incorporated into this Partial Closure Plan are intended to: (1) ensure that the facility will not require post-closure maintenance and control following closure of the various HWMUs listed above; (2) minimize any threats to human health or the environment; (3) reduce the potential for any post-closure escape of hazardous waste or hazardous waste constituents to groundwater, surface waters, or the atmosphere; and, (4) comply with other applicable closure requirements for the storage tanks and ancillary equipment or facilities.

Samples will be taken of the decontamination materials and surrounding soils, as necessary, and analyzed to verify that hazardous constituents do not remain above concentrations that exceed the decontamination standards after closure of the various HWMUs. Specific sampling procedures and verification criteria are included in Sections 3 and 4 of this plan. If required, soils and other media will be tested for the constituents that are typically present in the waste streams accepted by the facility. This list is included in Tables 1 and 2 of the Waste Analysis Plan and incorporated as part of Keystone's RCRA permit. The proposed test parameters will include volatile organics, semi-volatile organics, and metals.

Keystone may submit a reduced analytical parameter list to the Department for approval 90 days prior to implementation of partial or full closure. Information to be included with the request shall include historical data including a listing and evaluation of all previously approved waste streams Module 1/Form U plus historical sampling and analysis data contained in the facility operating record.

Rinseate from the decontamination of structures that will remain onsite for reuse, such as tanks and secondary containment structures, will be tested. If the rinseate concentrations are reported to be non-detect, the structure will be considered decontaminated and closed.

The rinseate water will be from a potable water source and the potable water source will be tested. Rinseate concentrations reported to be greater than non-detect will be compared to the concentrations of the potable water source. If rinseate water concentrations are equal to the potable water source, then the structure will be considered decontaminated and closed. If the rinseate water contains concentrations greater than the potable water source, then the difference between the two will be compared to the lowest standard presented in either:

- The Universal Treatment Standards for wastewater (40 CFR §268.48);
- The Department's Division of Drinking Water Management Maximum Contaminant Level (MCL); or,
- The Department's groundwater clean-up standards as published in Appendix A of PADEP §250.708.

Keystone may determine after cleaning that these standards cannot be achieved and Keystone may desire to reuse the equipment for uses other than storing and handling waste derived fuels. For example, Keystone may desire to handle used oil in the tanks. In that instance, Keystone will submit the rinseate test results, the proposed use of the equipment and an evaluation of the impacts that reuse of the equipment may have on the environment to the Department for approval of decontamination and closure.

The soil investigation results will be compared to applicable Pennsylvania Act 2 Land Recycling and Environmental Remediation Standards. The Act 2 program provides a set of cleanup standards based on health risks including:

1) background standards;
2) statewide health standards; or
3) site-specific standards.

For the statewide health standards (SHS), medium specific concentrations (MSC) have been established for residential and non-residential use. Because the end-use of the Keystone Site will be industrial, the non-residential SHS will be used for soil and groundwater data comparisons.

For soils, a two-step comparison process is required. First, the results will be compared to direct contact numeric values for non-residential use. Depending on the depth of the soil sample, the results will be compared to the surface (0-2 ft) or subsurface (2-15 ft) direct contact numeric values. Second, the numbers will be compared to Soil to Groundwater numeric values. The Used Aquifer, TDS less than or equal to 2,500 ug/L, non-residential values will be used. Notably, the soil to groundwater non-residential SHS have two sets of values that can be used. These are 100 times the groundwater MSC and a Generic Value that is based upon a soil to groundwater equilibrium equation. Under the Act 2 regulations, the property owner can select either of these

subsets to use on a chemical specific basis.

For constituents routinely accepted by Keystone that do not have ACT 2 standards, then the EPA Region III Risk Based Concentrations or other published standard will be used.

1.3 Partial and Final Closure Activities

During the partial and final closure periods, the contaminated equipment, structures and soils must be properly disposed of or decontaminated. By removing any hazardous wastes or hazardous constituents during partial and final closure, Keystone may generate hazardous waste and must handle that waste in accordance with the applicable requirements.

Partial closure of various HWMUs of the facility will be conducted as referred to in this Partial Closure Plan. A Final Closure Plan, provided as Appendix E-2, will be in existence for the entire hazardous waste facility, which will cover the Final Operating Scenario, and will be in existence for the lifetime of the facility. The Full Closure Plan, and subsequent partial closures may be undertaken as one of the tanks, unloading/loading, associated pipes, associated secondary containment structures, rotary cement kiln, ductwork, stack and prime mover for the kiln, or ancillary equipment is taken out of service in the future. In such event, the closure procedures provided herein would be followed for only the equipment being removed from service. Any modifications to the facility equipment, structures, or procedures related to the facility operation (including partial closure) which affect the overall Closure Plan will result in Keystone revising the Final Closure Plan and associated closure costs accordingly. It is anticipated that if the closure of the facility occurs prior to the completion of the Final Operating Scenario, then the complete closure of the facility may incorporate the combined Partial Closure Plan and Full Closure Plan.

Keystone will dispose of the on-site hazardous waste inventories, and, except as provided in Section 5.0 of this plan, the equipment will be tested as necessary to certify their uncontaminated condition. Except as provided in Section 5.0, transfer piping, valves and pumps would be flushed free of hazardous constituents and tested as necessary to certify their uncontaminated condition or disposed of as a hazardous waste. In addition, secondary containment and surrounding soils (as necessary) will be verified to be sufficiently free of contamination that they do not pose a risk to the environment. Activities conducted in the partial closure are more fully described in

subsequent sections of this Plan. Final closure will fully comply with the Closure Performance Standard as stated above and more fully described under the Final Closure Plan.

1.4 Maximum Waste Inventory

The maximum inventories of hazardous waste at any time for the various HWMUs covered under this Partial Closure Plan are estimated as follows:

- Waste derived fuel Storage Tanks - 4 existing, totaling 93,000 gallons of storage capacity; and,
- Storage Tank Containment Area - no storage, containment only for potential leaks.

Keystone will only burn in the kiln the waste derived fuel inventory present in the waste derived fuel tanks at the time of closure that have been accepted in accordance with the Waste Analysis Plan. All waste derived fuels will be burned following the approved Standard Operating Procedures.

Within 90 days after receiving the final volume of hazardous wastes, Keystone must treat, remove or dispose of the hazardous wastes in accordance with the approved Partial Closure Plan (40 CFR §264.113).

2.0 SCHEDULE FOR CLOSURE

It is forecasted that partial closure activities will not occur until: 1) the completion of construction of the Final Operating Scenario or 2) in phases when a tank reaches its end of life. Any hazardous waste residuals generated from closure activities, such as rinseate, will not be accumulated at the facility for greater than 90 days.

2.1 Time Allowed for Closure

The estimated time of closure of the facility is 180 days from the date of final receipt of waste. The Department will be notified 45 days prior to beginning closure. When the closure activities are complete, final closure will be certified by an independent registered Professional Engineer in addition to a principal corporate officer of Keystone.

2.2 Certification of Closure

Within 60 days of completion of closure of the HWMUs referred to in this Partial Closure Plan, Keystone must submit to the Department, by registered mail, a certification that the HWMUs have been closed in accordance with the specifications in the approved Partial Closure Plan. This certification must be signed by Keystone and by an independent registered Professional Engineer.

3.0 CLOSURE PROCEDURES

3.1 Inventory, Removal, Disposal or Decontamination of Equipment

Closure of the referred to HWMUs will be conducted in a manner which ensures removal of the waste and complete decontamination of the equipment described in Section 1.0 above. The equipment used during closure activities will be decontaminated in a safe and professional manner by trained, qualified hazardous materials technicians using procedures and safety gear appropriate for the closure procedures. The contaminated surfaces of closure equipment will be scrubbed with solutions designed to remove contaminants. The surfaces will then be rinsed with water. This process will be repeated as often as necessary to ensure complete surface decontamination. Sampling and analysis will be conducted to verify that decontamination has been effective at each of the hazardous waste management units referred to in this Partial Closure Plan. Where decontamination cannot be affected, the contaminated material or equipment determined to be hazardous as a result of laboratory analytical testing, will be handled and disposed of as a hazardous waste at an appropriate off-site facility.

Except as detailed in Section 5.0, closure procedures include cleaning and decontamination of tanks, flushing of piping and transfer lines, and testing to ensure no hazardous wastes or hazardous constituents remain in equipment. Wastes flushed from transfer lines, as well as any solvents which may be used for decontamination, will be collected for disposal.

The piping and transfer operations to and from referred to hazardous waste process/storage/ treatment units will be dismantled and decontaminated. Pumping equipment and process machinery (i.e. valves, flow meters, etc.) will be thoroughly cleaned and if tested as non-hazardous, either sold for scrap or removed for re-use.

Soil contamination at the site is expected to be minimal since storage and processing areas are located in lined containment areas. Visual inspections of the soils surrounding the HWMUs will be conducted to determine if stained or odor releasing soils are present, indicating the possible release of hazardous waste. If there is indication of soil contamination, the area will be sampled to determine if remediation is required, or excavation and removal of affected soils will take place followed by verification sampling and analysis. If the closure activities result in the spillage of hazardous materials, such occurrences will be handled by immediately excavating the contaminated aggregate or soil and sending it for disposal at a permitted hazardous waste facility.

Closure procedures will be conducted by facility personnel or outside contractors following comprehensive safety procedures to ensure employee safety during clean-up. The clean-up work will be supervised and performed using qualified facility personnel, or outside contractors. Appropriate personnel protection will be utilized during closure operations, consistent with the applicable National Institute for Occupational Safety and Health (NIOSH) and Mining Safety and Health Administration (MSHA) regulations in effect at the time closure is implemented. Equipment that may be required include, but is not limited to, solvent resistant coveralls, head protection, pre-coated gloves, boots resistant to solvents, and respirators with organic vapor and acid gas filter cartridges that seal directly to the mask. The personnel decontamination activities will be administered under the direction of Keystone's Environmental Manager or designee. The personnel will be instructed as to the required safety equipment and decontamination procedures to be used during closure. Although utilizing facility personnel is the preferred clean-up method, the more costly scenario of using outside contractors is used as the basis for the determination of the facility closure cost estimate.

Where the possibility exists for combustible vapors, their presence will be monitored with the combustible gas/oxygen meters. Non-sparking tools will be available should their use be warranted. Strict supervision will ensure that no open flames, hot surfaces, nor smoking are present in or around the work areas during clean-up and testing.

Prior to leaving any site locations undergoing decontamination, contaminated personnel protective clothing will be collected and placed in approved containers to be disposed of at an approved hazardous waste disposal facility. Specific closure procedures for closing the HWMUs covered under this Partial Closure Plan are provided in the following sections.

3.2 Closure of Tanks, Pipes, Transfer Lines, and Other Ancillary Equipment in Tank Storage System

The waste derived fuel is pumped from the truck unloading area to the waste derived fuel storage tanks. The transfer piping includes the valves, reducers, filters, gauges, and flanges. From the storage tanks, the waste derived fuel is then delivered to the kiln by pumps through a piping system with valves, reducers, gauges, and flanges. Keystone utilizes three (3) transfer pumps with grinders to transfer the acceptable waste derived fuel from the tank trucks to the waste derived fuel storage tanks. To deliver the waste derived fuel from the storage tanks to the kilns,

Keystone utilizes three feed pumps. Two (2) circulating pumps are also present and operational in the transport of waste derived fuel through the piping conveyance system.

3.2.1 Closure Procedures

The storage tanks vary in size and are aboveground steel tanks with secondary containment. The tanks are supported by a reinforced concrete floor, which comprises part of the secondary containment area. The closure of the secondary containment area is discussed further in Section 3.4 below. Closure procedures of the four (4) storage tanks consist of disposing of the hazardous waste inventory, removing and disposing of any non-pumpable residue from the tanks, cleaning and decontaminating the tanks and the ancillary equipment, and laboratory testing of final rinse water. Keystone plans to decontaminate the four (4) waste storage tanks until the final rinse water meets the criteria detailed in Section 1.2 of this closure plan.

The type of hazardous waste previously stored in the tanks and currently permitted to accept will indicate the appropriate hazardous constituent(s) expected to remain in the tank. After ensuring that the tanks are empty of the liquid wastes, they will be opened at the manway and visually inspected. The internal portion of the tanks will be tested prior to entry. It is recommended that the tanks be cleaned prior to removal from the tank supports or foundation to eliminate the potential for releases.

Confined space entry procedures will be initiated prior to any tank cleaning activities, which require personnel to enter a tank. Tanks will be vented for several days prior to entry, the fire department will be notified, pre-entry inspection monitoring will be performed, and notice posted in the work area. Appropriate valves will be locked out to isolate the tank as a precaution. Meter readings of carbon monoxide (CO), oxygen (O_2), and lower explosion limit (LEL) will be taken before opening the tank, when the manhole is opened, and every hour while work inside the tank continues. If meter readings warrant, a fan will be used to exhaust vapors from the tank.

The following procedures will be implemented to affect closure of the tanks:

A. Terminate the additions of hazardous waste shipments from off-site to the storage tanks;

B. Stored wastes will be removed from the tanks and either burned in the kiln or transferred off-site to a permitted TSDF. If the waste becomes un-pumpable due to setting of solids, waste from other tanks will be added and the mixture will be agitated before pumping

from the tanks. If insufficient waste is available in other tanks for the process, mineral spirits, other solvents, or other non-hazardous material will be purchased to accomplish the task. Liquid material remaining below the outlet ports will be removed by a mobile vacuum unit and transported to a suitable permitted hazardous waste management facility;

C. At closure of the tank system, Keystone must remove or decontaminate the waste residues, contaminated containment system components, contaminated soils, if any, and structures and equipment contaminated with waste, and manage them as hazardous waste;

D. Sludge will be removed from the bottom of the tanks. Should any sludge build-up occur that cannot be removed by procedure (B) above, the sludge will be physically removed from the tank. If other residual materials are also adhering to the tank sides, they will be physically removed at this time. The tanks will be cleaned with mineral spirits or other solvents applied by hand pump and any material adhering to the inside walls will be removed by hand scrubbing. This material will be removed by a mobile vacuum unit and containerized prior to disposal. The sludge material will be disposed of at an appropriate hazardous waste management facility;

E. The surface area of the tank will be cleaned manually using brushes and scrapers. Any over-spray or dropped residue will be contained by the tank containment structure, and collected for proper disposal;

F. Prior to the work and procedures to be conducted within the tank, an individual will be stationed outside any tank that has been entered during cleaning and sampling procedures;

G. After the sludge has been removed, the tank will be entered by personnel equipped with prescribed protective equipment. The internal walls, dome, floors, and nozzles will be cleaned with scrapers, brushes, and compatible detergents or cleaned with high pressure washing and steam cleaning, as appropriate;

H. The internal tank and piping surface areas will be inspected to identify any visual evidence of remaining contamination and re-cleaned as necessary;

I. Transfer lines will be flushed with mineral spirits, other solvents, or other non-hazardous material purchased to accomplish the task. The flush solvents will be removed with a mobile vacuum unit, handled as hazardous waste, and disposed of accordingly;

J. After solvent flushing, transfer lines will be flushed with water containing a non-ionic surfactant at the manufacturers recommended concentration. After the detergent flush, transfer lines and mixing tanks will be rinsed with facility tap water. Again, for each of these procedures the rinse volume will be at least equal the total volume of the lines and mixing tanks. The detergent rinseate will be managed as a hazardous waste and transported off-site to a permitted hazardous waste management facility. Tap water rinseate will be managed as specified in Step (L) below;

K. The tank internal surfaces will be further rinsed with a high pressure, low volume water spray. The specifications for the pressure cleaner will be sufficient to effect closure of the tanks;

L. A representative sample of the rinseate from each tank [Step (K)] as well as a sample of rinseate from the final tap water rinse of transfer lines [Step (J)] will be analyzed as specified in Section 3.7.1. Analytical results will be used to determine whether the tank meets the closure decontamination standard as specified in Section 1.2. Rinseate which does not demonstrate the closure decontamination standard will be managed as hazardous waste and transported off-site to a permitted hazardous waste management facility. Rinseate which does demonstrate the decontamination standard will be disposed as non-hazardous wastewater;

M. For any tank which does not demonstrate the closure decontamination standard, steps (J) and (K) above will be repeated until the decontamination standard is met. Alternatively, the tank may be closed in accordance with the procedures detailed in Section 4.4 or disposed in accordance with procedures specified in Section 5;

N. Internal surfaces will be tested by sampling the rinseate or by a "wipe test" method as specified in Section 3.7.1. If the wipe test method is used, three wipe samples per tank will be analyzed for waste constituents previously determined from the waste type stored in the tank;

O. The results of the wipe test will determine whether the tank has been sufficiently cleaned and decontaminated. If contamination remains, Keystone will reclean those areas using other techniques, such as high pressure sandblasting, and retest as described previously or close the areas in accordance with Sections 4.4 or 5.0;

P. The contaminated safety gear or debris generated by this activity will be disposed of as hazardous waste off-site in accordance with RCRA regulations; and,

Q. The tanks will be resealed and sold, or cut up for sale as scrap, depending on their condition. Alternately, Keystone may dispose of the scrap in an approved RCRA Subtitle C or D facility.

3.3 Closure of Secondary Containment for Tank Storage System

In the area of the tank storage system, the tanks are supported by an epoxy-coated, reinforced concrete floor, which comprises part of the secondary containment area. Closure of the Secondary Containment Area surrounding the Tank Storage System will not commence until final closure is conducted for all four (4) of the previously referenced storage tanks.

Stormwater that accumulates in the secondary containment area will be tested. If closure occurs while the kiln system is operational, the stormwater will be handled in accordance with SOP WF-12. If the kiln is not operational, the stormwater will be tested for the waste constituents accepted onsite. Stormwater that meets the Universal Treatment Standards (UTS) for wastewater (40 CFR

§268.48) will be sent offsite for treatment and disposal of a non-hazardous wastewater. Stormwater that does not meet the UTS for stormwater will be sent offsite for treatment and disposal as a hazardous wastewater.

3.3.1 Closure Procedures

The secondary containment surfaces will be decontaminated as follows:

(A) The secondary containment walls and floor will be cleaned with brooms and an abrasive material such as fine mesh lightweight aggregate, and the materials will be disposed of properly;

(B) The containment surface will be thoroughly inspected for cracks or gaps. The cracks in the containment will be identified and filled with a material, such as epoxy sealant, before washing;

(C) The entire secondary containment surface will be cleaned using a standard commercial steam-cleaning unit. The steam condensate will be managed as hazardous waste and transported off-site to a permitted hazardous waste management facility;

(D) The entire secondary containment surface will be further rinsed with a high pressure, low volume water spray. The specifications for the pressure cleaner will be sufficient to effect closure of the containment surface;

(E) A representative sample of the rinseate from the containment surface will be analyzed as specified in Section 3.7.1. Analytical results will be used to determine whether the containment surface meets the closure decontamination standard as specified in Section 1.24. Rinseate which does not demonstrate the closure decontamination standard will be managed as hazardous waste and transported off-site to a permitted hazardous waste management facility. Rinseate, which does demonstrate the decontamination standard, will be disposed as non-hazardous wastewater;

(F) If the containment surface does not demonstrate the closure decontamination standard, step (D) and (E) above will be repeated until the decontamination standard is met. Alternatively, the containment may be closed in accordance with the procedures in Section 4.4 or disposed in accordance with procedures specified in Section 5;

(G) After decontamination procedures have been completed any cracks or gaps, which were identified in step (B), above, will be further investigated. The concrete will be core drilled with a 6-inch bit. If the crack breaches the concrete, soil samples will be obtained from beneath the crack. Soil will be sampled and analyzed as specified in Section 3.7.2. Analytical results will be used to determine whether the soil meets the closure decontamination standard as specified in Section 1.24; and,

(H) Should soil samples not meet the closure decontamination standard, additional soil sampling and analysis, followed by soil removal, will be undertaken until the contaminated soil is identified and removed. Procedures for additional soil sampling and removal will be as specified in Section 3.7.5.

3.4 Equipment Decontamination

The equipment used in closing each component of the hazardous waste management system, including shovels, sampling tools, and buckets, will be washed with a detergent solution and rinsed twice with clean water in accordance with ASTM D5088-90. The equipment will be washed prior to each use at a different sampling location in containers or on an impermeable surface which allows for the collection of the rinseate in tanks or secondary containers. The rinseate used in the decontamination will be collected and managed as hazardous waste. Alternatively, the rinseate wash may be sampled and analyzed and compared to the universal treatment standards. If hazardous waste constituents are below the universal treatment standards, the rinse water will be managed as non-hazardous wastewater.

Expendable items used in the decontamination process of any of the hazardous waste units, such as mops, brooms, gloves, coveralls, and boots, will be collected, containerized and properly disposed of as hazardous waste. Such expendable items which have only been in contact with wash solutions and/or rinseate which subsequent analyses have shown do not display a hazardous characteristic or do not contain any listed hazardous constituents, may be disposed of as non-hazardous waste.

All non-hazardous wastes will be kept segregated from hazardous wastes and managed as residual waste in the State of Pennsylvania.

3.5 Certificate of Closure and Post-Closure Notices

The closure procedures described in this subsection will be completed within 180 days by Keystone personnel or outside contractors after the final volumes of hazardous wastes are properly disposed of (40 CFR §264.113). Closure certifications will be submitted to the agency in accordance with 25 Pa. Code 264a.165 – 264a.167 and 40 CFR Part 264, Subpart G.

An independent registered professional engineer will certify closure as described in Section 3.8. As part of their certification, the engineer will be required to make a thorough visual check of the site to spot discoloration or other evidence of unmitigated spills. Cleanup of such areas will be required before the certification can be made.

No later than 60 days after the Certification of Closure, Keystone must submit to the local zoning authority, or the authority with jurisdiction over local land use, and to the Department a record of the type, location, and quantity of hazardous wastes that were disposed of within the Site or other hazardous waste management facility (40 CFR §264.119). The closure records must be retained for a period of three (3) years.

3.6 Sampling and Analysis

3.6.1 Rinseate Sampling

The equipment used in closing each component of the hazardous waste management system, including shovels, sampling tools, and buckets, will be washed with a detergent solution and rinsed twice with clean water in accordance with ASTM D5088-90 as described in Section 3.5.

Rinseate which will undergo analysis for the purpose of demonstrating the closure decontamination standard for the sampling equipment, hazardous waste storage tanks, associated secondary containment, associated piping, and ancillary equipment, or which Keystone wishes to demonstrate that it does not contain hazardous constituents will be analyzed for the parameters identified in Section 1.2 and compared to the closure criteria detailed in Section 4.3 of this plan. Sample bottles are to be provided by the laboratory. Rinseate from separate procedures will be collected separately to prevent possible cross-contamination. A representative sample from each procedure will then be collected for subsequent analysis and cleaning/rinsing procedures would be continued until the appropriate standards are met. Once the rinseate meets the standards detailed in Section 4.3, the equipment will be considered decontaminated and ready for disposal, reuse or recycling.

Collection of up to 12 rinseate samples was assumed for the determination of the facility closure cost estimate. It was assumed that two rinseate samples would be collected from the following six (6) locations:

- Four (4) waste derived fuel storage tanks (Tank 1A,1B, 2, and 3);
- One (1) Tank 1A/1B containment area; and,
- One (1) Tank 2/3 containment area.

In the event a first rinseate sample does not meet the closure criteria, the cost assumes that a second sample will be collected in each area upon completion of additional cleaning activities.

The wipe test method can be used in place of the rinseate testing method for most of the internal and external surfaces of the sampling equipment, hazardous waste storage tanks, associated secondary containment, associated piping, and ancillary equipment. Some internal and external surfaces within the associated piping and ancillary equipment (i.e., solvent piping system, carbon adsorption system, vapor balancing system, and vapor vent line to the kiln) may be inaccessible to the wipe test method. For the internal surfaces of the hazardous waste storage tanks a wipe test should be performed at 3 different heights, near the bottom, middle, and top of the tank. Wipe tests would be performed as an alternative to sampling of the rinseate and/or used on structures such as buildings, containment walls and ancillary equipment such as nitrogen tanks.

The wipe testing procedures will be as follows:

(A) In sampling for Volatiles per EPA method 8260, Methanol must be applied to the wipe before sampling. Volatiles must be sampled before Methylene Chloride is used for item B sampling below;

(B) In sampling for BNA Semi-Volatiles per EPA method 8270, Organochlorine Pesticides by Cap Column GC per EPA method 8081A, Chlorinated Herbicides by GC + Cap Column per EPA 8151A, and Methylene Chloride must be applied to the wipe before sampling;

(C) In sampling for Metals per EPA method 6010/7470, diluted Nitric Acid must be applied to the wipe before sampling;

(D) In sampling for Ignitability per EPA method 1010/1030, deionized water must be applied to the wipe before sampling; and,

(E) In sampling for extraction – nonvolatile and volatile per EPA method 1311, hexane must be applied to the wipe before sampling.

A surface would be considered decontaminated or free of contamination if the results of the wipe test were non-detect.

3.6.2 Soil Sampling

In the event that soil sampling is required as detailed above, the soil sampling beneath containment structures will be completed in accordance with 40 CFR §246.114 (Disposal or

decontamination of equipment, structures, and soils), 25 Pa. code, 250.708, Appendix A (Post Remediation Care Attainment), and 25 Pa. code, 139 (Sampling and Testing). The soils will be tested for the parameters listed in Section 3.7.3 and the test results will be compared to 25 Pa. code, 250.708, Appendix A, for medium specific concentrations for non-use, non-residential aquifers, or alternate risk-based standard. Sample locations will be selected based on staining, beneath key features (i.e. piping, sumps, tanks) unless these features are to remain in service. If cracks or gaps in the surface of the secondary containment of the tank farm have been identified and are determined to have breached the concrete containment pursuant to procedures in Sections 3.4 of this Partial Closure Plan, at least one soil sample will be obtained from beneath each crack or gap. Additional samples will be taken every 10 linear feet from beneath any such features (i.e. crack or gap greater than 10 feet in length. A minimum of 1 sample will be collected. At each sampling point the concrete slab will be core drilled and soil sample will be removed from the top 6 inches, taking care to avoid mixing of the soil. If the initial soil sample does not meet the standard, then remediation (i.e. excavation) and additional sampling (i.e. post excavation sampling) will be required as presented in Section 3.7.5.

Soil samples will be collected at points below the hazardous pipeline route outside of the secondary containment area where evidence of historical leaks is present and beneath or near vapor piping condensate traps. These areas include any areas showing surface staining, stressed vegetation, etc. Any paved or concrete areas will be sampled if there is any evidence of surface staining. The paved material will be sampled and analyzed in the same manner as those for the concrete secondary containment areas.

The collection of up to 22 soil samples was assumed for the determination of the facility closure cost estimate as follows:

- 11 samples along the hazardous waste pipelines to be located in areas of observed stained pavement and/or areas of known historical spills (the number of samples taken along the hazardous waste pipelines may change if the pipelines are reused with the new hazardous waste tank farm);
- 3 samples beneath or in the vicinity of the vapor piping condensate traps located outside of the containments;
- 4 samples to be located in the Tank 1A/1B containment area at locations to be field selected as described above; and,

- 4 samples to be located in the Tank 2/3 containment area at locations to be field selected as described above.

Although the number and location of soil samples are subject to change based on current site conditions at the time of closure, the locations of the proposed sample locations are presented in Figure E-1-1.

The soil probe will be decontaminated between sampling points to avoid cross-contamination. Decontamination will be performed by washing with a non-phosphate detergent solution, followed by a tap water rinse and distilled water rinse.

3.6.3 Analytical Constituents and Methods

The rinseate and soil samples taken pursuant to this Partial Closure Plan will be analyzed for the hazardous constituents accepted and stored at Keystone. Samples will be analyzed for the constituents in Tables 1 and 2 of the WAP. The testing requirements will be in accordance with 25 Pa. code, 250.708, Appendix A, for medium specific concentrations for non-use, non-residential aquifers, or alternate risk-based standard. The statistical background analysis is described in Sections 4.3.2.1 - 4.3.2.4.

The methods and equipment used for sampling waste materials will vary with the form and consistency of the waste material that is being sampled. The methods are from the USEPA document *SW-846 Test Methods for Evaluating Solid Waste*, 3rd Edition, 1986, as updated (SW-846). Representative samples will be collected using protocols listed below for materials with similar properties (40 CFR §261 – Appendix I):

Extremely viscous liquid	ASTM Standard D 140-70
Crushed/Powdered material	ASTM Standard D 346-75
Soil/rock-like material	ASTM Standard D 420-69
Soil-like material	ASTM Standard D 1452-65
Fly Ash-like material	ASTM Standard D 2234-76
Containerized liquid wastes	COLIWASA

At the time of closure, Keystone may petition the Department for a reduced constituent list. If a unit, tank or other piece of equipment has managed its final volume of hazardous waste and Keystone can demonstrate that one or more constituents could not have been present in any of the wastes managed in that particular unit, tank or piece of equipment, then the Department may

agree to remove those constituents as analytical requirements for that particular item. Keystone may demonstrate that a constituent could not have been present by use of the facility operating record. The operating record must show that the unit, tank, or piece of equipment never managed wastes bearing hazardous waste identification numbers associated with a particular hazardous constituent. Keystone will submit a reduced parameter list to the Department at least 90 days prior to implementation of partial or full closure. Information to be included with the request shall include historical data including a listing and evaluation of all previously approved waste streams Module 1/Form U plus historical sampling and analysis data contained in the facility operating record.

3.6.4 Quality Assurance and Quality Control

Sampling and analytical quality control and quality assurance will, at a minimum, be consistent with the applicable requirements of Chapter One of SW-846. The procedures presented in that document will be followed to assure that the analytical results will be accurate and representative.

In addition to the procedures of Chapter One of SW-846, in order to evaluate the acceptability of the field sampling program, at least one duplicate sample, one equipment blank and one trip blank will be prepared each day on which sampling occurs. The duplicate sample will be prepared by splitting a sufficient quantity of soil, rinseate or any other substance from one of the sample locations into two equal parts. Each part will be placed in appropriate sample containers. An equipment blank will be prepared by pouring organic free deionized water through the decontaminated sampling device. The water will be collected in appropriate sample containers. The trip blank will be a quantity of organic free deionized water that will be shipped to the site with the empty sample containers and returned to the laboratory with the samples. The duplicate sample and the blanks will be analyzed for the constituents pursuant to Section 3.6.3 above.

3.6.5 Additional Soil Sampling and Removal Protocol

Should any subsurface soil sample exceed the closure decontamination standard for any constituent the contaminated soil will be removed. If applicable, the overlying concrete in the vicinity of soil sampling location will first be removed and soil will be excavated to a depth at which the decontamination standard is achieved then post excavation samples will be collected. If samples from the same coring at which the standard was exceeded at a greater depth achieve the decontamination standard, soil will be excavated to that depth. Post excavation soil samples

need only be analyzed for those constituents in the upper level samples which did not meet the decontamination standard.

The areal extent of the soil excavation will include the linear extent of any observed staining or crack underneath a containment structure from which a sample did not achieve the decontamination standard, or to the point at which another sample taken from under the same crack successfully achieved the decontamination standard. Soil will also be excavated for ten feet on each side of the linear extent of the crack or a noted exceedance of the standard.

Under PADEP Technical Document entitled, "Closure Requirements for Aboveground Storage Tank Systems", effective October 12, 2002, any contaminated soil or earthen material being excavated within 3 feet of the tank system in any direction, and does not impact water during excavation is considered localized contamination. If contaminated soil is located more than 3 feet beyond the tank system or foundation, or impacts water, it is considered as an extensive contamination, and remedial activity may be considered. In the case of extensive contamination, additional site characterization and corrective action measures may be required.

Excavation vehicles used to remove contaminated soil will be decontaminated by scraping and/or brushing solids from the blades and tires which touched the contaminated soil. The scrapings will be properly disposed of as hazardous waste. Vehicles will then be washed and rinsed using the decontamination procedures for equipment. Vehicles will be washed on an impervious surface which allows for the collection of the rinseate in containers or tanks.

The rinse water generated during decontamination of vehicles will be collected and managed as hazardous waste. Alternatively, the rinseate may be sampled and analyzed in accordance with Section 3.7.1, above. If no hazardous waste or hazardous waste constituents are identified in the rinse water it will be managed as non-hazardous wastewater.

3.7 Duties of the Professional Engineer

An independent registered professional engineer will observe closure activities of the HWMUs throughout the closure time period. As part of the certification, the engineer will be required to make a thorough visual check of the site (permit boundaries) to inspect for stored materials, spot discoloration or other evidence of unmitigated spills. These areas will specifically include

beneath the overhead vapor and waste derived fuels piping located outside of containment, the scale area, vehicle access roads and the laboratory. The engineer will direct whether sampling and or cleanup of areas will be required before the certification can be made.

The engineer will monitor the closure activities and will visit the site frequently to specifically view the following activities:

- Final inventory elimination;
- Tank and equipment decontamination;
- Secondary containment crack determination;
- Secondary containment decontamination;
- Rinseate sampling procedures; and,
- Soil sampling procedures.

A certification of closure of each HWMU contained in this Partial Closure Plan is required to be signed by an independent registered professional engineer upon the inspection and approval of closure by the independent registered professional engineer in accordance sections from 25 Pa. Code 264a, Subpart G (Closure and Postclosure), 40 CFR Part §264.197 (Closure and Postclosure Care), and 40 CFR §270.11.

Prior to signing the certification that the facility has been closed in accordance with this Partial Closure Plan, the engineer will also review the analytical data, laboratory reports, and calculations, which demonstrate that closure decontamination standards have been achieved. Such review will address demonstrations that appropriate Quality Assurance and Quality Control procedures, as described in Section 3.6.4, have been observed that the appropriate equations have been applied and correctly calculated.

3.8 Closure of Stormwater Storage Tanks and Silos

The Stormwater Storage Tanks and Silos are not permitted as HWMUs and thus closure of these units as HWMU will depend upon a determination as to whether they will be classified as hazardous waste units at the time of closure. The existing silos and storage tanks are not currently considered HWMU's since the stormwater has never been tested to be a hazardous

waste. If stormwater continues to pass acceptance testing, then the stormwater storage silos would not need to be included in closure activities. As part of the closure activities for the facility, a final determination whether closure of one or more of the stormwater storage tanks or silos will be based on a review of past sampling data. If a future stormwater test fails acceptance testing, then that stormwater storage silo or tank would be identified for closure. Closure would include wipe testing of the storage tank internal walls, as specified in Section 3.6.1. If the wipe tests indicate the presence of contamination, then the storage tanks or silos will be decontaminated using the same procedures as those for the waste derived fuels storage tanks as described in Section 3.2.1. If the wipe testing does not indicate the presence of contamination, then the tanks would be recycled or remain in place for reuse or disposed of offsite.

4.0 DECONTAMINATION STANDARDS

Pursuant to 40 CFR Part 264, Subpart I, §264.178 and §264.197, the hazardous waste and hazardous waste residue shall be removed or decontaminated. In the area of the tank system, the contaminated soils, components, structures and equipment contaminated with waste must be managed as hazardous waste (40 CFR §264.197). Closure requirements for above ground storage tank systems are also described in PADEP Guidance Document No. 257-4200-001, dated October 12, 2002 and entitled, "Closure Requirements for Aboveground Storage Tank Systems."

4.1 Clarification

The liquid inventory is to be removed from the tanks and piping systems as indicated in Section 3.2.1. A tank is classified as being empty when no more than 1 inch or 0.3 percent by weight of its total capacity of residue remains in the tank (PADEP Technical Document No. 257-4200-001). Once this remaining residue is removed using applicable industry standards, the tank and piping are considered "clean."

It is anticipated that soil contamination at the site will be minimal since storage and processing areas are located in lined containment areas. Therefore, any contamination of the soil in the areas of the storage tanks and piping system is assumed to be localized contamination and will not be extensive. Localized contamination is classified as contamination that does not extend more than three (3) feet beyond the tank system, in any direction, and does not impact water in the excavation. If there is no obvious contamination, or where there is localized contamination, confirmatory sampling procedures must be conducted in conformance with the PADEP Technical Document No. 257-4200-001, entitled, "Closure Requirements for Aboveground Storage Tank Systems." PADEP may exclude or limit confirmatory soil sampling based on several criteria, such as, if there are no significant signs of staining of the soil or breaching of the containment area. The excavation and removal of any soils or earthen material located more than three (3) feet beyond the tank system or foundation in any direction may be considered as remedial activity.

When it is not promptly determined whether a material is classified as a hazardous waste, the material shall be managed as a hazardous waste until it can be adequately determined. If the waste is no longer classified as hazardous, the materials will become subject to regulations for residual waste. For the materials to be classified as hazardous waste they must meet or exceed the minimum concentration levels for each constituent described in 25 Pa. code, 250.708,

Appendix A, for medium specific concentrations for non-use, non-residential aquifers or alternate risk based standards.

The confirmatory sampling will be performed for the hazardous constituents accepted by Keystone (those constituents detailed in Tables 1 and 2 of the WAP).

4.2 Generator of Waste

As closure procedures continue, Keystone may generate hazardous waste that must be managed in accordance with the applicable requirements. The hazardous waste can be temporarily stored in the existing tanks, tank trucks, and DOT approved steel drums or plastic containers. They may accumulate hazardous waste on-site for a period of 90 days or less without a permit, or without interim status, provided that the waste is stored in compliance with 40 CFR §262.34. Within 90 days Keystone must treat, remove or dispose of the hazardous waste in accordance with 40 CFR §246.113.

4.3 Decontamination Procedures and Standards

4.3.1 Non-Detection and Comparison to Standards

If analysis of a rinseate sample from a tank, containment area, or piece of equipment should result in analytical non-detection of the constituents analyzed pursuant to Section 3.7.3 that item will have met the closure decontamination standard. Should low concentrations of constituents be detected in the rinseate, then risk based standards will be used to evaluate if the decontaminated equipment poses a threat to human health and the environment. The clean-up standards are presented in Section 1.2.

Should the results of the deepest soil sample at each location result in non-detection of the constituents analyzed pursuant to Section 3.7.3, that sampling location shall be deemed to be uncontaminated. Alternatively, as described in Section 1.2 should the results of the soil sample be less than the appropriate Pennsylvania Clean-up Standard (i.e. ACT II non-residential clean-up standards) or alternate risk based standard, the soil will have met the closure decontamination standard. Should some soil samples demonstrate contamination above standards, further soil sampling and removal will be conducted pursuant to Section 3.6.5 of this Closure Plan.

4.3.2 Comparison to Background

Alternatively, if the standards measured in soil cannot be met, attainment of the closure decontamination standard may be demonstrated through the use of a statistical comparison of hazardous constituent concentrations in soil samples. As allowed under the PADEP ACT II standards, soil samples may be compared to those of uncontaminated background samples as described in Sections 4.3.2.1 - 4.3.2.4. If background is selected as the clean-up standard, Keystone will submit specific background locations to the Department for approval at least 90 days prior to conducting background sampling.

4.3.2.1 Collection of Background Samples

Background samples will be collected in a manner identical to that of the closure samples from the analogous matrix, including the sampling Quality control procedures. The location of the background sampling will be approved by the Department prior to sampling.

(A) Background rinseate samples will be obtained from a concrete structure at the facility, or adjoining facility, which has not been exposed to any hazardous waste. The background sampling surface will be washed and rinsed in a manner identical to that for tank and containment surfaces. The final rinse will be sampled in a manner identical to the collection of samples of rinseate from the waste management units.

At the Permittee's discretion, instead of the above procedure, background rinseate samples may be taken directly from clean unused facility tap water.

(B) Background soil samples will be obtained from an area unaffected by hazardous waste management activities and from a soil of similar geology and soil type as the unit subsoil. Background soil samples will collected from a depth of 0.2 feet below the ground surface and at a lower depth, if contamination is detected.

4.3.2.2 Calculation of Upper Tolerance Limits

If a statistical comparison is used, a tolerance limit procedure may be used to demonstrate decontamination. For this procedure a minimum of eight background samples will be collected and analyzed for the necessary constituents pursuant to Section 3.7.3. Background samples of uncontaminated media will be taken as described in Sections 4.3.2.1, above. Using the data from the analyses of the eight background samples, an upper confidence limit (UTL) for each constituent will be calculated as:

$$UTL = x + (K_{95}(0.95,n) * s)$$

Where: x = the mean of the measured values

s = the standard deviation of the measured values

The parameter K95(0.95,n) establishes the UTL such that there is a 95% chance that at least 95% of the time the actual constituent background concentration will be below the this upper bound. Table GG-2 identifies the value of this parameter a function of n. The value of K for eight samples (n = 8) is 3.188.

4.3.2.3 Comparisons to Upper Tolerance Limits

The results of the analyses of each rinse water sample from a tank, containment area or piece of equipment will be compared to the appropriate UTL for the constituents analyzed pursuant to Section 3.7.3. If the concentration of every analyte in a sample is below the appropriate UTL, then that item will have met the closure decontamination standard.

The results of the analyses of each soil sample will be compared to the appropriate UTL for the constituents analyzed pursuant to Section 3.7.3. If the concentration of every analyte from the depths of a soil sample is below the appropriate UTL, that sampling location will be deemed to be uncontaminated. Should the soil samples be uncontaminated in this fashion, the soil will have met the closure decontamination standard. Should some soil samples demonstrate contamination, further soil sampling and removal will be conducted pursuant to Section 3.6.5 of this closure plan.

The tolerance limit method may only be used when the background data are normally distributed. Normality of the analytical results will be demonstrated by use of the Coefficient-of-Variation test, Probability Plots, or the Chi-squared test as specified in Chapter 1 of the EPA document "Statistical Analysis of Ground-Water Monitoring Data at the RCRA Facilities" Addendum to Interim Final Guidance, April 1992. Analytical non-detections will be managed consistent with the recommendations in Chapter 2 of the EPA guidance document cited above.

4.3.2.4 Alternate Statistical Procedure

Should the background data be non-normally distributed, an alternate statistical procedure may be used. For this procedure at least five samples of rinse water from each area and five samples of rinse water from a concrete surface unexposed to hazardous waste will be analyzed for the constituents specified in Section 3.6.3. The concentrations of each constituent will be compared to the background concentration using the Student's t-Test with one-tailed t values at the 0.05 level of significance. Decontamination of an area will be demonstrated by no significant difference for the constituents.

4.4 Alternative Treatment Standards for Hazardous Debris

Alternative treatment standards for hazardous debris specified under 40 CFR Part 268.45 may be used to demonstrate decontamination of a tank, secondary containment area, or a piece of equipment prior to disposal off-site. The performance and/or design and operating standard for various technologies is presented and provides treatment to a clean debris surface as specified and defined in 40 CFR Part 268.45.

Any hazardous debris that has been treated using one of the specified Extraction or Destruction Technologies specified in Table 1 (Alternative Treatment Standards for Hazardous Debris) of 40 CFR Part 268.45, and after treatment, does not exhibit a characteristic of hazardous waste, is not classified as a hazardous waste and shall not be managed in a RCRA permitted treatment storage or disposal (TSD), Subtitle C facility.

If the alternative treatment standards are performed to demonstrate decontamination prior to removal and off-site disposal, the closure report is required to specify the description of the technology used, and a detail of the decontamination activities for the extraction, destruction, or immobilization technology that was used. In addition, the closure report is required to specify the observed physical condition of the final cleaned surfaces based upon the inspection and description by the independent registered professional engineer.

The alternative treatment standards for hazardous debris will be considered acceptable to the Department only upon the inclusion of an additional certification statement by an independent registered professional engineer that the closure has been completed in accordance with criteria, and the purpose and intent of the alternative treatment standard specified in 40 CFR Part 268.45, and that the debris, after treatment, does not exhibit a characteristic of hazardous waste identified under 40 CFR Part 261, Subpart C.

5.0 ALTERNATIVE T0 DECONTAMINATION OF WASTE MANAGEMENT STRUCTURES AND EQUIPMENT

As an alternative to further decontamination procedures, at any time in the closure procedures Keystone may elect to demolish any equipment or portions of the hazardous waste management facility and manage the equipment or debris as hazardous waste prior to transporting off-site for disposal at a permitted hazardous waste facility. Any tanks or equipment which are disposed of as hazardous waste will be rendered unusable by cutting them in half or cutting several large holes in them prior to disposal. Keystone Cement may elect to drain, remove, cut, containerize and dispose of piping and related ancillary equipment as a hazardous waste. Should this alternative be selected for a containment area, the sampling and analysis of underlying soils, which is prescribed by this plan, will still be carried out to confirm compliance with the clean closure decontamination standards.

6.0 FINANCIAL ASSURANCE FOR CLOSURE

6.1 Closure Cost Estimate

In accordance with the terms of closure and financial requirements implemented by the State and Federal regulatory agencies, a cost estimate for closure has been developed. This cost estimate has been prepared based upon the procedures outlined in this Closure Plan. Attachment No. 2 shows a complete breakdown of the estimated costs for closure contained in this Partial Closure Plan for the closure of existing HWMUs using the Department's Bonding Worksheets. The estimated costs have been calculated based on a point in time in the facility's active life when the extent and manner of its operation would make closure the most expensive.

The cost estimate has been conservatively estimated to develop a worst case cost and considers the following:

1) Completion of all activities by a third party under the direction of the Department and not Keystone including the application of a 10% administrative fee for the Department to administer the work;
2) That existing facilities and services (such as water and electrical) will be paid for by the Department;
3) A contingency of 12.5% to account for unknown conditions; and,
4) That all materials must be decontaminated and disposed of offsite. This assumption assumes that materials cannot be reused or disposed of in the existing kiln (i.e. cement kiln brick must be disposed of off-site and not used for raw material; and the tanks cannot be sold for reuse or salvage (i.e. per §264.14 the closure costs do not incorporate any reduction for salvage value of recycled scrap metal).
5) It was assumed that piping would be dismantled and disposed of as a hazardous waste.

These cost estimates are kept on file at Keystone site and will be revised accordingly when a change in the Closure Plan affects the cost of closure. During the active life of the facility, the estimate must be adjusted by Keystone to reflect the addition or removal of devices and/or units, as necessary. In addition, the closure cost estimate must be adjusted for inflation within 60 days prior to the anniversary date of the establishment of the financial instrument used to comply with

the established regulations pertaining to closure. This revised amount, adjusted for inflation will reflect the current closure cost estimate for the current hazardous waste management facility. If the closure plan is modified and approved by the Department, Keystone must revise the closure cost estimate no later than 30 days after the approval.

6.2 Financial Assurance Mechanism

Keystone must establish financial assurance for closure of the hazardous waste facility. Many of the financial requirements for closure of planned, yet unconstructed, facilities are not necessary until the time of construction. Thus, the documentation provided in Attachment No. 1 covers existing facilities, most of which are not covered by the Full Closure Plan activities because they will be closed under the Partial Closure Plan. In accordance with the requirements of Pa. Code 264a.156 within 60 days prior to the initial receipt of hazardous wastes in any new units, Keystone will acquire the necessary financial requirements and submit the documentation to PADEP for approval.

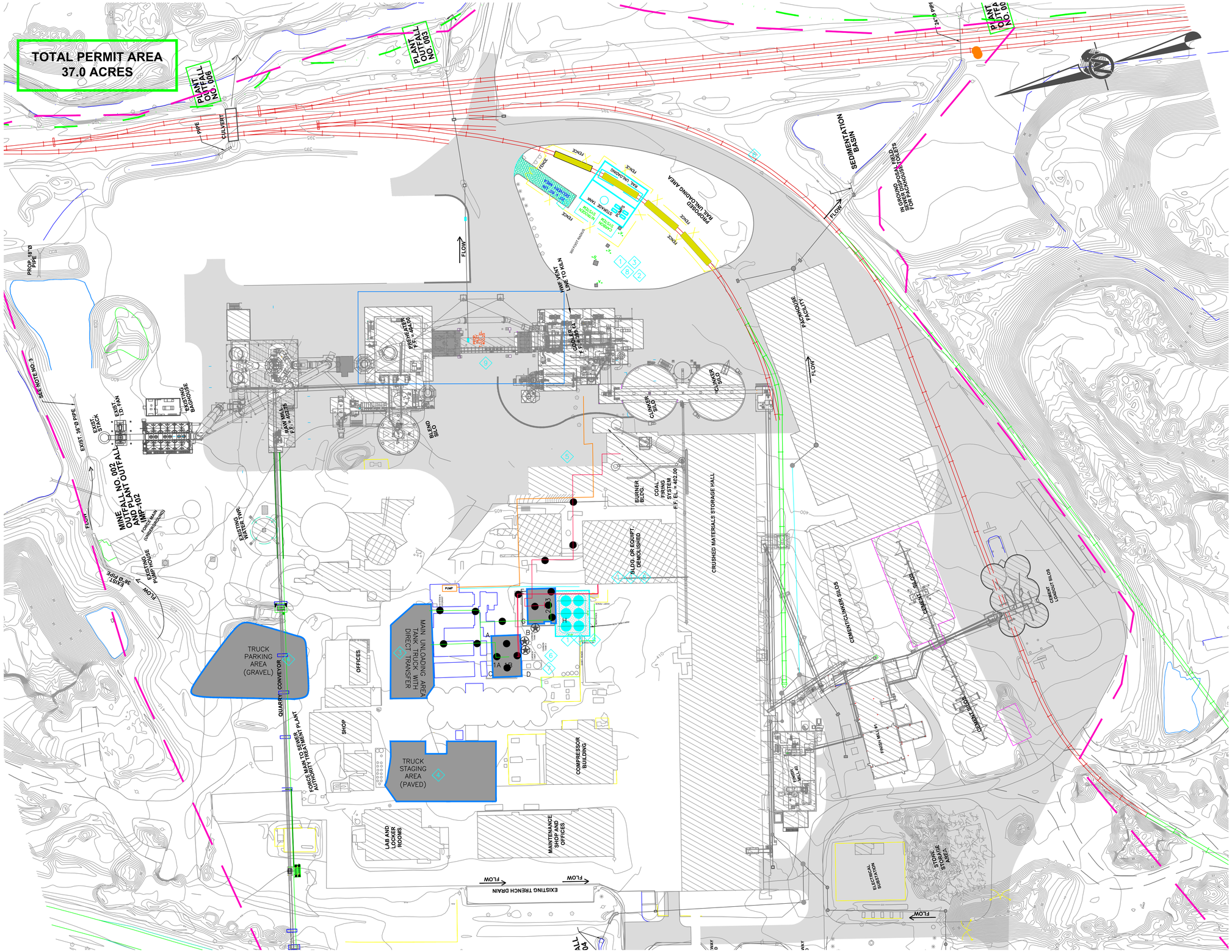
Several mechanisms for financial assurance are available and are specified in Pa. Code 264a.145 and Pa. Code 264a.156. Keystone has historically complied with the regulations of the Commonwealth of Pennsylvania by providing documentation detailing the collateral bonds pledged in the form of a "bank letter of credit". This letter of credit complies with the requirements of Pa. Code 264a.156(d). An example of Keystone's trust mechanism is found in Attachment No. 1.

7.0 LIABILITY INSURANCE

7.1 Liability Insurance

In addition to the financial assurance mechanisms for closure discussed in Section 6.2, in accordance with Pa Code Section 264a.147, Keystone maintains sudden accidental liability insurance coverage that meets the financial requirements of the Pa Code. As required, Keystone updates this insurance coverage policy on an annual basis. An example of the Certificate of Liability Insurance maintained by Keystone is included in Attachment No. 4.

FIGURES



REFERENCE POINT LOCATIONS		
POINT	NORTHING	EASTING
A	512,426	2,620,209
B	512,389	2,620,199
C	512,440	2,620,155
D	512,410	2,620,145
E	512,363	2,620,256
F	512,326	2,620,247
G	512,375	2,620,210
H	512,338	2,620,201

LEGEND

- EXISTING STRUCTURE OR BUILDING
- RAILROAD TRACKS (EXISTING)
- RCRA PART B PERMIT AREA
- RCRA PART B PERMIT FACILITIES (EXISTING)
- RCRA PART B PERMIT FACILITIES (PROPOSED)
- WASTE FUELS LINES EXISTING
- WASTE FUELS UNLOADING LINES EXISTING
- CKD STORAGE AREA
- FLOOD PLAIN LIMIT (APPROXIMATE)
- FENCE
- SURFACE WATER
- SURFACE WATER DETENTION AREA SHOWING NO WATER AT TIME OF AERIAL SURVEY
- PROPOSED SOIL SAMPLE LOCATIONS (UNLOADING/CONTAINMENT AREAS)
- PROPOSED SOIL SAMPLE LOCATIONS (CONDENSATE DRAINS)

NOTES

1.) THE ENTIRE PERMIT AREA IS WITHIN EAST ALLEN TOWNSHIP.

2.) NO RCRA PART B FACILITIES (EXISTING OR FUTURE) ARE WITHIN THE 100 YEAR FLOODPLAIN.

3.) ALL STORAGE OVERFLOW AREAS AND RAW MATERIAL STORAGE AREAS VARY BASED UPON DELIVERY AND USAGE.

4.) SAMPLE LOCATIONS ARE APPROXIMATE AND SUBJECT TO CHANGE BASED ON CURRENT CONDITIONS AT TIME OF PARTIAL CLOSURE.

REFERENCES

1.) BASE TAKEN FROM FIGURE TITLED "SITE TOPOGRAPHY MAP, PROVIDED BY GOLDER ASSOCIATES DATED JUNE 2005.

2.) ALL OTHER SITE FEATURES ARE TAKEN FROM A DRAWING PREPARED BY RT CONSULTING & ENGINEERING, INC. AND MODIFIED BY KEYSTONE CEMENT COMPANY.

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW
2	06/27/18	SPH	PERMIT MODIFICATION	ARL	SPH	RO
1	03/31/15	SPH	PERMIT MODIFICATION	ARL	SPH	AE

PROJECT

KEYSTONE CEMENT COMPANY
RCRA PART B CLASS 3 PERMIT MODIFICATIONS
EAST ALLEN TOWNSHIP, NORTHAMPTON COUNTY, PENNSYLVANIA

TITLE

PRELIMINARY SOIL SAMPLING LOCATIONS- PARTIAL CLOSURE PLAN

CADD	ARL	1/27/18
CHECK	SPH	1/27/18
REVIEW	RO	1/27/18

FILE No.180627 Figure E-1-1
SCALE AS SHOWN REV. 2

E-1-1

ATTACHMENT 1

TRUST FUND MECHANISM

Wells Fargo Bank, N.A.
U.S. Trade Services
Standby Letters of Credit
401 N. Research Pkwy, 1st Floor
MAC D4004-017,
Winston-Salem, NC 27101-4157
Phone: 1(800) 776-3862 Option 2
E-Mail: sblc-new@wellsfargo.com

Irrevocable Standby Letter Of Credit

Number : IS000022387U
Issue Date : November 24, 2017

BENEFICIARY	APPLICANT
COMMONWEALTH OF PENNSYLVANIA PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION BUREAU OF WASTE MANAGEMENT BONDING SECTION - 15TH FLOOR RACHEL CARSON, STATE OFFICE BUILDING 400 MARKET STREET HARRISBURG, PENNSYLVANIA 17105	BY ORDER OF HSBC MEXICO, S.A. ON BEHALF OF THEIR CLIENT KEYSTONE CEMENT COMPANY 1600 DUKE STREET, SUITE 400 ALEXANDRIA, VIRGINIA 22314

LETTER OF CREDIT ISSUE AMOUNT USD 713,132.00 EXPIRY DATE SEPTEMBER 21, 2018

LADIES AND GENTLEMEN:

WE HEREBY ESTABLISH, EFFECTIVE DATE NOVEMBER 24, 2017, BY ORDER OF HSBC MEXICO, S.A. BY ORDER AND FOR THE ACCOUNT OF KEYSTONE CEMENT COMPANY 1600 DUKE STREET, SUITE 400, ALEXANDRIA, VIRGINIA 22314, OUR IRREVOCABLE STANDBY LETTER OF CREDIT NO. IS000022387U UP TO AN AGGREGATE AMOUNT OF USD 713,132.00 (SEVEN HUNDRED THIRTEEN THOUSAND ONE HUNDRED THIRTY TWO AND 00/100'S, UNITED STATES DOLLARS) IN FAVOR OF COMMONWEALTH OF PENNSYLVANIA, PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, BUREAU OF WASTE MANAGEMENT ("DEPARTMENT") AND AVAILABLE BY YOUR DRAFTS DRAWN ON US AT SIGHT.

WE HEREBY ENGAGE WITH YOU THAT DRAFTS DRAWN AND PRESENTED BY YOU IN ACCORDANCE WITH THE TERMS OF THIS CREDIT WILL BE DULY HONORED BY US IF PRESENTED TO US AT WELLS FARGO BANK N. A., 401 LINDEN STREET, WINSTON-SALEM, NC 27101 BY SEPTEMBER 21, 2018 OR PRIOR TO ANY SUBSEQUENT EXPIRATION AS PROVIDED HEREIN.

DRAFTS DRAWN HEREUNDER MUST BE MARKED "DRAWN UNDER WELLS FARGO BANK N.A., LETTER OF CREDIT NO. IS000022387U DATED NOVEMBER 24, 2017" AND ACCOMPANIED BY A STATEMENT PURPORTEDLY SIGNED BY AN AUTHORIZED REPRESENTATIVE OF THE DEPARTMENT READING AS FOLLOWS: "I CERTIFY THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION IS MAKING THIS DRAWING PURSUANT TO THE TERMS OF A CERTAIN COLLATERAL BOND AGREEMENT BETWEEN KEYSTONE CEMENT COMPANY AND THE DEPARTMENT AND THAT THE DEPARTMENT IS ENTITLED TO THE AMOUNT OF THIS DRAW".

THE ORIGINAL LETTER OF CREDIT AND ALL AMENDMENTS, IF ANY, MUST BE PRESENTED AT THE TIME OF ANY DRAWINGS HEREUNDER FOR OUR ENDORSEMENT.

IT IS A CONDITION OF THIS LETTER OF CREDIT THAT IT SHALL BE AUTOMATICALLY EXTENDED FOR ADDITIONAL TERMS OF ONE (1) YEAR FROM THE PRESENT OR EACH FUTURE EXPIRATION DATE UNLESS WE

WELLS FARGO

GIVE YOU AND KEYSTONE CEMENT COMPANY AT LEAST NINETY (90) DAYS BEFORE SAID EXPIRATION DATE WRITTEN NOTICE BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED, OR HAND DELIVERY, THAT WE ELECT TO TERMINATE THIS CREDIT AT THE END OF ITS THEN CURRENT TERM.

IN THE EVENT WE GIVE NOTICE OF OUR ELECTION TO TERMINATE THIS LETTER OF CREDIT AND KEYSTONE CEMENT COMPANY, INC FAILS TO REPLACE THIS LETTER OF CREDIT WITH OTHER FINANCIAL GUARANTEES ACCEPTABLE TO THE DEPARTMENT, YOU MAY DRAW ON THIS LETTER OF CREDIT UP TO THE AGGREGATE, LESS ANY PRIOR DRAFTS PRESENTED BY THE DEPARTMENT AND PAID BY US, BY PRESENTATION OF A DRAFT MARKED "DRAWN UNDER WELLS FARGO BANK N.A., LETTER OF CREDIT NO. IS000022387U DATED NOVEMBER 24, 2017" ACCOMPANIED BY A STATEMENT PURPORTEDLY SIGNED BY AN AUTHORIZED REPRESENTATIVE OF THE DEPARTMENT READING AS FOLLOWS:

"THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION IS MAKING THIS DRAWING BECAUSE KEYSTONE CEMENT COMPANY HAS FAILED TO REPLACE THIS LETTER OF CREDIT WITH OTHER FINANCIAL GUARANTEES ACCEPTABLE TO THE DEPARTMENT".

THIS LETTER OF CREDIT SETS FORTH OUR ENTIRE UNDERTAKING. OUR UNDERTAKING SHALL NOT IN ANY WAY BE MODIFIED, AMENDED, AMPLIFIED OR LIMITED BY REFERENCE TO ANY DOCUMENT, BOND, PERMIT, INSTRUMENT OR AGREEMENT REFERRED TO IN THIS LETTER OF CREDIT, OR IN WHICH THIS LETTER OF CREDIT IS REFERRED TO, OR TO WHICH THIS LETTER OF CREDIT RELATES, AND ANY SUCH REFERENCE SHALL NOT BE DEEMED TO INCORPORATE HEREIN BY REFERENCE IN THIS LETTER OF CREDIT ANY DOCUMENT, BOND, PERMIT, INSTRUMENT OR AGREEMENT OTHER THAN THE DRAFTS AND DRAWING STATEMENTS REQUIRED HEREUNDER.

THIS LETTER OF CREDIT IS GOVERNED BY DIVISION 5 OF THE PENNSYLVANIA UNIFORM COMMERCIAL CODE AND, WHERE NOT INCONSISTENT, THE UNIFORM CUSTOMS AND PRACTICE FOR DOCUMENTARY CREDITS (2007 REVISION, IN EFFECT AS OF JULY 1, 2007), INTERNATIONAL CHAMBER OF COMMERCE PUBLICATION NO. 600. DISPUTES ARISING UNDER THIS CREDIT SHALL BE GOVERNED FIRST BY THE LAWS OF THE COMMONWEALTH OF PENNSYLVANIA.

Very Truly Yours,

WELLS FARGO BANK, N.A.

AUREA C. BALENBIN
ASSISTANT VICE PRESIDENT

By: _____
Authorized Signature

The original of the Letter of Credit contains an embossed seal over the Authorized Signature.

Please direct any written correspondence or inquiries regarding this Letter of Credit, always quoting our reference number, to **Wells Fargo Bank, National Association,** Attn: U.S. Standby Trade Services

at either 794 Davis Street, 2nd Floor
MAC A0283-023,
San Leandro, CA 94577-6922

or 401 N. Research Pkwy, 1st Floor
MAC D4004-017,
WINSTON-SALEM, NC 27101-4157

Phone inquiries regarding this credit should be directed to our Standby Customer Connection Professionals

1-800-776-3862 Option 2
(Hours of Operation: 8:00 a.m. PT to 5:00 p.m. PT)

1-800-776-3862 Option 2
(Hours of Operation: 8:00 a.m. EST to 5:00 p.m. EST)

Together we'll go far

Each page of this multipage document is an integral part of this Irrevocable Standby Letter of Credit Number **IS000022387U**

ATTACMENT 2

BONDING WORKSHEETS

August 2018

Appendix E-1
Attachment No. 2
Partial Closure Plan

Calculations and Assumptions for information presented on the Bonding Worksheet for Partial Closure. Partial closure includes:

1. Closure of the Four Existing Hazardous Waste Storage Tanks (Tank 1A, IB, Tank 2 and Tank 3);
2. Closure of existing piping, pumps and ancillary equipment;
3. Closure of existing secondary containment for the Hazardous Waste Storage Tanks.

Bonding Worksheet A

Line 1 Maximum Volume of Waste Removal and Line 10 (a)

1b.) Tank Storage

For the partial closure plan the volume of material removed from storage was conservatively estimated based on the maximum permitted storage capacity of the waste storage tanks. The volumes were converted from gallons to cubic yards.

Unit	Volume (gal)
Tank 1A	15,000
Tank 1B	15,000
Tank 2	31,500
Tank 3	31,500
Totals	93,000

Conversion to cubic yards = (93,000 gallons/7.481 gal/ft3)/27 ft3/yd3 = 460 cubic yards

Line 1b = 1,089 Cubic Yards (CY)

A third party cost for transportation and disposal of the hazardous waste derived fuels was provided by Elk Environmental Services in a quote dated May 16, 2018 (See Attachment No. 3). Their cost for disposal of waste fuels meeting the characteristics of the Waste Acceptance Plan is estimated to be $1.00 per gallon (gal).

2018 T&D Cost, hazardous waste derived fuels = $1.00/gallon.

Waste Removal Costs per Gallon:

The two existing transfer pumps each have a capacity of approximately 250 gpm – 500 gpm. Therefore, one transfer pump can load a 5,000 gallon tanker in approximately 20 minutes. Allowing time for connection of the hoses and maneuvering the tankers into place, it is assumed that a minimum of two tankers (10,000 gallons) can be unloaded each hour (one per transfer pump).

Time required to empty tanks equals 93,000 gallons/(10,000 gallons/hr) = 9.3 hours. Assume 10 hours for two laborers in Level C PPE;

From Elk Environmental Services' quote dated May 16, 2018, the daily rate for a 2- Person Labor Crew wearing Level C PPE is $1,405. Converting the daily rate for a 2 person crew to an hourly per person rate works out to an hourly rate of $87.82. [$1,405 / (2 x 8 hrs) = $87.82 / hr.]

Total Labor Cost, Level C PPE = $87.82 / hr * 2 laborers *10 hours = $1,756

Unloading Cost per Gallon = $1,756.40 / 93,000 gallons = $0.018 /gal or $0.02/gallon

Total Cost per Gallon

T&D Cost per Gallon and Unloading Cost per Gallon

$1.00/gal +$0.02/gal = $1.02/gal

Convert to $ per cubic yard = $1.02/gal *7.481 gal/ft3*27 ft3/yd3 = $206.03 per cubic yards

Total Cost for Disposal = $206.03/cubic yard*460 cubic yards = $94,780

1c.) Piping and Miscellaneous Material

Line 1c.) Piping and miscellaneous equipment per Item No. 3 = 27 cubic yards +120 cubic yards = 147 cubic yards

From Elk Environmental Inc.'s quote dated May 16, 2018, transportation and disposal of a 20 CY roll-off dumpster containing hazardous bulk waste is $4,875 per roll-off (See attachment No. 3). Converting 20 CY roll-off to $ / CY = $4,875 per 20 CY / 20 = $243.75 / CY

Total Cost for Disposal = $243.75/cubic yard*147 cubic yards = $35,830

1d.) Tank Sludge/Heel Areas

Decontamination of the tanks will require removal of solids, which should be nominal since the tanks are agitated. Assume a maximum of 6 inches of material from each tank:

Tank No.	Diameter (ft)	Height (ft)	Cubic feet
Tank 1A	12	0.5	56.52
Tank 1B	12	0.5	56.52
Tank 2	14	0.5	76.93
Tank 3	14	0.5	76.93
Totals (ft^3)			267

Converting to cubic yards the volume of hazardous residuals from the tanks bottoms is 9.9 cubic yards.

The maximum capacity of a drum is 7.4 cubic feet, assume 90% fill equals 6.66 cubic feet. Total number of drums is approximately 40 drums. Include 5 drums for PPE and miscellaneous residuals for a total of 45 drums.

Elk Environmental's quote dated May 18, 2018 for transportation and disposal of hazardous waste DOT drums containing solids is $275 per drum; and for drums containing hazardous waste sludge, $170 per drum.

Total residuals disposal cost = $275/drum x 5 drums + $170/drum x 40 drums = $8,175

Average cost per cubic yard= $8,175/9.9 cubic yards = $826/cubic yard

Line 10a.) From totals above:

Tank Storage + Tank Piping + Tank Sludge

$94,780 + $35,830 + $8,175 = $138,785

Line 2 and Unit Rates for Disposal

Range of Cubic yard disposal costs presented in Line 1 $206 -$826 per cubic yard

Line 3a.) – Facility Decontamination Labor

Piping

From the drawings the existing horizontal length of piping is conservatively estimated to be 4,500 ft. Add approximately 50% additional for vertical runs and piping connections at pumps and tanks for a total of 6,750 ft.

The pipe diameters range from 2-inch to 4-inch. Using 4-inch square for purposes of placement in a roll-off. [4 in = 0.33 ft.]

The estimated volume of the piping = 6,750 ft x 0.33 ft x 0.33 ft = 735 ft3/ (27 ft^3/cy) = 27 cubic yards.

Conservatively assume approximately 120 cubic yards for miscellaneous equipment pumps, and HWF mixing system, burner nozzles etc.

Unit cost to decontaminate equipment.

From Elk Environmental Services' quote dated May 18, 2018, the unit cost to flush the piping system and dispose piping into roll-off dumpsters is $5.68 per linear feet (See Attachment No. 3)

Cost = $5.68 per linear feet of piping

Total Cost to remove piping:

$5.68/lf x 6,750 feet = $38,340

Tanks

Removal of residue from the tank walls using mechanical scrapping. The dimensions for Tanks 5, 6, 7, 8, 9, and 11 are 14 feet in diameter and 33.09 feet in height. The dimensions for Tank 10 are 14 feet in diameter and 30 feet, high. The total surface area is as follows:

Surface area $= 2\,pi\,r^2 + 2\,pi\,r\,h$; where pi=3.14

Tank No.	Diameter (ft)	Height (ft)	Surface Area (ft^2)
Tank 1A	12	26.17	1,212
Tank 1B	12	26.17	1,212
Tank 2	14	36.25	1,901

Tank 3	14	36.25	1,901
Totals (ft^2)			6,226

From Elk Environmental Services' quote dated May 16, 2018, the cost to decontaminate a tank is $10,533.60 / tank (See Attachment No. 3).

Cost to decontaminate the tanks = $10,533.60/tank*4 tanks
= $42,130

Containment Areas

The exposed surface areas to be decontaminated include the following areas as estimated from the drawings:

Unit	Surface Area (sq. ft.)
Tank 1A, 1B containment	2,157
Tank 2, 3 containment	1,760
Total	3,917

(1) Includes Sidewalls

Add approximately 50% for side walls and sumps = 3,917 sq. ft *1.5 = 5,890 sq. ft.

From Elk Environmental Services' quote dated May 16, 2018, the cost to decontaminate containment and unloading surface areas is $1.65 / sq.ft (See Attachment No. 3).

2018 cost to decontaminate containment surface areas = $1.65 / sq.ft * 5,890 sq. ft. = $9,720

Line 3a) Total Cost of Decontamination

Piping + Tank + Containment Area + Kiln

$38,340 +$42,130 + $9,720 = $90,190

Line 3b. Facility Decontamination Sampling Cost

As per the Partial Closure Plan, the collection of up to 22 soil samples was assumed for the determination of the facility closure cost estimate as follows:

- 11 samples along the hazardous waste pipelines to be located in areas of observed stained pavement and/or areas of known historical spills;
- 3 samples beneath or in the vicinity of the vapor piping condensate traps located outside of the containments;
- 4 samples to be located in the Tank 1A/1B containment area at locations to be field selected as described above; and,
- 4 samples to be located in the Tank 2/3 containment area at locations to be field selected as described above.

Additional samples include 12 rinseate samples and 12 wipe samples for a total of 46 verification samples. Assume 10% for number of QA/QC samples for a total of 51 samples.

From Eichelbergers Inc.'s quote dated May 17, 2018, the daily unit rate for mobilization / demobilization (including materials) for a direct push truck mounted, non-hydraulic drill rig with labor and materials included geo-probe, field equipment for sampling of soils is $1,600 per day (See Attachment No. 3).

Assume 10 soil samples per day for a total of 3-days of geo-probe = $1600/day x 3 days = $4,800

Field oversight and reporting of soil samples by environmental professional - assume 5 days at $57.5 per hour = $2,300. Labor rate based on mid-level field engineer per 2018 RS Means (See Attachment 3)

Total cost for Line 3b. Sampling = $4,800 + $2,300 = $7,100

Line 3c. Facility Decontamination - Analytical Cost

Total of 51 samples as presented above.

Eurofins Lancaster Laboratories Environmental, LLC 2018 price quote (See Attachment No. 3) is $486 per sample

Total Cost for Line 3c. = 51 samples x $486/sample = $24,786

Line 6 Volume of Wastewater During Decontamination

Assume a quantity of rinseate generated of 1 gallon per sq ft of area cleaned. For purposes of this estimate, it is assumed that two volumes of rinseate will be generated, the first will be hazardous and the second will be non-hazardous.

Surface areas = (surface area of tanks + surface area of secondary containment) x 1 gallons/ft^2
= (6,226 sq ft + 5,875 sq ft) x 1 gallon/sq ft
= 12,101 gallons per rinse

Assume a quantity of flush water generated of 0.66 gallon per ft of pipe flushed. For purposes of this estimate it is assumed that one volume of flush water will be generated and it will be hazardous and the diameter of the pipe is 4-inches.

Pipe Flush water gallons = 0.66 gallons/ft. x 6,750 ft = 4,455 gallons

Total Volume of Hazardous Rinse water generated = Surface Areas + Pipes

12,101 gallons + 4,455 gallons = 16,556 gallons

Total Volume of Non-Hazardous Rinse water generated = Surface Areas
(Note piping is assumed to be disposed of after initial flush)

12,101 gallons

Total Volume of decontamination water = 28,660 gallons

Line 7 Unit cost to treat wastewater

Hazardous Rinse & Flush Water:

From Elk Environmental Services' quote dated May 16, 2018, the cost to transport and dispose of hazardous water is $1.50 / gallon (See Attachment No. 3).

2018 T&D cost, hazardous water = $1.50

16,556 gallons x $1.50 / gallon = $24,830

Non-Hazardous Rinse Water

From Elk Environmental Inc. quote dated May 16, 2018, the cost to transport and dispose of non-hazardous water is

$0.50 / gallon (See Attachment No. 3).

2018 T&D cost, non-hazardous water = $0.50

12,101 x $0.50 / gallon = $6,050

Total Disposal Cost (Line 10d.)

$24,830 + $6,050 = $30,880

Average of Hazardous and Non-Hazardous Water Disposal Cost

$30,880/28,660 gallons = $1.08

Line 8 Cost for facility maintenance

Electricity and Water

Itwill be necessary to maintain facility utilities and pay for electric, water consumption and sewage. Assume $1,000 to cover utilities.

Line 9 Engineering and QA/QC Costs

Time for closure from above:

- Line 2 Empty Tanks = 1 day
- Line 4 Decontaminate Tanks and Remove Solids = 8 days
- Line 6 Decontaminate Secondary Containment Structures = 6 days
- Line 10 Soil Sampling = 3 days

Total Time to Complete Closure = 18 days (note piping decontamination can be performed concurrently with other activities) = assume 4 weeks to complete closure

From Means 2018 Field Superintendent $3,500 per week and Field Engineer (Certifying Engineer) $2,300 per week (See Attachment 3).

Total Engineering and Oversight Cost per week = $5,800 per week

Total Field Engineering and Oversight = $5,800 x 4 weeks = $23,200

Closure Report and Certification - $8,400. [Cost based on RS Means 2018 cost for one week each for Field Engineer, Field Superintendent and Field Senior Engineer - $3,500 / week + $2,300 / week + $2,600 / week = $8,400]

Health and Safety Plan $ 4,900. [Cost based on RS Means 2018 cost for one week each for Field Engineer and one Senior Engineer - $2,300 / week + $2,600 / week = $4,900]

Total Engineering and QA/QC Costs = $23,200+$8,400+$4,900 = $36,500

Bonding Worksheet D

4. Other Costs:

Stormwater Management

Prior to the completion of decontamination procedures, rainfall may accumulate in the secondary containment structures. As described above, the time to complete closure is less than one month.

The average maximum monthly rainfall (derived from the NOAA website -30-year averages per month) identified that September has the greatest monthly rainfall for the county ranging between 4.5 to 5.0 inches. Assume 5.0 inches of rainfall in a one month time period during closure activities.

The surface area of the containment structures is 3,917 sq. feet. Assuming 5 inches of rainfall the volume of stormwater is 3,917 sq ft x 5/12 ft = 1,632 cubic feet. Converting to gallons = 1,632 cubic feet x 7.481 gallons/ft^3 = 12,209 gallons

The cost to dispose of non-hazardous wastewater is $0.50/per gallon

Cost for disposal of stormwater = $0.50/gallon x 12,209 gallons = $6,104

Include $3,500 for sampling

Total cost for stormwater management = $6,104 +$3,500 = $9,604

Inflation Rate

Inflation rate (projected inflation for the next three years based on the inflation for the prior three years).

Per US Department of Labor the Inflation Rates for the last three years are:

2015	1.44%
2016	1.01%
2017	1.02%

Cumulative Inflation Rate = 1.0144 x 1.0101 x 1.0102 = 1.03509, or 3.5%

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

BONDING WORKSHEETS FOR HAZARDOUS WASTE STORAGE AND TREATMENT FACILITIES

BONDING WORKSHEET A
FACILITY DECONTAMINATION

1. Maximum volume of waste to be removed from:

a. Container Storage Areas	NA	unit of measure
b. Tank Storage/Treatment Units	460 cubic yards	unit of measure
c. Tank Piping	147 cubic yards	unit of measure
d. Tank Sludge/Heel Areas	9.9 cubic yards	unit of measure
e. Containment Buildings	NA	unit of measure
f. Thermal Treatment Units	NA	unit of measure
g. Ancillary / Miscellaneous Units and Equipment	(included in C)	unit of measure
h. Air Pollution Equipment	NA	unit of measure
i. Drip Pads	NA	unit of measure

(Maximum volumes should be based on permitted volumes for each storage unit. Provide supporting calculations for the volumes)

2. Unit cost to dispose, treat or recycle waste off site (including removal, transportation and disposal, treatment or recycling costs): $206, $243, $826 cu.yd $/unit of measure

(Provide supporting documentation from third parties for the unit costs and considering waste types)

3. Cost to decontaminate floors, walls, tanks, equipment, containers, and other secondary containment:

a. Labor cost	$90,190
b. Sampling cost	$7,100
c. Analytical cost	$24,790

(Provide supporting documentation from third parties for these costs. Labor costs should conform to US Dept. of Labor, Bureau of Labor Statistics most recent rates)

4. Volume of contaminated soils to be removed: NA unit of measure

(Provide supporting calculations)

5. Unit cost to dispose of contaminated soils: NA $/unit of measure (including sampling, analysis, removal, transportation and disposal costs):

(Provide supporting documentation from third parties for all portions of this cost)

6. Volume of wastewater generated during decontamination: 28,600 gallons $/unit of measure

(Provide supporting calculations for each area to be decontaminated)

7. Unit cost to treat/dispose wastewater: $1.08/gallon (average) $/unit of measure (including sampling, analysis, removal, transportation and disposal costs)

(Provide supporting documentation from third parties for all portions of this cost)

8. Cost for facility maintenance: $1,000

(Provide costs for housekeeping and other routine maintenance)

9. Engineering and QA/QC costs: $36,500

(Lump sum for closure oversight costs)

10. Cost Summary:

a. Waste removal (line 1 x line 2) $138,785

b. Facility decontamination (line 3) $122,080

c. Contaminated soils (line 4 x line 5) $0

d. Wastewater (line 6 x line 7) $30,880

e. Maintenance (line 8) $1,000

f. Engineering QA/QC (line 9) $36,500

TOTAL $329,250

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

BONDING WORKSHEETS FOR HAZARDOUS WASTE STORAGE AND TREATMENT FACILITIES

BONDING WORKSHEET D
SUMMARY COST WORKSHEET

Cost Summary

1. Decontaminating the Facility		$329,250
2. Groundwater Monitoring		$NA
3. Surface Water Monitoring		$NA
4. Other Costs (Site specific monitoring or reporting costs)		$9,600
	Subtotal	$338,850

Inflation

4. Inflation rate (projected inflation based on the inflation rate for the prior year)	3.5 %
5. Inflation cost for facility (subtotal x line 4)	$11,860

Contingency and administrative fees

6. Administrative fees (10%) (subtotal x 0.1)	$33,900
7. Contingency fee amount – 20%	$67,800
Total (subtotal + line 5 + line 6 + line 7)	$452,410

ATTACHMENT 3

SUPPORTING DOCUMENTATION

ATTACHMENT – 3.1

UNIT COST FORM

(ELK ENVIRONMENTAL SERVICES)

From: Will Von Hacht IV
To: Killoran, Kevin
Cc: Eichlin, Brian
Subject: RE: Keystone Cement: Unit Cost Form
Date: Wednesday, May 16, 2018 10:53:00 AM
Attachments: KeystoneCement_4May2018.pdf

Kevin,

Please see the attached as requested. Let me know if you have any questions.
As
closure of the facility is unlikely to occur until well in the future, your company will not be held to these costs
until such time a formal cost proposal is requested by Keystone.

Thanks

Will von Hacht IV
Project Manager/Estimator

Elk Environmental Services | 1420 Clarion Street | Reading, PA 19601
Main Office: 610-372-4760 | Fax: 610-372-4820 | www.elkenv.com
24 Hour Emergency Response: 1-800-851-7156

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From: Killoran, Kevin <Kevin_Killoran@golder.com>
Sent: Friday, May 4, 2018 4:21 PM
To: Will Von Hacht IV <willvh4@elkenv.com>
Cc: Eichlin, Brian <brian_eichlin@golder.com>
Subject: Keystone Cement: Unit Cost Form

Will,

As discussed earlier today, Golder is assisting Keystone Cement Company (Keystone) with a RCRA permit renewal application. An item required in the permit application is a cost estimate for the future closure of a hazardous waste processing, storage and treatment facility that Keystone operate at their Bath, Pennsylvania facility. Golder appreciates your offer of assistance regarding providing unit cost for various closure tasks that may be required.

Included in the attached PDF document are four attachments as follows:

- Attachment 1 – Instructions
- Attachment 2 – Unit Cost Form
- Attachment 3 – List of Waste Codes
- Attachment 4 - Sketch 1, Layout for Final Operating Scenario

Please populate Attachment 2 based on your review and understanding of the requested work as outlined in the attachments. If necessary, add line items to the Unit Form for task you believe may be required but not included on the form.

I will be out of the office the week of May 7th. Please direct any question to my colleague Brian Eichlin, PE (copied). Brian's phone no. is (336) 398-2809, ext. 42509

Your response is requested by Wednesday, May 16, 2018.

Thank you in advance for the assistance.

Regards,
Kevin

Kevin Killoran, P.E.*
Senior Engineer

10 Canal Street, Suite 217, Bristol, Pennsylvania, USA 19007
T: +1 215 826-1560 | D: +1 215 826-1560 x60074 | golder.com
LinkedIn | Facebook | Twitter
***Professional Engineer (P.E.): AL, OH, PA and VA**
Work Safe, Home Safe

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Submitted by Elk Environmental Services (May 16, 2018)

ATTACHMENT 2 - UNIT COST FORM

Item No.	Scope of Work Item	Estimated Quantity	Unit	Unit Cost	Estimated Total Cost
1	Mobilization & Demobilization	1	Lump Sum		**$3,800.00**
2	T&D - hazardous waste fuel	220,000	Gallons	$1.00	**$220,000.00**
3	T&D - hazardous waste water - decontamination water	32,840	Gallons	$1.50	**$49,260.00**
4	T&D - hazardous waste water, drum	20	Each	$225.00	**$4,500.00**
5	T&D - hazardous waste solid, drum	90	Each	$275.00	**$24,750.00**
6	T&D - hazardous waste solid, roll-off	15	Each	$4,875.00	**$73,125.00**
7	T&D - hazardous waste sludge, drum	76	Each	$170.00	**$12,920.00**
8	T&D - non-hazard. waste solid, drum	9	Each	$120.00	**$1,080.00**
9	T&D - non-hazard waste water	32,840	Gallons	$0.50	**$16,420.00**
10	T&D - non-hazard. waste water, drum	20	Each	$120.00	**$2,400.00**
11	Decontamination, Tanks	7	Each	$10,533.60	**$73,875.00**
12	Decontamination, Containment & Unloading Areas	32,840	Square Feet	$1.65	**$54,186.00**
13	Decontamination, Piping & Equipment	9,750	Linear Feet	$5.68	**$55,357.50**
14	Gravel Removal, Truck Parking Area	12,130	Square Feet	$0.60	**$7,200.00**
15	T&D Gravel, non-hazardous	225	Cubic Yard	$195.00	**$21,375.00**
16	2-Person Labor Crew, Level B PPE	1	Day		**$1,995.00**
17	2-Person Labor Crew, Level C PPE	1	Day		**$1,405.00**
18	Confined Space Services, Level B	1	Day		**$3,110.00**
19	Confined Space Services, Level C	1	Day		**$2,225.00**
20	Vacuum Truck Services	1	Day		**$1,950.00**

Notes:

1) Unit cost shall be based on prevailing wages.
2) T&D cost - containers (e.g., drums, roll-offs) included in cost. Sampling, analysis and
3) Refer to Attachment 1 for additional instructions and assumptions.

By: KGK, 5/4/18

ATTACHMENT – 3.2

GEO-PROBE

(EICHELBERGERS INC.)

since 1946
Eichelbergers, Inc.

107 Texaco Road, Mechanicsburg, PA 17050
1-800-360-0660 717-766-4800 fax 717-691-6069

Proposal: **EB0002**
Job # REF/PO #
Client: **Golder** Date: **May 17, 2018**
Job: **Geoprobe**
Address: **Bath, Pennsylvania** Start:
Contact: **Kevin Killoran** Finish:
(215) 826-1560 kevin_killoran@golder.com

	Qty	U/M	Unit Price	Extended
Geoprobe				
Mob/Demob (Equipment & Crew)	1.0	LS	$550.00	$550.00
Day Rate	4.0	Day	$1,350.00	$5,400.00
Per Diem	3.0	Night	$150.00	$450.00
Drums		Each	$75.00	
Bentonite Backfill		Bag	$17.00	
Assumptions:				
***All Quantities are Estimates based off RFQ.**				
***Based on (10) Locations per Day.**				
Prepared By:				
Eric J. Benko, Senior Project Manager				
			Total	**$6,400.00**

Proposed pricing is good for 30 days

ATTACHMENT – 3.3

ANALYTICAL COST

(EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC)

eurofins | Lancaster Laboratories Environmental

evin Killoran
Golder Associates Incorporated (A# 05667)
10 Canal Street, Suite 217
Bristol, PA 19007
(215) 826-1560
Kevin_Killoran@golder.com

Quote #: 220243A
Account Mgr: Jeremy Young
(717) 693-5814
JeremyYoung@eurofinsUS.com
Project Mgr: Nicole Maljovec
(717) 556-7259
NicoleMaljovec@eurofinsUS.com
Prepared On: 05/17/2018
Expires: 08/15/2018
Prepared By: Tara Spaide

Project Requirements:

Description:	Northampton
Accreditations:	Pennsylvania
Electronic Deliverable:	Excel
Data Package:	Level II
Detection Limits:	ELLE 's standard limits

Analysis Name	Method Name	Qty	Cat #	Unit Cost	Total Cost
Ignitability	40 CFR 261.21(a)(2)	1	00542	$16.00	$16.00
.P Zero Headspace Extraction	SW-846 1311	1	00946	$51.00	$51.00
LP Volatiles	SW-846 8260C	1	11997	$53.00	$53.00
TCLP Non-volatile Extraction	SW-846 1311	1	00947	$38.00	$38.00
TCLP Metals	SW-846 6010C/7470A	1	05773	$46.00	$46.00
TCLP Pesticides	SW-846 8081B	1	10647	$83.00	$83.00
TCLP Herbicides	SW-846 8151A	1	00952	$83.00	$83.00
TCLP Semivolatiles	SW-846 8270D	1	14252	$116.00	$116.00
Total					**$486.00**

Accreditation Status

Eurofins Lancaster Laboratories Environmental, LLC (ELLE) holds all accreditations offered by the state of Pennsylvania for your project scope.

Quote Notes

Site specific QC including matrix spikes, trip/field/equipment blanks will be billed at the same rates as field samples.

If a TCLP sample has incompatible or multiple liquid layers, then each layer will be analyzed separately and the results will be mathematically combined to yield a volume-weighted average concentration. There will be additional fees to analyze the incompatible liquid layer(s).

ATTACHMENT – 3.4

2018 RS MEANS

Line 13

RSMeans data from GORDIAN

(/SearchData)

Welcome JAMES GARDNER | Guide Me

Cost Data: Commercial New Construction | Type: Unit | Labor Type: Standard Union | Location: LEHIGH VALLEY (180) | Release: Year 2018 Quarter 1 | Search

Search: *What are you searching for?* | All | Search | Include My Custom Data

0131 Project Management And Coordination

Line Number	Description	Unit	Crew	Daily Outpu	Labor	Bare Material	Bare Labor	Bare	Bare Total	Total O&P	Hourly Oper. Cost	Rent F	
013100000000	**Project Management and Coordination**												
013113000000	**Project Coordination**												
013113200010	**FIELD PERSONNEL**												
013113200020	Clerk, average		Week				485.00		485.00	740.00			
013113200100	Field engineer, junior engineer		Week				1150.00		1150.00	1750.00			
013113200120	Engineer		Week				1500.00		1500.00	2300.00			$57.50 / hr.
013113200140	Senior engineer		Week				1700.00		1700.00	2600.00			$65.00 / hr.
013113200160	General purpose laborer, average		Week				1600.00		1600.00	2425.00			
013113200180	Project manager, minimum		Week				2125.00		2125.00	3275.00			
013113200200	Average		Week				2450.00		2450.00	3750.00			
013113200220	Maximum		Week				2800.00		2800.00	4275.00			
013113200240	Superintendent, minimum		Week				2075.00		2075.00	3175.00			
013113200260	Average		Week				2275.00		2275.00	3500.00			$87.50 / hr.
013113200280	Maximum		Week				2600.00		2600.00	3975.00			
013113200290	Timekeeper, average		Week				1325.00		1325.00	2025.00			
013113300010	**INSURANCE**												
013113300020	Builders risk, standard, minimum		Job						0.24%	0.24%			
013113300050	Maximum		Job						0.64%	0.64%			
013113300200	All-risk type, minimum		Job						0.25%	0.25%			
013113300250	Maximum		Job						0.62%	0.62%			
013113300400	Contractor's equipment floater, minimum		Value						0.50%	0.50%			

Create New Estimate

Version 8.7 (http://www.thegordiangroup.com) | © 2018 RSMeans | User Agreement (../../Content/RSMeansOnlineUserAgreement.pdf) | Sales Help: 1-800-334-3509 | Customer Support: 1-800-448-8182 | RSMeansData@gordian.com (mailto: RSMeansData@gordian.com ?subject= &body=) |
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https://www.rsmeansonline.com/Search-Data

RSMeans data from GORDIAN

Guide Me | Welcome JAMES GARDNER

Search Data | Manage Estimates | Square Foot Estimator | Life Cycle Cost | Cost Alerts and Trends | Reference Items | My Favorites

Cost Data: Commercial New Construction | Type: Unit | Labor Type: Standard Union | Location: WILMINGTON (198) | Release: Year 2018 Quarter 2 | Search

Search: What are you searching for? | All | Search | Include My Custom Data

0401 Maintenance Of Masonry — Total 73 records found

Description	Unit	Crew	Daily Output	Labor Hours	Bare Material	Bare Labor	Bare Equipment	Bare Total	Total O&P	Hourly Oper. Cost	Rent Per Day	Rent Per Week	Rent Per Mo
High pressure wash, water only, light soil	S.F.	C29	500.00	0.016		0.65	0.16	0.81	1.16				
Average soil, biological staining	S.F.	C29	375.00	0.021		0.87	0.21	1.08	1.56				
Heavy soil, biological and mineral staining, paint	S.F.	C29	250.00	0.032		1.31	0.31	1.62	2.33				
High pressure water and chemical, light soil	S.F.	C29	450.00	0.018	0.17	0.73	0.17	1.07	1.49				
Average soil, biological staining	S.F.	C29	300.00	0.027	0.27	1.08	0.26	1.61	2.24				
Heavy soil, biological and mineral staining, paint	S.F.	C29	200.00	0.040	0.35	1.62	0.40	2.37	3.30				
Sandblast, wet system, light soil	S.F.	J6	1750.00	0.018	0.37	0.83	0.15	1.35	1.82				
Average soil, biological staining	S.F.	J6	1100.00	0.029	0.56	1.31	0.22	2.09	2.84				
Heavy soil, biological and mineral staining, paint	S.F.	J6	700.00	0.046	0.75	2.05	0.36	3.16	4.33				
Dry system, light soil	S.F.	J6	2500.00	0.013	0.37	0.57	0.10	1.04	1.39				
Average soil, biological staining	S.F.	J6	1750.00	0.018	0.56	0.83	0.15	1.54	2.02				
Heavy soil, biological and mineral staining, paint	S.F.	J6	1000.00	0.032	0.75	1.44	0.25	2.44	3.27				
For walnut shells, add	S.F.				0.82			0.82	0.90				
For corn chips, add	S.F.				0.82			0.82	0.90				
Steam cleaning, light soil	S.F.	A1H	750.00	0.011		0.44	0.12	0.56	0.80				
Average soil, biological staining	S.F.	A1H	625.00	0.013		0.52	0.15	0.67	0.96				
Heavy soil, biological and mineral staining	S.F.	A1H	375.00	0.021		0.87	0.25	1.12	1.59				
Add for masking doors and windows	S.F.	1 Clab	800.00	0.010	0.07	0.41		0.48	0.70				
Add for pedestrian protection	Job							10.00%	10.00%				
BRICK WASHING													
Acid cleanser, smooth brick surface	S.F.	1 Bric	560.00	0.014	0.05	0.74		0.79	1.18				

+ Create New Estimate — Total 73 Records Found

GORDIAN

Start | 9:14 AM

Search Data - Internet Explorer provided by Golder Associates

RSMeans data from GORDIAN

Guide Me | Welcome JAMES GARDNER

Search Data | Manage Estimates | Square Foot Estimator | Life Cycle Cost | Cost Alerts and Trends | Reference Items | My Favorites

Cost Data: Commercial New Construction | Type: Unit | Labor Type: Standard Union | Location: WILMINGTON (198) | Release: Year 2018 Quarter 2 | Search

Search: sandblast | All | Search | Include My Custom Data

Search Results

Total 14 records found

Line Number	Description	Unit	Crew	Daily Output	Labor Hours	Bare Material	Bare Labor	Bare Equipment	Bare Total	Total O&P	Hourly Oper
015433405720	Rent sandblaster, portable, open top 3 cubic feet capacity	Ea.		0.00							
015433405730	Rent sandblaster, portable, open top 6 cubic feet capacity	Ea.		0.00							
015433405740	Rent sandblaster accessories	Ea.		0.00							
033529600700	Concrete finishing, walls, sandblast, light penetration	S.F.	E11	1100.00	0.029	0.54	1.44	0.22	2.20	3.11	
033529600750	Concrete finishing, walls, sandblast, heavy penetration	S.F.	E11	375.00	0.085	1.07	4.20	0.67	5.94	8.59	
040130201200	Cleaning masonry, sandblast, wet system, light soil, excludes scaffolding	S.F.	J6	1750.00	0.018	0.37	0.83	0.15	1.35	1.82	
040130201220	Cleaning masonry, sandblast, wet system, average soil, biological staining, excludes scaffolding	S.F.	J6	1100.00	0.029	0.56	1.31	0.22	2.09	2.84	
040130201240	Cleaning masonry, sandblast, wet system, heavy soil, biological and mineral staining, paint, excludes sca	S.F.	J6	700.00	0.046	0.75	2.05	0.36	3.16	4.33	
040130201400	Cleaning masonry, sandblast, dry system, light soil, excludes scaffolding	S.F.	J6	2500.00	0.013	0.37	0.57	0.10	1.04	1.39	
040130201420	Cleaning masonry, sandblast, dry system, average soil, biological staining, excludes scaffolding	S.F.	J6	1750.00	0.018	0.56	0.83	0.15	1.54	2.02	
040130201440	Cleaning masonry, sandblast, dry system, heavy soil, biological and mineral staining, paint, excludes scaf	S.F.	J6	1000.00	0.032	0.75	1.44	0.25	2.44	3.27	
040130201800	Cleaning masonry, sandblast, excludes scaffolding, for walnut shells, add	S.F.		0.00		0.82			0.82	0.90	
040130201820	Cleaning masonry, sandblast, excludes scaffolding, for corn chips, add	S.F.		0.00		0.82			0.82	0.90	
051223773860	Structural steel project, shop extra for sandblasting and primer coat of paint, (cost included in project ba	Ton		0.00		150.66			150.66	165.93	

+ Create New Estimate

Total 14 Records Found

GORDIAN

Start | 9:19 AM

ATTACHMENT 4

LIABILITY INSURANCE

2510-FM-BWM0078 6/2005

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF LAND RECYCLING AND WASTE MANAGEMENT

HAZARDOUS WASTE FACILITY CERTIFICATE OF LIABILITY INSURANCE

Indian Harbor Insurance Company, (the "Insurer"), with his principal place of business at Seaview House, 70 Seaview Avenue, Stamford, CT 06902-6040 and his registered Pennsylvania resident agent 501 Corporate Centre Drive, Suite 300, Franklin, TN 37067.

HEREBY CERTIFIED THAT:

A. GENERAL

The Insurer has issued a policy of insurance ("policy"), identified as PEC002826809 (policy number(s))

for the dates 05/01/2018 to 05/01/2019, in the name of Giant Cement Holding, Inc. (operator's name)

("Operators" or "Insured") for the following facility/facilities:

Route 987 & Route 329, Bath, PA 18014	PAD002389559
(facility)	(EPA ID)

B. TYPE OF COVERAGE

The policy is a Pollution and Remediation Legal Liability Policy (pollution liability/EIL/CGL with pollution endorsement/rider/other)

policy, as indicated PEC002826809 (specify clause or clauses which show this)

and covers property damage and bodily injury to third parties exclusive of legal defense costs as follows:

1. For the treatment, storage and disposal facilities listed below, at least $1,000,000 per occurrence and $2,000,000 annual aggregate, for sudden accidental occurrences:

N/A	N/A
(facility)	(EPA ID)

2. For surface impoundments, land disposal facilities listed below, at least $3,000,000 per occurrence and $6,000,000 annual aggregate, for non-sudden/gradual/occurrences (complete or strike-out as appropriate) occurrences:

Route 987 & Route 329, Bath, PA 18014	PAD002389559
(facility)	(EPA ID)

3. Owner or operators who combine coverage levels for sudden and nonsudden accidental occurrences must maintain liability coverage in the amount of $4,000,000 per occurrence and $8,000,000 annual aggregate.

Such coverage is indicated by PEC002826809 (specify clause(s) which establish these items).

Furthermore, the above-listed policy coverage contains the following terms, conditions and provisions:

1. The coverage afforded by the policy is "first-dollar" coverage. If the policy provides for deductible amounts, the insurer has agreed to pay on behalf of the insured any sums within the deductible the insured become liable for and the insurer is liable for such amounts.
2. The Policy covers each listed facility in full, the policy limits of liability apply to each facility and there is no proration of policy limits of liability among facilities:
3. The insurer is liable for payment on the policy without regard for the bankruptcy or insolvency of the insured.

C. NOTICE OF TERMINATION

The policy may not be cancelled for any reason by anyone before written notice of termination is given to the Department of Environmental Protection, Bureau of Waste Management, Harrisburg. PA, 60 days prior to any proposed termination date, as indicated in Endorsement PARL6 902b (clause(s)).

D. 40 CFR 264.147, 40 CFR 265.147, 25 PA Code 264a.147 and 265a.147

The policy is provided to satisfy the requirements of Pennsylvania law..

E. CONTINUOUS COVERAGE

The policy is a claims made (claims made or occurrence) policy, and has tail period of sixty (60) and is retroactive to N/A as indicated in Declarations Page (clause(s)).

Anthony Gentile

(Signature of Authorized Representative of Insurer)

Date: 5/2/18

Anthony Gentile Vice President Authorized Representative of Indian Harbor Insurance Company

c/o XL Catlin
505 Eagleview Boulevard
Suite 100
Exton, PA 1934

CERTIFICATE OF LIABILITY INSURANCE

DATE(MM/DD/YYYY) 05/01/2018

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
Aon Risk Services South, Inc.
Charlotte NC Office
1111 Metropolitan Avenue, Suite 400
Charlotte NC 28204 USA

CONTACT NAME:
PHONE (A/C. No. Ext): (866) 283-7122 FAX (A/C. No.): 800-363-0105
E-MAIL ADDRESS:

INSURER(S) AFFORDING COVERAGE		NAIC #
INSURER A:	ACE American Insurance Company	22667
INSURER B:	Indian Harbor Insurance Company	36940
INSURER C:		
INSURER D:		
INSURER E:		
INSURER F:		

INSURED
Keystone Cement Company
Route 329
Bath PA 18014 USA

COVERAGES **CERTIFICATE NUMBER:** 570071018995 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS. **Limits shown are as requested**

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE X OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: X POLICY PRO-JECT LOC OTHER:			XSLG71095502 SIR applies per policy terms & conditions	05/01/2018	05/01/2019	EACH OCCURRENCE	$1,000,000
							DAMAGE TO RENTED PREMISES (Ea occurrence)	$300,000
							MED EXP (Any one person)	
							PERSONAL & ADV INJURY	$1,000,000
							GENERAL AGGREGATE	$5,000,000
							PRODUCTS - COMP/OP AGG	$2,000,000
A	AUTOMOBILE LIABILITY X ANY AUTO OWNED AUTOS ONLY HIRED AUTOS ONLY SCHEDULED AUTOS NON-OWNED AUTOS ONLY			ISA H25157680	05/01/2018	05/01/2019	COMBINED SINGLE LIMIT (Ea accident)	$2,000,000
							BODILY INJURY (Per person)	
							BODILY INJURY (Per accident)	
							PROPERTY DAMAGE (Per accident)	
							Heavy Truck Deduct	$5,000
	UMBRELLA LIAB OCCUR EXCESS LIAB CLAIMS-MADE DED RETENTION						EACH OCCURRENCE	
							AGGREGATE	
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR / PARTNER / EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N N If yes, describe under DESCRIPTION OF OPERATIONS below	N/A		WLRC64790079	05/01/2018	05/01/2019	X PER STATUTE OTH-ER	
							E.L. EACH ACCIDENT	$1,000,000
							E.L. DISEASE-EA EMPLOYEE	$1,000,000
							E.L. DISEASE-POLICY LIMIT	$1,000,000
B	Env Site Liab			PEC002826809 Claims made SIR applies per policy terms & conditions	05/01/2018	05/01/2019	Each Loss	$10,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
Evidence of Insurance

CERTIFICATE HOLDER

Keystone Cement Company
Route 329
Bath PA 18014 USA

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Aon Risk Services South, Inc.

Holder Identifier :

Certificate No : 570071018995

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AGENCY CUSTOMER ID: 10757518

LOC #:

ADDITIONAL REMARKS SCHEDULE

AGENCY	NAMED INSURED
Aon Risk Services South, Inc.	Keystone Cement Company
POLICY NUMBER: See Certificate Number: 570071018995	
CARRIER: See Certificate Number: 570071018995 — NAIC CODE:	EFFECTIVE DATE:

ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,
FORM NUMBER: ACORD 25 **FORM TITLE:** Certificate of Liability Insurance

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER	
INSURER	
INSURER	
INSURER	

ADDITIONAL POLICIES If a policy below does not include limit information, refer to the corresponding policy on the ACORD certificate form for policy limits.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YYYY)	POLICY EXPIRATION DATE (MM/DD/YYYY)	LIMITS	
	AUTOMOBILE LIABILITY							
A				ISA H25157680	05/01/2018	05/01/2019	Collision Deductible	$1,000
							PD OTC Deductible	$1,000

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APPENDIX E-2
FULL CLOSURE PLAN FOR FINAL OPERATING SCENARIO
KEYSTONE CEMENT COMPANY

Prepared for:
Keystone Cement Company
P.O. Box A
Route 329
East Allen Township, Bath, Pennsylvania 18014-0058

Revised September 2007 (Golder Associates, Inc.)
Revised April 2008 (Golder Associates, Inc.)
Revised October 2008 (Golder Associates, Inc.)
Revised April 2015 (Keystone Cement Company)
Revised August 2018 (Keystone Cement Company)
Revised December 2022 (Keystone Cement Company)

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December 2022

1.0 GENERAL

1.1 Introduction

Keystone Cement Company (Keystone) operates a hazardous waste processing, storage and treatment facility, in Bath, Pennsylvania (Site). The facility is located on an over 800-acre tract of land in East Allen Township and the Borough of Bath, Northampton County. In addition to conventional fuels, the facility burns liquid hazardous waste for energy recovery in the cement kiln pursuant to the Federal Clean Air Act National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Hazardous Waste Combustors Maximum Achievable Control Technology Rule at 40 CFR Part 63, Subpart EEE (HWC MACT). The storage of the liquid hazardous waste on-site is permitted by Keystone's Resource Recovery and Conservation Act (RCRA) Part B Permit (PAD002389559). Federal regulations, 40 CFR §270.14, provides the general requirements for the contents of a RCRA Part B application or a RCRA Part B modification application. The general requirements include a copy of the facility's closure plan and the most recent closure cost estimate for the facility. This Full Closure Plan meets the requirements of 40 CFR §270.14 and the other federal regulations referenced therein. In addition, it meets the requirements of 25 Pa. code §264.a.166 related to closure certifications.

Keystone is presently submitting to the Pennsylvania Department of Environmental Protection (PADEP or Department) a Resource Conservation and Recovery Act (RCRA) Part B Permit Renewal Application which includes the construction of new facilities at the Site that identify a Final Operating Scenario. This plan has been developed and incorporated as Appendix E. The plan includes the hazardous waste management units (HWMUs) anticipated to be constructed for the Final Operating Scenario and/or in existence at the time of closure (i.e. seven (7) planned above ground storage tanks, existing tank truck unloading facility including the planned mixing system, direct transfer operation, planned railcar unloading facility, the existing truck staging area, existing truck parking area, the existing general hazardous waste storage areas (i.e., 90-day storage area) located near the previously RCRA closed former Kiln No. 2 including the secondary containment area, the existing CKD contingency area (i.e., 90-day storage area), and one (1) pre-heater/pre-calciner rotary cement kiln (Referred to as Kiln No. 1), associated piping, associated duct work (including hazardous waste derived fuel vapor vent line), associated secondary containment structures, kiln stack, and ancillary equipment that may contact hazardous waste such as the vapor phase carbon adsorption units). A Partial Closure Plan has also been developed

for the closure of the existing permitted operations (existing four (4) above ground storage tanks, associated piping, associated secondary containment structures, and ancillary equipment.) and is provided as Appendix E-1 of the permit modification application. Prior to the estimated date of closure activities, this Full Closure Plan must be approved by the Department.

The purpose of this Full Closure Plan is to outline and establish the procedures that are required to completely close the hazardous waste management facility at the end of its operating life. The closure of the facility will be in accordance with 25 Pa. Code Chapter §264a Subchapter G (Closure and Postclosure), 40 CFR Part 264 Subpart G (Closure and Postclosure), 40 CFR §264.173 (Container Closure), and 40 CFR §246.197 (Tanks Closure and Postclosure Care).

A Permit Application is required to be submitted to the PADEP to allow for the proposed closure and associated construction activities on-site. A written Closure Plan is required to be submitted with the permit renewal application and must be approved by the Department as part of the permit issuance (40 CFR §270.14). Keystone will notify the Department in writing at least 45 days prior to the date final closure is expected to begin (40 CFR §264.112). Keystone will maintain a copy of the approved Closure Plan on-site until the Certification of Closure has been submitted to and accepted by the Department (25 Pa. Code §264a.166).

Upon completion of closure activities, Keystone will submit to the Department, by registered mail, a certification, signed by both a principal corporate officer of Keystone and by an independent registered Professional Engineer, that the facility has been closed in accordance with the specifications and procedures in the approved Closure Plan. This certification must be submitted to the Department within 60 days of completion of the closure activities (40 CFR §264.115).

Keystone will amend this Closure Plan whenever changes in operating plans or facility design affect the Closure Plan. If there is a change in operating plans, facility design, or a change in the approved closure plan, Keystone must submit a written notification or request for a permit modification. This written notification or request must include a copy of the amended closure plan for review and approval by the Department (40 CFR §264.118). The written request for a permit modification including a copy of the amended Closure Plan must be submitted to the Department at least 60 days prior to the proposed change in facility design or operating

procedures. A revised Closure Plan will be submitted to the Department upon completion of the final design detailing the proposed changes in the hazardous waste management units.

1.2 Closure Performance Standard

In accordance with 40 CFR §264.111 (Closure Performance standards), 40 CFR §264.113a (Closure), 40 CFR §246.114 (Disposal or decontamination of equipment, structures, and soils), 40 CFR §264.178 (Closure standards for containers), and 40 CFR §264.197 (Closure standards for tanks), Keystone has developed a detailed Full Closure Plan for the HWMUs at the Site. Only equipment expected to be in operation at the time of closure is included in this Full Closure Plan. Closure of currently permitted equipment (existing four (4) above ground storage tanks, associated piping, associated secondary containment structures, and ancillary equipment) that will be closed prior to the final closure of the facility is discussed in a separate document entitled "Partial Closure Plan" included in Appendix E-1 of the Part B Permit Application (permit application). The Partial Closure Plan also includes a determination as to whether storage tanks and silos used for stormwater management will require closure as hazardous waste management units. During the lifetime of the facility, Keystone will amend the Full Closure Plan whenever changes in operating procedures or facility design affect the Plan, including addition of future equipment, or whenever there is a change in the expected year of closure.

The facility has been designed and is operated in a manner which minimizes the potential for the discharge or spill of hazardous materials and reduces a potential hazard to the health and safety of the public or environment. The planned hazardous waste management facility as described as the Final Operating Scenario is comprised mainly of the following units:

1. The planned seven (7) hazardous waste storage tanks and associated transfer and vapor vent piping, valves, pumps, and the equipment contained within a concrete secondary containment structure. The six (6) hazardous waste storage tanks in the waste derived fuel storage tank farm are above ground tanks that store waste derived fuels. The tanks consist of: six (6) 32,000-gallon[1] working capacity tanks. The seventh hazardous waste storage tank will be located in the railcar unloading area. The capacity for the seventh tank is 28,000 gallons.

[1] The actual capacity of the tanks are subject to modification based on the actual dimensions of the final constructed tanks. The final constructed tanks in the waste fuel storage tank farm will be between 30,000-to-32,000-gallon capacity each. However, the maximum storage capacity of all seven tanks shall not exceed 220,000 gallons.

2. Secondary Containment Structures associated with the planned tank farm, existing truck unloading, direct transfer (which is contained in the existing truck unloading pad), mixing system (which is also contained in the existing truck unloading pad) and planned railcar unloading secondary containment including building structures. The secondary containment area will be decontaminated and underlying soils tested in the event that cracks are determined to have breached the concrete containment. If the soils do not indicate a need for remedial action, the secondary containment area will remain in place.

3. Liquid Fuels Transfer Piping, pumps including kiln feed piping, direct transfer piping, kiln vapor vent piping, and related equipment will be decontaminated, removed and disposed of offsite.

4. Vapor Phase Carbon Adsorption System(s) and related vapor phase piping will be decontaminated, removed and disposed of off-site.

5. One (1) pre-heater/pre-calciner rotary cement kiln, duct work, kiln stack, and associated piping from storage tanks.

6. The existing truck staging area;

7. The existing truck parking area; and,

8. The existing general hazardous waste storage areas (i.e. 90 day storage areas) including the containment area located near the demolished Kiln No. 2 and the CKD Contingency area located near the Quarry Shop.

Ancillary equipment that does not contact hazardous waste constituents, such as the nitrogen system, are not subject to closure.

The operations of Keystone to manufacture portland and masonry cement have been designed and are operated in a manner which minimizes the potential for contamination of the facility structure, equipment and surrounding property. The facility design, coupled with the frequent inspections and facility maintenance, provides for a safe daily operation and minimizes the need for clean-up and decontamination at closure.

The procedures, regulations and sequencing plans that have been incorporated into this Full Closure Plan are intended to: (1) ensure that the facility will not require post-closure maintenance and control following complete closure of the facility; (2) minimize any risks or threats to human health or the environment; (3) reduce the potential for any post-closure escape of hazardous waste or hazardous waste constituents to groundwater, surface waters, or the atmosphere; and, (4)

comply with other applicable closure requirements for the kiln, storage tanks and ancillary equipment, and hazardous waste management facilities.

Samples will be taken of the materials being decontaminated, in addition to the surrounding soils, as necessary, and will be analyzed to verify that hazardous constituents do not remain above concentrations that exceed decontamination standards after closure of the hazardous waste management facility. Specific sampling procedures and criteria are included in Sections 3 and 4 of this plan. If required, soils and other media will be tested for the constituents that are typically present in the waste streams accepted by the facility. This list is included in Tables 1 and 2 of the Waste Acceptance Procedure and incorporated as part of Keystone's RCRA permit. The proposed test parameters will include volatile organics, semi-volatile organics, and metals. Keystone may submit a reduced analytical parameter list to the Department for approval 90 days prior to implementation of partial or full closure. Information to be included with the request shall include historical data including a listing and evaluation of all previously approved waste streams Module 1/Form U plus historical sampling and analysis data contained in the facility operating record.

Rinseate from the decontamination of structures that will remain onsite for reuse, such as tanks and secondary containment structures, will be tested. If the rinseate concentrations are reported to be non-detect, the structure will be considered decontaminated and closed.

The rinseate water will be from a potable water source and the potable water source will be tested. Rinseate concentrations reported to be greater than non-detect will be compared to the concentrations of the potable water source. If rinseate water concentrations are equal to the potable water source than the structure will be considered decontaminated and closed. If the rinseate water contains concentrations greater than the potable water source, then the difference between the two will be compared to the lowest standard presented in either:

- The Universal Treatment Standards for Wastewater (40 CFR §268.48);
- The Departments Division of Drinking Water Management Maximum Contaminant Level (MCL); or,
- The Department's Groundwater Clean-Up Standards as published in Appendix A of Pa Code §250.708.

Keystone may determine after cleaning that these standards cannot be achieved and Keystone may decide to reuse the equipment for uses other than storing and handling hazardous waste derived fuels. For example, Keystone may desire to handle used oil in the tanks. In that instance, Keystone will submit the rinseate test results, the proposed use of the equipment, and an evaluation of the impacts that reuse of the equipment may have on the environment to the Department for approval of decontamination and closure.

The soil investigation results will be compared to applicable Pennsylvania Act 2 Land Recycling and Environmental Remediation Standards. The Act 2 program provides a set of cleanup standards based on health risks including:

1) background standards;
2) statewide health standards; or
3) site-specific standards.

For the statewide health standards (SHS), medium specific concentrations (MSC) have been established for residential and non-residential use. Since the end-use of the Keystone Site will be industrial, the non-residential SHS will be used for soil and groundwater data comparisons.

For soils, a two-step comparison process is required. First, the results will be compared to direct contact numeric values for non-residential use. Depending on the depth of the soil sample, the results will be compared to the surface (0-2 ft) or subsurface (2-15 ft) direct contact numeric values. Second, the numbers will be compared to soil and groundwater numeric values. The Used Aquifer, TDS less than or equal to 2,500 ug/L, non-residential values will be used. Notably, the soil to groundwater non-residential SHS have two sets of values that can be used. These are 100 times the groundwater MSC and a Generic Value that is based upon a soil to groundwater equilibrium equation. Under the Act 2 regulations, the property owner can select either of these subsets to use on a chemical specific basis.

For constituents routinely accepted by Keystone, that do not have ACT 2 standards, the EPA Region III Risk Based Concentrations or other published standard will be used.

1.3 Partial and Final Closure Activities

During the partial and final closure periods, the contaminated equipment, structures, and soils must be properly decontaminated and/or disposed. By removing any hazardous wastes or hazardous constituents during partial and final closure, Keystone may generate hazardous waste and must handle that waste in accordance with the applicable requirements.

This Plan will be in existence for the entire hazardous waste facility and will be in existence for the lifetime of the facility. It is reserved that subsequent partial closures may be undertaken as one of the tanks, unloading/loading areas, truck staging area, truck parking areas, direct transfer operation, associated pipes, mixing system, associated secondary containment structures, rotary cement kiln ductwork, kiln stack and prime mover or ancillary equipment (including vapor vent line) is taken out of service in the future. In such event, the closure procedures provided herein would be followed for only the equipment being removed from service. Any modifications to the facility equipment, structures, or procedures related to the facility operation (including partial closure) which affect the Full Closure Plan will result in Keystone revising the Full Closure Plan and associated closure costs accordingly.

Keystone will dispose of the on-site hazardous waste inventories, and except as provided in Section 5.0 of this plan, the equipment will be tested as necessary to certify their uncontaminated condition. Except as provided in Section 5.0, transfer piping, valves and pumps will be flushed free of hazardous constituents and tested to certify their uncontaminated condition or disposed as a hazardous waste. In addition, secondary containment and surrounding soils (as necessary) will be verified to be free of contamination. Final closure will fully comply with the Closure Performance Standard as stated above and more fully described under this Full Closure Plan. Total time allocated for closure is less than 180 days (40 CFR §264.113).

1.4 Maximum Waste Inventory

The maximum inventory of hazardous waste at any time during the operating life of the facility would be:

- Waste derived fuel Storage Tanks – Seven (7) planned tanks, totaling 220,000 gallons of storage capacity;

- Tanker and Rail Car Staging Area – No storage containment, temporary storage until the hazardous waste can be properly unloaded or rejected;
- Storage Tank Containment Area – No storage, containment only for potential leaks; and,
- Tanker and Railcar Unloading Containment Area – No storage, containment only for potential leaks. The direct transfer operation is also included here as it is contained in the tanker unloading containment area; there is no storage associated in the direct transfer operation – the containment is only used for potential leaks. Additionally, the mixing system is included here as it is contained in the tanker truck unloading area; there is no storage associated in the mixing system operation – the containment is only used for potential leaks.

At the time of closure, it is anticipated that the waste on-site will be suitable for blending in order to be burned in the pre-heater/pre-calciner rotary cement kiln. Keystone will only burn in the kiln the hazardous waste derived fuel inventory present in the waste derived fuel tanks at the time of closure which have been accepted in accordance with the Waste Analysis Plan. All hazardous waste derived fuels will be burned following the approved Standard Operating Procedures. If wastes are not suitable, or if the kiln is unavailable at the time of closure, the waste will be transported to another permitted hazardous waste facility for management, treatment, and disposal. Although burning the wastes at the Keystone rotary cement kiln is the preferred disposal method, the latter, more costly scenario, is used as the basis for the determination of the facility closure cost estimate as discussed in Section 6.0.

Within 90 days after receiving the final volume of hazardous wastes, Keystone must treat, remove or dispose of the hazardous wastes in accordance with the approved Closure Plan (40 CFR §264.113).

2.0 SCHEDULE FOR CLOSURE

Closure of the hazardous waste management facility is not anticipated in the foreseeable future. For planning purposes, closure is projected to occur in the year 2072 (50-year life), and will be completed in a 180-day time frame. Final closure activities will be initiated within 90 days after receipt of the final volume of hazardous waste. In addition, any hazardous waste generated from closure activities, can be accumulated on-site for a period of 90 days or less without a permit.

2.1 Time Allowed for Closure

The estimated time of closure of the facility is 180 days from the date of final receipt of waste. The Department will be notified 45 days prior to beginning final closure. When the closure activities are complete, final closure will be certified by an independent registered Professional Engineer in addition to a principal corporate officer of Keystone.

2.2 Certification of Closure

Within 60 days of completion of closure of the hazardous waste management facility or any portion of the facility referred to in this Full Closure Plan, Keystone must submit to the Department, by registered mail, a certification that the hazardous waste management facility or a portion of the facility has been closed in accordance with the specifications in the approved Closure Plan. This certification must be signed by Keystone and by an independent registered Professional Engineer.

3.0 CLOSURE PROCEDURES

3.1 Inventory Removal, Disposal or Decontamination of Equipment

Closure of the referred to HWMUs will be conducted in a manner which ensures removal of the waste and complete decontamination of the equipment described in Section 1.2 above. The equipment used during closure activities will be decontaminated in a safe and professional manner by trained, qualified hazardous materials technicians using procedures and safety gear appropriate for the closure procedures. The contaminated surfaces of closure equipment will be scrubbed with solutions designed to remove contaminants. The surfaces will then be rinsed with water. This process will be repeated as often as necessary to ensure complete surface decontamination. Sampling and analysis will be conducted to verify that decontamination has been effective at each of the hazardous waste management units referred to in this Closure Plan. Where decontamination cannot be effected, the contaminated material or equipment determined to be hazardous as a result of laboratory analytical testing, will be handled and disposed of as a hazardous waste at an appropriate off-site facility.

Except as detailed in Section 5.0, closure procedures include cleaning and decontamination of tanks, flushing of piping and transfer lines, and testing to ensure no hazardous wastes or hazardous constituents remain in equipment. Wastes flushed from transfer lines, as well as any solvents which may be used for decontamination, will be collected for disposal.

The piping and transfer operations to and from the waste derived fuel process/storage/treatment units will be dismantled and decontaminated. Pumping equipment and process machinery (i.e., valves, flow meters, mixing system etc.) will be thoroughly cleaned and if tested as non-hazardous, either sold for scrap or removed for re-use.

Soil contamination at the site is expected to be minimal since storage and processing areas are located in lined containment areas. Visual inspections of the soils surrounding the HWMUs will be conducted to determine if stained or odor releasing soils are present, indicating the possible release of hazardous waste. If there is indication of soil contamination, the area will be sampled to determine if remediation is required, or excavation and removal of affected soils will take place followed by verification sampling and analysis. If the closure activities result in the spillage of

hazardous materials, such occurrences will be handled by immediately excavating the contaminated aggregate or soil and sending it for disposal at a permitted hazardous waste facility.

Closure procedures will be conducted by facility personnel or outside contractors following comprehensive safety procedures to ensure employee safety during clean-up. The clean-up work will be supervised and performed using qualified facility personnel, or outside contractors. Appropriate personnel protection will be utilized during closure operations, consistent with the applicable National Institute for Occupational Safety and Health (NIOSH) and Mining Safety and Health Administration (MSHA) regulations in effect at the time closure is implemented. Equipment that may be required include, but is not limited to, solvent resistant coveralls, head protection, pre-coated gloves, boots resistant to solvents, and respirators with organic vapor and acid gas filter cartridges that seal directly to the mask. The personnel decontamination activities will be administered under the direction of Keystone's Environmental Manager or designee. The personnel will be instructed as to the required safety equipment and decontamination procedures to be used during closure. Although utilizing facility personnel is the preferred clean-up method, the more costly scenario of using outside contractors is used as the basis for the determination of the facility closure cost estimate.

Where the possibility exists for combustible vapors, their presence will be monitored with a combustible gas/oxygen meter. Non-sparking tools will be available should their use be warranted. Strict supervision will ensure that no open flames, hot surfaces, nor smoking are present in or around the work areas during clean-up and testing.

Prior to leaving any site locations undergoing decontamination, contaminated personnel protective clothing will be collected and placed in approved containers to be disposed of at an approved hazardous waste disposal facility. Specific closure procedures for closing the HWMUs covered under this Closure Plan are provided in the following sections.

3.2 Closure of Tanks, Direct Transfer Operation, Pipes, Transfer Lines, and Other Ancillary Equipment in Tank Storage System

The waste derived fuel is pumped from the truck unloading area and the railcar unloading area to the waste derived fuel storage tanks. Additionally, waste derived fuel is pumped directly from the direct transfer operation (located in the existing truck unloading area) to the kiln. The transfer piping includes the valves, reducers, filters, gauges, and flanges. From the storage tanks, the waste derived fuel is then delivered to the kiln by pumps through a piping system with valves, reducers, gauges, and flanges. Keystone utilizes transfer pumps with grinders to transfer the acceptable waste derived fuel from the tank trucks and railcars to the storage tanks. To deliver the waste derived fuel from the storage tanks to the kilns, Keystone utilizes feed pumps. Circulating pumps are also present and operational in the transport of waste derived fuel through the piping conveyance system.

3.2.1 Closure Procedures

The storage tanks vary in size and are aboveground steel tanks with secondary containment. The tanks are supported by a reinforced concrete floor, which comprises part of the secondary containment area. The closure of the secondary containment area is discussed further in Section 3.6 below. Closure procedures for the seven (7) storage tanks consist of disposing of the waste derived fuel inventory, removing and disposing of any non-pumpable residue from the tanks, cleaning and decontaminating the tanks and the ancillary equipment, and laboratory testing of final rinse water. Keystone plans to decontaminate the seven (7) waste derived fuel storage tanks until the final rinse water meets the criteria detailed in Section 1.2 of this closure plan.

The type of waste derived fuel previously stored in the tanks and currently permitted to accept will indicate the appropriate hazardous constituent(s) expected to remain in the tank. After ensuring that the tanks are empty of the liquid wastes, they will be opened at the manway and visually inspected. The internal portion of the tanks will be tested prior to entry. It is recommended that the tanks be cleaned prior to removal from the tank supports or foundation to eliminate the potential for releases.

Confined space entry procedures will be initiated prior to any tank cleaning activities, which require personnel to enter a tank. Tanks will be vented for several days prior to entry, the fire department will be notified, pre-entry inspection monitoring will be performed, and notice posted in the work area. Appropriate valves will be locked out to isolate the tank as a precaution. Meter

readings of carbon monoxide (CO), oxygen (O_2), and lower explosion limit (LEL) will be taken before opening the tank, when the manhole is opened, and every hour while work inside the tank continues. If meter readings warrant, a fan will be used to exhaust vapors from the tank.

The following procedures will be implemented to affect closure of the tanks:

A. Terminate the additions of hazardous waste shipments from off-site to the storage tanks;

B. Stored wastes will be removed from the tanks and either burned in the kiln or transferred off-site to a permitted transfer, storage, and disposal facility (TSDF). If the waste becomes un-pumpable due to settling of solids, waste from other tanks will be added and the mixture will be agitated before pumping from the tanks. If insufficient waste is available in other tanks for the process, mineral spirits, other solvents, or other non-hazardous material will be purchased to accomplish this task. Liquid material remaining below the outlet ports will be removed by a mobile vacuum unit and transported to the kilns or to a suitable permitted hazardous waste management facility;

C. At closure of the tank system, Keystone must remove or decontaminate the waste residues, contaminated containment system components, contaminated soils, if any, and structures and equipment contaminated with waste, and manage them as hazardous waste;

D. Sludge will be removed from the bottom of the tanks. Should any sludge build-up occur that cannot be removed by procedure (B) above, the sludge will be physically removed from the tank. If other residual materials are also adhering to the tank sides, they will be physically removed at this time. The tanks will be cleaned with mineral spirits or other solvents applied by hand pump and any material adhering to the inside walls will be removed by hand scrubbing. This material will be removed by a mobile vacuum unit and containerized prior to disposal. The sludge material will be disposed of at an appropriate TSDF;

E. The visually stained exterior surface areas of the tank will be cleaned manually using brushes and scrapers or using high pressure washing or steam cleaning. Any over-spray or dropped residue will be contained by the tank containment structure, and collected for proper disposal;

F. Prior to the work and procedures to be conducted within the tank, an individual will be stationed outside any tank that has been entered during cleaning and sampling procedures;

G. After the sludge has been removed, the tank will be entered by personnel equipped with prescribed protective equipment. The internal walls, dome, floors, and nozzles will be cleaned with scrapers, brushes, and compatible detergents or cleaned with high pressure washing and steam cleaning, as appropriate;

H. The internal tank and piping surface areas will be inspected to identify any visual evidence of remaining contamination and re-cleaned as necessary;

I. Transfer lines will be flushed with mineral spirits, other solvents, or other non-hazardous material purchased to accomplish the task. The flush solvents will be removed with a mobile vacuum unit, handled as hazardous waste, and disposed of accordingly;

J. After solvent flushing, transfer lines will be flushed with water containing a non-ionic surfactant at the manufacturers recommended concentration. After the detergent flush, transfer lines will be rinsed with facility tap water. Again, for each of these procedures the rinse volume will be at least equal to the total volume of the lines. The detergent rinseate will be managed as a hazardous waste and transported off-site to a permitted hazardous waste management facility. Tap water rinseate will be managed as specified in Step (L) below;

K. The tank internal surfaces will be further rinsed with a high pressure, low volume water spray. The specifications for the pressure cleaner will be sufficient to effect closure of the tanks;

L. A representative sample of the rinseate from each tank [Step (K)] as well as a sample of rinseate from the final tap water rinse of transfer lines [Step (J)] will be analyzed as specified in Section 3.9.1. Analytical results will be used to determine whether the tank meets the closure decontamination standard as specified in Section 1.2. Rinseate which does not demonstrate the closure decontamination standard will be managed as hazardous waste and transported off-site to a permitted hazardous waste management facility. Rinseate which does demonstrate the decontamination standard will be disposed as non-hazardous wastewater;

M. For any tank or transfer line which does not demonstrate the closure decontamination standard, steps (K) and (L) above will be repeated until the decontamination standard is met. Alternatively, the tank may be closed in accordance with the procedures detailed in Section 4.4 or disposed in accordance with procedures specified in Section 5;

N. Internal surfaces will be tested by sampling the rinseate or by a "wipe test" method as specified in Section 3.9.1. If the wipe test method is used, three wipe samples per tank will be analyzed for waste constituents previously determined from the waste type stored in the tank;

O. The results of the wipe test will determine whether the tank has been sufficiently cleaned and decontaminated. If contamination remains, Keystone will repeat the cleaning process again at these areas using other techniques, such as high pressure sandblasting, and retest as described previously or close the areas in accordance with Sections 4.4 or 5.0;

P. The contaminated safety gear or debris generated by this activity will be disposed of as hazardous waste off-site in accordance with RCRA regulations; and,

Q. The tanks will be resealed and sold, or cut up for sale as scrap, depending on their condition. Alternately, Keystone may dispose of the scrap in an approved RCRA Subtitle C or D facility.

3.3 Closure of Cement Kiln, Including Pre-Heater/Pre-Calciner

At the time of closure it is expected that one (1) pre-heater/pre-calciner cement kiln (Kiln No. 1) is on-site and operating in the handling and processing of waste derived fuel. The waste derived fuel is co-fired with other materials in the rotary cement kiln. A dry feed material is fed to the inlet of the sloped rotary kiln, and as the feed material travels through the kiln, it is subject to increasing temperatures, transforming the materials to a dried, calcined material and finally heated to a point wherein it produces clinker. The burning of energy-containing hazardous waste in a cement kiln is regulated under the federal HWC MACT. As such, the kiln will be closed to the appropriate closure standards.

3.3.1 Closure Procedures

Closure of the HWC MACT regulated cement kiln requires the cessation of waste derived fuel firing and the firing of non-waste derived fuels only for a period greater than 2 hours. Two hours is the material retention time in the cement kiln and therefore subsequent to the two hour "burn-out" the material which potentially may have come in contact with the hazardous waste will have exited the kiln system. Kiln dust collected during this "burn-out" period will be sampled, tested, and qualified utilizing the procedures established for qualifying kiln residues in Keystone's CKD Sampling and Analysis Plan. Cement kiln dust (CKD) will be sampled and analyzed according to the Waste Analysis Plan (WAP) for a 24-hour period subsequent to the "burn-out" procedure. If the CKD is qualified as non-regulated or "clean," the cement kiln unit will be considered closed. If the CKD fails the kiln residue test, an extended "burn-out" will be performed. In the event that a burn-out period is unavailable or insufficient or the CKD fails the kiln residue test, the kiln can be decontaminated by sand blasting the brick and removing a minimum layer of 0.6 cm of the refractory in accordance with the treatment standard for hazardous debris codified at 40 CFR §268.45. To provide a conservative closure cost, the cost of the decontamination of the brick by sand blasting is included in the closure estimates. Soil samples will be taken around the areas that contained hazardous waste materials (i.e., associated pipes and ancillary equipment) as described in Section 3.9.2.

The cement kiln system is a closed system, which is inspected for fugitive emissions on a daily basis. Therefore, the foundation structures associated with the kilns and air pollution control equipment do not contact hazardous waste and do not require inspection, cleaning, or closure.

Once the cement kiln is deemed to be closed, it will be dismantled and the components of the kiln will be sold, or cut up for sale as scrap metal. The material that cannot be sold or cut up for scrap (such as refractory brick or materials) will be disposed of in approved hazardous or non-hazardous facilities.

3.4 Closure of Baghouse, Ductwork, and Kiln Stack

Keystone intends to demonstrate that any CKD remaining in the Baghouse air pollution control system is non-hazardous. This demonstration will be performed in accordance with the procedures specified in 40 CFR §266.112(b)(2). Previous sampling and results of analysis indicate that the air pollution control system (including the ductwork and kiln stack) is not expected to be contaminated. This data also demonstrates that the CKD is non-hazardous and therefore, the ductwork, kiln stack and prime mover are not expected to be contaminated. Keystone intends to repeat this demonstration for the final batch of CKD for closure of the baghouse and associated equipment during the final 24 hours of operation. If the CKD is determined to be hazardous then wipe tests will be collected from the kiln stack, prime mover, duct work and baghouse.

Following these demonstrations, the air pollution control system and apparatus (including ductwork and kiln stack) may then be dismantled, sold or transported to another facility for reassembly and use, recycled as scrap or disposed of in an approved hazardous or non-hazardous waste facility. In the event that §266.112(b)(2) determination is not successful, the system and appurtenances may not be discarded because there may still be useable pieces of equipment with additional operating life remaining. Therefore, they will be dismantled and shipped in accordance with RCRA and DOT regulations for reassembly and use.

3.4.1 Closure Procedures

Procedures for cleaning and/or testing of this equipment to demonstrate their uncontaminated state are given below:

(A) Collect a composite sample of baghouse dust from the dust storage silo is being pneumatically emptied of its final batch of dust;

(B) The sampling and analysis will be performed to meet the permitted hazardous waste constituents, which could reasonably be expected utilizing SW846 prescribed procedures and Methods 1010/1030, 1311, 8260, 8270, 8081A, 8151A, and 6010/7470, as appropriate;

(C) The contaminated safety clothing and other disposal materials used by facility personnel during closure will be collected in approved containers to be disposed of off-site at an approved TSDF.

3.5 Closure of Uncontained Areas - Truck Parking and Staging Areas (Existing) and CKD Contingency Area

The existing tank truck staging area consists mainly of an asphalt paved base with no secondary containment. The tank trucks are temporarily parked at this location until the laboratory accepts or rejects the hazardous waste. Upon approval from the laboratory, the tank truck is moved to the unloading area. Prior to closure, any remaining containers (i.e., trucks) will be removed from the area and returned to the respective owners following unloading of the final delivery. If the trucks cannot be unloaded, the loads will be rejected back to the generator.

The truck parking area will be closed in accordance with the RCRA closure regulations located at 40 CFR Part 264. A temporary storage area (< 90 day storage) is used to store CKD that fails the Bevill residue analysis and is located on a concrete pad adjacent to the Quarry Shop. This temporary storage area, known as the CKD Contingency Area, is normally empty as CKD generated at Keystone typically passes the Bevill residue analysis and is stored in either a storage silo or the bypass baghouse bin until sold as Stablesorb.

3.5.1 Closure Procedures

Gravel will be removed from the truck parking area and disposed of as a non-hazardous waste. Soil samples will be collected as discussed in Section 3.9. The impervious surfaces of the existing truck staging area, and the CKD Contingency area will be decontaminated as follows:

A. The impervious surfaces will be cleaned with brooms and an abrasive material and the materials will be disposed of properly;

B. The surface will be thoroughly inspected for cracks or gaps. The cracks in the surface will be identified;

C. Stained areas will be cleaned using a standard commercial steam-cleaning unit. Temporary berms will be constructed to prevent condensate from running off the impervious surface. The steam condensate will be managed as hazardous waste and transported off-site to a TSDF;

D. Once cleaned the impervious surface will be wipe tested as described in Section 3.9. If required, additional cleaning of the surfaces will be performed or the impervious surface will be removed and disposed of as a hazardous waste;

E. Any cracks or gaps, which were identified in step (B), above, will be further investigated. The concrete will be core drilled with a 6-inch bit. If the crack breaches the concrete, soil samples will be obtained from beneath the crack. Soil will be sampled and analyzed as specified in Section 3.9. Analytical results will be used to determine whether the soil meets the closure decontamination standard as specified in Section 1.2; and,

F. Should soil samples not meet the closure decontamination standard, additional soil sampling and analysis, followed by soil removal, will be undertaken until the contaminated soil is identified and removed. Procedures for additional soil sampling and removal will be as specified in Section 3.9.5.

3.6 Closure of Secondary Containment Areas – Tanks, Tank Truck Unloading (Direct Transfer and Mixing System), Railcar Unloading Areas, and 90-Day Storage Areas

In the area of the tank storage system (and the tank at the railcar unloading area), the tanks are supported by an epoxy-coated, reinforced concrete floor, which comprises part of the secondary containment area. The direct transfer and mixing system operations are located within the tank truck unloading containment, so the containment closure procedures discussed in this section apply to both the tank truck unloading and direct transfer containment. The containment area for the main truck unloading area is composed of an epoxy-coated, reinforced concrete slab with a 6-inch concrete curb. The containment is provided with a curbed concrete pad in order to contain any spills incidental to the decoupling of pipeline fittings or other unloading procedures. Closure of the Secondary Containment Area surrounding the Tank Storage System will not commence until final closure is conducted for Tank Nos. 5 – 10 and Tank No. 11 at the railcar unloading area.

The tank truck and railcar unloading areas consist mainly of the secondary containment structure constructed of a concrete base with concrete curbing surrounding the impoundment area. The areas will be tested, decontaminated, and removed according to Section 3.6.1 below. The full and empty containers themselves (i.e., trucks, rail cars) will be removed from the area prior to closure.

Full containers (i.e., containers containing hazardous waste) will be rejected back to the generator. Empty containers will be returned to the transporter.

Prior to off-site disposal, the Site generated wastes (such vapor phase activated carbon) are stored in the general hazardous waste storage area, located on a bermed concrete pad under the area of the former Kiln No. 2. During closure, this general hazardous waste storage area (< 90 day) will also be tested, decontaminated, and closed as described in Section 3.6.1.

Stormwater that accumulates in the secondary containment areas will be tested prior to discharge until closure is completed. If closure occurs while the kiln system is operational, the stormwater will be handled in accordance with SOP WF-12. If the kiln is not operational, the stormwater will be tested for the waste constituents accepted onsite. Stormwater that meets the Universal Treatment Standards (UTS) for wastewater (40 CFR §268.48) will be sent offsite for treatment and disposal of a non-hazardous wastewater. Stormwater that does not meet the UTS for stormwater will be sent offsite for treatment and disposal as a hazardous wastewater.

3.6.1 Closure Procedures

The secondary containment surfaces for the Planned tanks, truck/railcar unloading area, direct transfer, mixing system, and general hazardous waste storage area (< 90 day) will be decontaminated as follows:

(A) The secondary containment walls and floor will be cleaned with brooms and an abrasive material such as fine mesh lightweight aggregate, and the materials will be disposed of properly;

(B) The containment surface will be thoroughly inspected for cracks or gaps. The cracks in the containment will be identified and filled with a material, such as epoxy sealant, before washing;

(C) The entire secondary containment surface will be cleaned using a standard commercial steam-cleaning unit. The steam condensate will be managed as hazardous waste and transported off-site to a TSDF;

(D) The entire secondary containment surface will be further rinsed with a high pressure, low volume water spray. The specifications for the pressure cleaner will be sufficient to effect closure of the containment surface;

(E) A representative sample of the rinseate from the containment surface will be analyzed as specified in Section 3.9.1. Analytical results will be used to determine whether the containment surface meets the closure decontamination standard as specified in Section 1.2. Rinseate which does not meet the closure decontamination standard will be managed as hazardous waste and transported off-site to a permitted hazardous waste management facility. Rinseate, which does meet the decontamination standard, will be disposed as non-hazardous wastewater;

(F) If the containment surface does not demonstrate the closure decontamination standard, step (D) and (E) above will be repeated until the decontamination standard is met. Alternatively, the containment may be closed in accordance with the procedures in Section 4.4 or disposed in accordance with procedures specified in Section 5;

(G) After decontamination procedures have been completed any cracks or gaps, which were identified in step (B), above, will be further investigated. The concrete will be core drilled with a 6-inch bit. If the crack breaches the concrete, soil samples will be obtained from beneath the crack. Soil will be sampled and analyzed as specified in Section 3.9.2. Analytical results will be used to determine whether the soil meets the closure decontamination standard as specified in Section 1.2; and,

(H) Should soil samples not meet the closure decontamination standard, additional soil sampling and analysis, followed by soil removal, will be undertaken until the contaminated soil is identified and removed. Procedures for additional soil sampling and removal will be as specified in Section 3.9.5.

3.7 Portable Secondary Containment and Equipment Decontamination

Portable secondary containment units used in the truck and railcar staging areas, equipment used in closing each unit, and the equipment used in closing each component of the hazardous waste management system, including shovels, sampling tools, and buckets, will be washed with a detergent solution and rinsed twice with clean water in accordance with ASTM D5088-90. The equipment will be washed prior to each use at a different sampling location in containers or on an impermeable surface which allows for the collection of the rinseate in tanks or secondary containers. The rinseate used in the decontamination will be collected and managed as hazardous waste. Alternatively, the rinseate wash may be sampled and analyzed and compared to the universal treatment standards. If hazardous waste constituents are below the universal treatment standards, the rinse water will be managed as non-hazardous wastewater.

Expendable items used in the decontamination process of any of the hazardous waste units, such as mops, brooms, gloves, coveralls, and boots, will be collected, containerized and properly disposed of as hazardous waste. Such expendable items which have only been in contact with

wash solutions and/or rinseate which subsequent analyses have shown do not display a hazardous characteristic or do not contain any listed hazardous constituents, may be disposed of as non-hazardous waste.

All non-hazardous wastes will be kept segregated from hazardous wastes and managed as residual waste in the State of Pennsylvania.

3.8 Certificate of Closure and Post-Closure Notices

The closure procedures described in this subsection will be completed within 180 days by Keystone personnel or outside contractors after the final volumes of hazardous wastes are properly disposed of (40 CFR §264.113). Closure certifications will be submitted to the agency in accordance with 25 Pa. Code 264a.165 – 264a.167 and 40 CFR Part 264, Subpart G.

An independent registered professional engineer will certify closure as described in Section 3.10. As part of his/her certification, the engineer will be required to make a thorough visual check of the site to spot discoloration or other evidence of unmitigated spills. Cleanup of such areas will be required before the certification can be made.

No later than 60 days after the Certification of Closure, Keystone must submit to the local zoning authority, or the authority with jurisdiction over local land use, and to the Department a record of the type, location, and quantity of hazardous wastes that were disposed of within the Site or other hazardous waste management facility (40 CFR §264.119). The closure records must be retained for a period of three (3) years.

3.9 Sampling and Analysis

3.9.1 Rinseate Sampling

The equipment used in closing each component of the hazardous waste management system, including shovels, sampling tools, and buckets, will be washed with a detergent solution and rinsed twice with clean water in accordance with ASTM D5088-90 as described in Section 3.7.

Rinseate which will undergo analysis for the purpose of demonstrating the closure decontamination standard for the sampling equipment, waste derived fuel storage tanks, unloading area, associated secondary containment, associated piping, and ancillary equipment, or which Keystone wishes to demonstrate that it does not contain hazardous constituents will be analyzed for the parameters identified in Section 1.2 and compared to the closure criteria detailed in Section 4.3 of this plan. Sample bottles are to be provided by the laboratory. Rinseate from separate procedures will be collected separately to prevent possible cross-contamination. A representative sample from each procedure will then be collected for subsequent analysis and cleaning/rinsing procedures would be continued until the appropriate standards are met. Once the rinseate meets the standards detailed in Section 1.2, the equipment will be considered decontaminated and ready for disposal, reuse or recycling.

Collection of up to 24 rinseate samples was assumed for the determination of the facility closure cost estimate. It was assumed that two rinseate samples would be collected from the following twelve (12) locations:

- Seven (7) waste derived fuel storage tanks;
- One (1) unloading area containment (railcar);
- One (1) unloading area containment (trucks, direct transfer, and mixing system);
- One (1) tank containment area (tank farm);
- One (1) tank containment area (railcar); and,
- One (1) from the general hazardous waste storage area (< 90 day).

In the event a first rinseate sample does not meet the closure criteria, the cost assumes that a second sample will be collected in each area upon completion of additional cleaning activities.

The wipe test method can be used in place of the rinseate testing method for most of the internal and external surfaces of the sampling equipment, waste derived fuel storage tanks, unloading area, associated secondary containment, associated piping, and ancillary equipment. Some internal and external surfaces within the associated piping and ancillary equipment (i.e., waste derived fuel piping system, carbon adsorption system and vapor balancing system) may be inaccessible to the wipe test method. For the internal surfaces of the waste derived fuel storage tanks a wipe test will be performed at 3 different heights, near the bottom, middle, and top of the

tank. Wipe tests would be performed as an alternative to sampling of the rinseate and/or used on structures such as buildings, containment walls and ancillary equipment such as nitrogen tanks.

The wipe testing procedures will be as follows:

(A) In sampling for Volatiles per EPA method 8260, Methanol must be applied to the wipe before sampling. Volatiles must be sampled before Methylene Chloride is used for item B sampling below;

(B) In sampling for BNA Semi-Volatiles per EPA method 8270, Organochlorine Pesticides by Cap Column GC per EPA method 8081A, Chlorinated Herbicides by GC + Cap Column per EPA 8151A, Methylene Chloride must be applied to the wipe before sampling;

(C) In sampling for Metals per EPA method 6010/7470, diluted Nitric Acid must be applied to the wipe before sampling;

(D) In sampling for Ignitability per EPA method 1010/1030, deionized water must be applied to the wipe before sampling; and,

(E) In sampling for extraction – non volatile and volatile per EPA method 1311, hexane must be applied to the wipe before sampling.

A surface would be considered decontaminated or free of contamination if the results of the wipe test were non-detect.

The following wipe tests were included in the closure costs:

- Four (4) wipe samples from the existing truck staging area; and,
- Four (4) wipe samples from the CKD contingency area.

3.9.2 Soil Sampling

In the event that soil sampling is required as detailed above, the soil sampling beneath containment structures, other impervious surfaces, or the gravel truck parking area will be completed in accordance with 40 CFR §246.114 (Disposal or decontamination of equipment, structures, and soils), 25 Pa. code, 250.708, Appendix A (Post Remediation Care Attainment), and 25 Pa. code, 139 (Sampling and Testing). The soils will be tested for the parameters listed in Section 1.2 and the test results will be compared to 25 Pa. Code, 250.708, Appendix A, for medium specific concentrations for non-use, non-residential aquifers or alternate risk-based standards. Sample locations will be selected based on staining beneath key features (i.e., piping,

sumps, tanks) unless these features are to remain in service. If cracks or gaps are found in the surface of the secondary containment of the tank farm, unloading area, or the 90-day hazardous waste storage area, or if impervious surfaces of the truck staging area and CKD contingency area that have been identified are determined to have breached the concrete surface/containment pursuant to procedures in Sections 3.6 of this Closure Plan, at least one (1) soil sample will be obtained from beneath each crack or gap. Additional samples will be taken every 10 linear feet from beneath any such features (i.e., crack or gap greater than 10 feet in length). A minimum of one (1) sample will be collected. At each sampling point the concrete slab will be core drilled and soil sample will be removed from the top six (6) inches, taking care to avoid mixing of the soil. If the initial soil sample does not meet the standard then remediation (i.e. excavation) and additional sampling (i.e. post excavation sampling) will be required as presented in Section 3.9.5.

Soil samples will be collected at points below the waste derived fuel pipeline route outside of the secondary containment area where evidence of historical leaks is present. These areas include any areas showing surface staining, stressed vegetation, etc. Any paved or concrete areas will be sampled if there is any evidence of surface staining. The paved material will be sampled and analyzed in the same manner as those for the concrete secondary containment areas.

The collection of up to 39 soil samples was assumed for the determination of the facility closure cost estimate as follows:

- 11 samples along the waste derived fuel pipelines, direct transfer pipelines, and mixing system pipelines to be located in areas of observed stained pavement and/or areas of known historical spills;
- 4 samples to be located in the unloading containment area for the truck (direct transfer and mixing system) unloading area at locations to be field selected as described above;
- 4 samples to be located in the combined unloading containment area for the planned railcar unloading areas at locations to be field selected as described above;
- 4 samples to be located in the Tank Farm containment area at locations to be field selected as described above;
- 2 samples to be located in the general hazardous waste (<90 day) storage area;
- 4 samples from the existing truck staging area;
- 4 samples from the planned railcar staging area;

- 4 samples from the existing truck parking area; and,
- 2 samples from the existing CKD Contingency area.

The soil probe will be decontaminated between sampling points to avoid cross-contamination. Decontamination will be performed by washing with a non-phosphate detergent solution, followed by a tap water rinse and distilled water rinse.

3.9.3 Analytical Constituents and Methods

The rinseate and soil samples taken pursuant to this Closure Plan will be analyzed for the hazardous constituents accepted and stored at Keystone. Samples will be analyzed for the constituents in Tables 1 and 2 of the WAP. The testing requirements will be in accordance with 25 Pa. Code, 250.708, Appendix A, for medium specific concentrations for non-use, non-residential aquifers or alternate risk-based standards. The statistical background analysis is described in Sections 4.3.2.1 - 4.3.2.4.

The methods and equipment used for sampling waste materials will vary with the form and consistency of the waste material that is being sampled. The methods are from the USEPA document *SW-846 Test Methods for Evaluating Solid Waste*, 3rd Edition, 1986, as updated (SW-846). Representative samples will be collected using protocols listed below for materials with similar properties (40 CFR §261 – Appendix I):

Extremely viscous liquid	ASTM Standard D 140-70
Crushed/Powdered material	ASTM Standard D 346-75
Soil/rock-like material	ASTM Standard D 420-69
Soil-like material	ASTM Standard D 1452-65
Fly Ash-like material	ASTM Standard D 2234-76
Containerized liquid wastes	COLIWASA

At the time of closure, Keystone may petition the Department for a reduced constituent list. If a unit, tank, or other piece of equipment has managed its final volume of hazardous waste and Keystone can demonstrate that one or more constituents could not have been present in any of the waste derived fuel managed in that particular unit, tank or piece of equipment, then the Department may agree to remove those constituents as analytical requirements for that particular item. Keystone may demonstrate that a constituent could not have been present by use of the facility operating record. The operating record must show that the unit, tank, or piece of

equipment never managed wastes bearing hazardous waste identification numbers associated with a particular hazardous constituent. Keystone will submit a reduced parameter list to the Department at least 90 days prior to implementation of partial or full closure. Information to be included with the request shall include historical data including a listing and evaluation of all previously approved waste streams Module 1/Form U plus historical sampling and analysis data contained in the facility operating record.

3.9.4 Quality Assurance and Quality Control

Sampling and analytical quality control and quality assurance will, at a minimum, be consistent with the applicable requirements of Chapter One of SW-846. The procedures presented in that document will be followed to assure that the analytical results will be accurate and representative.

In addition to the procedures of Chapter One of SW-846, in order to evaluate the acceptability of the field sampling program, at least one (1) duplicate sample, one (1) equipment blank, and one (1) trip blank will be prepared each day on which sampling occurs. The duplicate sample will be prepared by splitting a sufficient quantity of soil, rinseate or any other substance from one (1) of the sample locations into two (2) equal parts. Each part will be placed in appropriate sample containers. An equipment blank will be prepared by pouring organic free deionized water through the decontaminated sampling device. The water will be collected in appropriate sample containers. The trip blank will be a quantity of organic free deionized water that will be shipped to the site with the empty sample containers and returned to the laboratory with the samples. The duplicate sample and the blanks will be analyzed for the constituents pursuant to Section 3.9.3 above.

3.9.5 Additional Soil Sampling and Removal Protocol

Should any subsurface soil sample exceed the closure decontamination standard for any constituent the contaminated soil will be removed. If applicable, the overlying concrete in the vicinity of soil sampling location will first be removed and soil will be excavated to a depth at which the decontamination standard is achieved then post excavation samples will be collected. If samples from the same coring at which the standard was exceeded at a greater depth achieve the decontamination standard, soil will be excavated to that depth. Post excavation soil samples

need only be analyzed for those constituents in the upper-level samples which did not meet the decontamination standard.

The areal extent of the soil excavation will include the linear extent of any observed staining or crack underneath a containment structure from which a sample did not achieve the decontamination standard, or to the point at which another sample taken from under the same crack successfully achieved the decontamination standard. Soil will also be excavated for ten feet on each side of the linear extent of the crack or a noted exceedance of the standard.

In accordance with PADEP Technical Document entitled, "Closure Requirements for Aboveground Storage Tank Systems", effective October 12, 2002, any contaminated soil or earthen material being excavated within 3 feet of the tank system in any direction and does not impact water during excavation is considered localized contamination. If contaminated soil is located more than three (3) feet beyond the tank system or foundation, or impacts water, it is considered as an extensive contamination, and remedial activity may be considered. In the case of extensive contamination, additional site characterization and corrective action measures may be required.

Excavation vehicles used to remove contaminated soil will be decontaminated by scraping and/or brushing solids from the blades and tires which touched the contaminated soil. The scrapings will be properly disposed of as hazardous waste. Vehicles will then be washed and rinsed using the decontamination procedures for equipment. Vehicles will be washed on an impervious surface which allows for the collection of the rinseate in containers or tanks.

The rinse water generated during decontamination of vehicles will be collected and managed as hazardous waste. Alternatively, the rinseate may be sampled and analyzed in accordance with Section 3.9.1, above. If no hazardous waste or hazardous waste constituents are identified in the rinse water, it will be managed as non-hazardous wastewater.

3.10 Duties of the Professional Engineer

An independent registered professional engineer will observe the closure activities of the HWMUs throughout the closure time period. As part of the certification, the engineer will be required to make a thorough visual check of the site (permit boundaries) to inspect for stored materials, spot discoloration or other evidence of unmitigated spills. These areas will specifically include beneath the overhead vapor and waste derived fuels piping located outside of containment, the scale area, vehicle access roads and the laboratory. The engineer will direct whether sampling and or cleanup of areas will be required before the certification can be made.

The engineer will monitor the closure activities and will visit the site frequently to specifically view the following activities:

- Final inventory elimination;
- Tank and equipment decontamination;
- Secondary containment/surface crack determination;
- Secondary containment/surface decontamination;
- Rinseate and wipe sampling procedures; and,
- Soil sampling procedures.

A certification of closure of each HWMU contained in this Closure Plan is required to be signed by an independent registered professional engineer upon the inspection and approval of closure by the independent registered professional engineer in accordance sections from 25 Pa. Code 264a, Subpart G (Closure and Postclosure), 40 CFR Part 264.197 (Closure and Postclosure Care), and 40 CFR §270.11.

Prior to signing the certification that the facility has been closed in accordance with this Closure Plan, the engineer will also review the analytical data, laboratory reports, and calculations, which demonstrate that closure decontamination standards have been achieved. Such review will address demonstrations that appropriate Quality Assurance and Quality Control procedures, as described in Section 3.9.4, have been observed that the appropriate equations have been applied and correctly calculated.

4.0 DECONTAMINATION STANDARDS

Pursuant to 40 CFR Part 264, Subpart I, 264.178 and 264.197, the hazardous waste and hazardous waste residue shall be removed or decontaminated. In the area of the tank system, the contaminated soils, components, structures and equipment contaminated with waste must be managed as hazardous waste (40 CFR §264.197). Closure requirements for above ground storage tank systems are also described in PADEP Guidance Document No. 263-4200-001, dated July 8, 2017 and entitled, "Closure Requirements for Aboveground Storage Tank Systems."

4.1 Clarification

The liquid inventory is to be removed from the tanks and piping systems as indicated in Section 3.2. A tank is classified as being empty when no more than 1 inch or 0.3 percent by weight of its total capacity of residue remains in the tank (PADEP Technical Document No. 2633-4200-001). Once this remaining residue is removed using applicable industry standards, the tank and piping are considered "clean."

It is anticipated that soil contamination at the site will be minimal because storage and processing areas are in lined containment areas. Therefore, any contamination of the soil in the areas of the storage tanks and piping system is assumed to be localized contamination and will not be extensive. Localized contamination is classified as contamination that does not extend more than three (3) feet beyond the tank system, in any direction, and does not impact water in the excavation. If there is no obvious contamination, or where there is localized contamination, confirmatory sampling procedures must be conducted in conformance with the PADEP Technical Document No. 263-4200-001, entitled, "Closure Requirements for Aboveground Storage Tank Systems." PADEP may exclude or limit confirmatory soil sampling based on several criteria, such as, if there are no significant signs of staining of the soil or breaching of the containment area. The excavation and removal of any soils or earthen material located more than three (3) feet beyond the tank system or foundation in any direction may be considered as remedial activity.

When it is not promptly determined whether a material is classified as a hazardous waste, the material shall be managed as a hazardous waste until it can be adequately determined. If the waste is no longer classified as hazardous, the materials will become subject to regulations for residual waste. For the materials to be classified as hazardous waste they must meet or exceed

the minimum concentration levels for each constituent described in 25 Pa. code, 250.708, Appendix A, for medium specific concentrations for non-use, non-residential aquifers or alternate risk based standards or alternate risk based standards.

The confirmatory sampling will be performed for the hazardous constituents accepted by Keystone (those constituents detailed in Tables 1 and 2 of the WAP).

4.2 Generator of Waste

As closure procedures continue, Keystone may generate hazardous waste that must be managed in accordance with the applicable requirements. The hazardous waste may be temporarily stored in the existing tanks, tank trucks, and approved steel drums or plastic containers. Keystone may accumulate hazardous waste on-site for a period of 90 days or less without a permit, or without interim status, provided that the waste is stored in compliance with 40 CFR §262.34. Within 90 days, Keystone must treat, remove or disposed of the hazardous waste in accordance with 40 CFR §246.113.

4.3 Decontamination Procedures and Standards

4.3.1 Non-Detection and Comparison to Standards

If analysis of a rinseate sample from a tank, containment area, or piece of equipment should result in analytical non-detection of the constituents analyzed pursuant to Section 3.9.3 that item will have met the closure decontamination standard. Should low concentrations of constituents be detected in the rinseate, then risk-based standards will be used to evaluate if the decontaminated equipment poses a threat to human health and the environment. The clean-up standards are presented in Section 1.2.

Should the results of the deepest soil sample at each location result in non-detection of the constituents analyzed pursuant to Section 3.9.2, that sampling location shall be deemed to be uncontaminated. Alternatively, as described in Section 1.2 should the results of the soil sample be less than the appropriate Pennsylvania Clean-up Standard (i.e., ACT II non-residential clean-up standards) or alternate risk-based standard, the soil will have met the closure decontamination standard. Should some soil samples demonstrate constituents above the standards, further soil sampling and removal will be conducted pursuant to Section 3.9.5 of this Closure Plan.

4.3.2 Comparison to Background

Alternatively, if the standards measured in soil cannot be met, attainment of the closure decontamination standard may be demonstrated through the use of a statistical comparison of hazardous constituent concentrations in soil samples. As allowed under the PADEP ACT II standards, soil samples may be compared to those of uncontaminated background samples as described in Sections 4.3.2.1 - 4.3.2.4. If background is selected as the clean-up standard, Keystone will submit specific background locations to the Department for approval at least 90 days prior to conducting background sampling.

4.3.2.1 Collection of Background Samples

Background samples will be collected in a manner identical to that of the closure samples from the analogous matrix, including the sampling Quality control procedures. The location of the background sampling will be approved by the Department prior to sampling.

(A) Background rinseate samples will be obtained from a concrete structure at the facility, or an adjoining facility, which has not been exposed to any hazardous waste. The background sampling surface will be washed and rinsed in a manner identical to that for tank and containment surfaces. The final rinse will be sampled in a manner identical to the collection of samples of rinseate from the HWMUs.

At the Permittee's discretion, instead of the above procedure, background rinseate samples may be taken directly from clean unused facility tap water.

(B) Background soil samples will be obtained from an area unaffected by hazardous waste management activities and from a soil of similar geology and soil type as the unit subsoil. Background soil samples will be collected from a depth of 0.2 feet below the ground surface and of a lower depth, if contamination is detected.

4.3.2.2 Calculation of Upper Tolerance Limits

If a statistical comparison is used, a tolerance limit procedure may be used to demonstrate decontamination. For this procedure a minimum of eight (8) background samples will be collected and analyzed for the necessary constituents pursuant to Section 3.9.3. Background samples of uncontaminated media will be taken as described in Sections 4.3.2.1, above. Using the data from the analyses of the eight background samples, an upper confidence limit (UTL) for each constituent will be calculated as:

$$UTL = x + (K_{95}(0.95,n) * s)$$

Where: x = the mean of the measured values
s = the standard deviation of the measured values

The parameter K95(0.95,n) establishes the UTL such that there is a 95% chance that at least 95% of the time the actual constituent background concentration will be below this upper bound. Table GG-2 identifies the value of this parameter a function of n. The value of K for eight samples (n = 8) is 3.188.

4.3.2.3 Comparisons to Upper Tolerance Limits

The results of the analyses of each rinse water sample from a tank, containment area or piece of equipment will be compared to the appropriate UTL for the constituents analyzed pursuant to Section 3.9.3. If the concentration of every analyte in a sample is below the appropriate UTL, then that item will have met the closure decontamination standard.

The results of the analyses of each soil sample will be compared to the appropriate UTL for the constituents analyzed pursuant to Section 3.9.3. If the concentration of every analyte from the depths of a soil sample is below the appropriate UTL, that sampling location will be deemed to be uncontaminated. Should the soil samples be uncontaminated in this fashion, the soil will have met the closure decontamination standard. Should some soil samples demonstrate contamination, further soil sampling and removal will be conducted pursuant to Section 3.9.5 of this closure plan.

The tolerance limit method may only be used when the background data are normally distributed. Normality of the analytical results will be demonstrated by use of the Coefficient-of-Variation test, Probability Plots, or the Chi-squared test as specified in Chapter 1 of the EPA document "Statistical Analysis of Ground-Water Monitoring Data at the RCRA Facilities" Addendum to Interim Final Guidance, April 1992. Analytical non-detections will be managed consistent with the recommendations in Chapter 2 of the EPA guidance document cited above.

4.3.2.4 Alternate Statistical Procedure

Should the background data be non-normally distributed, an alternate statistical procedure may be used. For this procedure at least five samples of rinse water from each area and five samples of rinse water from a concrete surface unexposed to hazardous waste will be analyzed for the constituents specified in Section 3.9.3. The concentrations of each constituent will be compared to the background concentration using the Student's t-Test with one-tailed t values at the 0.05 level of significance. Decontamination of an area will be demonstrated by no significant difference for the constituents.

4.4 Alternative Treatment Standards for Hazardous Debris

Alternative treatment standards for hazardous debris specified under 40 CFR Part 268.45 may be used to demonstrate decontamination of a tank, secondary containment area, or a piece of

equipment prior to disposal off-site. The performance and/or design and operating standard for various technologies is presented and provides treatment to a clean debris surface as specified and defined in 40 CFR Part 268.45.

Any hazardous debris that has been treated using one of the specified Extraction or Destruction Technologies specified in Table 1 (Alternative Treatment Standards for Hazardous Debris) of 40 CFR Part 268.45, and after treatment, does not exhibit a characteristic of hazardous waste, is not classified as a hazardous waste and shall not be managed in a RCRA permitted TSDF, Subtitle C facility.

If the alternative treatment standards are performed to demonstrate decontamination prior to removal and off-site disposal, the closure report is required to specify the description of the technology used, and a detail of the decontamination activities for the extraction, destruction, or immobilization technology that was used. In addition, the closure report is required to specify the observed physical condition of the final cleaned surfaces based upon the inspection and description by the independent registered professional engineer.

The alternative treatment standards for hazardous debris will be considered acceptable to the Department only upon the inclusion of an additional certification statement by an independent registered professional engineer that the closure has been completed in accordance with criteria, and the purpose and intent of the alternative treatment standard specified in 40 CFR Part 268.45, and that the debris, after treatment, does not exhibit a characteristic of hazardous waste identified under 40 CFR Part 261, Subpart C.

5.0 ALTERNATIVE TO DECONTAMINATION OF WASTE MANAGEMENT STRUCTURES AND EQUIPMENT

As an alternative to further decontamination procedures, at any time in the closure procedures Keystone may elect to demolish any equipment or portions of the hazardous waste management facility and manage the equipment or debris as hazardous waste prior to transporting off-site for disposal at a permitted TSDF. Any tanks or equipment which is disposed of as hazardous waste will be rendered unusable by cutting them in half or cutting several large holes in them prior to disposal. Keystone may elect to drain, remove, cut, containerize, and dispose of piping and related ancillary equipment as a hazardous waste. Should this alternative be selected for a containment area, the sampling and analysis of underlying soils, which is prescribed by the Closure Plan, will still be carried out to confirm compliance with the closure decontamination standards.

6.0 FINANCIAL ASSURANCE FOR CLOSURE

6.1 Closure Cost Estimate

In accordance with the terms of closure and financial requirements implemented by the State and Federal regulatory agencies, a cost estimate for closure has been developed. This cost estimate has been prepared based upon the procedures outlined in this Closure Plan. Attachment No. 2 includes bonding worksheets for closure of the planned tank farm, planned railcar unloading area, and Kiln No. 1. Supporting documentation for preparation of the closure costs are presented in Attachment No. 3.

These cost estimates have been conservatively estimated to develop a worst-case cost and considers the following:

1) Completion of all activities by a third party under the direction of the Department and not Keystone including the application of a 10% administrative fee for the Department to administer the work;
2) That existing facilities and services (such as water and electrical) will be paid for by the Department;
3) A contingency of 12.5% to account for unknown conditions; and,
4) That all materials must be decontaminated and/or disposed of offsite. This assumption assumes that materials can not be reused or disposed of in the existing kilns (i.e., cement kiln brick must be disposed of off-site and not used for raw material;) and the tanks cannot be sold for reuse or salvage (i.e., per §264.142 the closure costs do not incorporate any reduction for salvage value of recycled scrap metal);
5) The kiln brick must be sandblasted and the sand blast disposed of as a hazardous waste; and
6) It was assumed that piping would be dismantled and disposed of as a hazardous waste.

As presented on Table 1, the worst-case closure cost can be calculated based on a point in time in the facility's active life when the extent and manner of its operation would make closure the most expensive. This time would be when the existing tanks are being closed and the Planned Tank

Farm and Railcar area (i.e., Final Operating Scenario) are in operation. At this point in time the closure cost would include the following activities:

Existing Tank Farm Closure (Attachment No. 2, E-1)	$452,410
Planned Tank Farm/Railcar/Direct Transfer Closure (Attachment No. 2, E-2)	$990,860
Closure of New Kiln No. 1 (Attachment No. 2, E-2)	$287,970
Total Closure Cost	***$1,731,240***

These costs include contingencies inconsideration of the potential discovery of additional contamination.

These cost estimates are kept on file at the Keystone site, and will be revised accordingly when a change in the Closure Plan affects the cost of closure. During the active life of the facility, the estimate must be adjusted by Keystone to reflect the addition or removal of devices and/or units, as necessary. In addition, the closure cost estimate must be adjusted for inflation within 60 days prior to the anniversary date of the establishment of the financial instrument used to comply with the established regulations pertaining to closure. This revised amount, adjusted for inflation will reflect the current closure cost estimate for the current hazardous waste management facility. If the closure plan is modified and approved by the Department, Keystone must revise the closure cost estimate no later than 30 days after the approval.

6.2 Financial Assurance Mechanism

Keystone must establish financial assurance for closure of the hazardous waste facility. Many of the financial requirements for closure of planned, yet unconstructed, facilities are not necessary until the time of construction. Thus, the documentation provided in Attachment 1 covers currently existing facilities, most of which are not covered by the Full Closure Plan activities because they will be closed under the Partial Closure Plan. At the time of permitting of each new facility, Keystone will acquire the necessary financial requirements in the amount described in Section 6.1 and submit the documentation to PADEP. In accordance with the requirements of Pa. Code 264a.156, within 60 days prior to the initial receipt of hazardous wastes in any new units, Keystone will acquire the necessary financial requirements and submit the documentation to PADEP for approval.

Several mechanisms for financial assurance are available and are specified in Pa. Code 264a.145 and Pa. Code 264a.156. Keystone has historically complied with the regulations of the Commonwealth of Pennsylvania by providing documentation detailing the collateral bonds pledged in the form of a "bank letter of credit". This letter of credit complies with the requirements of Pa. Code 264a.156(d). An example of Keystone's trust mechanism is found in Attachment No. 1.

7.0 LIABILITY INSURANCE

7.1 Liability Insurance

In addition to the financial assurance mechanisms for closure discussed in Section 6.2, in accordance with Pa Code Section 264a.147, Keystone maintains sudden accidental liability insurance coverage that meets the financial requirements of the Pa Code. As required, Keystone updates this insurance coverage policy on an annual basis. An example of the Certificate of Liability Insurance maintained by Keystone is included in Attachment No. 4.

TABLES

TABLE 1: CLOSURE COST DURING LIFE OF THE FACILITY

December 2022

TABLE 1
CLOSURE COSTS
DURING LIFE OF THE FACILITY
KEYSTONE CEMENT COMPANY
BATH, PENNSYLVANIA

Description	2018 Costs (Note 1)	Location of Original Cost Estimate
Closure of Current Facility		
Existing Hazardous Waste Derived Fuel Tanks - Closure Costs	$452,410	Attachment No. 2; Appendix E-1 (Note 2)
New Dry Process Kiln No. 1 Closure Cost	$287,970	Attachment No. 2; Appendix E-2 (Note 2)
Total Closue Cost 2018	**$740,380**	

Notes:

1) Assumes outside contractor personnel for cost estimation purposes based on 2018 costs from 3rd parties.

2) Costs are presented on Worksheet D (Summary Cost) of Bonding Worksheets for Hazardous Waste Storage and Treatment Facilities and includes a 20% contingency.

ATTACHMENTS

ATTACHMENT 1

TRUST FUND MECHANISM

Wells Fargo Bank, N.A.
U.S. Trade Services
Standby Letters of Credit
401 N. Research Pkwy, 1st Floor
MAC D4004-017,
Winston-Salem, NC 27101-4157
Phone: 1(800) 776-3862 Option 2
E-Mail: sblc-new@wellsfargo.com

Irrevocable Standby Letter Of Credit

Number : IS000022387U
Issue Date : November 24, 2017

BENEFICIARY	APPLICANT
COMMONWEALTH OF PENNSYLVANIA PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION BUREAU OF WASTE MANAGEMENT BONDING SECTION - 15TH FLOOR RACHEL CARSON, STATE OFFICE BUILDING 400 MARKET STREET HARRISBURG, PENNSYLVANIA 17105	BY ORDER OF HSBC MEXICO, S.A. ON BEHALF OF THEIR CLIENT KEYSTONE CEMENT COMPANY 1600 DUKE STREET, SUITE 400 ALEXANDRIA, VIRGINIA 22314

LETTER OF CREDIT ISSUE AMOUNT USD 713,132.00 EXPIRY DATE SEPTEMBER 21, 2018

LADIES AND GENTLEMEN:

WE HEREBY ESTABLISH, EFFECTIVE DATE NOVEMBER 24, 2017, BY ORDER OF HSBC MEXICO, S.A. BY ORDER AND FOR THE ACCOUNT OF KEYSTONE CEMENT COMPANY 1600 DUKE STREET, SUITE 400, ALEXANDRIA, VIRGINIA 22314, OUR IRREVOCABLE STANDBY LETTER OF CREDIT NO. IS000022387U UP TO AN AGGREGATE AMOUNT OF USD 713,132.00 (SEVEN HUNDRED THIRTEEN THOUSAND ONE HUNDRED THIRTY TWO AND 00/100'S, UNITED STATES DOLLARS) IN FAVOR OF COMMONWEALTH OF PENNSYLVANIA, PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, BUREAU OF WASTE MANAGEMENT ("DEPARTMENT") AND AVAILABLE BY YOUR DRAFTS DRAWN ON US AT SIGHT.

WE HEREBY ENGAGE WITH YOU THAT DRAFTS DRAWN AND PRESENTED BY YOU IN ACCORDANCE WITH THE TERMS OF THIS CREDIT WILL BE DULY HONORED BY US IF PRESENTED TO US AT WELLS FARGO BANK N. A., 401 LINDEN STREET, WINSTON-SALEM, NC 27101 BY SEPTEMBER 21, 2018 OR PRIOR TO ANY SUBSEQUENT EXPIRATION AS PROVIDED HEREIN.

DRAFTS DRAWN HEREUNDER MUST BE MARKED "DRAWN UNDER WELLS FARGO BANK N.A., LETTER OF CREDIT NO. IS000022387U DATED NOVEMBER 24, 2017" AND ACCOMPANIED BY A STATEMENT PURPORTEDLY SIGNED BY AN AUTHORIZED REPRESENTATIVE OF THE DEPARTMENT READING AS FOLLOWS: "I CERTIFY THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION IS MAKING THIS DRAWING PURSUANT TO THE TERMS OF A CERTAIN COLLATERAL BOND AGREEMENT BETWEEN KEYSTONE CEMENT COMPANY AND THE DEPARTMENT AND THAT THE DEPARTMENT IS ENTITLED TO THE AMOUNT OF THIS DRAW".

THE ORIGINAL LETTER OF CREDIT AND ALL AMENDMENTS, IF ANY, MUST BE PRESENTED AT THE TIME OF ANY DRAWINGS HEREUNDER FOR OUR ENDORSEMENT.

IT IS A CONDITION OF THIS LETTER OF CREDIT THAT IT SHALL BE AUTOMATICALLY EXTENDED FOR ADDITIONAL TERMS OF ONE (1) YEAR FROM THE PRESENT OR EACH FUTURE EXPIRATION DATE UNLESS WE

together we'll go far

WELLS FARGO

GIVE YOU AND KEYSTONE CEMENT COMPANY AT LEAST NINETY (90) DAYS BEFORE SAID EXPIRATION DATE WRITTEN NOTICE BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED, OR HAND DELIVERY, THAT WE ELECT TO TERMINATE THIS CREDIT AT THE END OF ITS THEN CURRENT TERM.

IN THE EVENT WE GIVE NOTICE OF OUR ELECTION TO TERMINATE THIS LETTER OF CREDIT AND KEYSTONE CEMENT COMPANY, INC FAILS TO REPLACE THIS LETTER OF CREDIT WITH OTHER FINANCIAL GUARANTEES ACCEPTABLE TO THE DEPARTMENT, YOU MAY DRAW ON THIS LETTER OF CREDIT UP TO THE AGGREGATE, LESS ANY PRIOR DRAFTS PRESENTED BY THE DEPARTMENT AND PAID BY US, BY PRESENTATION OF A DRAFT MARKED "DRAWN UNDER WELLS FARGO BANK N.A., LETTER OF CREDIT NO. IS000022387U DATED NOVEMBER 24, 2017" ACCOMPANIED BY A STATEMENT PURPORTEDLY SIGNED BY AN AUTHORIZED REPRESENTATIVE OF THE DEPARTMENT READING AS FOLLOWS:

"THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION IS MAKING THIS DRAWING BECAUSE KEYSTONE CEMENT COMPANY HAS FAILED TO REPLACE THIS LETTER OF CREDIT WITH OTHER FINANCIAL GUARANTEES ACCEPTABLE TO THE DEPARTMENT".

THIS LETTER OF CREDIT SETS FORTH OUR ENTIRE UNDERTAKING. OUR UNDERTAKING SHALL NOT IN ANY WAY BE MODIFIED, AMENDED, AMPLIFIED OR LIMITED BY REFERENCE TO ANY DOCUMENT, BOND, PERMIT, INSTRUMENT OR AGREEMENT REFERRED TO IN THIS LETTER OF CREDIT, OR IN WHICH THIS LETTER OF CREDIT IS REFERRED TO, OR TO WHICH THIS LETTER OF CREDIT RELATES, AND ANY SUCH REFERENCE SHALL NOT BE DEEMED TO INCORPORATE HEREIN BY REFERENCE IN THIS LETTER OF CREDIT ANY DOCUMENT, BOND, PERMIT, INSTRUMENT OR AGREEMENT OTHER THAN THE DRAFTS AND DRAWING STATEMENTS REQUIRED HEREUNDER.

THIS LETTER OF CREDIT IS GOVERNED BY DIVISION 5 OF THE PENNSYLVANIA UNIFORM COMMERCIAL CODE AND, WHERE NOT INCONSISTENT, THE UNIFORM CUSTOMS AND PRACTICE FOR DOCUMENTARY CREDITS (2007 REVISION, IN EFFECT AS OF JULY 1, 2007), INTERNATIONAL CHAMBER OF COMMERCE PUBLICATION NO. 600. DISPUTES ARISING UNDER THIS CREDIT SHALL BE GOVERNED FIRST BY THE LAWS OF THE COMMONWEALTH OF PENNSYLVANIA.

Very Truly Yours,

WELLS FARGO BANK, N.A.

AUREA C. BALENBIN
ASSISTANT VICE PRESIDENT

By: _____
Authorized Signature

The original of the Letter of Credit contains an embossed seal over the Authorized Signature.

Please direct any written correspondence or inquiries regarding this Letter of Credit, always quoting our reference number, to **Wells Fargo Bank, National Association,** Attn: U.S. Standby Trade Services

at either 794 Davis Street, 2nd Floor
MAC A0283-023,
San Leandro, CA 94577-6922

or 401 N. Research Pkwy, 1st Floor
MAC D4004-017,
WINSTON-SALEM, NC 27101-4157

Phone inquiries regarding this credit should be directed to our Standby Customer Connection Professionals

1-800-776-3862 Option 2
(Hours of Operation: 8:00 a.m. PT to 5:00 p.m. PT)

1-800-776-3862 Option 2
(Hours of Operation: 8:00 a.m. EST to 5:00 p.m. EST)

Together we'll go far

Each page of this multipage document is an integral part
of this Irrevocable Standby Letter of Credit Number **IS000022387U**

ATTACHMENT 2

BONDING WORKSHEETS

Appendix E-2
Attachment No. 2
Full Closure Plan
(except Kiln)

Calculations and Assumptions for information presented on Bonding Worksheet for Full Closure for all facilities with the exception of the Kiln. Full closure which includes:

1. Closure of the seven (7) proposed Hazardous Waste Storage Tanks;
2. Closure of associated piping, pumps and ancillary equipment including proposed HWF Mixing System;
3. Closure of secondary containment for the proposed Hazardous Waste Storage Tanks, existing truck unloading, direct transfer (which is contained in the existing truck unloading), and the proposed railcar unloading facility;
4. Existing truck staging area;
5. Existing truck parking area; and,
6. Hazardous waste storage area and CKD contingency area.

Bonding Worksheet A

Line 1 Maximum Volume of Waste Removal and Line 10 (a)

1b.) Tank Storage

For the full closure plan the volume of material removed from storage was conservatively estimated based on the maximum permitted storage capacity of the waste storage tanks. The volumes were converted from gallons to cubic yards.

Unit	Volume (gal)
Tank 5	32,000
Tank 6	32,000
Tank 7	32,000
Tank 8	32,000
Tank 9	32,000
Tank 10	32,000
Tank 11*	28,000
Totals	220,000

*Tank at railcar unloading area

Conversion to cubic yards = (220,000 gallons/7.481 gal/ft3)/27 ft3/yd3 = 1,089 cubic yards

Line 1b = 1,089 Cubic Yards (CY)

A third party cost for transportation and disposal of the hazardous waste derived fuels was provided by Elk Environmental Services in a quote dated May 16, 2018 (See Attachment No. 3). Their cost for disposal of waste fuels meeting the characteristics of the Waste Acceptance Plan is estimated to be $1.00 per gallon (gal).

2018 T&D Cost, hazardous waste derived fuels = $1.00/gallon.

Waste Removal Costs per Gallon:

The two existing transfer pumps each have a capacity of approximately 250 gpm – 500 gpm. Therefore, one transfer pump can load a 5,000 gallon tanker in approximately 20 minutes. Allowing time for

connection of the hoses and maneuvering the tankers into place, it is assumed that a minimum of two tankers (10,000 gallons) can be loaded each hour (one per transfer pump).

Time required to empty tanks equals 220,000 gallons/ (10,000 gallons/hr) = 22 hours. Assume 22 hours for two labors in Level C PPE;

From Elk Environmental Services' quote dated May 16, 2018, the daily rate for a 2- Person Labor Crew wearing Level C PPE is $1,405. Converting the daily rate for a 2 person crew to an hourly per person rate works out to an hourly rate of $87.82. [$1,405 / (2 x 8 hrs) = $87.82 / hr.]

Total Labor Cost, Level C PPE = $87.82 / hr * 2 laborers *22 hours = $3,864.08

Unloading Cost per Gallon = $3864.08/220,000 gallons = $0.017 /gal or $0.02/gal

Total Cost per Gallon

T&D Cost per Gallon and Unloading Cost per Gallon

$1.00/gal +$0.02/gal = $1.02/gal

Convert to $ per cubic yard = $1.02/gal *7.481 gal/ft3*27 ft3/yd3 = $206.03 per cubic yards

Total Cost for Disposal = $206.03/cubic yard*1,089 cubic yards = $224,370

1c.) Piping and Miscellaneous Material

Line 1c.) Piping and miscellaneous equipment per Item No. 3 = 39 cubic yards+220 cubic yards = 259 cubic yards

From Elk Environmental Inc.'s quote dated May 16, 2018, transportation and disposal of a 20 CY roll-off dumpster containing hazardous bulk waste is $4,875 per roll-off (See attachment No. 3). Converting 20 CY roll-off to $ / CY = $4,875/20 CY per rolloff = $243.75 / CY

Total Cost for Disposal = $243.75/cubic yard*259 cubic yards = $63,131

1d.) Tank Sludge/Heel Areas

Decontamination of the tanks will require removal of solids, which should be nominal since the tanks are agitated. Assume a maximum of 6 inches of material from each tank:

Unit	Diameter (ft)	Height (ft)	Cubic feet
Tank 5	14	0.5	76.93
Tank 6	14	0.5	76.93
Tank 7	14	0.5	76.93
Tank 8	14	0.5	76.93
Tank 9	14	0.5	76.93
Tank 10	14	0.5	76.93
Tank 11*	14	0.5	76.93
Totals (ft3)			538.51

*Tank at railcar unloading area

Converting to cubic yards the volume of hazardous residuals from the tanks bottoms is 19.9 cubic yards (or 538.51 cubic feet).

The maximum capacity of a drum is 7.4 cubic feet, assume 90% fill equals 6.66 cubic feet. Total number

of drums is approximately 81 drums. Include 9 drums for PPE and miscellaneous residuals for a total of 90 drums.

Elk Environmental's quote dated May 18, 2018 for transportation and disposal of hazardous waste DOT drums containing solids is $275 per drum; and for drums containing hazardous waste sludge, $170 per drum.

Total residuals disposal cost = $275/drum x 9 drums + $170/drum x 81 drums = $16,245

Average cost per cubic yard= $16,245/19.9 cubic yards = $817/cubic yard

Line 10a.) From totals above:

Tank Storage + Tank Piping + Tank Sludge

$224,370 + $63,130 + $16,245 = $303,750

Line 2 and Unit Rates for Disposal

Range of Cubic yard disposal costs presented in Line 1 $206 -$817 per cubic yard

Line 3a.) – Facility Decontamination Labor

Piping

From the drawings the existing horizontal length of piping between the planned tank farm and the kiln and planned piping between the rail unloading facility and kiln to be added for the Final Operating Scenario (i.e. not included in the Existing Closure Costs) is conservatively estimated to be 6,500 ft. Add approximately 50% additional for vertical runs and piping connections at pumps and tanks for a total of 9,750 ft.

The pipe diameters range from 2-inch to 4-inch. Using 4-inch square for purposes of placement in a roll-off. [4 in = 0.33 ft.]

The estimated volume of the piping = 9,750 ft x 0.33 ft x 0.33 ft = 1,062 ft3/ (27 ft^3/cy) = 39 cubic yards.

Conservatively assume approximately 220 cubic yards for miscellaneous equipment pumps, and HWF mixing system, burner nozzles etc.

Unit cost to decontaminate equipment.

From Elk Environmental Services' quote dated May 18, 2018, the unit cost to flush the piping system and dispose piping into roll-off dumpsters is $5.68 per linear feet (See Attachment No. 3)

Cost = $5.68 per linear feet of piping

Total Cost to remove piping:

$5.68/lf x 9,750 feet = $55,380

Tanks

Removal of residue from the tank walls using mechanical scrapping. The dimensions for Tanks 5, 6, 7, 8, 9, and 10 are 14 feet in diameter and 33.09 feet in height. The dimensions for Tank 11 are 14 feet in diameter and 30 feet, high. The total surface area is as follows:

Surface area = $2 pi r^2 + 2 pi r h$; where pi= 3.14

Unit	Diameter (ft)	Height (ft)	Surface area (ft^2)
Tank 5	14	33.09	1762.36
Tank 6	14	33.09	1762.36
Tank 7	14	33.09	1762.36
Tank 8	14	33.09	1762.36
Tank 9	14	33.09	1762.36
Tank 10	14	33.09	1762.36
Tank 11*	14	30	1626.52
Totals (ft^2)			12,200.68

*Tank at railcar unloading area

From Elk Environmental Services' quote dated May 16, 2018, the cost to decontaminate a tank is $10,533.60 / tank (See Attachment No. 3).

Cost to decontaminate the tanks = $10,533.60/tank*7 tanks
= $73,735.20

Containment Areas

The exposed surface areas to be decontaminated include the following areas as estimated from the drawings:

Unit	Surface Area (sq. ft.)
Planned Tank Containment (1)	2,914
Existing Truck Unloading Area (includes Direct Transfer Containment and Mixing System Containment)	5,510
Planned Railcar Unloading Containment and Tank Containment (1)	3,901
Existing Truck Staging Area	11,040
CKD Contingency Area	400
90-day Haz. Storage	400
Total	24,165

(1) Includes Sidewalls

Add approximately 50% for side walls and sumps = 8,675 sq. ft.
[Surface area of side walls and sumps = (5,510 + 11,040 + 400 + 400) x 50% = 8,675 sq. ft.]

24,165 sq ft + 8,675 sq. ft = 32,840 sq. ft.

From Elk Environmental Services' quote dated May 16, 2018, the cost to decontaminate containment and unloading surface areas is $1.65 / sq. ft (See Attachment No. 3).

2018 cost to decontaminate containment surface areas = $1.65 / sq. ft * 32,840 sq. ft. = $54,186

Line 3a) Total Cost of Decontamination

Piping + Tank + Containment Area

$55,380 + $73,735.20 + $54,180 = $183,300

Line 3b. Facility Decontamination Sampling Cost

As per the Full Closure Plan, the collection of up to 39 soil samples was assumed for the determination of the facility closure co.st estimate as follows:

- 11 samples along the hazardous waste pipelines and direct transfer pipelines to be located in areas of observed stained pavement and/or areas of known historical spills;
- 4 samples to be located in the unloading containment area for the truck (and direct transfer) unloading area at locations to be field selected as described above;
- 4 samples to be located in the combined unloading containment area for the planned railcar unloading areas at locations to be field selected as described above;
- 4 samples to be located in the Tank Farm containment area at locations to be field selected as described above;
- 2 samples to be located in the general hazardous waste (<90 day) storage area;
- 4 samples from the existing truck staging area;
- 4 samples from the planned railcar staging area;
- 4 samples from the existing truck parking area; and,
- 2 samples from the existing CKD Contingency area.

From Eichelbergers Inc.'s quote dated May 17, 2018, the daily unit rate for mobilization / demobilization (including materials) for a direct push truck mounted, non-hydraulic drill rig with labor and materials included geo-probe, field equipment for sampling of soils is $1,600 per day (See Attachment No. 3).

Assume 10 soil samples per day for a total of 4-days of geo-probe = $1600/day x 4 days = $6,400

Field oversight and reporting of soil samples by environmental professional - assume 6 days at $57.5 per hour = $2,760. Labor rate based on mid-level field engineer per 2018 RS Means (See Attachment 3)

Total cost for Line 3b. Sampling = $6,400 + $2,760 = $9,160

Line 3c. Facility Decontamination - Analytical Cost

Total of 39 soil samples as presented above. Additional samples include 15 rinseate samples and 12 wipe samples for a total of 66 verification samples. Include 10% for QA/QC samples = 80 samples

Eurofins Lancaster Laboratories Environmental, LLC 2018 price quote (See Attachment No. 3) is $486 per sample

Total Cost for Line 3c. = 66 samples x $486/sample = $32,076

Line 3, 4 and 10(c) Volume of soil to be removed

Removal of Gravel from Existing Truck Parking Area

Surface area = 12,130 square ft
Assume 6-inches gravel
Volume = 12,130*0.5 = 6,065 cubic ft = 225 cubic yds (Line 3)

Assume disposal of gravel as Non-hazardous. Per Elk Environmental's quote dated May 16, 2018, transportation and disposal of non-hazardous gravel is $195 / CY (See Attachment No. 3)

Transportation & Disposal Cost = $195/cy x 225 cy = $43,875

Remove gravel – per Elk Environmental's quote dated May 16, 2018, unit cost to remove gravel is $0.60 / SF. (See Attachment 3). 12,130 SF x $0.60 / SF = $7,278

Total cost for truck parking area = $43,875 + $7,278 = $51,153 (Line 10(c))

Unit cost = Total Cost/Cubic yards = $51,153/225 cubic yards = $227 per cubic yard

Line 6 Volume of Wastewater During Decontamination

Assume a quantity of rinseate generated of 1 gallon per sq ft of area cleaned. For purposes of this estimate, it is assumed that two volumes of rinseate will be generated, the first will be hazardous and the second will be non-hazardous.

Surface areas = (surface area of tanks + surface area of secondary containment) x 1 gallons/ft^2
= (12,200 sq. ft. + 32,840 sq. ft.) x 1 gallon/sq ft
= 45,040 gallons per rinse

Assume a quantity of flush water generated of 0.66 gallon per ft of pipe flushed. For purposes of this estimate it is assumed that one volume of flush water will be generated and it will be hazardous and the diameter of the pipe is 4-inches.

Pipe Flush water gallons = 0.66 gallons/ft. x 9,750 ft = 6,435 gallons

Total Volume of Hazardous Rinse water generated = Surface Areas + Pipes

45,040 gallons + 6,435 gallons = 51,475 gallons

Total Volume of Non-Hazardous Rinse water generated = Surface Areas only (Note piping is assumed to be disposed of after initial flush)

45,040 gallons

Total Volume of decontamination water = 96,515 gallons

Line 7 Unit cost to treat wastewater

Hazardous Rinse & Flush Water:

From Elk Environmental Services' quote dated May 16, 2018, the cost to transport and dispose of hazardous water is $1.50 / gallon (See Attachment No. 3).

2018 T&D cost, hazardous water = $1.50

51,475 gallons x $1.50 / gallon = $77,210

Non-Hazardous Rinse Water

From Elk Environmental Inc. quote dated May 16, 2018, the cost to transport and dispose of non-hazardous water is $0.50 / gallon (See Attachment No. 3).

2018 T&D cost, non-hazardous water = $0.50

45,040 x $0.50 / gallon = $22,520

Total Disposal Cost (Line 10d.)

$77,210 +$22,520 = $99,730

Average of Hazardous and Non-Hazardous Water Disposal Cost

$99,730/96,515 gallons = $1.03

Line 8 Cost for facility maintenance

Electricity and Water

Itwill be necessary to maintain facility utilities and pay for electric, water consumption and sewage. Assume $2,250 to cover utilities.

Line 9 Engineering and QA/QC Costs

Time for closure from above:

- Line 2 Empty Tanks = 2 days
- Line 4 Decontaminate Tanks and Remove Solids = 14 days
- Line 6 Decontaminate Secondary Containment Structures = 14 days
- Line 10 Soil Sampling = 4 days

Total Time to Complete Closure = 34 days (note piping decontamination, kiln sand blasting and trucking parking gravel removal can be performed concurrently with other activities) = assume 7 weeks to complete closure

From Means 2018 Field Superintendent $3,500 per week and Field Engineer (Certifying Engineer) $2,300 per week (See Attachment 3) ·

Total Engineering and Oversight Cost per week = $3,500 per week + $2,300 per week = $5,800 per week.

Engineering and Oversight = $5,800 per week x 7 weeks = $40,600
Closure Report and Certification - $8,400. [Cost based on RS Means 2018 cost for one week each for Field Engineer, Field Superintendent and Field Senior Engineer - $3,500 / week + $2,300 / week + $2,600 / week = $8,400]

Health and Safety Plan $ 4,900. [Cost based on RS Means 2018 cost for one week each for Field Engineer and one Senior Engineer - $2,300 / week + $2,600 / week = $4,900]

Total Engineering and QA/QC Costs = $40,600+$8,400 +$4,900 = $53,900

Bonding Worksheet D

4. Other Costs:

Include approximately $6,555 for spent carbon units associated with vapor system. Cost based on disposing 2,000 lbs of media as hazardous waste and 4,000 lbs. of media as non-hazardous and one day of labor by a 2-Person Labor Crew, Level C PPE. $1,405 / day + $275 /drum x 10 drums + $120/drum x 20 drums = $6,555

Inflation Rate

Inflation rate (projected inflation for the next three years based on the inflation for the prior three years).

Per US Department of Labor the Inflation Rates for the last three years are:

2015	1.44%
2016	1.01%
2017	1.02%

Cumulative Inflation Rate = 1.0144 x 1.0101 x 1.0102 = 1.03509, or 3.5%

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BONDING WORKSHEETS FOR HAZARDOUS WASTE STORAGE AND TREATMENT FACILITIES

BONDING WORKSHEET A
FACILITY DECONTAMINATION

1. Maximum volume of waste to be removed from:

a. Container Storage Areas	NA	unit of measure
b. Tank Storage/Treatment Units	1,088 cubic yards	unit of measure
c. Tank Piping	259 cubic yards	unit of measure
d. Tank Sludge/Heel Areas	20 cubic yards	unit of measure
e. Containment Buildings	NA	unit of measure
f. Thermal Treatment Units	(see Kiln Worksheet)	unit of measure
g. Ancillary / Miscellaneous Units and Equipment	(included in C)	unit of measure
h. Air Pollution Equipment	(see Kiln Worksheet)	unit of measure
i. Drip Pads	NA	unit of measure

(Maximum volumes should be based on permitted volumes for each storage unit. Provide supporting calculations for the volumes)

2. Unit cost to dispose, treat or recycle waste off site (including removal, transportation and disposal, treatment or recycling costs): $206 to $817 cubic yards $/unit of measure

(Provide supporting documentation from third parties for the unit costs and considering waste types)

3. Cost to decontaminate floors, walls, tanks, equipment, containers, and other secondary containment:

a. Labor cost	$183,300
b. Sampling cost	$9,160
c. Analytical cost	$32,080

(Provide supporting documentation from third parties for these costs. Labor costs should conform to US Dept. of Labor, Bureau of Labor Statistics most recent rates)

4. Volume of contaminated soils to be removed: 225 cubic yards unit of measure

(Provide supporting calculations)

5. Unit cost to dispose of contaminated soils: $227/cubic yard $/unit of measure (including sampling, analysis, removal, transportation and disposal costs):

(Provide supporting documentation from third parties for all portions of this cost)

6. Volume of wastewater generated during decontamination: 96,515 gallons $/unit of measure

(Provide supporting calculations for each area to be decontaminated)

7. Unit cost to treat/dispose wastewater: $1.03/gallon (average) $/unit of measure (including sampling, analysis, removal, transportation and disposal costs)

(Provide supporting documentation from third parties for all portions of this cost)

8. Cost for facility maintenance: $2,250

(Provide costs for housekeeping and other routine maintenance)

9. Engineering and QA/QC costs: $53,900

(Lump sum for closure oversight costs)

10. Cost Summary:

a. Waste removal (line 1 x line 2) $303,750

b. Facility decontamination (line 3) $224,540

c. Contaminated soils (line 4 x line 5) $51,200

d. Wastewater (line 6 x line 7) $99,730

e. Maintenance (line 8) $2,500

f. Engineering QA/QC (line 9) $53,900

TOTAL $735,620

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BONDING WORKSHEETS FOR HAZARDOUS WASTE STORAGE AND TREATMENT FACILITIES

BONDING WORKSHEET D
SUMMARY COST WORKSHEET

Cost Summary

1. Decontaminating the Facility		$735,620
2. Groundwater Monitoring		$NA
3. Surface Water Monitoring		$NA
4. Other Costs (Site specific monitoring or reporting costs)		$6,600
	Subtotal	$742,220

Inflation

4. Inflation rate (projected inflation based on the inflation rate for the prior year)	3.5 %
5. Inflation cost for facility (subtotal x line 4)	$25,980

Contingency and administrative fees

6. Administrative fees (10%) (subtotal x 0.1)	$74,220
7. Contingency fee amount – 20%	$148,440
Total (subtotal + line 5 + line 6 + line 7)	$990,860

Appendix E-2
Attachment No. 2
Full Closure Plan
(Kiln Only)

Calculations and Assumptions for information presented on Bonding Worksheet for Kiln Closure costs.

Bonding Worksheet A

Line 1 Maximum Volume of Waste Removal; Line 2 Unit Rate for Disposal and Line 10 (a)

1e.) Thermal Treatment Unit

Estimate 19 roll-offs or approximately 380 cubic yards from sandblasting of cement kiln brick. (Line 1e)

Elk Environmental quote for May 2018 for Hazardous Waste $4,875 per roll off

Total residual disposal cost = $4,875*19 = $92,625 (Line 10a)

Average Cost per Cubic Yard = $92,625/380 cubic yards = $244 per cubic yard (Line 2)

Line 3a.) – Facility Decontamination Labor

Kiln No. 1

Decontamination of the kiln will require sandblasting of kiln brick and decontamination of the remaining equipment including air pollution control equipment.

Use daily cost for confined space 2-person crew per Elk Environmental quotation of May 2018 is $3,110. Multiple by 1.5 for 3 person crew to match 2006 assumptions which included 3 days of confined space for a rate of $4,665 per day.

Decontamination Cost = $4,665 per day*3 days = $13,995

From 2018 Means Cost for cleaning masonry (see Attachment No. 3) is $3.27 per square feet and the total square footage from 2006 estimate is 25,787 square feet.

Sandblasting Cost = $3.27 per square foot*25,790 square feet = $84.330

Include Other Expenses

Electric (sandblasting)	*$200.00*
Blast material	*$3,500.00*
Electric (pressure washing)	*$100.00*
Supplied Water (assumes municipal water supply, avg. PA municipal cost)	*$100.00*
Sub-Total	*$3,900.00*

Total for Kiln = Decontamination + Sand Blasting + Other Expenses

$13,995 + $84,330 + $3,900 = $102,225 (Line 3a)

Line 3b. Facility Decontamination Sampling Cost

As per the Full Closure Plan, the collection of up to 5 soil samples was assumed for the determination of the Kiln closure. Assume sampling is completed with tank farm and other unit closures. From Eichelbergers

Inc.'s quote dated May 17, 2018, the daily unit rate for mobilization / demobilization (including materials) for a direct push truck mounted, non-hydraulic drill rig with labor and materials included geo-probe, field equipment for sampling of soils is $1,600 per day (See Attachment No. 3).

Assume 10 soil samples per day for a total of 0.5-days of geo-probe = $1600/day x 0.5 days = $800

Field oversight and reporting of soil samples by environmental professional - assume 0.5 days at $57.5 per hour = $230. Labor rate based on mid-level field engineer per 2018 RS Means (See Attachment 3)

Total cost for Line 3b. Sampling = $800 + $230 = $1,030

Line 3c. Facility Decontamination - Analytical Cost

Total of 5 soil samples as presented above. Additional samples include 2 rinseate samples and 4 wipe samples for a total of 11 verification samples. Include 10% for QA/QC samples = 12 samples

Eurofins Lancaster Laboratories Environmental, LLC 2018 price quote (See Attachment No. 3) is $486 per sample

Total Cost for Line 3c. = 12 samples x $486/sample = $5,832

Line 6 Volume of Wastewater During Decontamination

Assume 7,000 gallons per rinse (2 rinses) for Kiln and air pollution control related rinse water generation. Generation of 7,000 gallons of hazardous rinse water and 7,000 gallons of non-hazardous rinse water for a total of 14,000 gallons.

Line 7 Unit cost to treat wastewater

Hazardous Rinse & Flush Water:

From Elk Environmental Services' quote dated May 16, 2018, the cost to transport and dispose of hazardous water is $1.50 / gallon (See Attachment No. 3).

2018 T&D cost, hazardous water = $1.50

Non-Hazardous Rinse Water

From Elk Environmental Inc. quote dated May 16, 2018, the cost to transport and dispose of non-hazardous water is $0.50 / gallon (See Attachment No. 3).

2018 T&D cost, non-hazardous water = $0.50

Average of Hazardous and Non-Hazardous Water Disposal Cost is $1.00 per gallon

Line 8 Cost for facility maintenance

Included in closure of tank related facilities.

Line 9 Engineering and QA/QC Costs

Assume kiln sand blasting can be performed concurrently with tank farm closure activities.

Bonding Worksheet D

Inflation Rate

Inflation rate (projected inflation for the next three years based on the inflation for the prior three years).

August 2018

Per US Department of Labor the Inflation Rates for the last three years are:

2015	1.44%
2016	1.01%
2017	1.02%

Cumulative Inflation Rate = 1.0144 x 1.0101 x 1.0102 = 1.03509, or 3.5%

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BONDING WORKSHEETS FOR HAZARDOUS WASTE STORAGE AND TREATMENT FACILITIES

BONDING WORKSHEET A
FACILITY DECONTAMINATION

1. Maximum volume of waste to be removed from:

a. Container Storage Areas	NA	unit of measure
b. Tank Storage/Treatment Units	(see Facility Closure)	unit of measure
c. Tank Piping	(see Facility Closure)	unit of measure
d. Tank Sludge/Heel Areas	(see Facility Closure)	unit of measure
e. Containment Buildings	NA	unit of measure
f. Thermal Treatment Units	380 cubic yards	unit of measure
g. Ancillary / Miscellaneous Units and Equipment	(see Facility Closure)	unit of measure
h. Air Pollution Equipment	(included in F)	unit of measure
i. Drip Pads	NA	unit of measure

(Maximum volumes should be based on permitted volumes for each storage unit. Provide supporting calculations for the volumes)

2. Unit cost to dispose, treat or recycle waste off site (including removal, transportation and disposal, treatment or recycling costs): $244 per cubic yard $/unit of measure

(Provide supporting documentation from third parties for the unit costs and considering waste types)

3. Cost to decontaminate floors, walls, tanks, equipment, containers, and other secondary containment:

a. Labor cost	$102,225
b. Sampling cost	$1,030
c. Analytical cost	$5,830

(Provide supporting documentation from third parties for these costs. Labor costs should conform to US Dept. of Labor, Bureau of Labor Statistics most recent rates)

4. Volume of contaminated soils to be removed: (see Facility Closure) unit of measure

(Provide supporting calculations)

5. Unit cost to dispose of contaminated soils: (see Facility Closure) $/unit of measure (including sampling, analysis, removal, transportation and disposal costs):

(Provide supporting documentation from third parties for all portions of this cost)

6. Volume of wastewater generated during decontamination: 14,000 gallons $/unit of measure

(Provide supporting calculations for each area to be decontaminated)

7. Unit cost to treat/dispose wastewater: $1.00/gallon (average) $/unit of measure (including sampling, analysis, removal, transportation and disposal costs)

(Provide supporting documentation from third parties for all portions of this cost)

8. Cost for facility maintenance: $(see Facility Closure)

(Provide costs for housekeeping and other routine maintenance)

9. Engineering and QA/QC costs: $(see Facility Closure)

(Lump sum for closure oversight costs)

10. Cost Summary:

a. Waste removal (line 1 x line 2) $92,625

b. Facility decontamination (line 3) $109,085

c. Contaminated soils (line 4 x line 5) $0

d. Wastewater (line 6 x line 7) $14,000

e. Maintenance (line 8) $0

f. Engineering QA/QC (line 9) $0

TOTAL $215,710

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BONDING WORKSHEETS FOR HAZARDOUS WASTE STORAGE AND TREATMENT FACILITIES

BONDING WORKSHEET D
SUMMARY COST WORKSHEET

Cost Summary

1. Decontaminating the Facility		$215,710
2. Groundwater Monitoring		$NA
3. Surface Water Monitoring		$NA
4. Other Costs (Site specific monitoring or reporting costs)		$0
	Subtotal	$215,710

Inflation

4. Inflation rate (projected inflation based on the inflation rate for the prior year)	3.5 %
5. Inflation cost for facility (subtotal x line 4)	$7,550

Contingency and administrative fees

6. Administrative fees (10%) (subtotal x 0.1)	$21,570
7. Contingency fee amount – 20%	$43,140
Total (subtotal + line 5 + line 6 + line 7)	$287,970

ATTACHMENT 3

SUPPORTING DOCUMENTATION

ATTACHMENT – 3.1

UNIT COST FORM

(ELK ENVIRONMENTAL SERVICES)

From:	Will Von Hacht IV
To:	Killoran, Kevin
Cc:	Eichlin, Brian
Subject:	RE: Keystone Cement: Unit Cost Form
Date:	Wednesday, May 16, 2018 10:53:00 AM
Attachments:	KeystoneCement_4May2018.pdf

Kevin,

Please see the attached as requested. Let me know if you have any questions.
As
closure of the facility is unlikely to occur until well in the future, your company will not be held to these costs
until such time a formal cost proposal is requested by Keystone.

Thanks

Will von Hacht IV
Project Manager/Estimator

Elk Environmental Services | 1420 Clarion Street | Reading, PA 19601
Main Office: 610-372-4760 | Fax: 610-372-4820 | www.elkenv.com
24 Hour Emergency Response: 1-800-851-7156

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From: Killoran, Kevin <Kevin_Killoran@golder.com>
Sent: Friday, May 4, 2018 4:21 PM
To: Will Von Hacht IV <willvh4@elkenv.com>
Cc: Eichlin, Brian <brian_eichlin@golder.com>
Subject: Keystone Cement: Unit Cost Form

Will,

As discussed earlier today, Golder is assisting Keystone Cement Company (Keystone) with a RCRA permit renewal application. An item required in the permit application is a cost estimate for the future closure of a hazardous waste processing, storage and treatment facility that Keystone operate at their Bath, Pennsylvania facility. Golder appreciates your offer of assistance regarding providing unit cost for various closure tasks that may be required.

Included in the attached PDF document are four attachments as follows:

- Attachment 1 – Instructions
- Attachment 2 – Unit Cost Form
- Attachment 3 – List of Waste Codes
- Attachment 4 - Sketch 1, Layout for Final Operating Scenario

Please populate Attachment 2 based on your review and understanding of the requested work as outlined in the attachments. If necessary, add line items to the Unit Form for task you believe may be required but not included on the form.

I will be out of the office the week of May 7th. Please direct any question to my colleague Brian Eichlin, PE (copied). Brian's phone no. is (336) 398-2809, ext. 42509

Your response is requested by Wednesday, May 16, 2018.

Thank you in advance for the assistance.

Regards,
Kevin

Kevin Killoran, P.E.*
Senior Engineer

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Submitted by Elk Environmental Services (May 16, 2018)

ATTACHMENT 2 - UNIT COST FORM

Item No.	Scope of Work Item	Estimated Quantity	Unit	Unit Cost	Estimated Total Cost
1	Mobilization & Demobilization	1	Lump Sum		**$3,800.00**
2	T&D - hazardous waste fuel	220,000	Gallons	$1.00	**$220,000.00**
3	T&D - hazardous waste water - decontamination water	32,840	Gallons	$1.50	**$49,260.00**
4	T&D - hazardous waste water, drum	20	Each	$225.00	**$4,500.00**
5	T&D - hazardous waste solid, drum	90	Each	$275.00	**$24,750.00**
6	T&D - hazardous waste solid, roll-off	15	Each	$4,875.00	**$73,125.00**
7	T&D - hazardous waste sludge, drum	76	Each	$170.00	**$12,920.00**
8	T&D - non-hazard. waste solid, drum	9	Each	$120.00	**$1,080.00**
9	T&D - non-hazard waste water	32,840	Gallons	$0.50	**$16,420.00**
10	T&D - non-hazard. waste water, drum	20	Each	$120.00	**$2,400.00**
11	Decontamination, Tanks	7	Each	$10,533.60	**$73,875.00**
12	Decontamination, Containment & Unloading Areas	32,840	Square Feet	$1.65	**$54,186.00**
13	Decontamination, Piping & Equipment	9,750	Linear Feet	$5.68	**$55,357.50**
14	Gravel Removal, Truck Parking Area	12,130	Square Feet	$0.60	**$7,200.00**
15	T&D Gravel, non-hazardous	225	Cubic Yard	$195.00	**$21,375.00**
16	2-Person Labor Crew, Level B PPE	1	Day		**$1,995.00**
17	2-Person Labor Crew, Level C PPE	1	Day		**$1,405.00**
18	Confined Space Services, Level B	1	Day		**$3,110.00**
19	Confined Space Services, Level C	1	Day		**$2,225.00**
20	Vacuum Truck Services	1	Day		**$1,950.00**

Notes:

1) Unit cost shall be based on prevailing wages.
2) T&D cost - containers (e.g., drums, roll-offs) included in cost. Sampling, analysis and p
3) Refer to Attachment 1 for additional instructions and assumptions.

By: KGK, 5/4/18

ATTACHMENT – 3.2

GEO-PROBE

(EICHELBERGERS INC.)

since 1946
Eichelbergers, Inc.

107 Texaco Road, Mechanicsburg, PA 17050
1-800-360-0660 717-766-4800 fax 717-691-6069

Proposal:	**EB0002**		
Job #	REF/PO #		
Client:	**Golder**	Date:	**May 17, 2018**
Job:	**Geoprobe**		
Address:	**Bath, Pennsylvania**	Start:	
Contact:	**Kevin Killoran**	Finish:	
	(215) 826-1560 kevin_killoran@golder.com		

	Qty	U/M	Unit Price	Extended
Geoprobe				
Mob/Demob (Equipment & Crew)	1.0	LS	$550.00	$550.00
Day Rate	4.0	Day	$1,350.00	$5,400.00
Per Diem	3.0	Night	$150.00	$450.00
Drums		Each	$75.00	
Bentonite Backfill		Bag	$17.00	
Assumptions:				
***All Quantities are Estimates based off RFQ.**				
***Based on (10) Locations per Day.**				
Prepared By:				
Eric J. Benko, Senior Project Manager				
			Total	**$6,400.00**

Proposed pricing is good for 30 days

ATTACHMENT – 3.3

ANALYTICAL COST

(EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC)

eurofins | Lancaster Laboratories Environmental

vin Killoran
Golder Associates Incorporated (A# 05667)
10 Canal Street, Suite 217
Bristol, PA 19007
(215) 826-1560
Kevin_Killoran@golder.com

Quote #:	220243A
Account Mgr:	Jeremy Young
	(717) 693-5814
	JeremyYoung@eurofinsUS.com
Project Mgr:	Nicole Maljovec
	(717) 556-7259
	NicoleMaljovec@eurofinsUS.com
Prepared On:	05/17/2018
Expires:	08/15/2018
Prepared By:	Tara Spaide

Project Requirements:

Description:	Northampton
Accreditations:	Pennsylvania
Electronic Deliverable:	Excel
Data Package:	Level II
Detection Limits:	ELLE 's standard limits

Analysis Name	Method Name	Qty	Cat #	Unit Cost	Total Cost
Ignitability	40 CFR 261.21(a)(2)	1	00542	$16.00	$16.00
LP Zero Headspace Extraction	SW-846 1311	1	00946	$51.00	$51.00
LP Volatiles	SW-846 8260C	1	11997	$53.00	$53.00
TCLP Non-volatile Extraction	SW-846 1311	1	00947	$38.00	$38.00
TCLP Metals	SW-846 6010C/7470A	1	05773	$46.00	$46.00
TCLP Pesticides	SW-846 8081B	1	10647	$83.00	$83.00
TCLP Herbicides	SW-846 8151A	1	00952	$83.00	$83.00
TCLP Semivolatiles	SW-846 8270D	1	14252	$116.00	$116.00
Total					**$486.00**

Accreditation Status

Eurofins Lancaster Laboratories Environmental, LLC (ELLE) holds all accreditations offered by the state of Pennsylvania for your project scope.

Quote Notes

Site specific QC including matrix spikes, trip/field/equipment blanks will be billed at the same rates as field samples.

If a TCLP sample has incompatible or multiple liquid layers, then each layer will be analyzed separately and the results will be mathematically combined to yield a volume-weighted average concentration. There will be additional fees to analyze the incompatible liquid layer(s).

ATTACHMENT – 3.4

2018 RS MEANS

Line 13

RSMeans data from GORDIAN

(/SearchData)

Welcome JAMES GARDNER | Guide Me

Cost Data: Commercial New Construction | Type: Unit | Labor Type: Standard Union | Location: LEHIGH VALLEY (180) | Release: Year 2018 Quarter 1 | Search

Search: *What are you searching for?* | All | Search | Include My Custom Data

0131 Project Management And Coordination

Line Number	Description	Unit	Crew	Daily Outpt	Labor	Bare Material	Bare Labor	Bare Total	Total O&P	Hourly Oper. Cost	Rent F
013100000000	**Project Management and Coordination**										
013113000000	**Project Coordination**										
013113200010	**FIELD PERSONNEL**										
013113200020	Clerk, average		Week				485.00		485.00	740.00	
013113200100	Field engineer, junior engineer		Week				1150.00		1150.00	1750.00	
013113200120	Engineer		Week				1500.00		1500.00	2300.00	
013113200140	Senior engineer		Week				1700.00		1700.00	2600.00	
013113200160	General purpose laborer, average		Week				1600.00		1600.00	2425.00	
013113200180	Project manager, minimum		Week				2125.00		2125.00	3275.00	
013113200200	Average		Week				2450.00		2450.00	3750.00	
013113200220	Maximum		Week				2800.00		2800.00	4275.00	
013113200240	Superintendent, minimum		Week				2075.00		2075.00	3175.00	
013113200260	Average		Week				2275.00		2275.00	3500.00	
013113200280	Maximum		Week				2600.00		2600.00	3975.00	
013113200290	Timekeeper, average		Week				1325.00		1325.00	2025.00	
013113300010	**INSURANCE**										
013113300020	Builders risk, standard, minimum		Job						0.24%	0.24%	
013113300050	Maximum		Job						0.64%	0.64%	
013113300200	All-risk type, minimum		Job						0.25%	0.25%	
013113300250	Maximum		Job						0.62%	0.62%	
013113300400	Contractor's equipment floater, minimum		Value						0.50%	0.50%	

$57.50 / hr.

$65.00 / hr.

$87.50 / hr.

Create New Estimate

Version 8.7 (http://www.thegordiangroup.com) | © 2018 RSMeans | User Agreement (../../Content/RSMeansOnlineUserAgreement.pdf) | Sales Help: 1-800-334-3509 | Customer Support: 1-800-448-8182 | RSMeansData@gordian.com (mailto: RSMeansData@gordian.com ?subject= &body=) |

Shop RSMeans (http://www.rsmeans.com) (https://www.facebook.com/rsmeanscostdata) (https://twitter.com/RSMeansData) (https://www.linkedin.com/company/the-gordian-group)

Search Data - Internet Explorer provided by Golder Associates

https://www.rsmeansonline.com/

RSMeans data from GORDIAN

Guide Me | Welcome JAMES GARDNER

Search Data | Manage Estimates | Square Foot Estimator | Life Cycle Cost | Cost Alerts and Trends | Reference Items | My Favorites

Cost Data: Commercial New Construction | Type: Unit | Labor Type: Standard Union | Location: WILMINGTON (198) | Release: Year 2018 Quarter 2 | Search

Search: What are you searching for? | All | Search | Include My Custom Data

0401 Maintenance Of Masonry — Total 73 records found

Description	Unit	Crew	Daily Output	Labor Hours	Bare Material	Bare Labor	Bare Equipment	Bare Total	Total O&P	Hourly Oper. Cost	Rent Per Day	Rent Per Week	Rent Per Mo
High pressure wash, water only, light soil	S.F.	C29	500.00	0.016		0.65	0.16	0.81	1.16				
Average soil, biological staining	S.F.	C29	375.00	0.021		0.87	0.21	1.08	1.56				
Heavy soil, biological and mineral staining, paint	S.F.	C29	250.00	0.032		1.31	0.31	1.62	2.33				
High pressure water and chemical, light soil	S.F.	C29	450.00	0.018	0.17	0.73	0.17	1.07	1.49				
Average soil, biological staining	S.F.	C29	300.00	0.027	0.27	1.08	0.26	1.61	2.24				
Heavy soil, biological and mineral staining, paint	S.F.	C29	200.00	0.040	0.35	1.62	0.40	2.37	3.30				
Sandblast, wet system, light soil	S.F.	J6	1750.00	0.018	0.37	0.83	0.15	1.35	1.82				
Average soil, biological staining	S.F.	J6	1100.00	0.029	0.56	1.31	0.22	2.09	2.84				
Heavy soil, biological and mineral staining, paint	S.F.	J6	700.00	0.046	0.75	2.05	0.36	3.16	4.33				
Dry system, light soil	S.F.	J6	2500.00	0.013	0.37	0.57	0.10	1.04	1.39				
Average soil, biological staining	S.F.	J6	1750.00	0.018	0.56	0.83	0.15	1.54	2.02				
Heavy soil, biological and mineral staining, paint	S.F.	J6	1000.00	0.032	0.75	1.44	0.25	2.44	3.27				
For walnut shells, add	S.F.				0.82			0.82	0.90				
For corn chips, add	S.F.				0.82			0.82	0.90				
Steam cleaning, light soil	S.F.	A1H	750.00	0.011		0.44	0.12	0.56	0.80				
Average soil, biological staining	S.F.	A1H	625.00	0.013		0.52	0.15	0.67	0.96				
Heavy soil, biological and mineral staining	S.F.	A1H	375.00	0.021		0.87	0.25	1.12	1.59				
Add for masking doors and windows	S.F.	1 Clab	800.00	0.010	0.07	0.41		0.48	0.70				
Add for pedestrian protection	Job							10.00%	10.00%				
BRICK WASHING													
Acid cleanser, smooth brick surface	S.F.	1 Brk	560.00	0.014	0.05	0.74		0.79	1.18				

+ Create New Estimate — Total 73 Records Found

GORDIAN

Search Data - Internet Explorer provided by Golder Associates

https rsmeansonline.com

RSMeans data from GORDIAN

Guide Me | Welcome JAMES GARDNER

Search Data | Manage Estimates | Square Foot Estimator | Life Cycle Cost | Cost Alerts and Trends | Reference Items | My Favorites

Cost Data: Commercial New Construction | Type: Unit | Labor Type: Standard Union | Location: WILMINGTON (190) | Release: Year 2018 Quarter 2 | Search

Search: sandblast | All | Search | Include My Custom Data

Search Results — Total 14 records found

Line Number	Description	Unit	Crew	Daily Output	Labor Hours	Bare Material	Bare Labor	Bare Equipment	Bare Total	Total O&P	Hourly Oper
015433405720	Rent sandblaster, portable, open top 3 cubic feet capacity	Ea.		0.00							
015433405730	Rent sandblaster, portable, open top 6 cubic feet capacity	Ea.		0.00							
015433405740	Rent sandblaster accessories	Ea.		0.00							
033529600700	Concrete finishing, walls, sandblast, light penetration	S.F.	E11	1100.00	0.029	0.54	1.44	0.22	2.20	3.11	
033529600750	Concrete finishing, walls, sandblast, heavy penetration	S.F.	E11	375.00	0.085	1.07	4.20	0.67	5.94	8.59	
040130201200	Cleaning masonry, sandblast, wet system, light soil, excludes scaffolding	S.F.	J6	1750.00	0.018	0.37	0.83	0.15	1.35	1.82	
040130201220	Cleaning masonry, sandblast, wet system, average soil, biological staining, excludes scaffolding	S.F.	J6	1100.00	0.029	0.56	1.31	0.22	2.09	2.84	
040130201240	Cleaning masonry, sandblast, wet system, heavy soil, biological and mineral staining, paint, excludes sca	S.F.	J6	700.00	0.046	0.75	2.05	0.36	3.16	4.33	
040130201400	Cleaning masonry, sandblast, dry system, light soil, excludes scaffolding	S.F.	J6	2500.00	0.013	0.37	0.57	0.10	1.04	1.39	
040130201420	Cleaning masonry, sandblast, dry system, average soil, biological staining, excludes scaffolding	S.F.	J6	1750.00	0.018	0.56	0.83	0.15	1.54	2.02	
040130201440	Cleaning masonry, sandblast, dry system, heavy soil, biological and mineral staining, paint, excludes scaf	S.F.	J6	1000.00	0.032	0.75	1.44	0.25	2.44	3.27	
040130201800	Cleaning masonry, sandblast, excludes scaffolding, for walnut shells, add	S.F.		0.00		0.82			0.82	0.90	
040130201820	Cleaning masonry, sandblast, excludes scaffolding, for corn chips, add	S.F.		0.00		0.82			0.82	0.90	
051223773860	Structural steel project, shop extra for sandblasting and primer coat of paint, (cost included in project ba	Ton		0.00		150.66			150.66	165.93	

+ Create New Estimate — Total 14 Records Found

GORDIAN

Start | 9:19 AM

ATTACHMENT 4
LIABILITY INSURANCE

2510-FM-BWM0078 6/2005

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF LAND RECYCLING AND WASTE MANAGEMENT

HAZARDOUS WASTE FACILITY CERTIFICATE OF LIABILITY INSURANCE

Indian Harbor Insurance Company, (the "Insurer"), with his principal place of business at Seaview House, 70 Seaview Avenue, Stamford, CT 06902-6040 and his registered Pennsylvania resident agent 501 Corporate Centre Drive, Suite 300, Franklin, TN 37067.

HEREBY CERTIFIED THAT:

A. GENERAL

The Insurer has issued a policy of insurance ("policy"), identified as PEC002826809 (policy number(s))

for the dates 05/01/2018 to 05/01/2019, in the name of Giant Cement Holding, Inc. (operator's name)

("Operators" or "Insured") for the following facility/facilities:

Route 987 & Route 329, Bath, PA 18014 (facility) PAD002389559 (EPA ID)

B. TYPE OF COVERAGE

The policy is a Pollution and Remediation Legal Liability Policy (pollution liability/EIL/CGL with pollution endorsement/rider/other)

policy, as indicated PEC002826809 (specify clause or clauses which show this)

and covers property damage and bodily injury to third parties exclusive of legal defense costs as follows:

1. For the treatment, storage and disposal facilities listed below, at least $1,000,000 per occurrence and $2,000,000 annual aggregate, for sudden accidental occurrences:

N/A (facility) N/A (EPA ID)

2. For surface impoundments, land disposal facilities listed below, at least $3,000,000 per occurrence and $6,000,000 annual aggregate, for non-sudden/gradual/occurrences (complete or strike-out as appropriate) occurrences:

Route 987 & Route 329, Bath, PA 18014 (facility) PAD002389559 (EPA ID)

3. Owner or operators who combine coverage levels for sudden and nonsudden accidental occurrences must maintain liability coverage in the amount of $4,000,000 per occurrence and $8,000,000 annual aggregate.

Such coverage is indicated by PEC002826809 (specify clause(s) which establish these items).

Furthermore, the above-listed policy coverage contains the following terms, conditions and provisions:

1. The coverage afforded by the policy is "first-dollar" coverage. If the policy provides for deductible amounts, the insurer has agreed to pay on behalf of the insured any sums within the deductible the insured become liable for and the insurer is liable for such amounts.
2. The Policy covers each listed facility in full, the policy limits of liability apply to each facility and there is no proration of policy limits of liability among facilities:
3. The insurer is liable for payment on the policy without regard for the bankruptcy or insolvency of the insured.

C. NOTICE OF TERMINATION

The policy may not be cancelled for any reason by anyone before written notice of termination is given to the Department of Environmental Protection, Bureau of Waste Management, Harrisburg, PA, 60 days prior to any proposed termination date, as indicated in Endorsement PARL6 902b (clause(s)).

D. 40 CFR 264.147, 40 CFR 265.147, 25 PA Code 264a.147 and 265a.147

The policy is provided to satisfy the requirements of Pennsylvania law..

E. CONTINUOUS COVERAGE

The policy is a claims made (claims made or occurrence) policy, and has tail period of sixty (60) and is retroactive to N/A as indicated in Declarations Page (clause(s)).

Anthony Gentile

(Signature of Authorized Representative of Insurer)

Date: 5/2/18

Anthony Gentile Vice President Authorized Representative of Indian Harbor Insurance Company

c/o XL Catlin
505 Eagleview Boulevard
Suite 100
Exton, PA 1934

CERTIFICATE OF LIABILITY INSURANCE

DATE(MM/DD/YYYY) 05/11/2022

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

Holder Identifier :

PRODUCER
Aon Risk Services South, Inc.
Charlotte NC Office
1111 Metropolitan Avenue, Suite 400
Charlotte NC 28204 USA

CONTACT NAME:
PHONE (A/C. No. Ext): (866) 283-7122 FAX (A/C. No.): 800-363-0105
E-MAIL ADDRESS:

INSURER(S) AFFORDING COVERAGE		NAIC #
INSURER A:	ACE American Insurance Company	22667
INSURER B:	Indian Harbor Insurance Company	36940
INSURER C:		
INSURER D:		
INSURER E:		
INSURER F:		

INSURED
Keystone Cement Company
Route 329
Bath PA 18014 USA

COVERAGES **CERTIFICATE NUMBER:** 570093065506 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS. **Limits shown are as requested**

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE / X OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: X POLICY / PRO-JECT / LOC OTHER:			XSLG72495214 SIR applies per policy terms & conditions	05/01/2022	05/01/2023	EACH OCCURRENCE	$1,000,000
							DAMAGE TO RENTED PREMISES (Ea occurrence)	$300,000
							MED EXP (Any one person)	
							PERSONAL & ADV INJURY	$1,000,000
							GENERAL AGGREGATE	$5,000,000
							PRODUCTS - COMP/OP AGG	$2,000,000
A	AUTOMOBILE LIABILITY X ANY AUTO OWNED AUTOS ONLY / SCHEDULED AUTOS HIRED AUTOS ONLY / NON-OWNED AUTOS ONLY			ISA H25567675	05/01/2022	05/01/2023	COMBINED SINGLE LIMIT (Ea accident)	$2,000,000
							BODILY INJURY (Per person)	
							BODILY INJURY (Per accident)	
							PROPERTY DAMAGE (Per accident)	
							Heavy Truck Deductible	$1,000
	UMBRELLA LIAB / OCCUR EXCESS LIAB / CLAIMS-MADE DED / RETENTION						EACH OCCURRENCE	
							AGGREGATE	
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR / PARTNER / EXECUTIVE OFFICER/MEMBER EXCLUDED? Y/N N (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N / A		WLRC68913299	05/01/2022	05/01/2023	X PER STATUTE / OTH-ER	
							E.L. EACH ACCIDENT	$1,000,000
							E.L. DISEASE-EA EMPLOYEE	$1,000,000
							E.L. DISEASE-POLICY LIMIT	$1,000,000
B	Env Site Liab			PEC002826813 Claims made SIR applies per policy terms & conditions	05/01/2022	05/01/2023	Each Loss	$10,000,000

Certificate No : 570093065506

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
Evidence of Insurance.

CERTIFICATE HOLDER

Keystone Cement Company
Route 329
Bath PA 18014 USA

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Aon Risk Services South Inc.

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AGENCY CUSTOMER ID: 10757518
LOC #:

ADDITIONAL REMARKS SCHEDULE

AGENCY	NAMED INSURED
Aon Risk Services South, Inc.	Keystone Cement Company
POLICY NUMBER: See Certificate Number: 570093065506	
CARRIER: See Certificate Number: 570093065506 — NAIC CODE:	EFFECTIVE DATE:

ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,
FORM NUMBER: ACORD 25 **FORM TITLE:** Certificate of Liability Insurance

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER	
INSURER	
INSURER	
INSURER	

ADDITIONAL POLICIES If a policy below does not include limit information, refer to the corresponding policy on the ACORD certificate form for policy limits.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YYYY)	POLICY EXPIRATION DATE (MM/DD/YYYY)	LIMITS	
	AUTOMOBILE LIABILITY							
A				ISA H25567675	05/01/2022	05/01/2023	Comprehensive Deduct	$1,000
							Collision Deductible	$1,000

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APPENDIX F
STRUCTURAL EVALUATION OF STORAGE TANKS

December 14, 2022

Sent via E-Mail: rbellas@pa.gov

Mr. Roger Bellas
Environmental Program Manager – Waste Management
PA Department of Environmental Protection
Northeast Regional Office
2 Public Square
Wilkes-Barre, PA 18701-1915

Re: Keystone Cement Company – 2022 Solvent Fuel System Structural Audit

Dear Mr. Bellas:

As required by the approved Class I Permit Modification dated March 3, 2015, enclosed please find one copy of the Solvent Fuel System Structural Audit dated November 2022. This report was prepared by Pany & Lentz Engineering Company on behalf of Keystone Cement Company (Keystone). As indicated in the report, the four hazardous waste fuel (HWF) tanks (Tanks 1A, 1B, 2, and 3) as well as the related delivery and return piping meet the minimum thickness requirements as outlined in the PADEP Class I Permit Modification.

Should you have any questions or require additional information, please do not hesitate to contact me at (610) 837-1881, extension 8313.

Sincerely,

Karen M. Livezey
Manager, Environmental Compliance

cc: w/attachments: Rachel L. Odzer Craver, Keystone
cc: w/o attachments: Stephen P. Holt, P.E., Keystone

SOLVENT FUEL SYSTEM STRUCTURAL AUDIT

for

KEYSTONE

KEYSTONE CEMENT COMPANY
Bath, PA 18014

November 29, 2022

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
ROBERT BRIAN CLARK
ENGINEER
No PE-[illegible]

11-29-22

Pany & Lentz Engineering Company
609 Hamilton Street • Allentown, PA 18101
PHONE: 610/433-1634 • FAX: 610/433-1636

Attention: Mechella Saba
Report Date: November 29, 2022
Revision No: 0
Reference: P&L Project No. 2022384 – Solvent Fuel: Structural Evaluation of Storage Tanks, Fuel Supply, Return, Vapor Recovery Piping Systems, and Secondary Containment Areas

Inspection Dates: Nov. 16, 2022, Nov. 17, 2022, Nov. 18, 2022, and Nov. 21, 2022

I. General Description

The solvent fuel storage and delivery system consists of four steel tanks, located in two containment areas, utilized for the storage of waste solvents received from outside suppliers. The ancillary equipment consists of supply and recirculation pumps, grinders, and a closed loop supply/return steel piping system for delivering the waste solvent fuel to the kiln and DDC burners. The burners are fueled by waste solvent, coal, or natural gas, and provide process heat for the manufacture of Portland cement. The system is inspected annually by an independent, qualified, registered Professional Engineer in accordance with CFR 40 Part 264.

II. Objectives

A. Field measure the steel wall thickness, at predetermined points, of each existing storage tank in order to determine the level of degradation, if any, of the tank shell from year to year.

B. Field measure the steel wall thickness, at selected points, of the waste solvent supply piping in order to determine the level of degradation, if any, of the supply piping from year to year.

C. Field measure the steel wall thickness, at selected points, of the waste solvent return piping in order to determine the level of degradation, if any, of the return piping from year to year.

D. Field measure the steel wall thickness, at selected points, of the waste solvent vapor recovery piping in order to determine the level of degradation, if any, of the vapor recovery piping wall.

E. Field measure the steel wall thickness, at selected points, of the solvent unload piping in order to determine the level of degradation, if any, of the unload piping wall.

F. Inspect and evaluate the structural integrity of the secondary containment for the storage tanks, truck unloading, and waste drum storage areas.

G. Witness and inspect the condition and cleaning of the internals of the emergency pressure vents, conservation breather vents, and bi-directional detonation flame arresters located on both tank covers and in the vent piping prior to the first stage carbon filters.

H. Provide owner with: Results of thickness measurements.
Comparative analysis of measurements.
Drawings showing identity and physical locations of all test points.
Results of the structural evaluation of all secondary containment areas.
Results of the inspection and cleaning of solvent ventilation system and components.

III. Test Instruments

A. Wall Thickness Testing: GE Ultrasonic Thickness Tester
Model DM5E
S/N 012004
w/ Test Probe #DA501EN

IV. Comments

A. The locations of test points for storage tanks 1A and 1B were selected and recorded during the 1999 audit; for the vapor recovery piping during the 2001 audit; for the new solvent storage tanks 2 and 3, and the new supply and return piping during the 2010 audit; and the unloading piping during the 2012 audit. All test points were selected based upon the owner's concerns, areas of estimated highest wear, and locations offering a broad representation of system operating conditions, following the guidelines for inspections set forth in ASME Code B31 and API Standard 653.

B. It is important to note that during the 2015 & 2016 calendar year, the solvent fuel storage and delivery system was temporarily removed from service. The system was drained prior to the 2015 pipe audit. In 2017 the solvent fuel storage and delivery system was brought back into service. Measurements may vary due to this change.

C. All test point locations on the supply and return piping are identified with a stencil painted "bulls-eye", painted yellow for "supply", red for "return", and the existing points on the vapor line and unload piping are painted green. Above each point, on the painted "bulls-eye", the identifying point number is inscribed using a black permanent marker or paint stick utilizing the letter "S" for supply, "R" for return, "V" for vapor, "U" for unloading plus a sequential numerical value. For the solvent tanks, test point locations are designated using a letter for each point.

D. Since the supply and return piping is unpainted, the measurements were made on bare steel. On the solvent tanks and the vapor line piping, the paint was removed to provide a bare steel surface for measuring.

E. Pre-measurement surface preparation consists of hand cleaning all exterior steel surfaces with a scraper, wire brush and emery cloth to bare metal, and removal of resulting dust and dirt with a paper towel.

F. After cleaning the surface, but prior to taking a measurement, a small amount of coupling gel is applied on the test spot as per the test instrument manufacturer's recommendations. The gel acts as a coupling agent between the test probe surface and pipe/tank surface to enhance the transmission of the ultrasonic waves emitted by the instrument.

G. In accordance with the test equipment manufacturer's recommendation, the instrument is calibrated against a known (Vernier measured) thickness of similar material, which in this case is a clean steel washer. This calibration is performed each morning just prior to the start of testing and is again performed on those occasions when consistent results are unattainable.

H. The accuracy of the measurements in this case is potentially affected by several external factors including, but not limited to:

1. Temperature differential between the calibration specimen and the test specimen.
2. Surface conditions including surface roughness, pitting, etc.
3. Possible rocking of the flat test sensor probe face against the exterior radial surface of the pipe or tank wall being measured.
4. Possible corrosion/rust build-up inside tanks and vapor lines.

I. The wall thickness testing consisted of taking four (4) measurements at each testing point. The data collected was transferred to an excel file. The average thickness at each test point was calculated then comparatively analyzed to the published thickness and the previous years' thickness. The parameters of interest are the "Deviation from Published Thickness" and "Deviation from Prior Year". These parameters give the best indication of what is going on within the pipe from audit to audit and throughout the life of the pipe.

J. The purpose of this non-invasive, non-destructive testing program is to provide the owner with a historic record of the data collected to act as a comparative "indicator" of possible change that may be occurring from year to year within the vessels tested. Changes of a degenerative nature could ultimately affect the structural integrity of the item under test as it relates to suitability for continued service.

K. The measured data for the supply/return/vapor/unload piping is compared in the analysis to both "Published Pipe Schedule Wall Thickness" and the "Prior Years Measurements".

L. Regarding the tank containment area capacity, the original 1999 calculations were based upon existing Keystone Dwg. Nos. 202, 203, 303, 304, 305, & 306, provided by Mr. Jeff Kaboly, Keystone Cement Company, as well as the individual tank nameplate information. The capacities have not changed since 1999.

V. Measurements and Analysis

A. Supply Piping

1. Attachments:
   Dwg. No. V6675D Rev. 7, V6676D Rev. 1, V6677D Rev. 5, V6678D Rev. 5, and V6679D Rev. 5

2. Measurement Results:
   Refer to Table (1), "Tanks 1A & 1B Supply Piping", on page (17). There are a total of fourteen (14) test points on the supply piping fed from Tanks 1A and 1B. Eleven (11) points are on new piping that was installed in 2010 and the remaining three (3) points are on older piping. Under "% Deviation from Published Thickness", fourteen (14) tests points had a negative deviation in wall thickness ranging from 5.308% to 39.083%. It is important to note that the three largest negative deviations occur on the pipe that was not replaced in 2010, as expected. Under "% Deviation from Prior Year", twelve (12) tests points had a negative deviation in wall thickness ranging from 0.535% to 1.438% and two (2) test points had a positive deviation in wall thickness ranging from 0.194% to 0.714%. The negative deviations currently indicate no significant change in pipe wall integrity.

   Refer to Table (2), "Tanks 2 & 3 Supply Piping", on page (18). There are a total of eighteen (18) test points on the supply piping fed from Tanks 2 and 3. Under "% Deviation from Published Thickness", sixteen (16) tests points had a negative deviation in wall thickness ranging from 3.249% to 27.083%, while the remaining two (2) test points had a positive deviation of 0.094% to 0.330%. Under "% Deviation from Prior Year", thirteen (13) test points had a negative deviation in wall thickness ranging from 0.049% to 2.306% and five (5) test points had a positive deviation in wall thickness ranging from 0.157% to 4.892%. The negative deviations currently indicate no significant change in pipe wall integrity.

B. Return Piping

1. Attachments:
   Dwg. No. V6675D Rev. 7, V6676D Rev. 1, V6677D Rev. 5, V6678D Rev. 5, and V6679D Rev. 5

2. Measurement Results:
   Refer to Table (3), "Tanks 1A & 1B Return Piping", on page (19). There are a total of eight (8) test points on the return piping to Tanks 1A and 1B. Under "% Deviation from Published Thickness", all eight (8) tests points had a negative deviation in wall thickness ranging from 5.936% to 18.116%. Under "% Deviation from Prior Year", six (6) test points had a negative deviation in wall thickness ranging from 0.483% to 3.830% and two (2) test points had a positive deviation ranging from 0.062% to 0.712%. The negative deviation currently indicates no significant change in pipe wall integrity.

   Refer to Table (4), "Tanks 2 & 3 Return Piping", on page (20). There are a total of thirteen (13) test points on the return piping to Tanks 2 and 3. Under "% Deviation from Published Thickness", all thirteen (13) test points had a negative deviation in wall thickness ranging from 3.938% to 13.299%. Under "% Deviation from Prior Year", twelve (12) test points had a negative deviation in wall thickness ranging from 0.244% to 2.052% and one (1) test point had a positive deviation of 0.186%. The negative deviations currently indicate no significant change in pipe wall integrity.

C. Vapor Recovery/Balance Piping

1. Attachments:
   Dwg. No. V6672D Rev. 1 and V6674D Rev. 0

2. Measurement Results:
   Refer to Table (5), "Client Field Test Data – Vapor Recovery Piping", on page (21). There are a total of four (4) test points on the Vapor Recovery Piping. Under "% Deviation from Published Thickness", all four (4) test points had a negative deviation in wall thickness ranging from 9.110% to 21.250%. Under "% Deviation from Prior Year", three (3) test points had a negative deviation in wall thickness ranging from 0.598% to 0.875% and one (1) test point had a positive deviation of 0.530%. The negative deviation currently indicates no significant change in pipe wall integrity.

D. Unload Piping

1. Attachments:
   Dwg. No. V6672D Rev. 1

2. Measurement Results:
   Refer to Table (6), "Client Field Test Data – Unload Piping", on page (22). There are a total of five (5) test points on the unload piping. Under "% Deviation from Published Thickness", four (4) test points had a negative deviation in wall thickness ranging from 0.297% to 9.941% and one (1) test point had a positive deviation of 0.964%. Under "% Deviation from Prior Year", three (3) test points had a negative deviation in wall thickness ranging from 0.220% to 0.979% and two (2) test points had a positive deviation ranging from 1.274% to 1.511%. The negative deviations currently indicate no significant change in pipe wall integrity.

E. Tank 1A

1. Attachments:
   Dwg. No. 99206 Rev. 4

2. Measurement Results:
   Refer to Table (7), "Client Field Test Data – Solvent Fuel Storage Tank 1A", on page (23). There are a total of thirteen (13) test points; six (6) on the bottom head, one (1) on the top head, and six (6) on the first shell. Under "% Deviation from Original Wall Thickness", all thirteen (13) points tested showed negative deviation as compared to the "Original Tank Wall Thickness", ranging from 11.133% to 50.600%. Four (4) points were in excess of 40%. One point on the first shell, point "M", was at an average of 0.181", or 0.031" above the permit limit of 0.150". Under "% Deviation from Prior Inspection", seven (7) test points showed a negative deviation ranging from 0.305% to 1.230% while the remaining six (6) test points had a positive deviation of 0.000% to 0.682%. Based upon these results, the rate of wall loss appears to have stabilized. None of the readings have fallen below the 0.150" minimum thickness allowed by the operating permit. Therefore, as of the time of testing and based on the field observations made, Tank 1A is suitable for continued service.

F. Tank 1B

1. Attachments:
   Dwg. No. 99206 Rev. 4

2. Measurement Results:
   Refer to Table (8), "Client Field Test Data – Solvent Fuel Storage Tank 1B", on page (24). There are a total of thirteen (13) test points; six (6) on the bottom head, one (1) on the top head, and six (6) on the first shell. Under "% Deviation from Original Wall Thickness", all thirteen (13) points tested showed a negative deviation as compared to the "Original Tank Wall Thickness", ranging from 0.480% to 49.800%. Four (4) points were in excess of 40%. One point on the first shell, point "M", was at an average of 0.180", or 0.030" above the permit limit of 0.150". Under "% Deviation from Prior Inspection", of the six (6) points on the bottom head and six (6) on the first shell, five (5) show a negative deviation ranging from 0.134% to 1.667%. None of the readings have fallen below the 0.150" minimum thickness allowed by the operating permit. Therefore, as of the time of testing and based on the field observations made, Tank 1B is suitable for continued service.

G. Tank 2

1. Attachments:
   Dwg. No. 99206 Rev. 4

2. Measurement Results:
   Refer to Table (9), "Client Field Test Data – Solvent Fuel Storage Tank 2", on page (25). There are a total of eight (8) test points on Tank 2; six (6) on the bottom head and two (2) on the first shell. Under "% Deviation From As-Built Wall Thickness", all eight (8) points tested showed a negative deviation ranging from 2.872% to 6.931% as compared to the "As-Built Tank Wall Thickness Measured 8/26/10". Under "% Deviation from Prior Year", two (2) points indicated a negative deviation ranging from 0.575% to 0.647%. These results indicate that no appreciable loss in wall thickness was found. Therefore, as of the time of testing and based on the field observations made, Tank 2 is suitable for continued service.

H. Tank 3

1. Attachments:
   Dwg. No. 99206 Rev. 4

2. Measurement Results:
   Refer to Table (10), "Client Field Test Data – Solvent Fuel Storage Tank 3", on page (26). There are a total of eight (8) test points on Tank 2; six (6) on the bottom head and two (2) on the first shell. Under "% Deviation from As-Built Wall Thickness", all eight (8) points tested showed a negative deviation ranging from 1.107% to 9.109% as compared to the "As-Built Tank Wall Thickness Measured 8/26/10". Under "% Deviation from Prior Year", two (2) points indicated a negative deviation ranging from 0.070% to 0.074%. These results indicate that no appreciable loss in wall thickness was found. Therefore, as of the time of testing and based on the field observations made, Tank 3 is suitable for continued service.

VI. Tank Secondary Containment Area Capacity Analysis & Structural Evaluation

A. Tank 1A & 1B Secondary Containment Area

1. Structural Evaluation:

A visual inspection was conducted of the secondary containment area's steel plate lining, foundation, and concrete block wall. At the time of the inspection, there appeared to be no so signs of cracking. The polyurea containment system added in 2017 appears to be in good condition with minor cracks which require routine repair. Additionally, the sump pump does not appear to be working, water build-up could potentially reduce containment capacity if multiple rainstorms happen in a short period of time. The sump pump requires repair. See Figure 1 below.

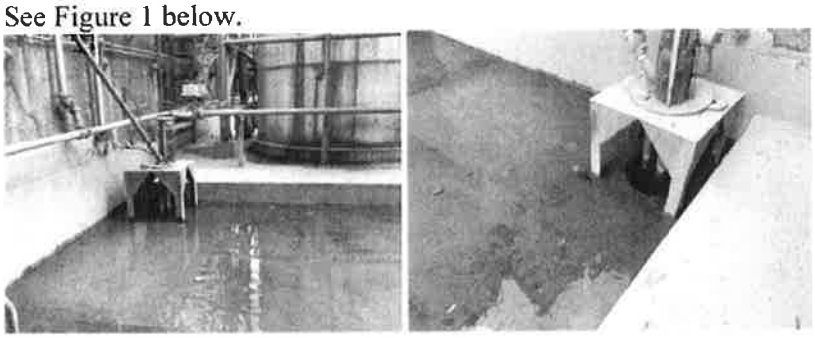

Figure 1 – Tank 1A & 1B containment area

B. Tank 2 & 3 Secondary Containment Area

1. Structural Evaluation:

During the 2017 calendar year a new polyurea containment system was installed onto the secondary containment area's foundation and walls and beneath the tanks by Secondary Containment Systems (SCS). This was done to meet maximum allowable permeability requirement.

A visual inspection was conducted of the secondary containment area's foundation and walls. At the time of the inspection of Tank 2 & 3 secondary containment area, the polyurea containment system appeared to be in good condition.

C. Waste Drum Storage Containment Area

1. Structural Evaluation:

A visual inspection was performed on the Waste Drum Storage Containment Area. The containment area was relined at the beginning of November 2019. At the time of inspection, there were a few cracks and areas of peeling that are in need of repair. Repair of cracks and sealing of the surface is part of the regular maintenance of the waste drum storage containment area. From our observations, the waste drum storage containment area requires minor maintenance. See Figure 2 below.

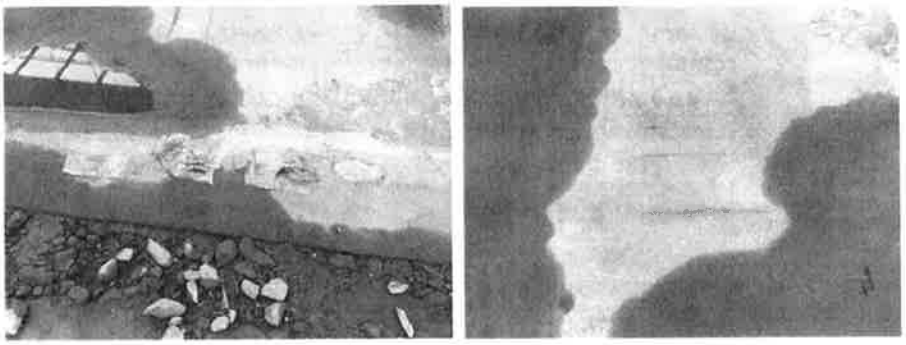

Figure 2 – Waste Drum Storage Containment

D. Truck Unloading Secondary Containment Area

1. Structural Evaluation:

The secondary containment slab is approximately 30 years old and needed repair after the 2016 inspection. During the 2017 calendar year, Secondary Containment Solutions (SCS) installed a polyurea coating on top of the existing containment slab. This was done to meet maximum allowable permeability requirement. At the beginning of November 2019, Secondary Containment Solutions (SCS) replaced the polyurea coating from 2017 and repairs were made to the concrete underneath.

A visual inspection was performed on the Truck Unloading Secondary Containment Area. At the time of the inspection there were numerous cracks in need of repair on the polyurea coating. These areas need to be cleaned and repaired. Repair of cracks and sealing of the surface is part of the regular maintenance of the secondary containment area. From our observations, the truck unloading containment area requires minor maintenance.

It was also observed that some areas did not adhere completely to the slab and created an air void between the slab and coating. According to SCS, in their proposal dated November 4, 2016, "Some areas can have moisture within the substrate that can cause minor adhesion loss. However, the performance of the system is not compromised under these conditions and containment is still upheld."

VII. Ventilation and Vapor Recovery/Balance Component Inspection

A. Tank 1A

1. Bi-directional Detonation Flame Arrester (Protectoseal C25006, 6")
   The arrester was disassembled, cleaned using high pressure nitrogen and absorbent towels, inspected, and placed back into service on November 16, 2022, by Brandon Kline, Robert Clark, and Josh Cygan. The visual inspection was performed using background lighting through the arrester element as per the manufacturer's published recommendations. The element was clear and free of dirt with no obvious physical damage, the element housing was free of any noticeable damage or impairment, and the flanged element sealing surfaces appeared to be in good mechanical condition. Both flange gaskets for the flame arrester were replaced during re-installation.

2. Conservation Breather Vent (Protectoseal C18546D8, 6")
   The C/B vent was disassembled, cleaned using absorbent towels, inspected, and placed back into service on November 16, 2022, by Brandon Kline, Robert Clark, and Josh Cygan. As per the manufacturer's published recommendations, the vent's vacuum relief pallet was disassembled, and the inspection revealed that the Teflon sealing membrane had no obvious physical damage or wear. The pallet seat was free from any obvious physical damage or surface degradation, the counterweights were in good condition, and the housing was free of any obvious physical damage and appeared to be in good condition.

3. Emergency Pressure Vent (Protectoseal C7810H, 10")
   The E/P vent was disassembled, cleaned using absorbent towels, inspected, and placed back into service November 16, 2022, by Brandon Kline, Robert Clark, and Josh Cygan. As per the manufacturer's published recommendations, the vent's pressure relief pallet was disassembled, and the inspection revealed minimal wear to the Teflon sealing membranes. The seal was put back in service. Additionally, the pallet seat was free from any obvious physical damage or surface degradation and appeared to be in good condition. The counterweights were in good condition, and the housing was free of any obvious physical damage and appeared to be in good condition.

B. Tank 1B

1. Bi-directional Detonation Flame Arrester (Protectoseal C25006, 6")
   The arrester was disassembled, cleaned using high pressure nitrogen and absorbent towels, inspected, and placed back into service on November 16, 2022, by Brandon Kline, Robert Clark, and Josh Cygan. The visual inspection was performed using background lighting through the arrester element as per the manufacturer's published recommendations. The element was clear and free of dirt with no obvious physical damage, the element housing was free of any noticeable damage or impairment, and the flanged element sealing surfaces appeared to be in good mechanical condition. Both flange gaskets for the flame arrester were replaced.

2. Conservation Breather Vent (Protectoseal C18546D8, 6")
   The C/B vent was disassembled, cleaned using absorbent towels, inspected, and placed back into service on November 16, 2022, by Brandon Kline, Robert Clark, and Josh Cygan. As per the manufacturer's published recommendations, the vent's vacuum relief pallet was disassembled, and the inspection revealed that the Teflon sealing membrane had no obvious physical damage or wear. The pallet seat was free from any obvious physical damage or surface degradation, the counterweights were in good condition, and the housing was free of any obvious physical damage and appeared to be in good condition.

3. Emergency Pressure Vent (Protectoseal C7810H, 10")
   The E/P vent was disassembled, cleaned using absorbent towels, inspected, and placed back into service on November 16, 2022, by Brandon Kline, Robert Clark, and Josh Cygan. As per the manufacturer's published recommendations, the pressure relief pallet was disassembled, and the inspection revealed minimal wear to the Teflon sealing membranes. No other obvious physical damage or surface degradation was observed, and all appeared to be in good condition. The counterweights and housing were also free of any obvious physical damage and appeared to be in good condition.

C. Tank 2

1. Bi-directional Detonation Flame Arrester (Protectoseal C25006, 6")
   The arrester was disassembled, cleaned using high pressure nitrogen and absorbent towels, inspected, and placed back into service on November 16, 2022, by Brandon Kline, Robert Clark, and Josh Cygan. The visual inspection was performed using background lighting through the arrester element as per the manufacturer's published recommendations. The element was clear and free of dirt with no obvious physical damage, the element housing was free of any noticeable damage or impairment, and the flanged element sealing surfaces

appeared to be in good mechanical condition. Both flange gaskets for the flame arrester were replaced.

2. Conservation Breather Vent. (Protectoseal C18546D8, 6")
   The C/B vent was disassembled, cleaned using absorbent towels, inspected, and placed back into service on November 16, 2022, by Brandon Kline, Robert Clark, and Josh Cygan. As per the manufacturer's published recommendations, the vent's vacuum relief pallet was disassembled, and the inspection revealed that the Teflon sealing membrane had no obvious physical damage or wear. The pallet seat was free from any obvious physical damage or surface degradation, the counterweights were in good condition, and the housing was free of any obvious physical damage and appeared to be in good condition.

3. Emergency Pressure Vent. (Protectoseal C7812H, 12")
   The E/P vent was disassembled, cleaned using absorbent towels, inspected, and placed back into service on November 16, 2022, by Brandon Kline, Robert Clark, and Josh Cygan. As per the manufacturer's published recommendations, the vent's pressure relief pallet was disassembled, and the inspection revealed that there was minimal wear to the Teflon sealing membranes. Additionally, the pallet seat was free from any obvious physical damage or surface degradation and appeared to be in good condition, the counterweights were in good condition, and the housing was free of any obvious physical damage and appeared to be in good condition.

D. Tank 3

1. Bi-directional Detonation Flame Arrester. (Protectoseal C25006, 6")
   The arrester was disassembled, cleaned using high pressure nitrogen and absorbent towels, inspected, and placed back into service on November 16, 2022, by Brandon Kline, Robert Clark, and Josh Cygan. The visual inspection was performed using background lighting through the arrester element as per the manufacturer's published recommendations. The element was clear and free of dirt with no obvious physical damage, the element housing was free of any noticeable damage or impairment, and the flanged element sealing surfaces appeared to be in good mechanical condition. Both flange gaskets for the flame arrester were replaced.

2. Conservation Breather Vent. (Protectoseal C18546D8, 6")
   The C/B vent was disassembled, cleaned using absorbent towels, inspected, and placed back into service on November 16, 2022, by Brandon Kline, Robert Clark, and Josh Cygan. As per the manufacturer's published recommendations, the vent's vacuum relief pallet was disassembled, and the inspection revealed that the Teflon sealing membrane had no obvious physical damage or wear. The pallet seat was free from any obvious physical damage or surface

degradation, the counterweights were in good condition, the housing was free of any obvious physical damage and appeared to be in good condition.

3. Emergency Pressure Vent (Protectoseal C7812H, 12")
   The E/P vent was disassembled, cleaned using absorbent towels, inspected, and placed back into service on November 16, 2022, by Brandon Kline, Robert Clark, and Josh Cygan. As per the manufacturer's published recommendations, the vent's pressure relief pallet was disassembled, and the inspection revealed that the Teflon sealing membrane had no obvious physical damage or wear. The pallet seat was free from any obvious physical damage or surface degradation, the counterweights were in good condition, and the housing was free of any obvious physical damage and appeared to be in good condition.

E. Vapor Recovery Piping at First Stage Carbon Filters

1. Bi-directional Detonation Flame Arresters (Groth Corp. #7618)
   The arresters (2) were disassembled, cleaned using high pressure nitrogen and absorbent towels, inspected, and placed back into service on November 16, 2022, by Brandon Kline, Robert Clark, and Josh Cygan. The visual inspection was performed using background lighting through the detonator elements as per the manufacturer's published recommendations. Both elements were clear and free of dirt with no obvious physical damage. The flanged unit sealing surfaces appeared to be in good mechanical condition. All gaskets were replaced.

2. Vacuum Relief Vent (Protectoseal C6242, 2")
   The vacuum relief vent was disassembled, cleaned using absorbent towels, inspected, and placed back into service on November 16, 2022, by Brandon Kline, Robert Clark, and Josh Cygan. As per the manufacturer's published recommendations, the vent's vacuum relief pallet was disassembled and inspected. The Teflon sealing membrane had no obvious physical damage or wear. The pallet seat was free from any obvious physical damage or surface degradation. The counterweights were in good condition.

3. Inline Pressure Relief Vent. (Protectoseal C17803D3, 3")
   The pressure relief vent was disassembled, cleaned using absorbent towels, inspected, and placed back into service on November 16, 2022, by Brandon Kline, Robert Clark, and Josh Cygan. As per the manufacturer's published recommendations, the vent's pressure relief pallet was disassembled and inspected. The Teflon sealing membrane had no obvious physical damage or wear. The pallet seat was free of any obvious physical damage or surface degradation. The counterweights were in good condition. The housing was free of any obvious physical damage and appeared to be in good condition.

F. Vapor Balance Piping at Unloading Stations

A. Bi-directional Detonation Flame Arresters (Protectoseal C26004, 4")

The arresters (2) were disassembled, cleaned using high pressure nitrogen and absorbent towels, inspected, and placed back into service on November 17, 2022, by Brandon Kline, Robert Clark, and Josh Cygan. The visual inspection was performed using background lighting through the detonator element, as per the manufacturer's published recommendations. The element housings were free of any noticeable damage or impairment. The flanged element sealing surfaces appeared to be in good mechanical condition. The flange gaskets on both units were replaced.

The condition of both arrester elements is always of concern as a reduction in element face-area can severely reduce the elements' ability to stop and quench a high-speed flame front, occurring within the tanker side vapor pipe. The history of our inspection findings suggests that some of the vapors that these devices are exposed to can carry a great deal of solid pollutants which tend to block up the arrester elements. In lieu of this, it is our recommendation that these elements are inspected at (6) month intervals, rather than annually and cleaned with steam once per year.

The above is assuming the flame arresters are still in use. It is to our knowledge the vapor balance piping at the unloading stations is no longer used. If in use, we still recommend checking every (6) months, if not, yearly inspections can continue until they are officially decommissioned.

VIII. Conclusions/Comments

A. Based on field inspections, all bi-directional detonation flame arresters, vacuum relief vents, and inline pressure relief vents are adequate for continued service.

B. The rate of tank plate thickness loss seen in both tanks 1A and 1B appeared to have increased during the 2019 – 2020 calendar year but has since stabilized. Due to the system being brought back into service during the 2016/2017 calendar year we suggest a spot check on the tanks every six (6) months to ensure that the tanks still meet the required permit wall thickness of 0.150".

C. Maintenance is required on the polyurea surfaces of the truck unloading area, tank 1A & 1B containment area, and the waste drum storage containment area as described in the report.

D. The flame arresters located on the tanker side of the vapor recovery line have not been in use over the last few years. It is our recommendation that the arresters be taken out of commission and off the inspection list pending approval by the environmental division at Keystone.

E. Within the solvent area there are many shrubs and leaf producing trees growing (combustible material). For safety/fire concerns, we suggest all shrubs, plants, and trees be removed.

F. The agitator seal at the top of tank 1A appears to have a slight leak. Solvent fumes can be smelled when working near the agitator. We recommend repairing or replacing the seal to prevent the discharge of solvent fumes.

G. The sump pump in the containment area of tank 1A & 1B either does not appear to be functional. We recommend repairing or replacing the pump/motor to ensure the water does not get to a level which compromises the containment capacity.

Table (1): Tanks 1A & 1B Supply Piping

PANY & LENTZ ENGINEERING CO.

Tanks 1A & 1B Supply Piping

Client: Keystone Cement	Job #:2022384	Item Tested: Solvent Fuel Supply Piping
Date: 11/21/22	Inspector(s): RBC & JRC	Test Performed: Pipe Wall Thickness Measurement

"S" Test Points	Pipe Size/Schedule	Measured Data (in.)						Data Average	Published Pipe Schedule Wall Thickness (in.)	+/- Deviation From Published Thickness (in.)	% Deviation From Published Thickness	Prior Year's Measurements (in.)	+/- Deviation From Prior Year (in.)	% Deviation From Prior Year
		1	2	3	4	5	6							
SAB1*	3"/80	0.197	0.196	0.196	0.196			0.196	0.300	-0.104	-34.583	0.198	-0.002	-0.884
SAB2*	3"/80	0.185	0.182	0.182	0.182			0.183	0.300	-0.117	-39.083	0.185	-0.002	-1.216
SAB3*	3"/80	0.210	0.209	0.209	0.208			0.209	0.300	-0.091	-30.333	0.210	-0.001	-0.476
SAB4	3"/160	0.368	0.366	0.366	0.367			0.367	0.438	-0.071	-16.267	0.371	-0.004	-1.146
SAB5	3"/160	0.387	0.389	0.387	0.389			0.388	0.438	-0.050	-11.416	0.392	-0.004	-1.020
SAB6	3"/160	0.387	0.388	0.388	0.388			0.388	0.438	-0.050	-11.473	0.387	0.001	0.194
SAB7	3"/160	0.403	0.407	0.401	0.403			0.404	0.438	-0.035	-7.877	0.408	-0.004	-1.103
SAB8	3"/160	0.370	0.372	0.373	0.373			0.372	0.438	-0.066	-15.068	0.374	-0.002	-0.535
SAB9•	3"/160	0.413	0.415	0.415	0.416			0.415	0.438	-0.023	-5.308	0.420	-0.005	-1.250
SAB10	3"/160	0.361	0.357	0.360	0.361			0.360	0.438	-0.078	-17.865	0.365	-0.005	-1.438
SAB11	3"/160	0.390	0.386	0.388	0.387			0.388	0.438	-0.050	-11.473	0.385	0.003	0.714
SAB12	3"/160	0.392	0.392	0.395	0.396			0.394	0.438	-0.044	-10.103	0.396	-0.002	-0.568
SAB13	3"/160	0.397	0.397	0.397	0.398			0.397	0.438	-0.041	-9.304	0.403	-0.006	-1.427
SAB14	2 1/2"/80	0.216	0.217	0.217	0.217			0.217	0.276	-0.059	-21.467	0.219	-0.002	-1.027

* Indicates piping which was NOT replaced in 2010.

• New point - piping replaced in 2012

Table (2): Tanks 2 & 3 Supply Piping

PANY & LENTZ ENGINEERING CO.

Tanks 2 & 3 Supply Piping

Client: Keystone Cement	Job #: 2022384	Item Tested: Solvent Fuel Supply Piping
Date: 11/21/22	Inspector(s): RBC & JRC	Test Performed: Pipe Wall Thickness Measurement

"S" Test Points	Pipe Size/Schedule	Measured Data (in.)						Data Average	Published Pipe Schedule Wall Thickness (in.)	+/- Deviation From Published Thickness (in.)	% Deviation From Published Thickness	Prior Year's Measurements (in.)	+/- Deviation From Prior Year (in.)	% Deviation From Prior Year
		1	2	3	4	5	6							
S231	3"/160	0.381	0.386	0.383	0.385			0.384	0.438	-0.054	-12.386	0.387	-0.003	-0.840
S232	3"/160	0.380	0.384	0.385	0.384			0.383	0.438	-0.055	-12.500	0.391	-0.008	-1.982
S233	3"/160	0.383	0.385	0.384	0.386			0.385	0.438	-0.053	-12.215	0.391	-0.006	-1.662
S234	4"/160	0.495	0.484	0.485	0.487			0.488	0.531	-0.043	-8.145	0.465	0.023	4.892
S235	4"/160	0.481	0.482	0.481	0.480			0.481	0.531	-0.050	-9.416	0.484	-0.003	-0.620
S236	4"/160	0.472	0.473	0.473	0.474			0.473	0.531	-0.058	-10.923	0.479	-0.006	-1.253
S237	4"/160	0.471	0.470	0.469	0.471			0.470	0.531	-0.061	-11.441	0.472	-0.002	-0.371
S238	4"/160	0.515	0.514	0.512	0.514			0.514	0.531	-0.017	-3.249	0.514	0.000	-0.049
S239	4"/160	0.489	0.486	0.487	0.488			0.488	0.531	-0.044	-8.192	0.488	-0.001	-0.102
S2310	4"/160	0.491	0.493	0.493	0.494			0.493	0.531	-0.038	-7.203	0.493	0.000	-0.051
S2311	4"/160	0.531	0.533	0.529	0.533			0.532	0.531	0.000	0.094	0.533	-0.002	-0.281
S2312	4"/160	0.506	0.504	0.503	0.504			0.504	0.531	-0.027	-5.038	0.506	-0.002	-0.346
S2313	4"/160	0.479	0.480	0.480	0.480			0.480	0.531	-0.051	-9.652	0.479	0.001	0.157
S2314	4"/160	0.514	0.513	0.510	0.513			0.513	0.531	-0.019	-3.484	0.511	0.002	0.294
S2315	4"/160	0.496	0.496	0.497	0.498			0.497	0.531	-0.034	-6.450	0.494	0.003	0.557
S2316	4"/160	0.534	0.533	0.532	0.532			0.533	0.531	0.002	0.330	0.531	0.002	0.330
S2317*	2 1/2"/80	0.255	0.258	0.257	0.256			0.257	0.276	-0.020	-7.065	0.261	-0.005	-1.724
S2318*	2 1/2"/80	0.201	0.204	0.200	0.200			0.201	0.276	-0.075	-27.083	0.206	-0.005	-2.306

* New point - piping replaced in 2012

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Table (3): Tanks 1A & 1B Return Piping

PANY & LENTZ ENGINEERING CO.

Tanks 1A & 1B Return Piping

Client: Keystone Cement	Job #:2022384	Item Tested: Solvent Fuel Return Piping
Date: 11/18/22	Inspector(s): RBC & JRC	Test Performed: Pipe Wall Thickness Measurement

"R" Test Points	Pipe Size/Schedule	Measured Data (in.)						Data Average	Published Pipe Schedule Wall Thickness (in.)	+/- Deviation From Published Thickness (in.)	% Deviation From Published Thickness	Prior Year's Measurements (in.)	+/- Deviation From Prior Year (in.)	% Deviation From Prior Year
		1	2	3	4	5	6							
RAB1	3"/160	0.412	0.411	0.414	0.411			0.412	0.438	-0.026	-5.936	0.414	-0.002	-0.483
RAB2	3"/160	0.410	0.404	0.412	0.412			0.410	0.438	-0.029	-6.507	0.415	-0.005	-1.325
RAB3	3"/160	0.407	0.403	0.403	0.404			0.404	0.438	-0.034	-7.705	0.404	0.000	0.052
RAB4	3"/160	0.390	0.388	0.388	0.389			0.389	0.438	-0.049	-11.244	0.386	0.003	0.712
RAB5	3"/160	0.385	0.382	0.382	0.380			0.382	0.438	-0.056	-12.728	0.390	-0.008	-1.987
RAB6	3"/160	0.411	0.412	0.411	0.410			0.411	0.438	-0.027	-6.164	0.415	-0.004	-0.964
RAB7	2 1/2"/80	0.227	0.226	0.226	0.225			0.226	0.276	-0.050	-18.116	0.235	-0.009	-3.830
RAB8*	3"/160	0.402	0.402	0.402	0.402			0.402	0.438	-0.036	-8.219	0.415	-0.013	-3.133

* New point added due to piping changes

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Table (4): Tanks 2 & 3 Return Piping

PANY & LENTZ ENGINEERING CO.

Tanks 2 & 3 Return Piping

Client: Keystone Cement	Job #: 2022384	Item Tested: Solvent Fuel Return Piping
Date 11/21/22	Inspector(s): RBC & JRC	Test Performed: Pipe Wall Thickness Measurement

"R" Test Points	Pipe Size/Schedule	Measured Data (in.)						Data Average	Published Pipe Schedule Wall Thickness (in.)	+/- Deviation From Published Thickness (in.)	% Deviation From Published Thickness	Prior Year's Measurements (in.)	+/- Deviation From Prior Year (in.)	% Deviation From Prior Year
		1	2	3	4	5	6							
R231	3"/160	0.394	0.393	0.393	0.394			0.394	0.438	-0.044	-10.160	0.399	-0.005	-1.378
R232^	3"/160	0.418	0.418	0.421	0.418			0.419	0.438	-0.019	-4.395	0.424	-0.005	-1.238
R233	3"/160	0.410	0.409	0.408	0.409			0.409	0.438	-0.029	-6.621	0.410	-0.001	-0.244
R234	3"/160	0.401	0.402	0.401	0.402			0.402	0.438	-0.036	-8.333	0.403	-0.001	-0.372
R235	3"/160	0.420	0.421	0.421	0.421			0.421	0.438	-0.017	-3.938	0.422	-0.001	-0.296
R236	3"/160	0.409	0.407	0.410	0.409			0.409	0.438	-0.029	-6.678	0.412	-0.003	-0.789
R237	3"/160	0.406	0.404	0.404	0.405			0.405	0.438	-0.033	-7.591	0.404	0.001	0.186
R238	3"/160	0.406	0.402	0.405	0.398			0.403	0.438	-0.035	-8.048	0.404	-0.001	-0.309
R239	3"/160	0.409	0.406	0.406	0.407			0.407	0.438	-0.031	-7.078	0.409	-0.002	-0.489
R2310	3"/160	0.406	0.406	0.407	0.404			0.406	0.438	-0.032	-7.363	0.411	-0.005	-1.277
R2311	3"/160	0.406	0.407	0.405	0.404			0.406	0.438	-0.033	-7.420	0.413	-0.008	-1.816
R2312	2 1/2"/80	0.263	0.262	0.262	0.263			0.263	0.276	-0.014	-4.891	0.268	-0.006	-2.052
R2313*	3"/160	0.380	0.379	0.379	0.381			0.380	0.438	-0.058	-13.299	0.386	-0.006	-1.619

* New point added due to piping changes

^ Point Relocated Due to Piping Changes

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Table (5): Client Field Test Data -Vapor Recovery

PANY & LENTZ ENGINEERING CO.														
Client Field Test Data														
Client: Keystone Cement					Job #:2022384				Item Tested: Vapor Recovery Piping					
Date: 11/19/22					Inspector(s): RBC & JRC				Test Performed: Pipe Wall Thickness Measurement					
"V" Test Points	Pipe Size/Schedule	Measured Data (in.)						Data Average	Published Pipe Schedule Wall Thickness (in.)	+/- Deviation From Published Thickness (in.)	% Deviation From Published Thickness	Prior Year's Measurements (in.)	+/- Deviation From Prior Year (in.)	% Deviation From Prior Year
		1	2	3	4	5	6							
V1	10" / 40	0.331	0.332	0.332	0.332			0.332	0.365	-0.033	-9.110	0.330	0.002	0.530
V201	8" / 40	0.257	0.254	0.254	0.254			0.255	0.322	-0.067	-20.885	0.257	-0.002	-0.875
V3	6" / 40	0.222	0.219	0.222	0.219			0.221	0.280	-0.060	-21.250	0.222	-0.002	-0.676
V4	6" / 40	0.250	0.250	0.249	0.249			0.250	0.280	-0.031	-10.893	0.251	-0.002	-0.598

Table (6): Client Field Test Data - Unload Piping

PANY & LENTZ ENGINEERING CO.														
Client Field Test Data														
Client: Keystone Cement					Job #: 2022384				Item Tested: Unload Piping					
Date: 11/18/22					Inspector(s): RBC & JRC				Test Performed: Pipe Wall Thickness Measurement					
		Measured Data (in.)												
"U" Test Points	Pipe Size/Schedule	1	2	3	4	5	6	Data Average	Published Pipe Schedule Wall Thickness (in.)	+/- Deviation From Published Thickness (in.)	% Deviation From Published Thickness	Prior Year's Measurements (in.)	+/- Deviation From Prior Year (in.)	% Deviation From Prior Year
1	4" / 80	0.341	0.341	0.339	0.340			0.340	0.337	0.003	0.964	0.341	-0.001	-0.220
2	4" / 80	0.337	0.336	0.337	0.334			0.336	0.337	-0.001	-0.297	0.331	0.005	1.511
3	4" / 80	0.305	0.303	0.303	0.303			0.304	0.337	-0.034	-9.941	0.305	-0.002	-0.492
4	4" / 80	0.318	0.319	0.317	0.318			0.318	0.337	-0.019	-5.638	0.314	0.004	1.274
5	4" / 80	0.329	0.329	0.328	0.329			0.329	0.337	-0.008	-2.448	0.332	-0.003	-0.979

Table (7): Client Field Test Data - Solvent Storage Tank 1A

PANY & LENTZ ENGINEERING CO.													
Client Field Test Data													
Client: Keystone Cement				Job: # 2022384						Item Tested: Solvent Fuel Storage Tank #1A			
Date: 11/17/22				Permitted Min. Wall Thk. = 0.150"				Inspector(s): RBC & JRC		Test Performed: Tank Wall Thickness Measurement			
Test Points	Measured Data (in.)						Data Average (in.)	Original Tank Wall Thickness (in.)	+/- Deviation From Original Wall Thickness (in.)	% Deviation From Original Wall Thickness	Prior Inspection's Measurements (in.)	+/- Deviation From Prior Inspection To Current Inspection (in.)	% Deviation From Prior Inspection To Current Inspection
	1	2	3	4	5	6							
A	0.319	0.316	0.317	0.319			0.318	0.3750	-0.057	-15.267	0.315	0.003	0.873
B	0.264	0.266	0.265	0.265			0.265	0.3750	-0.110	-29.333	0.263	0.002	0.760
C	0.189	0.190	0.190	0.190			0.190	0.3750	-0.185	-49.400	0.191	-0.001	-0.654
D	0.187	0.183	0.185	0.186			0.185	0.3750	-0.190	-50.600	0.187	-0.002	-0.936
E	0.275	0.274	0.273	0.272			0.274	0.3750	-0.102	-27.067	0.275	-0.002	-0.545
F	0.284	0.284	0.284	0.285			0.284	0.3750	-0.091	-24.200	0.287	-0.003	-0.958
G	0.246	0.247	0.244	0.244			0.245	0.3125	-0.067	-21.520	0.246	-0.001	-0.305
H	0.222	0.222	0.223	0.219			0.222	0.3125	-0.091	-29.120	0.220	0.002	0.682
M	0.180	0.181	0.180	0.182			0.181	0.3125	-0.132	-42.160	0.183	-0.002	-1.230
N	0.183	0.183	0.183	0.183			0.183	0.3125	-0.130	-41.440	0.183	0.000	0.000
O	0.190	0.190	0.189	0.191			0.190	0.3125	-0.123	-39.200	0.190	0.000	0.000
P	0.188	0.188	0.187	0.188			0.188	0.3125	-0.125	-39.920	0.189	-0.001	-0.661
T1AFS	0.346	0.339	0.317	0.331			0.333	0.3750	-0.042	-11.133	0.327	0.006	1.911

Table (8): Client Field Test Data - Solvent Storage Tank 1B

PANY & LENTZ ENGINEERING CO.

Client Field Test Data

Client: Keystone Cement	Job #: 2022384	Item Tested: Solvent Fuel Storage Tank #1B
Date: 11/17/22	Permitted Min. Wall Thk. = 0.150"	Inspector(s): RBC & JRC
		Test Performed: Tank Wall Thickness Measurement

Test Points	Measured Data (in.) 1	2	3	4	5	6	Data Average (in.)	Original Tank Wall Thickness (in.)	+/- Deviation From Original Wall Thickness (in.)	% Deviation From Original Wall Thickness	Prior Inspection's Measurements (in.)	+/- Deviation From Prior Inspection To Current Inspection (in.)	% Deviation From Prior Inspection To Current Inspection
Q	0.220	0.221	0.223	0.221			0.221	0.3125	-0.091	-29.200	0.225	-0.004	-1.667
R	0.311	0.311	0.311	0.311			0.311	0.3125	-0.002	-0.480	0.313	-0.002	-0.639
S	0.253	0.256	0.254	0.254			0.254	0.3750	-0.121	-32.200	0.254	0.000	0.098
T	0.265	0.266	0.269	0.269			0.267	0.3750	-0.108	-28.733	0.268	-0.001	-0.280
V	0.189	0.189	0.187	0.188			0.188	0.3750	-0.187	-49.800	0.190	-0.002	-0.921
X	0.192	0.191	0.191	0.191			0.191	0.3750	-0.184	-49.000	0.191	0.000	0.131
Y	0.302	0.304	0.306	0.300			0.303	0.3750	-0.072	-19.200	0.300	0.003	1.000
Z	0.318	0.319	0.319	0.320			0.319	0.3750	-0.056	-14.933	0.320	-0.001	-0.313
J	0.189	0.190	0.190	0.191			0.190	0.3125	-0.123	-39.200	0.188	0.002	1.064
K	0.184	0.186	0.186	0.187			0.186	0.3125	-0.127	-40.560	0.186	0.000	-0.134
L	0.187	0.188	0.191	0.190			0.189	0.3125	-0.124	-39.520	0.189	0.000	0.000
M	0.179	0.181	0.180	0.180			0.180	0.3125	-0.133	-42.400	0.182	-0.002	-1.099
T1BFS	0.335	0.332	0.321	0.322			0.328	0.3750	-0.048	-12.867	0.321	0.007	2.025

Table (9): Client Field Test Data - Solvent Storage Tank 2

PANY & LENTZ ENGINEERING CO.													
Client Field Test Data													
Client: Keystone Cement				Job #: 2022384						Item Tested: Solvent Fuel Storage Tank #2			
Date: 11/17/22				Permitted Min. Wall Thk. = .1575"				Inspector(s): RBC & JRC		Test Performed: Tank Wall Thickness Measurement			
Test Points	Measured Data (in.)						Data Average (in.)	As-Built Tank Wall Thickness Measured 8/26/2010 (in.)	+/- Deviation From As-Built Wall Thickness (in.)	% Deviation From As-Built Wall Thickness	Prior Year's Measurements (in.)	+/- Deviation From Prior Year To Current Year (In.)	% Deviation From Prior Year To Current Year
	1	2	3	4	5	6							
A	0.693	0.694	0.695	0.694			0.694	0.735	-0.041	-5.514	0.694	0.000	0.000
B	0.673	0.676	0.673	0.673			0.674	0.715	-0.041	-5.703	0.672	0.002	0.260
C	0.681	0.681	0.682	0.680			0.681	0.702	-0.021	-3.026	0.680	0.001	0.147
D	0.683	0.688	0.685	0.683			0.685	0.705	-0.020	-2.872	0.679	0.006	0.847
E	0.681	0.679	0.681	0.678			0.680	0.716	-0.037	-5.096	0.676	0.004	0.555
F	0.703	0.704	0.703	0.706			0.704	0.741	-0.037	-5.025	0.703	0.001	0.142
G	0.346	0.346	0.346	0.346			0.346	0.369	-0.023	-6.106	0.348	-0.002	-0.575
H	0.346	0.345	0.345	0.347			0.346	0.372	-0.026	-6.931	0.348	-0.002	-0.647

Table (10): Client Field Test Data - Solvent Storage Tank 3

PANY & LENTZ ENGINEERING CO.													
Client Field Test Data													
Client: Keystone Cement				Job #: 2022384						Item Tested: Solvent Fuel Storage Tank #3			
Date:11/17/22				Permitted Min. Wall Thk. = .1875"				Inspector(s): RBC & JRC		Test Performed: Tank Wall Thickness Measurement			
Test Points	Measured Data (in.)						Data Average (in.)	As-Built Tank Wall Thickness Measured 8/26/2010 (in.)	+/- Deviation From As-Built Wall Thickness (in.)	% Deviation From As-Built Wall Thickness	Prior Year's Measurements (in.)	+/- Deviation From Prior Year To Current Year (in.)	% Deviation From Prior Year To Current Year
	1	2	3	4	5	6							
A	0.718	0.720	0.721	0.720			0.720	0.757	-0.038	-4.952	0.717	0.003	0.384
B	0.698	0.697	0.695	0.695			0.696	0.731	-0.035	-4.786	0.693	0.003	0.469
C	0.716	0.718	0.714	0.710			0.715	0.723	-0.008	-1.107	0.715	-0.001	-0.070
D	0.705	0.701	0.704	0.701			0.703	0.713	-0.010	-1.368	0.699	0.004	0.536
E	0.683	0.684	0.683	0.684			0.684	0.723	-0.039	-5.398	0.680	0.003	0.515
F	0.718	0.715	0.715	0.715			0.716	0.751	-0.035	-4.630	0.711	0.005	0.668
G	0.338	0.338	0.336	0.335			0.337	0.371	-0.034	-9.109	0.337	0.000	-0.074
H	0.341	0.338	0.338	0.338			0.339	0.371	-0.032	-8.631	0.338	0.001	0.222

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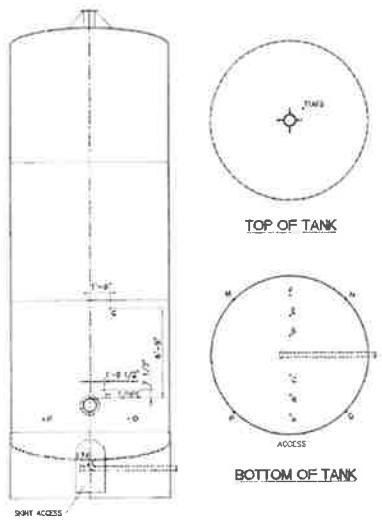
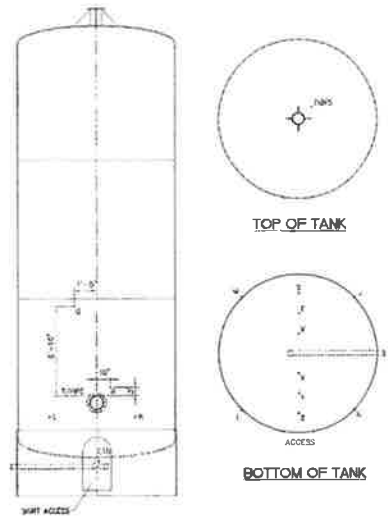
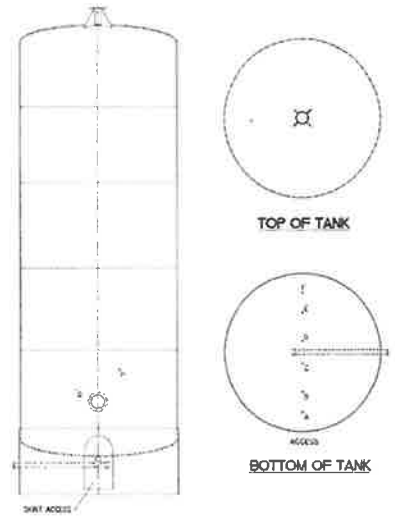


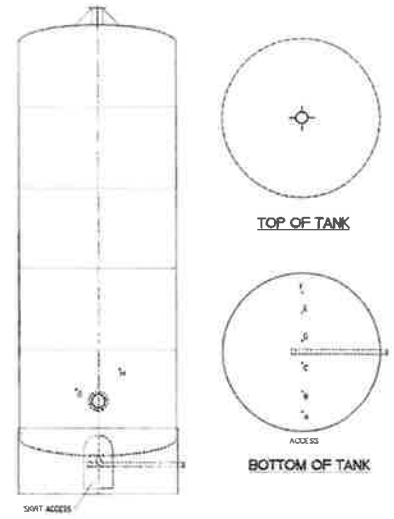
STORAGE TANK #1A
THICKNESS READING LOCATIONS



STORAGE TANK #1B
THICKNESS READING LOCATIONS



STORAGE TANK #2
THICKNESS READING LOCATIONS



STORAGE TANK #3
THICKNESS READING LOCATIONS

NO	REVISION	DATE	BY	CK
4	ADDED PTS. J-N TO 1A & M-P TO 1B	2/9/11	JL	
3	NEW POINTS ON TANKS 2 & 3	8/28/10	RBC	
2	ADDITIONAL TEST POINTS EACH TANK	6/7/09	RMC	
1	ADDITIONAL TEST POINTS TANK #2	10/8/08	LMJ	

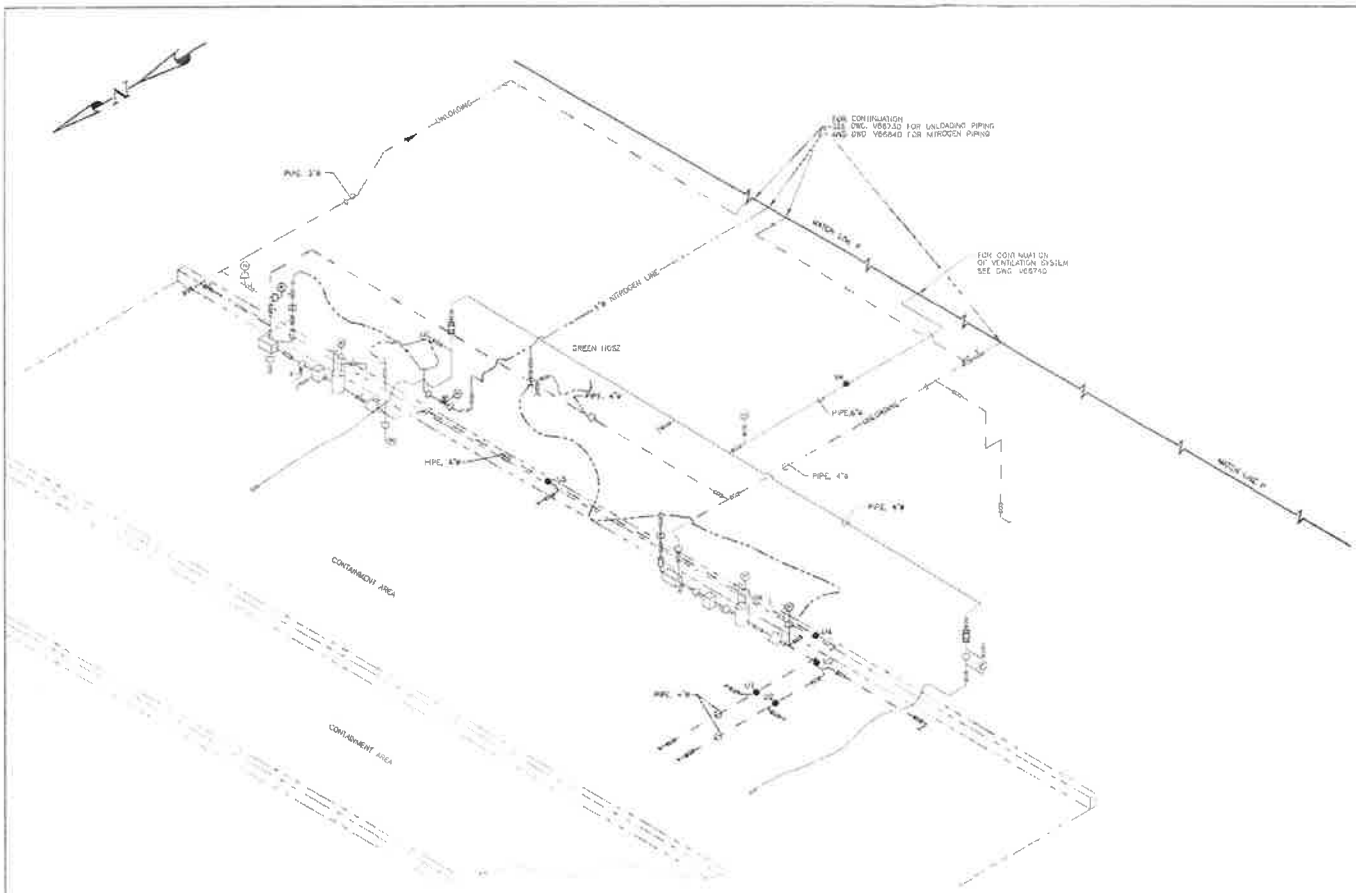
P&I DWG. NO.- 99206, SHT. 1 OF 1

DRAWN	CHECKED	DRAWING NUMBER	REVISION
LMW	JL		
DATE 12/16/99	DATE 12/17/99		
SCALE NONE			

TANKS 1A,1B,2 & 3
TEST POINT LOCATIONS

KEYSTONE

KEYSTONE CEMENT COMPANY
Bath, PA 18014-0058



LEGEND

UNLOADING

NITROGEN

VENTILATION

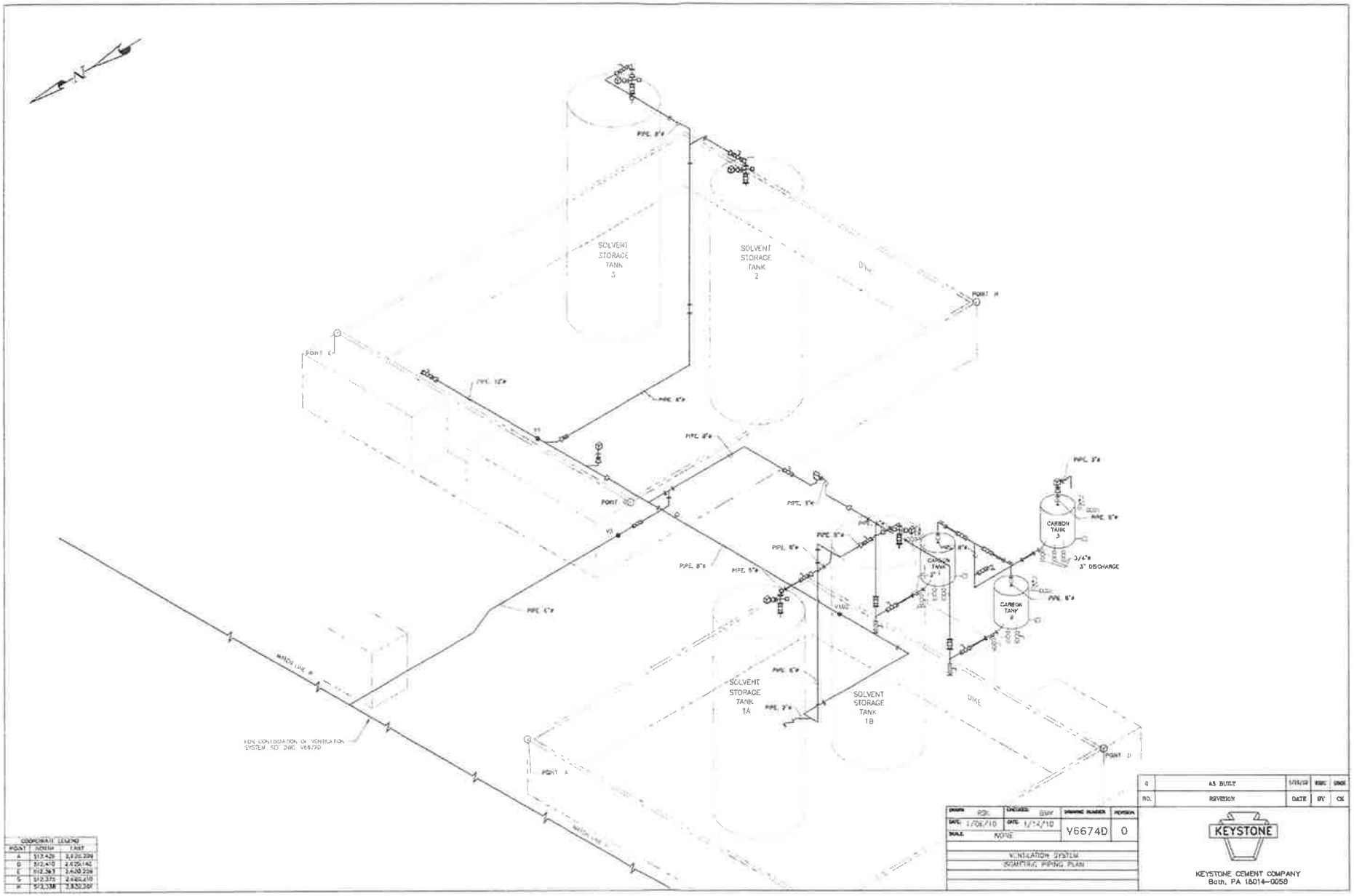
NO	REVISION	DATE	BY	CK
1	ADDED GROUND POINTS	12/4/12	LKJ	
0	AS BUILT	1/15/10	RDC	BMK

DRAWN: RDC	CHECKED: BMK	DRAWING NUMBER	REVISION
DATE: 1/06/10	DATE: 1/14/10	V6672D	1
SCALE: NONE			

UNLOADING, NITROGEN, AND
VENTILATION PIPING @ UNLOADING AREA
ISOMETRIC PIPING PLAN

KEYSTONE

KEYSTONE CEMENT COMPANY
Bath, PA 18014-0058



COORDINATE LOCATIONS		
POINT	NORTH	EAST
A	512,420	2,620,339
B	512,410	2,625,142
C	512,363	2,620,336
D	512,375	2,625,410
E	512,338	2,620,367

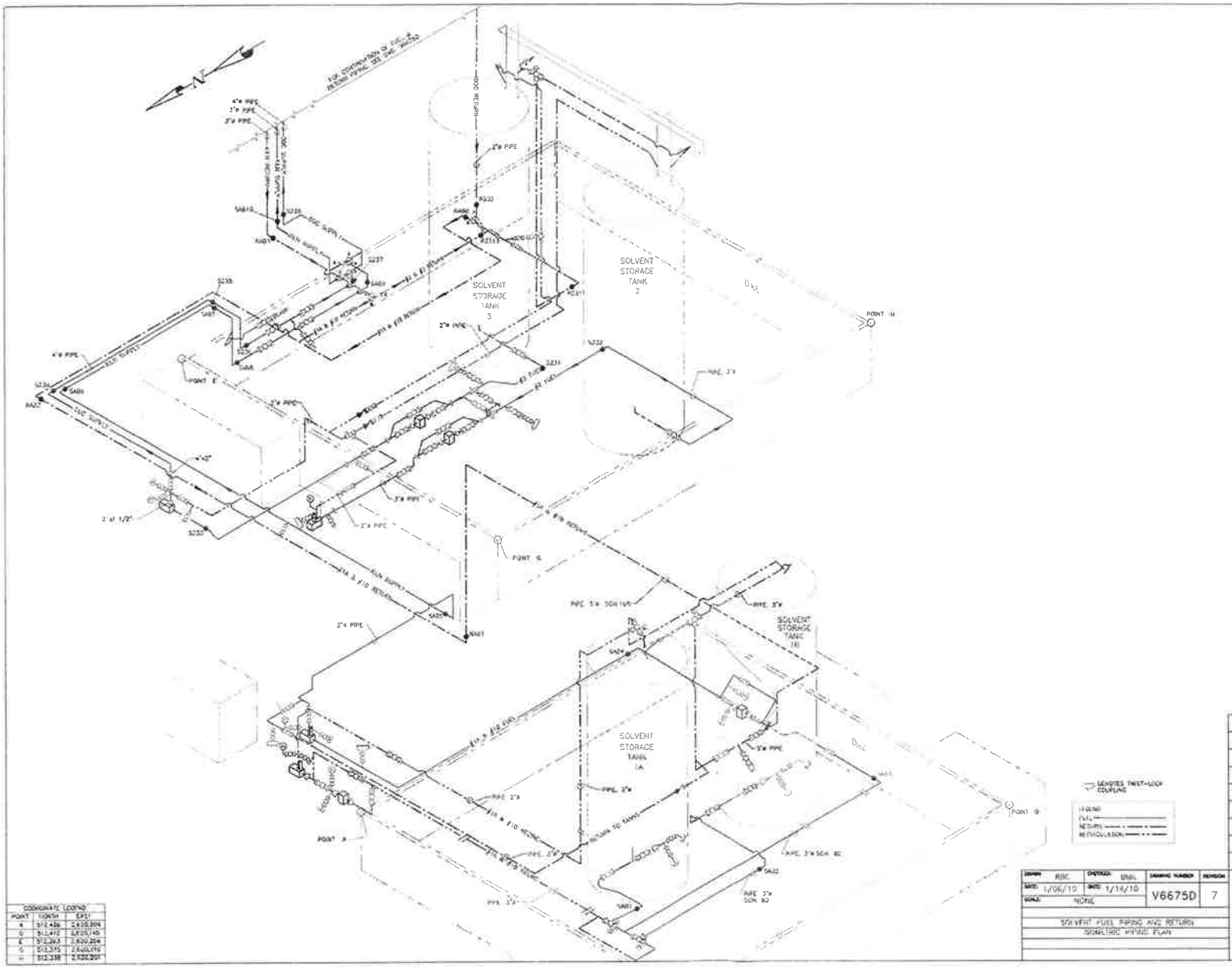
NO.	REVISION	DATE	BY	CK
0	AS BUILT	1/14/10	RBC	SNOK

DRAWN RGK	CHECKED GMK	DRAWING NUMBER	REVISION
DATE 1/06/10	DATE 1/14/10	V6674D	0
SCALE NONE			

VENTILATION SYSTEM
SCHEMATIC PIPING PLAN

KEYSTONE

KEYSTONE CEMENT COMPANY
Bath, PA 18014-0058



COORDINATE LOCATION		
POINT	NORTH	EAST
A	512,426	2,620,306
D	512,412	2,620,140
E	512,363	2,620,224
G	512,315	2,620,270
H	512,338	2,620,291

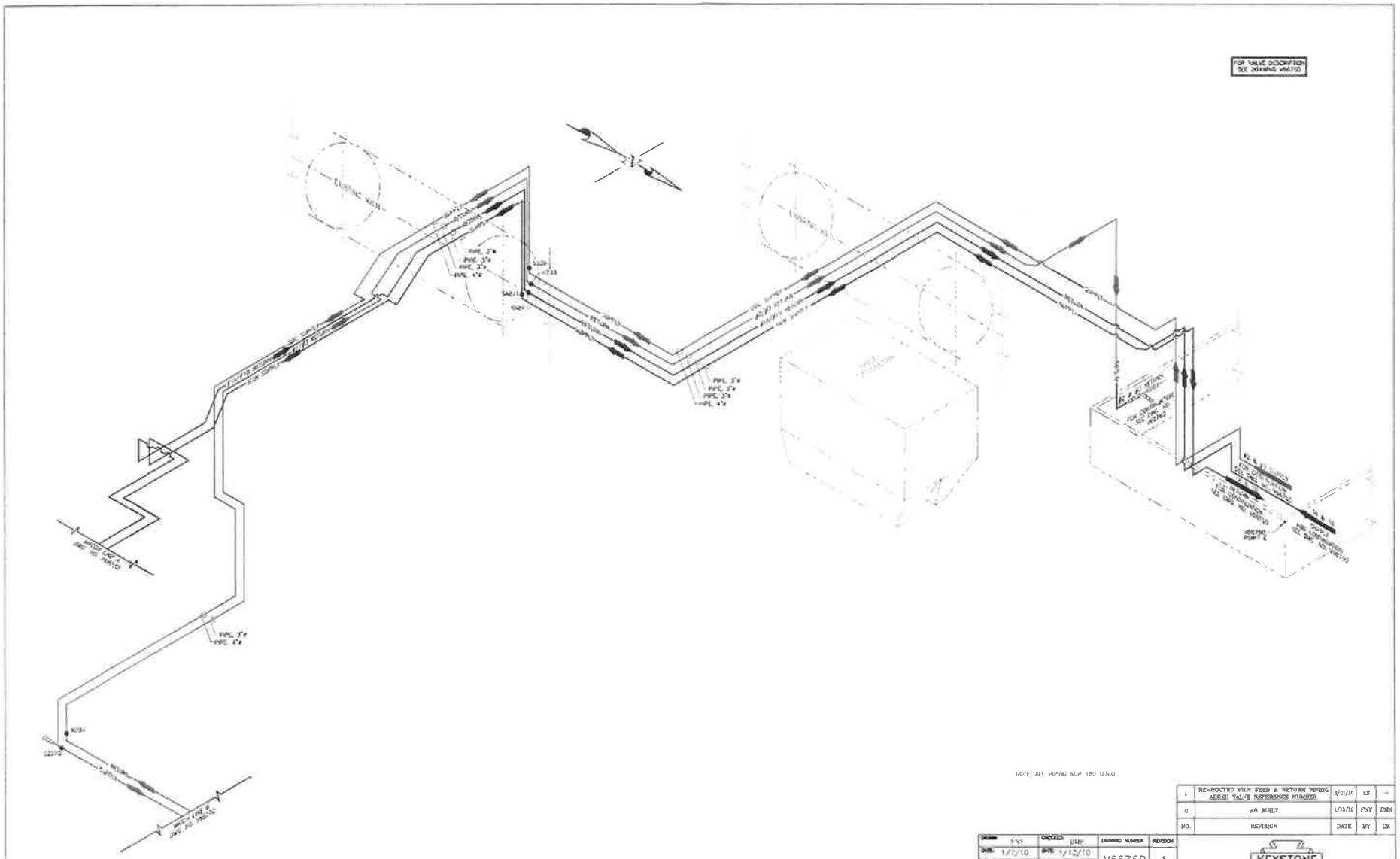
NO.	REVISION	DATE	BY	CK.
7	ADDED 3-WAY BALL VALVE BYPASSES	3/10/11	LMJ	-
6	ADDED RUPTURE DISC & RELATED PIPING	6/14/10	LS	-
5	ADDED ORIFICE BY-PASS PIPING & VALVE	4/26/10	LS	-
4	REVISED QUANTITY OF ITEM 7	4/26/10	LS	-
3	ADDED DIMENSIONS TO BYPASS	4/26/10	LS	-
2	GENERAL ADDED RECIRCULATION PIPING, COMPLETED DOC FEED & #2/#5 RETURN	3/25/10	LS	-
1	ADDED BYPASS	2/17/10	LS	-
0	AS BUILT	1/14/10	RBC	BMK

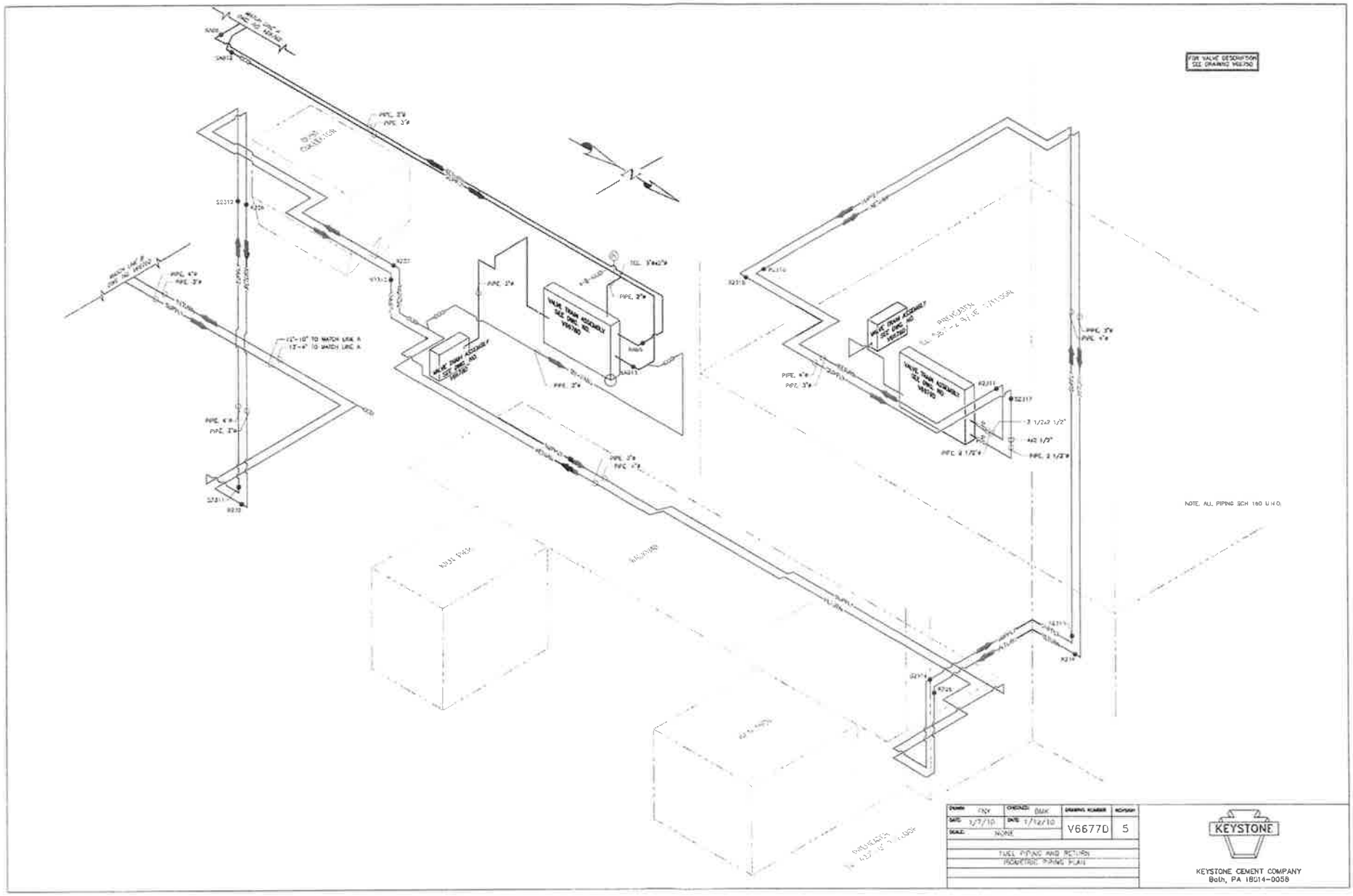
DRAWN: RBC	CHECKED: BMK	DRAWING NUMBER	REVISION
DATE: 1/06/10	DATE: 1/14/10	V6675D	7
SCALE: NONE			

SOLVENT FUEL PIPING AND RETURN
SCHEMATIC PIPING PLAN

KEYSTONE

KEYSTONE CEMENT COMPANY
Bath, PA 18014-0058


FOR VALVE DESCRIPTION
SEE DRAWING V6675D
PIPE 3"
PIPE 3"
PIPE 3"
PIPE 4"
PIPE 3"
PIPE 3"
PIPE 3"
PIPE 4"
PIPE 3"
PIPE 4"
RETURN
SUPPLY
RETURN
SUPPLY
RETURN
SUPPLY

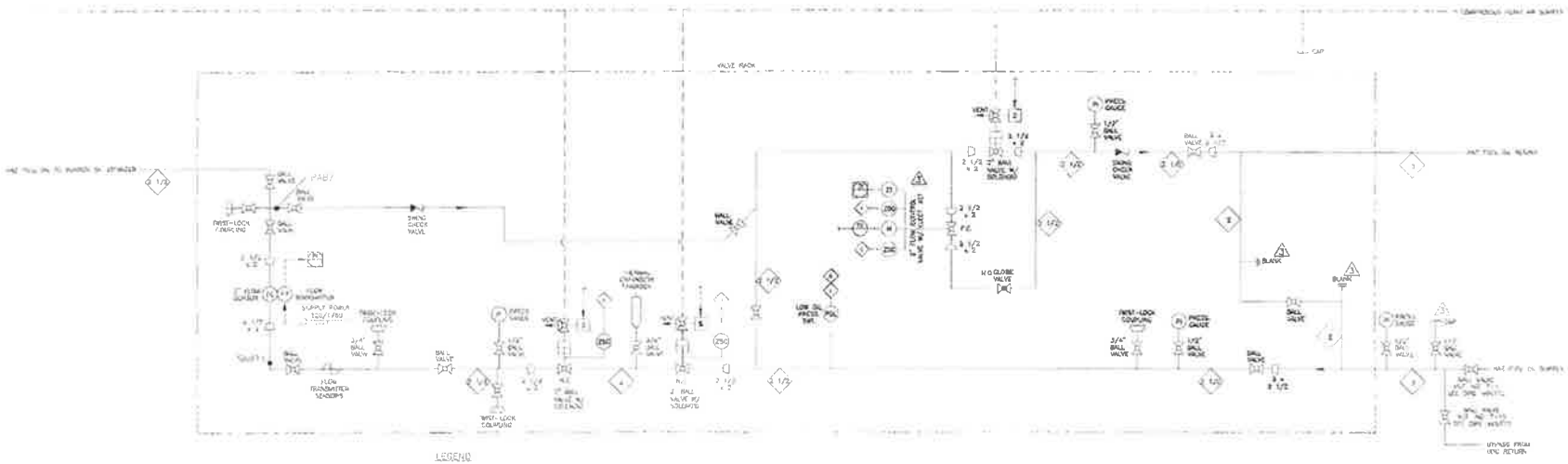


DRAWN	FNV	CHECKED	DMK	DRAWING NUMBER	REVISION
DATE	1/7/10	DATE	1/12/10	V6677D	5
SCALE	NONE				

FUEL PIPING AND RETURN
PROPRETIC PIPING PLAN

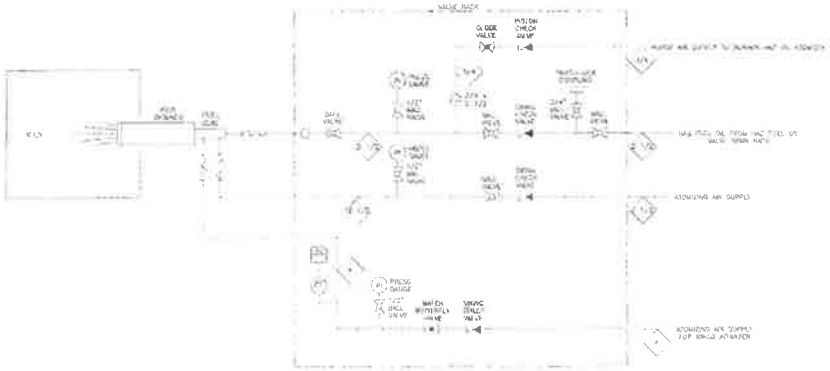
KEYSTONE

KEYSTONE CEMENT COMPANY
Bath, PA 18014-0058



LEGEND

HAZ FUEL OIL VALVE TRAIN FOR KILN BURNER
(MAIN RACK ALONG WEST SIDE OF BURNER FLOOR)



HAZ FUEL OIL VALVE TRAIN FOR KILN BURNER
(RACK NEAR KILN BURNER)

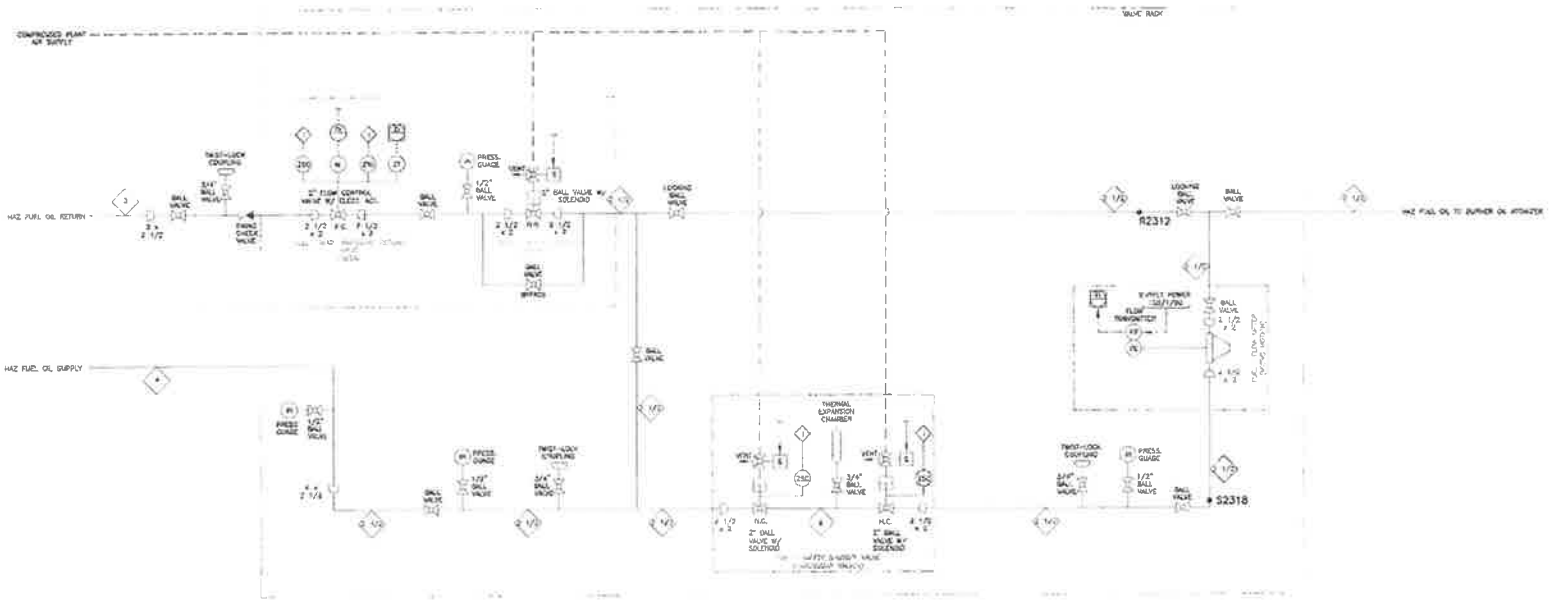
NO	REVISION	DATE	BY	CK
D	ADDED RACK MODIFICATIONS	3/8/11	LMJ	
C	ADDED RACK MODIFICATIONS	6/25/10	LD	
B	ADDED RACK MODIFICATIONS	8/10/10	BBC	
A	ADDED VALVES	4/14/10	LD	
1	ADDED RACK MODIFICATIONS	9/14/09	LD	
0	AS BUILT	1/12/09	LD	LDW

DRAWN LD	CHECKED LDW	DRAWING NUMBER	REVISION
DATE 1/21/08	DATE 1/12/09	V6678D	5
SCALE NONE			

HAZ FUEL OIL VALVE TRAIN FOR KILN BURNER

KEYSTONE

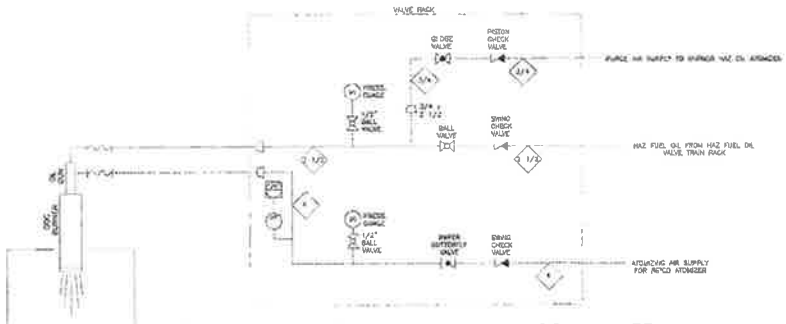
KEYSTONE CEMENT COMPANY
BATH, PA 18014-0006



LEGEND:

NC NORMAL CLOSED
NO NORMAL OPEN
FC FLOW CONTROL
1/2 DENOTES PIPE SIZE

HAZ FUEL OIL VALVE TRAIN FOR DDC BURNER
(MAIN RACK ALONG EAST SIDE OF PREHEATER TOWER)



HAZ FUEL OIL VALVE TRAIN FOR DDC BURNER
(RACK NEAR DDC BURNER)

NO	REVISION	DATE	BY	CK
5	ADDED RACK MODIFICATIONS	12/5/12	MSC	-
4	ADDED RACK MODIFICATIONS	2/18/11	LMJ	-
3	ADDED RACK MODIFICATIONS	1/26/11	LMJ	-
2	ADDED RACK MODIFICATIONS	11/30/10	LS	-
1	ADDED RACK MODIFICATIONS	4/8/10	LS	-
0	AS BUILT	1/11/10	LS	LBS

DRAWN	LS	CHECKED	LJS	DRAWING NUMBER	REVISION
DATE	1/11/10	DATE	1/13/10	V6679D	5
SCALE	NONE				

HAZ FUEL OIL VALVE TRAIN FOR DDC BURNER

KEYSTONE

KEYSTONE CEMENT COMPANY
Bath, PA 18014-0058

APPENDIX G
SCHEDULE

Appendix G

Schedule for Related Construction Activities Revised December 2022

This Appendix of the Part B Narrative for the permit renewal application summarizes the planned construction schedule milestones and sequence of events. The schedule includes requirements for notifications and submissions to PADEP prior to the initiation of the construction of the planned modifications, closure of existing hazardous waste units, and operation of new hazardous waste units. The targeted construction milestones are estimates and are subject to change. Keystone may decide to construct and begin operation of the Final Operating Scenario in phases instead of at the same time.

Targeted Construction Milestones

Target Date	Milestone
2nd Quarter 2025	Begin Construction of a Portion of the New Tank Farm (e.g., 2 or 3 tanks) and the Railcar Unloading Facility
1st Quarter 2026	Operate a Portion of the New Tank Farm (e.g., 2 or 3 tanks) and the Railcar Unloading Facility

Prior to Construction of Interim and Final Operating Scenarios

- Keystone shall notify PADEP at least 15 days prior to commencement of construction of a new or modified area of the facility. The notification shall include an estimated schedule of construction phases, construction inspections and/or completion date;
- Apply for and obtain a NPDES permit for construction and revised NPDES permit for permanent stormwater discharges (as necessary);
- Prepare an Erosion and Sedimentation (E&S)/Stormwater Management Plan and obtain an E&S Plan Certification from the Northampton County Conservation District (as necessary);
- Apply for and obtain a modification to the Air Quality Permit for construction of the new tanks and associated discharges.

Prior to Operation of Interim and Final Operating Scenarios

- Before operation of the new Combined HWMU, the following documents must be submitted to the PADEP, as necessary:
    - Preparedness, Prevention, and Contingency Plan,
    - Report on details relevant to the construction of the new tank farm, railcar unloading, direct transfer, and mixing system,
    - Report on use of Tanks 1A, 1B, 2, and 3 to store Waste Oil,
    - Revised SOPs for operation of new equipment for approval a minimum of 15 days prior to operation, and
    - Drawings certified for construction.
- Keystone shall notify PADEP at least 90 days prior to the acceptance of hazardous waste in the new HWMU. The notification shall consist of a construction certification signed and sealed by a Pennsylvania professional engineer stating that the facility has been constructed or modified in compliance with the Part B Permit, permit renewal application,

RCRA regulations, and RCRA required performance standards such as NFPA requirements.

- At least 60 days prior to the operation of the Final Operating Scenario Keystone shall submit financial assurance for the new HWMU's under the Final Operating Scenario as described in the Closure Plans.

Per the Part B Permit, the following time periods apply: The Permittee may not manage hazardous or residual waste at a new or modified area of the facility until:

1. The Permittee has submitted to the Department by certified mail or hand delivery a letter signed by the Permittee and a registered professional engineer stating that the facility has been constructed or modified in compliance with the permit; and
2. The Department has inspected the modified or newly constructed facility and finds it is in compliance with conditions of the permit; or
3. The Department has either waived the inspection or has not, within fifteen (15) working days, notified the Permittee of its intent to inspect. If within those periods, Keystone has not received a notice of intent to inspect, request for additional information, or rejection, Keystone may commence management of hazardous or residual waste under the Final Operating Scenario.

Prior to Closure of Existing Equipment (i.e., piping or tanks)

The existing Tanks 1A, 1B, 2, and 3 will remain in service until the end of life or when the tank integrity is diminished so that the tank can no longer store hazardous waste. Keystone may otherwise submit notification of closure following completion of construction certification of the six (6) tanks at the New Tank Farm and one (1) tank at the Railcar Unloading Area.

- Total time allocated for closure is 180 days from the date of final receipt of waste (40 CFR §264.113);
- Per Section 2.1 of the approved Closure Plan, Keystone shall notify PADEP 45 days prior to beginning closure (40 CFR §264.112);
- Within 90 days after receiving the final volume of hazardous waste, Keystone must treat, remove or dispose of all hazardous wastes (40 CFR §264.113); and
- Upon completion of closure activities, Keystone will submit to PADEP a certification, signed by both a principal corporate officer of Keystone and by an independent registered Professional Engineer, that the facility has been closed in accordance with the specifications and procedures in the approved Closure Plan. This certification must be submitted to the Regional Administrator within 60 days of completion of all closure activities (40 CFR §264.115).

APPENDIX H
DRAWINGS

Keystone Cement Company - December 2022 RCRA Permit Renewal Application Drawings

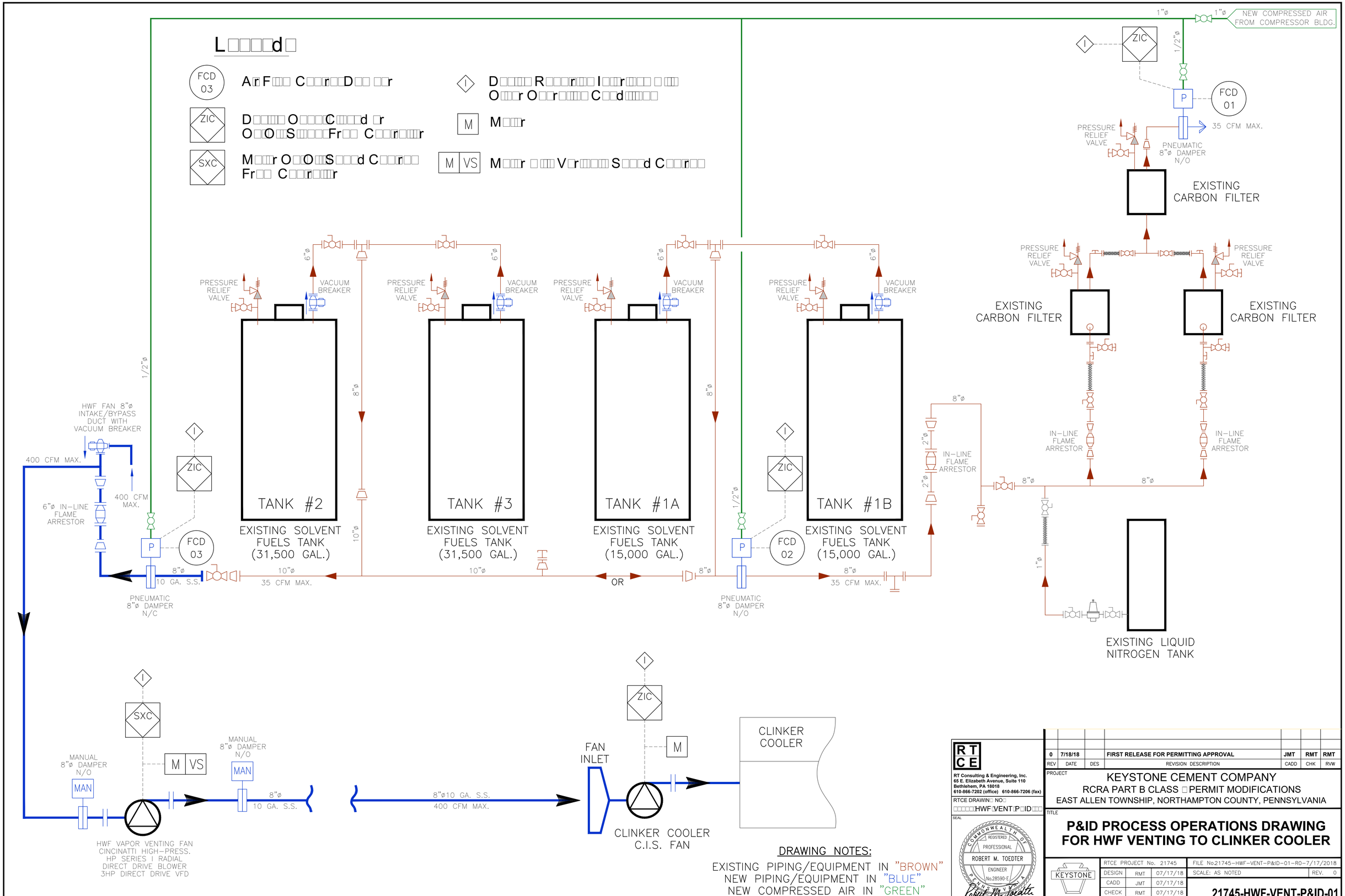
Drawing	Status	Location in Part B Permit Renewal Application	Generated By
Volume 3			
Appendix H - Drawings			
21745-HWF-VENT-P&ID-01: P&ID Process Operations Drawing for HWF Venting to Clinker Cooler	New - August 2018	Volume 3	RT Consulting & Engineering, Inc.
21745-HWF-VENT-CS-01: Cover Sheet & Existing Piping Layout for HWF Venting to Clinker Cooler	Modified/Updated - August 2018	Volume 3	RT Consulting & Engineering, Inc.
21745-HWF-VENT-P1-01: Direct Vent Line Layout for HWF Venting to Clinker Cooler	Modified/Updated - August 2018	Volume 3	RT Consulting & Engineering, Inc.
21745-HWF-VENT-P2-01: Vapor Venting System for Solvent Tanks 1A, 1B, 2, and 3	Modified/Updated - August 2018	Volume 3	RT Consulting & Engineering, Inc.
21745-HWF-VENT-P2-02: Vapor Venting System for Solvent Tanks 1A, 1B, 2, and 3	Modified/Updated - August 2018	Volume 3	RT Consulting & Engineering, Inc.
21745-HWF-VENT-P2-03: Vapor Venting System for Solvent Tanks 1A, 1B, 2, and 3	Modified/Updated - August 2018	Volume 3	RT Consulting & Engineering, Inc.
S1.0: Truck Unloading Operating Scenarios	Modified/Updated - December 2022	Volume 3	Keystone Cement Company
S1.1: Mixing System P&ID	Modified/Updated - December 2022	Volume 3	Keystone Cement Company
S1.2: Final Operating Scenario	Modified/Updated - December 2022	Volume 3	Keystone Cement Company
S1.3: Existing Operating Scenario	Modified/Updated - December 2022	Volume 3	Keystone Cement Company
S1.4: Interim Operating Scenario	Modified/Updated - December 2022	Volume 3	Keystone Cement Company
S1.5: Final Operating Scenario	Modified/Updated - December 2022	Volume 3	Keystone Cement Company
C150: Truck Solvent Fuels Unloading & Storage System Site Plan	Modified/Updated - August 2018	Volume 3	RT Consulting & Engineering, Inc.
F150: Truck Solvent Fuels Unloading & Storage Foundation Plan	Modified/Updated - August 2018	Volume 3	RT Consulting & Engineering, Inc.
S150: Truck Solvent Fuels Unlading & Storage Tank Structural Plan	No Change	Volume 3	RT Consulting & Engineering, Inc.
S151: Truck Solvent Fuels Unloading & Storage Tank Structural Details	No Change	Volume 3	RT Consulting & Engineering, Inc.
T150: Truck Solvent Fuels Unloading & Storage Tank Construction Plan	No Change	Volume 3	RT Consulting & Engineering, Inc.
T151: Truck Solvent Fuels Unlading & Storage Tank Construction Details	No Change	Volume 3	RT Consulting & Engineering, Inc.
C160: Railcar Unloading & Storage System Site Plan	Modified/Updated - December 2022	Volume 3	Keystone Cement Company
F160: Railcar Solvent Fuels Unloading & Storage Foundation Plan	Modified/Updated - December 2022	Volume 3	Keystone Cement Company
F161: Railcar Solvent Fuels Unloading & Storage Foundation Details	Modified/Updated - December 2022	Volume 3	Keystone Cement Company
F162: Railcar Solvent Fuels Unloading & Storage Foundation Details	Modified/Updated - August 2018	Volume 3	Golder Associates, Inc.

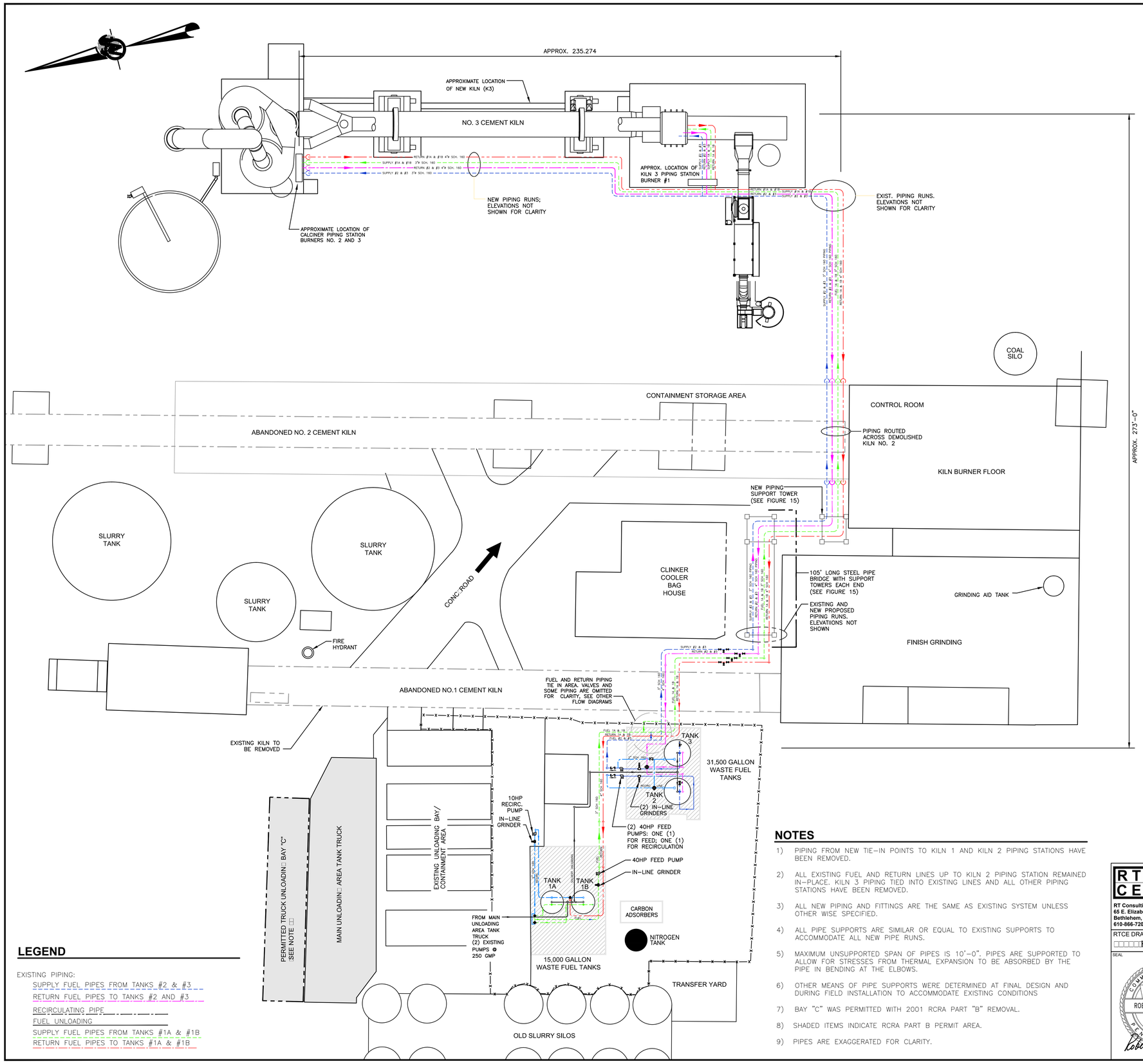
Keystone Cement Company - December 2022 RCRA Permit Renewal Application Drawings

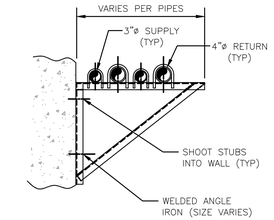
Drawing	Status	Location in Part B Permit Renewal Application	Generated By
Volume 3			
Appendix H - Drawings			
F163: Railcar Solvent Fuels Unloading & Storage Foundation Details	Modified/Updated - August 2018	Volume 3	Golder Associates, Inc.
G160: Railcar Solvent Fuels Unloading & Storage General Construction Notes	No Change	Volume 3	RT Consulting & Engineering, Inc.
P160: Railcar Solvent Fuels Unloading & Storage System Schematic	Modified/Updated - December 2022	Volume 3	Keystone Cement Company
S160: Railcar Solvent Fuels Unloading & Storage Tank Structural Drawing	Modified/Updated - December 2022	Volume 3	Keystone Cement Company
S161: Railcar Solvent Fuels Unloading & Storage Tank Structural Drawing	Modified/Updated - December 2022	Volume 3	Keystone Cement Company
S162: Railcar Solvent Fuels Unloading & Storage Pipe Bridge Supports	No Change	Volume 3	RT Consulting & Engineering, Inc.
T160: Railcar Solvent Fuels Unloading & Storage Tank Construction Plan	Modified/Updated - August 2018	Volume 3	Golder Associates, Inc.

Notes:

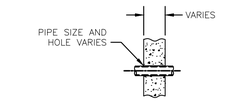
New figures were submitted as part of Keystone's RCRA Permit Renewal Application.
No Change figures did not have any revisions as a part of Keystone's RCRA Permit Renewal Application.
Modified/Updated - August 2018 figures were submitted on August 3, 2018 as part of Keystone's RCRA Permit Renewal Application.
Modified/Updated - December 2022 figures were submitted in December 2022 as part of Keystone's RCRA Permit Renewal Application.


L□□□□d□
FCD 03
A□r F□□□ C□□r□□D□□ □□r
ZIC
D□□□□□ O□□□□C□□□□d □r O□□O□□S□□□□□Fr□□ C□□r□□□r
SXC
M□□□r O□□O□□S□□□d C□□r□□ Fr□□ C□□r□□□r
I
D□□□□□ R□□□r□□□ I□□□r□□□□ □□□□ O□□□r O□□r□□□□□ C□□d□□□□□
M
M□□□r
M VS
M□□□r □□□□ V□r□□□□□ S□□□d C□□r□□
NEW COMPRESSED AIR FROM COMPRESSOR BLDG.
1"ø
1/2"ø
FCD 01
35 CFM MAX.
PRESSURE RELIEF VALVE
PNEUMATIC 8"ø DAMPER N/O
EXISTING CARBON FILTER
EXISTING CARBON FILTER
EXISTING CARBON FILTER
IN-LINE FLAME ARRESTOR
IN-LINE FLAME ARRESTOR
IN-LINE FLAME ARRESTOR
8"ø
2"ø
1"ø
EXISTING LIQUID NITROGEN TANK
VACUUM BREAKER
6"ø
8"ø
10"ø
TANK #2
EXISTING SOLVENT FUELS TANK (31,500 GAL.)
TANK #3
EXISTING SOLVENT FUELS TANK (31,500 GAL.)
TANK #1A
EXISTING SOLVENT FUELS TANK (15,000 GAL.)
TANK #1B
EXISTING SOLVENT FUELS TANK (15,000 GAL.)
OR
FCD 02
PNEUMATIC 8"ø DAMPER N/O
35 CFM MAX.
HWF FAN 8"ø INTAKE/BYPASS DUCT WITH VACUUM BREAKER
400 CFM MAX.
6"ø IN-LINE FLAME ARRESTOR
FCD 03
10 GA. S.S.
PNEUMATIC 8"ø DAMPER N/C
MANUAL 8"ø DAMPER N/O
MAN
HWF VAPOR VENTING FAN CINCINATTI HIGH-PRESS. HP SERIES I RADIAL DIRECT DRIVE BLOWER 3HP DIRECT DRIVE VFD
8"ø10 GA. S.S.
400 CFM MAX.
FAN INLET
CLINKER COOLER C.I.S. FAN
CLINKER COOLER
DRAWING NOTES:
EXISTING PIPING/EQUIPMENT IN "BROWN"
NEW PIPING/EQUIPMENT IN "BLUE"
NEW COMPRESSED AIR IN "GREEN"
RT CE
RT Consulting & Engineering, Inc.
65 E. Elizabeth Avenue, Suite 110
Bethlehem, PA 18018
610-866-7202 (office) 610-866-7206 (fax)
RTCE DRAWIN□ NO□
□□□□□HWF□VENT□P□ID□□□
SEAL
COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
ROBERT M. TOEDTER
ENGINEER
No.28590-E
0 7/18/18 FIRST RELEASE FOR PERMITTING APPROVAL JMT RMT RMT
REV DATE DES REVISION DESCRIPTION CADD CHK RVW
PROJECT
KEYSTONE CEMENT COMPANY
RCRA PART B CLASS □ PERMIT MODIFICATIONS
EAST ALLEN TOWNSHIP, NORTHAMPTON COUNTY, PENNSYLVANIA
TITLE
P&ID PROCESS OPERATIONS DRAWING FOR HWF VENTING TO CLINKER COOLER
KEYSTONE
KEYSTONE CEMENT CO. Bath, PA 18014-0058
RTCE PROJECT No. 21745
FILE No.21745-HWF-VENT-P&ID-01-R0-7/17/2018
DESIGN RMT 07/17/18
CADD JMT 07/17/18
CHECK RMT 07/17/18
REVIEW RMT 07/17/18
SCALE: AS NOTED
REV. 0
21745-HWF-VENT-P&ID-01

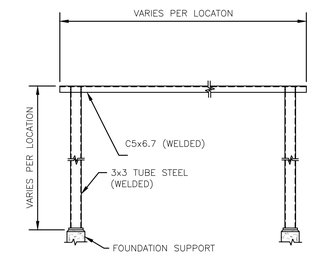




TYPICAL WALL MOUNTED PIPE SUPPORT. LOCATIONS AND DETAIL DIMENSIONS DETERMINED AT FINAL DESIGN AND IN FIELD DURING CONSTRUCTION (SEE NOTE #5)



TYPICAL PIPE PENETATRATION THRU STANDARD CONCERET WALL.



TYPICAL OVERHEAD PIPE SUPPORT. LOCATIONS AND DETAIL DIMENSIONS DETERMINED AT FINAL DESIGN AND IN FIELD. (SEE NOTE #5)

20 0 20 40
SCALE FEET

LEGEND

EXISTING PIPING:
- SUPPLY FUEL PIPES FROM TANKS #2 & #3
- RETURN FUEL PIPES TO TANKS #2 AND #3
- RECIRCULATING PIPE
- FUEL UNLOADING
- SUPPLY FUEL PIPES FROM TANKS #1A & #1B
- RETURN FUEL PIPES TO TANKS #1A & #1B

NOTES

1) PIPING FROM NEW TIE-IN POINTS TO KILN 1 AND KILN 2 PIPING STATIONS HAVE BEEN REMOVED.
2) ALL EXISTING FUEL AND RETURN LINES UP TO KILN 2 PIPING STATION REMAINED IN-PLACE. KILN 3 PIPING TIED INTO EXISTING LINES AND ALL OTHER PIPING STATIONS HAVE BEEN REMOVED.
3) ALL NEW PIPING AND FITTINGS ARE THE SAME AS EXISTING SYSTEM UNLESS OTHER WISE SPECIFIED.
4) ALL PIPE SUPPORTS ARE SIMILAR OR EQUAL TO EXISTING SUPPORTS TO ACCOMMODATE ALL NEW PIPE RUNS.
5) MAXIMUM UNSUPPORTED SPAN OF PIPES IS 10'-0". PIPES ARE SUPPORTED TO ALLOW FOR STRESSES FROM THERMAL EXPANSION TO BE ABSORBED BY THE PIPE IN BENDING AT THE ELBOWS.
6) OTHER MEANS OF PIPE SUPPORTS WERE DETERMINED AT FINAL DESIGN AND DURING FIELD INSTALLATION TO ACCOMMODATE EXISTING CONDITIONS
7) BAY "C" WAS PERMITTED WITH 2001 RCRA PART "B" REMOVAL.
8) SHADED ITEMS INDICATE RCRA PART B PERMIT AREA.
9) PIPES ARE EXAGGERATED FOR CLARITY.

RT CE
RT Consulting & Engineering, Inc.
65 E. Elizabeth Avenue, Suite 110
Bethlehem, PA 18018
610-866-7202 (office) 610-866-7206 (fax)

RTCE DRAWING NO:
HWF VENT CS

SEAL: COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL ENGINEER — ROBERT M. TOEDTER — No.28590-E

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW
4	7/23/18		REVISED PIPING BETWEEN KILN AND DDC	RMT	JW	RMT
3	7/16/18		REVISED PIPING TO REFLECT EXISTING CONDITIONS	RMT	JW	RMT
2	2/8/18		ADDED SEAL & SIGNATURE	RMT	JW	RMT
1	1/18/18		PIPING REVISION FOR EXISTING CONDITIONS UPDATE	RMT	JW	RMT

PROJECT
KEYSTONE CEMENT COMPANY
RCRA PART B CLASS PERMIT MODIFICATIONS
EAST ALLEN TOWNSHIP, NORTHAMPTON COUNTY, PENNSYLVANIA

TITLE
COVER SHEET & EXIST. PIPING LAYOUT FOR HWF VENTING TO CLINKER COOLER

KEYSTONE
KEYSTONE CEMENT CO.
Bath, PA 18014-0058

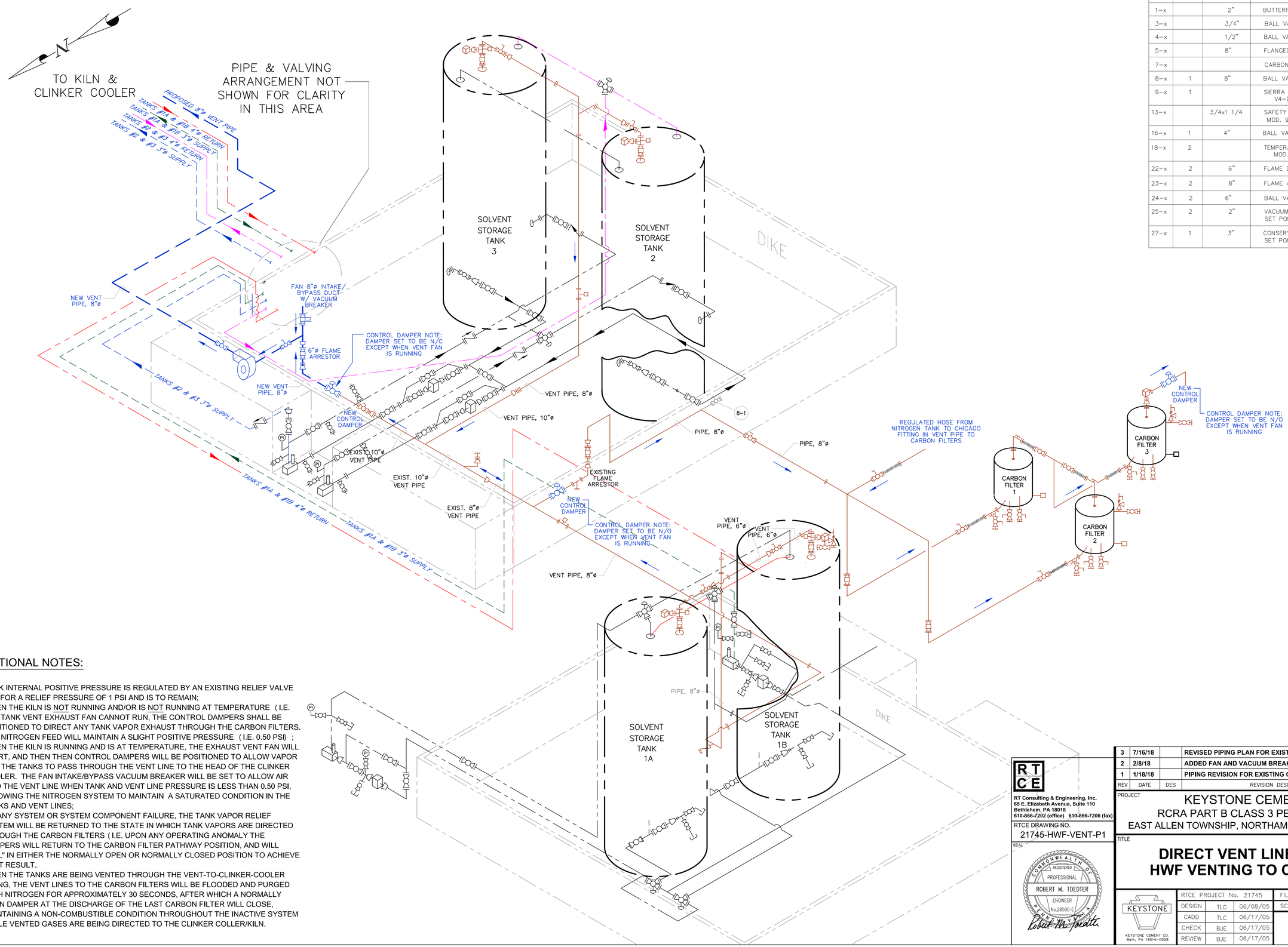
DESIGN	TLC	06/08/05
CADD	TLC	06/17/05
CHECK	BJE	06/17/05
REVIEW	BJE	06/17/05

RTCE PROJECT No. 21745
FILE No. 21745-HWF-VENT-CS-01-R4-7/23/2018
SCALE: AS NOTED
REV. 4

21745-HWF-VENT-CS-01

PIPING & MATERIAL SPECIFICATION

REF. NO.	QTY. REQ'D.	NOM. SIZE	DESCRIPTION
1–x		2"	BUTTERFLY VALVE
3–x		3/4"	BALL VALVE (THD.)
4–x		1/2"	BALL VALVE (THD)
5–x		8"	FLANGED FLEX HOSE
7–x			CARBON TANK, VAPOR–PAC
8–x	1	8"	BALL VALVE (FLANGED)
9–x	1		SIERRA FLOW METER – MOD. 640–FM–L13–E2–PV2–V4–DR, CAT. NO. 640 FM
13–x		3/4x1 1/4	SAFETY RELIEF VALVE, KUNKLE VALVE DIV. MOD. 912BEDM01–KC
16–x	1	4"	BALL VALVE (FLANGED)
18–x	2		TEMPERATURE TRANSMITTER, ROSEMOUNT MOD. D1K5M504
22–x	2	6"	FLAME DETONATOR, PROTECTOSEAL MOD. C26006
23–x	2	8"	FLAME ARRESTOR GROWTH MOD. 7618
24–x	2	6"	BALL VALVE (FLANGED)
25–x	2	2"	VACUUM VENT, PROTECTOSEAL MOD. C16240D2 SET POINT: –8" WC
27–x	1	3"	CONSERVATION VENT, PROTECTOSEAL MOD. C17803D3 SET POINT: +10" WC



OPERATIONAL NOTES:

1. TANK INTERNAL POSITIVE PRESSURE IS REGULATED BY AN EXISTING RELIEF VALVE SET FOR A RELIEF PRESSURE OF 1 PSI AND IS TO REMAIN;
2. WHEN THE KILN IS NOT RUNNING AND/OR IS NOT RUNNING AT TEMPERATURE (I.E. THE TANK VENT EXHAUST FAN CANNOT RUN, THE CONTROL DAMPERS SHALL BE POSITIONED TO DIRECT ANY TANK VAPOR EXHAUST THROUGH THE CARBON FILTERS. THE NITROGEN FEED WILL MAINTAIN A SLIGHT POSITIVE PRESSURE (I.E. 0.50 PSI) ;
3. WHEN THE KILN IS RUNNING AND IS AT TEMPERATURE, THE EXHAUST VENT FAN WILL START, AND THEN THEN CONTROL DAMPERS WILL BE POSITIONED TO ALLOW VAPOR FOR THE TANKS TO PASS THROUGH THE VENT LINE TO THE HEAD OF THE CLINKER COOLER. THE FAN INTAKE/BYPASS VACUUM BREAKER WILL BE SET TO ALLOW AIR INTO THE VENT LINE WHEN TANK AND VENT LINE PRESSURE IS LESS THAN 0.50 PSI, ALLOWING THE NITROGEN SYSTEM TO MAINTAIN A SATURATED CONDITION IN THE TANKS AND VENT LINES;
4. ON ANY SYSTEM OR SYSTEM COMPONENT FAILURE, THE TANK VAPOR RELIEF SYSTEM WILL BE RETURNED TO THE STATE IN WHICH TANK VAPORS ARE DIRECTED THROUGH THE CARBON FILTERS (I.E. UPON ANY OPERATING ANOMALY THE DAMPERS WILL RETURN TO THE CARBON FILTER PATHWAY POSITION, AND WILL "FAIL" IN EITHER THE NORMALLY OPEN OR NORMALLY CLOSED POSITION TO ACHIEVE THAT RESULT.
5. WHEN THE TANKS ARE BEING VENTED THROUGH THE VENT-TO-CLINKER-COOLER PIPING, THE VENT LINES TO THE CARBON FILTERS WILL BE FLOODED AND PURGED WITH NITROGEN FOR APPROXIMATELY 30 SECONDS, AFTER WHICH A NORMALLY OPEN DAMPER AT THE DISCHARGE OF THE LAST CARBON FILTER WILL CLOSE, MAINTAINING A NON-COMBUSTIBLE CONDITION THROUGHOUT THE INACTIVE SYSTEM WHILE VENTED GASES ARE BEING DIRECTED TO THE CLINKER COLLER/KILN.

RT CE
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RTCE DRAWING NO.
21745-HWF-VENT-P1

SEAL
COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
ROBERT M. TOEDTER
ENGINEER
No.28590-E

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW
3	7/16/18		REVISED PIPING PLAN FOR EXISTING CONDITIONS	RMT	JW	RMT
2	2/8/18		ADDED FAN AND VACUUM BREAKER INFORMATION	RMT	JW	RMT
1	1/18/18		PIPING REVISION FOR EXISTING CONDITIONS UPDATE	RMT	JW	RMT

PROJECT
KEYSTONE CEMENT COMPANY
RCRA PART B CLASS 3 PERMIT MODIFICATIONS
EAST ALLEN TOWNSHIP, NORTHAMPTON COUNTY, PENNSYLVANIA

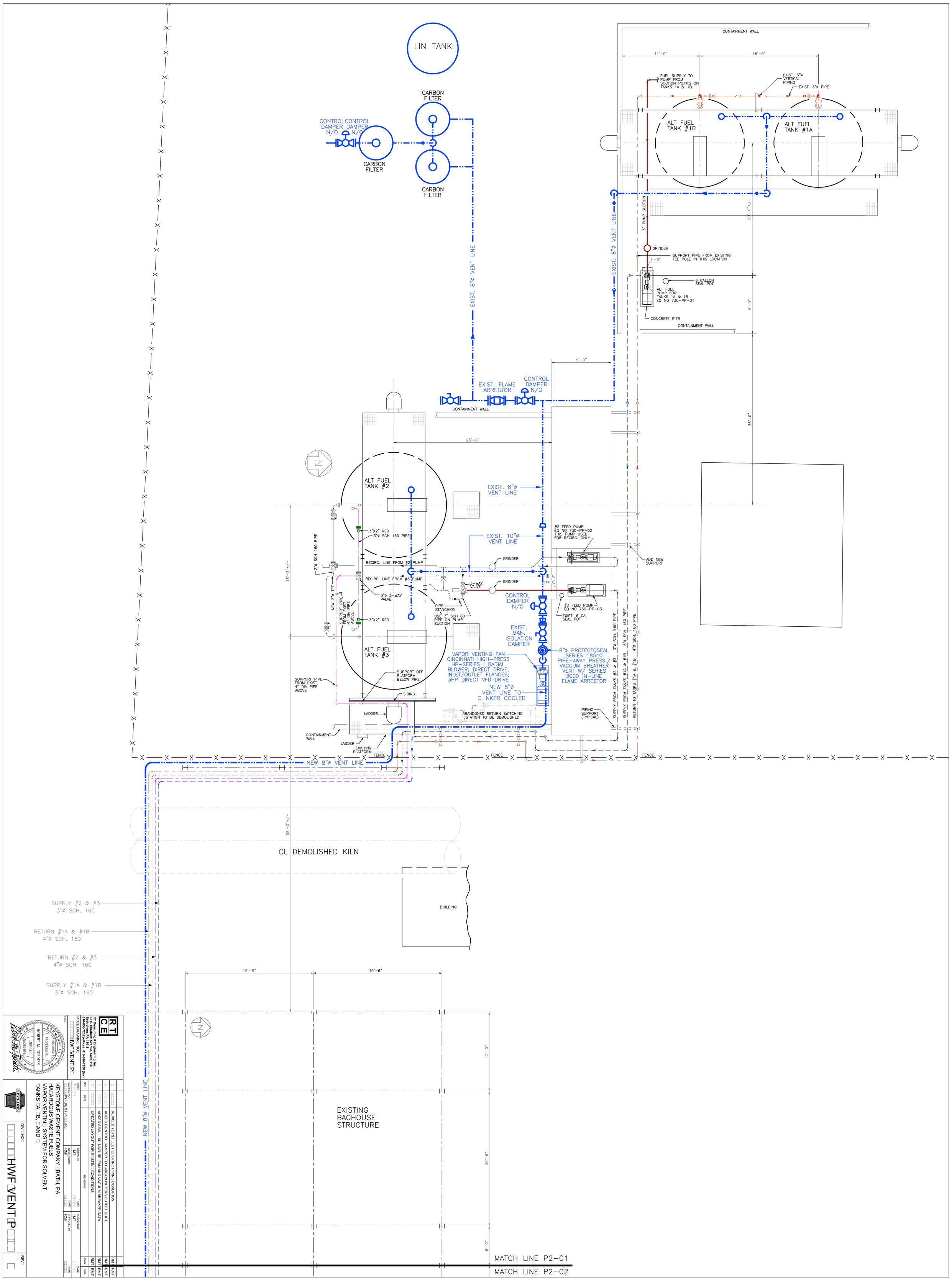
TITLE
DIRECT VENT LINE LAYOUT FOR HWF VENTING TO CLINKER COOLER

KEYSTONE
KEYSTONE CEMENT CO.
Bath, PA 18014–0058

RTCE PROJECT No. 21745		FILE No. 21745–HWF–VENT–P1–01–R3–7/16/2018
DESIGN	TLC	06/08/05
CADD	TLC	06/17/05
CHECK	BJE	06/17/05
REVIEW	BJE	06/17/05

SCALE: AS NOTED REV. 3

21745-HWF-VENT-P1-01


LIN TANK
CARBON FILTER
CONTROL DAMPER N/O
CONTROL DAMPER N/O
CARBON FILTER
CARBON FILTER
EXIST. 8"ø VENT LINE
CONTAINMENT WALL
11'-0"
18'-0"
FUEL SUPPLY TO PUMP FROM SUCTION POINTS ON TANKS 1A & 1B
EXIST. 3"ø VERTICAL PIPING
EXIST. 3"ø PIPE
ALT FUEL TANK #1B
ALT FUEL TANK #1A
3" PUMP SUCTION
20'-0"+/-
GRINDER
SUPPORT PIPE FROM EXISTING TEE POLE IN THIS LOCATION
1'-6"
6 GALLON SEAL POT
ALT FUEL PUMP FOR TANKS 1A & 1B EQ NO 730-PP-01
CONCRETE PIER
CONTAINMENT WALL
9'-0"
26'-0"
9'-0"
EXIST. FLAME ARRESTOR
CONTROL DAMPER N/O
CONTAINMENT WALL
25'-0"
N
ALT FUEL TANK #2
EXIST. 8"ø VENT LINE
EXIST. 10"ø VENT LINE
#2 FEED PUMP EQ NO 730-PP-02 THIS PUMP USED FOR RECIRC. ONLY
ADD NEW SUPPORT
3"X2" RED
3"ø SCH 160 PIPE
2"ø SCH 160 PIPE
18'-8"+/-
RECIRC. LINE FROM #2 PUMP
RECIRC. LINE FROM #3 PUMP
GRINDER
3-WAY VALVE
GRINDER
3"ø 3-WAY VALVE
NEW 2"ø TEE
SUPPORT PIPE FROM EXIST. 4" DIA PIPE ABOVE
3"X2" RED
PIPE STANCHION
USE 3" SCH 80 PIPE ON PUMP SUCTION
CONTROL DAMPER N/O
#3 FEED PUMP EQ NO 730-PP-03
EXIST. 6 GAL. SEAL POT
EXIST. MAN. ISOLATION DAMPER
8"ø PROTECTOSEAL SERIES 18540 PIPE-AWAY PRESS./ VACUUM BREATHER VENT W/ SERIES 3000 IN-LINE FLAME ARRESTOR
ALT FUEL TANK #3
VAPOR VENTING FAN CINCINNATI HIGH-PRESS HP-SERIES I RADIAL BLOWER; DIRECT DRIVE; INLET/OUTLET FLANGES; 3HP DIRECT VFD DRIVE
SUPPORT PIPE FROM EXIST. 4" DIA PIPE ABOVE
SUPPORT OFF PLATFORM BELOW PIPE
SIDING
NEW 8"ø VENT LINE TO CLINKER COOLER
LADDER
ABANDONED RETURN SWITCHING STATION TO BE DEMOLISHED
PIPING SUPPORT (TYPICAL)
CONTAINMENT WALL
LADDER
EXISTING PLATFORM
FENCE
NEW 8"ø VENT LINE
FENCE
FENCE
SUPPLY FROM TANKS #2 & #3 3"ø SCH. 160 PIPE
SUPPLY FROM TANKS #1A & #1B 3"ø SCH. 160 PIPE
RETURN TO TANKS #1A & #1B 4"ø SCH. 160 PIPE
58'-0"+/-
CL DEMOLISHED KILN
BUILDING
SUPPLY #2 & #3 3"ø SCH. 160
RETURN #1A & #1B 4"ø SCH. 160
RETURN #2 & #3 4"ø SCH. 160
SUPPLY #1A & #1B 3"ø SCH. 160
19'-6"
19'-6"
N
12'-0"
20'-6"
6'-0"
EXISTING BAGHOUSE STRUCTURE
NEW 8"ø VENT LINE
MATCH LINE P2-01
MATCH LINE P2-02
RT CE
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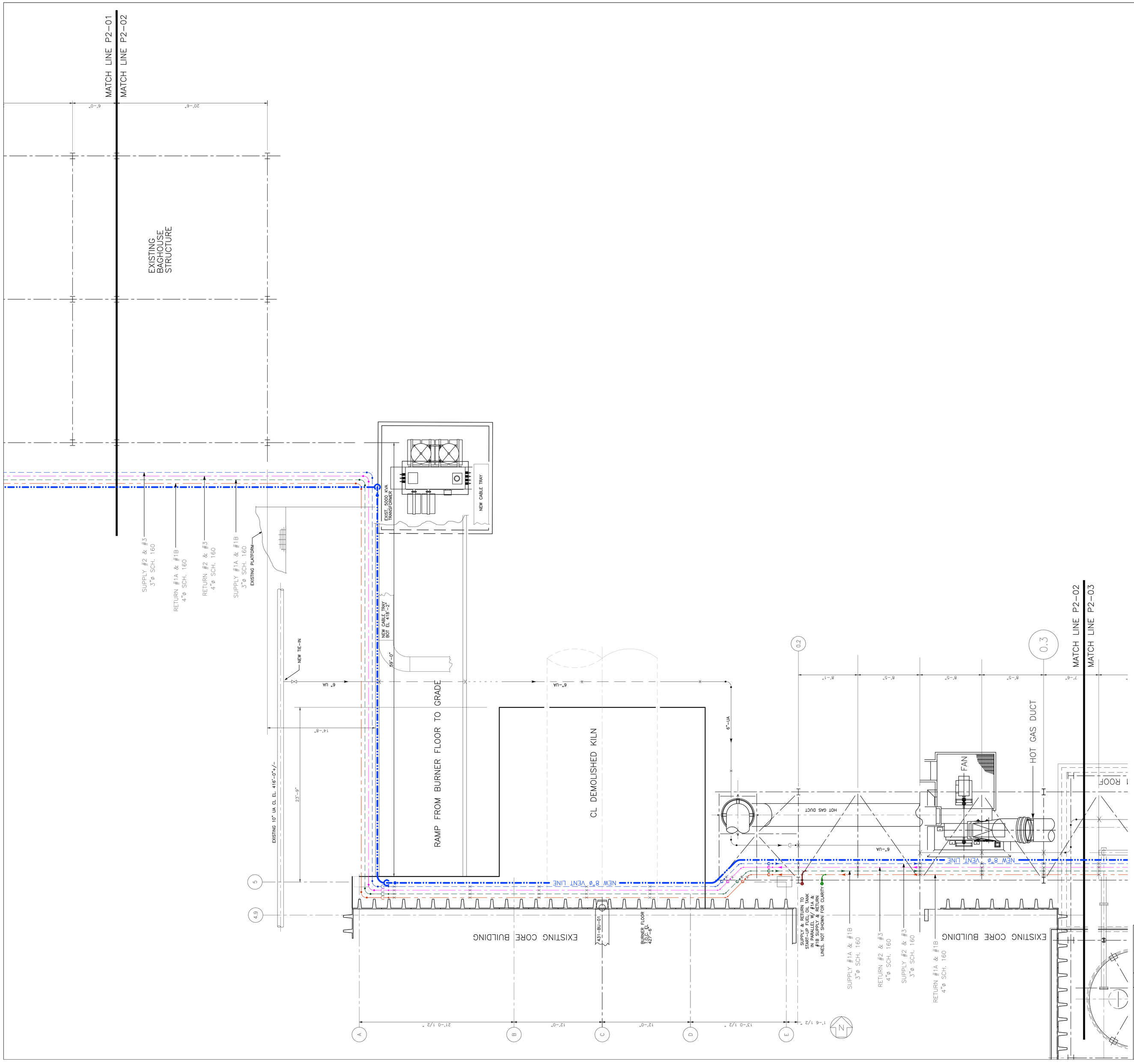
RTCE DRAWING NO.
HWF VENT P
SEAL
COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
ROBERT M. TOEDTER
No. 35594-E
NO. DATE REVISIONS DWN CKD
REVISED TO REFLECT EXISTING PIPING CONDITION RMT RMT
ADDED CONTROL DAMPER TO CARBON FILTERS OUTLET DUCT RMT RMT
ADDED SEAL SIGNATURE FAN AND VACUUM BREAKER DATA RMT RMT
UPDATED LAYOUT FOR EXISTING CONDITIONS RMT RMT
DRAWN BY RMT DATE
DESIGNED BY RMT DATE
CHECKED BY RMT DATE
APPROVED BY RMT DATE
KEYSTONE CEMENT COMPANY BATH, PA
HAZARDOUS WASTE FUELS
VAPOR VENTING SYSTEM FOR SOLVENT
TANKS A, B, AND
DWG NO.
HWF VENT P
REV



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NO:	DATE	REVISIONS	DWN	CKD
D	[illegible]	REVISIONS TO REFLECT E□ISTIN□ PIPIN□ CONDITIONS	RMT	RMT
C	[illegible]	ADDED SEAL AND SI□NATURE	RMT	RMT
B	[illegible]	UPDATED LAYOUT FOR E□ISTIN□ CONDITIONS	RMT	RMT

RTCE DRAWIN□ NO□: □□□□HWF VENT□P□

SCALE: □□□□HWF VENT□P□□□R□

DRAWN BY	DATE	CHECKED BY	DATE
□MT	[illegible]	□MT	[illegible]
DESI□NED BY	DATE	APPROVED BY	DATE
RMT	[illegible]	RMT	[illegible]

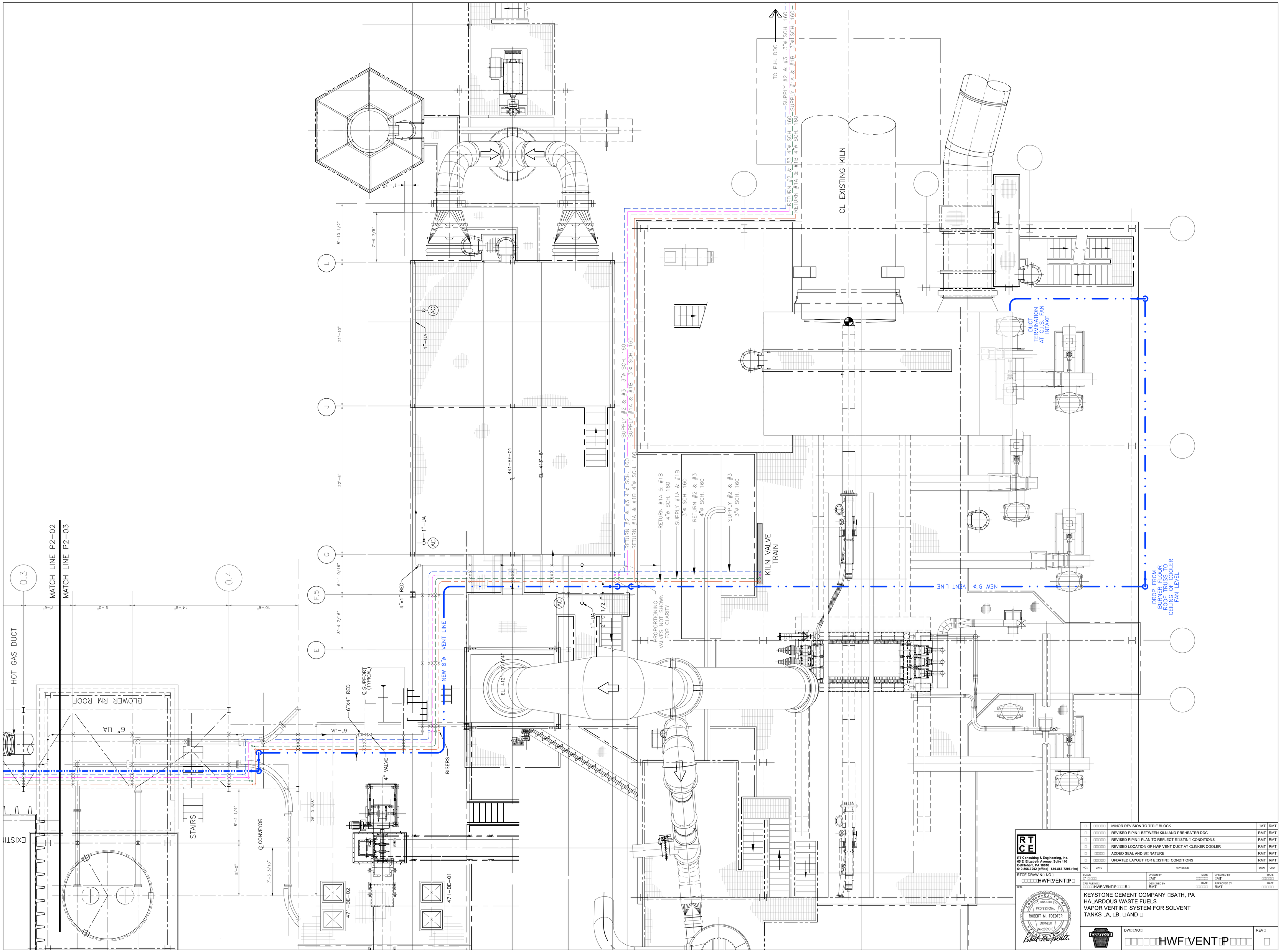
SEAL: COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ROBERT M. TOEDTER ENGINEER No.28590-E

KEYSTONE CEMENT COMPANY □BATH, PA
HA□ARDOUS WASTE FUELS
VAPOR VENTIN□ SYSTEM FOR SOLVENT
TANKS □A, □B, □AND □

KEYSTONE

DW□ NO□: □□□□□HWF□VENT□P□□□□

REV□: □



NO:	DATE	REVISIONS	DWN.	CKD
		MINOR REVISION TO TITLE BLOCK	MT	RMT
		REVISED PIPIN BETWEEN KILN AND PREHEATER DDC	RMT	RMT
		REVISED PIPIN PLAN TO REFLECT E ISTIN CONDITIONS	RMT	RMT
		REVISED LOCATION OF HWF VENT DUCT AT CLINKER COOLER	RMT	RMT
		ADDED SEAL AND SI NATURE	RMT	RMT
		UPDATED LAYOUT FOR E ISTIN CONDITIONS	RMT	RMT

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RTCE DRAWIN NO:
HWF VENT P

SCALE	DRAWN BY	DATE	CHECKED BY	DATE
	MT		MT	
CAD FILE NO: HWF VENT P R	DESI NED BY RMT	DATE	APPROVED BY RMT	DATE

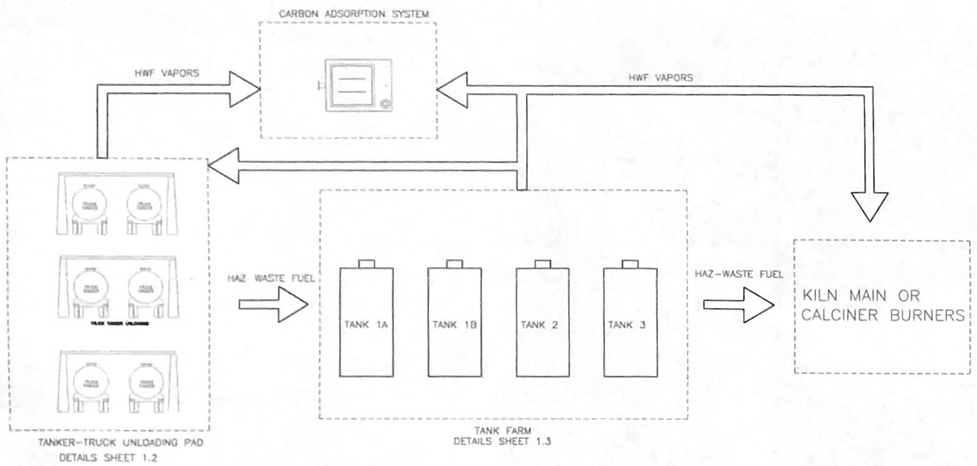
SEAL: COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ROBERT M. TOEDTER ENGINEER No.28590-E

KEYSTONE CEMENT COMPANY BATH, PA
HA ARDOUS WASTE FUELS
VAPOR VENTIN SYSTEM FOR SOLVENT
TANKS A, B, AND

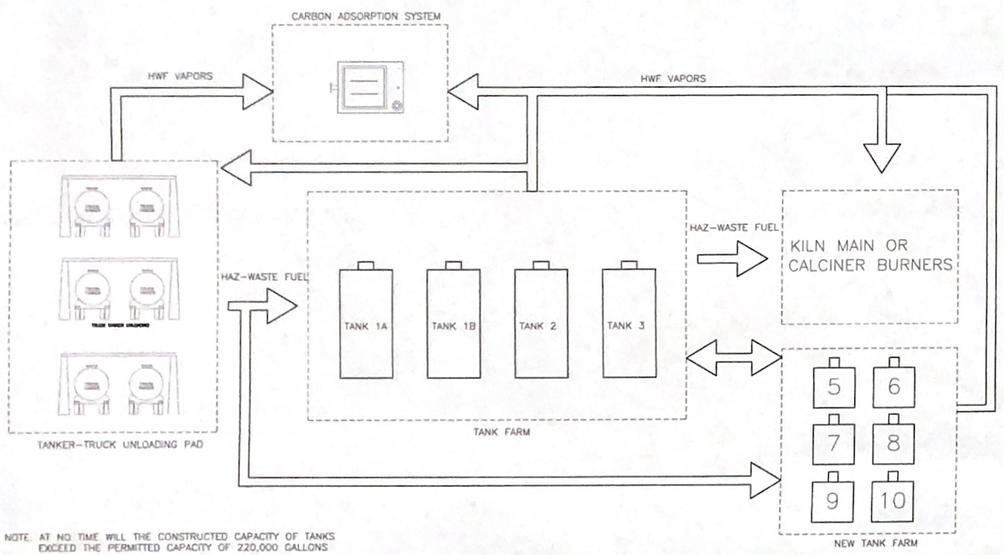
DW NO:
HWF VENT P

REV:

1. CURRENT PROCESS

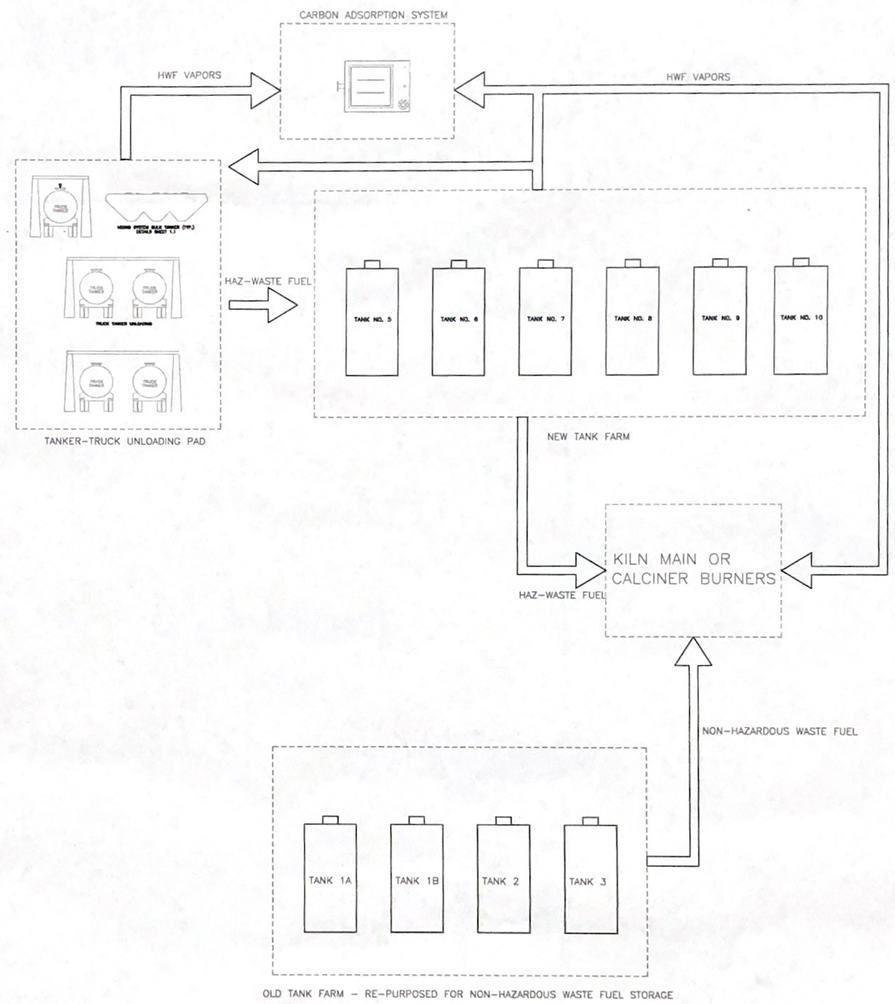


2. INTERIM PROCESS



NOTE: AT NO TIME WILL THE CONSTRUCTED CAPACITY OF TANKS EXCEED THE PERMITTED CAPACITY OF 220,000 GALLONS

3. FUTURE PROCESS



REV.	DATE	DESCRIPTION	BY	APP
2	12/8/22	PERMITTING MODIFICATION	AL	SH
1	07/21/22	PERMITTING MODIFICATION	AL	SH

KEYSTONE CEMENT COMPANY

East Allen Township, Northampton Co., PA

THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS PRIOR TO PROCEEDING WITH ANY WORK. WHERE DISCREPANCIES OCCUR BETWEEN THESE DOCUMENTS AND EXISTING CONDITIONS, THE DISCREPANCY SHALL BE REPORTED TO THE OWNER AND/OR ENGINEER FOR EXPEDITING AND RESOLUTION.

MAY 16, 2018
ORIGINAL BASE MAP PROVIDED BY:
EQUIPMENT PRO INC.

PROJECT TITLE
MIXING SYSTEM PROJECT FLOW DIAGRAM

DRAWING TITLE
TRUCK UNLOADING OPERATING SCENARIOS

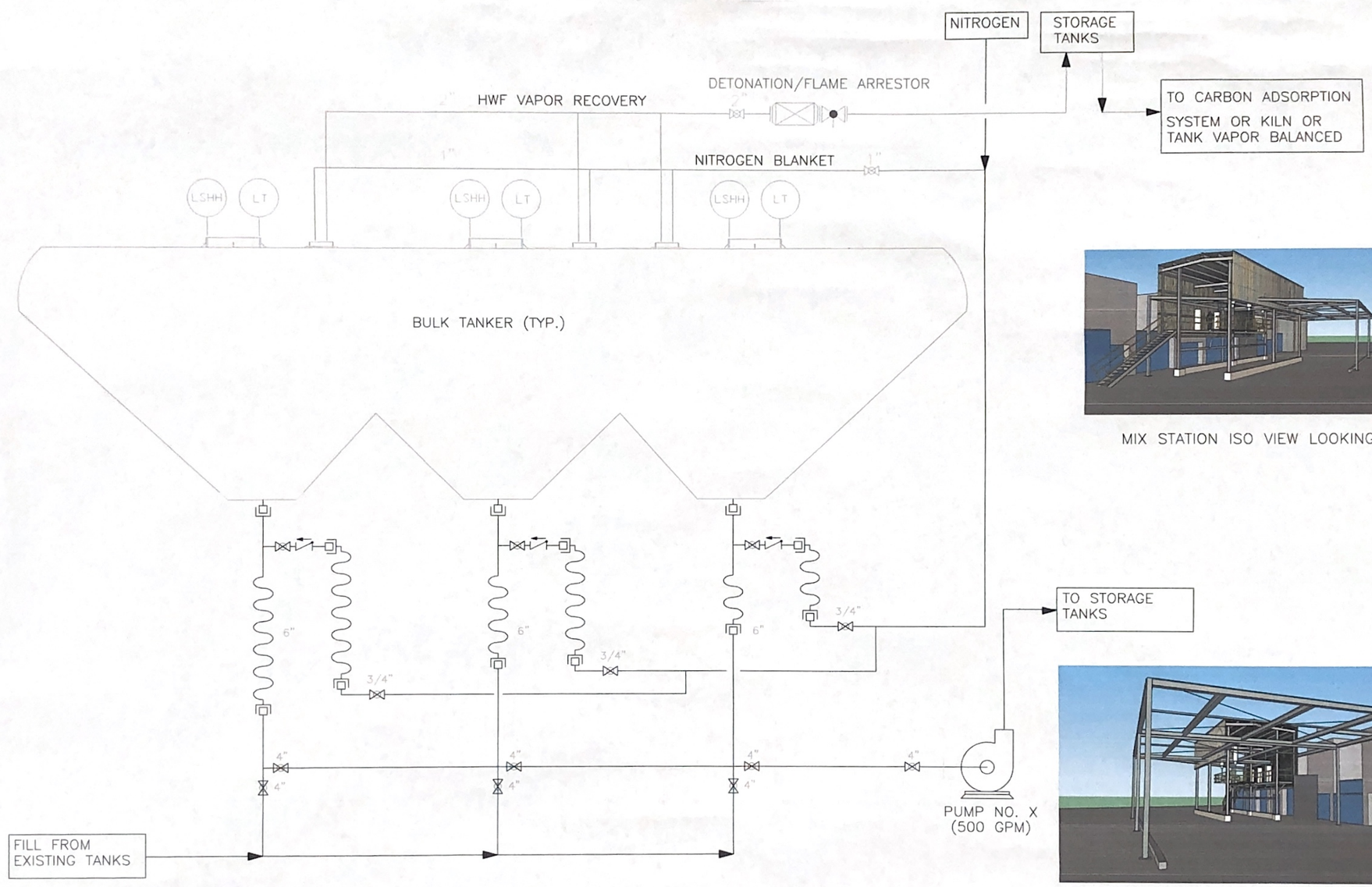
LAST UPDATE	ENGINEER
–	SPH
DATE 12/8/22	CHECKED SPH
SCALE AS NOTED	DRAWN ARL

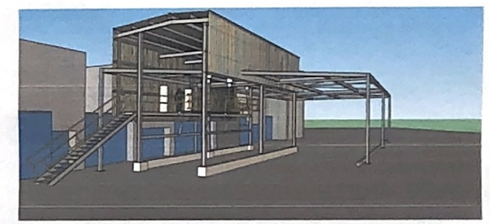
SEAL: COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL STEPHEN P. HOLT ENGINEER PE-070261

DRAWING NUMBER: S1.0

REVISION LEVEL: R2

PROPOSED MIXING SYSTEM BULK TANKER–TRUCK UNLOADING PAD





MIX STATION ISO VIEW LOOKING WEST

MIX STATION ISO VIEW LOOKING EAST

REV.	DATE	DESCRIPTION	BY	APP
1	07/21/22	PERMITTING MODIFICATION	AL	SH

KEYSTONE CEMENT COMPANY

East Allen Township, Northampton Co., PA

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MAY 16, 2018
ORIGINAL BASE MAP PROVIDED BY:
EQUIPMENT PRO INC.

PROJECT TITLE
MIXING SYSTEM PROJECT FLOW DIAGRAM

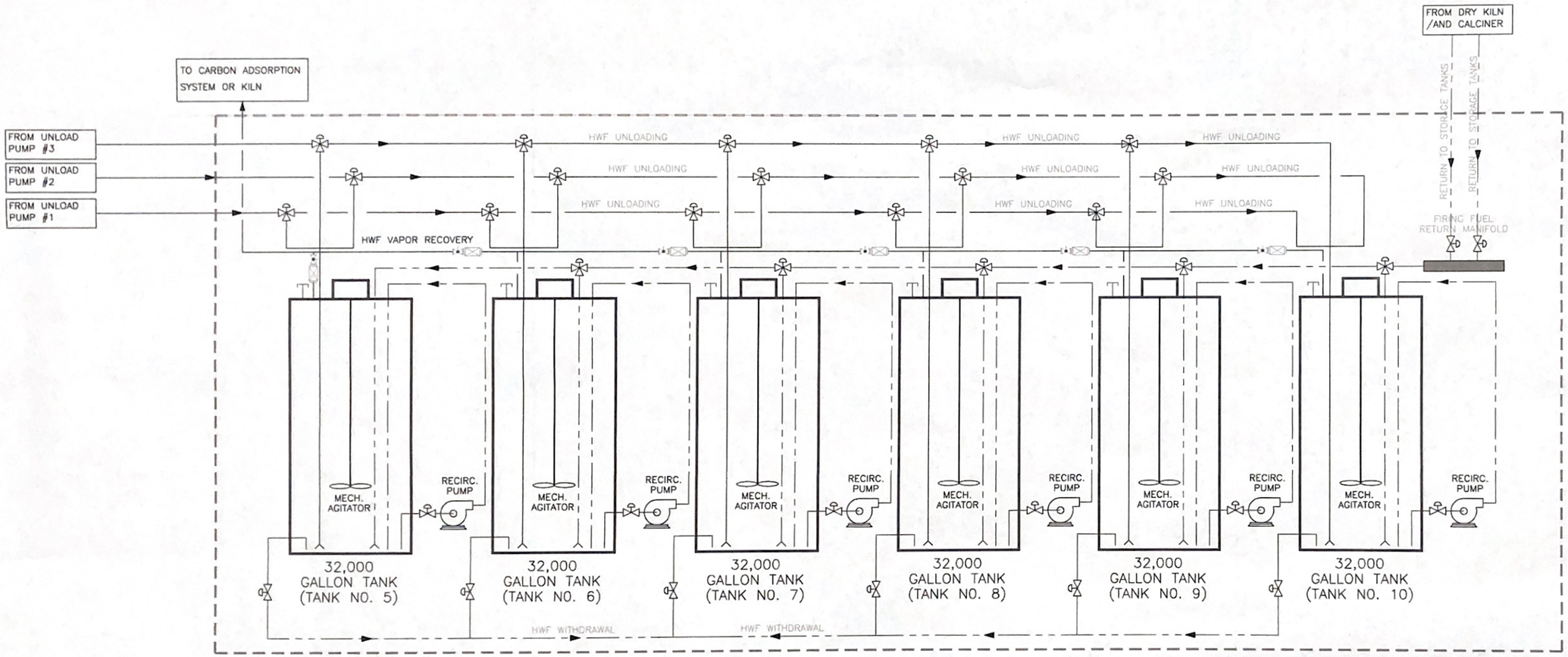
DRAWING TITLE
MIXING SYSTEM P&ID

LAST UPDATE	ENGINEER
–	SPH
DATE	CHECKED
7/21/22	SPH
SCALE	DRAWN
AS NOTED	ARL

SEAL: COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL STEPHEN P. HOLT ENGINEER PE072081

DRAWING NUMBER
S1.1

REVISION LEVEL
R1



NOTE:
THE ACTUAL CAPACITY OF TANK NOS. 5, 6, 7, 8, 9, 10 ARE SUBJECT TO MODIFICATION BASED ON ACTUAL DIMENSIONS OF FINAL CONSTRUCTED TANKS. FINAL CONSTRUCTED TANKS WILL BE BETWEEN 30,000 – 32,000 GALLON CAPACITY EACH. THE NUMBER AND LAYOUT OF RECIRCULATION PUMPS IS SUBJECT TO CHANGE. HOWEVER, THE NUMBER OF RECIRCULATION PUMPS FOR THE NEW TANK SYSTEM WILL NOT EXCEED 6.

REV.	DATE	DESCRIPTION	BY	APP
1	07/21/22	PERMITTING MODIFICATION	AL	SH

KEYSTONE CEMENT COMPANY

East Allen Township, Northampton Co., PA

THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS PRIOR TO PROCEEDING WITH ANY WORK. WHERE DISCREPANCIES OCCUR BETWEEN THESE DOCUMENTS AND EXISTING CONDITIONS, THE DISCREPANCY SHALL BE REPORTED TO THE OWNER AND/OR ENGINEER FOR EXPEDITING AND RESOLUTION.

MAY 16, 2018
ORIGINAL BASE MAP PROVIDED BY:
EQUIPMENT PRO INC.

PROJECT TITLE
MIXING SYSTEM PROJECT FLOW DIAGRAM

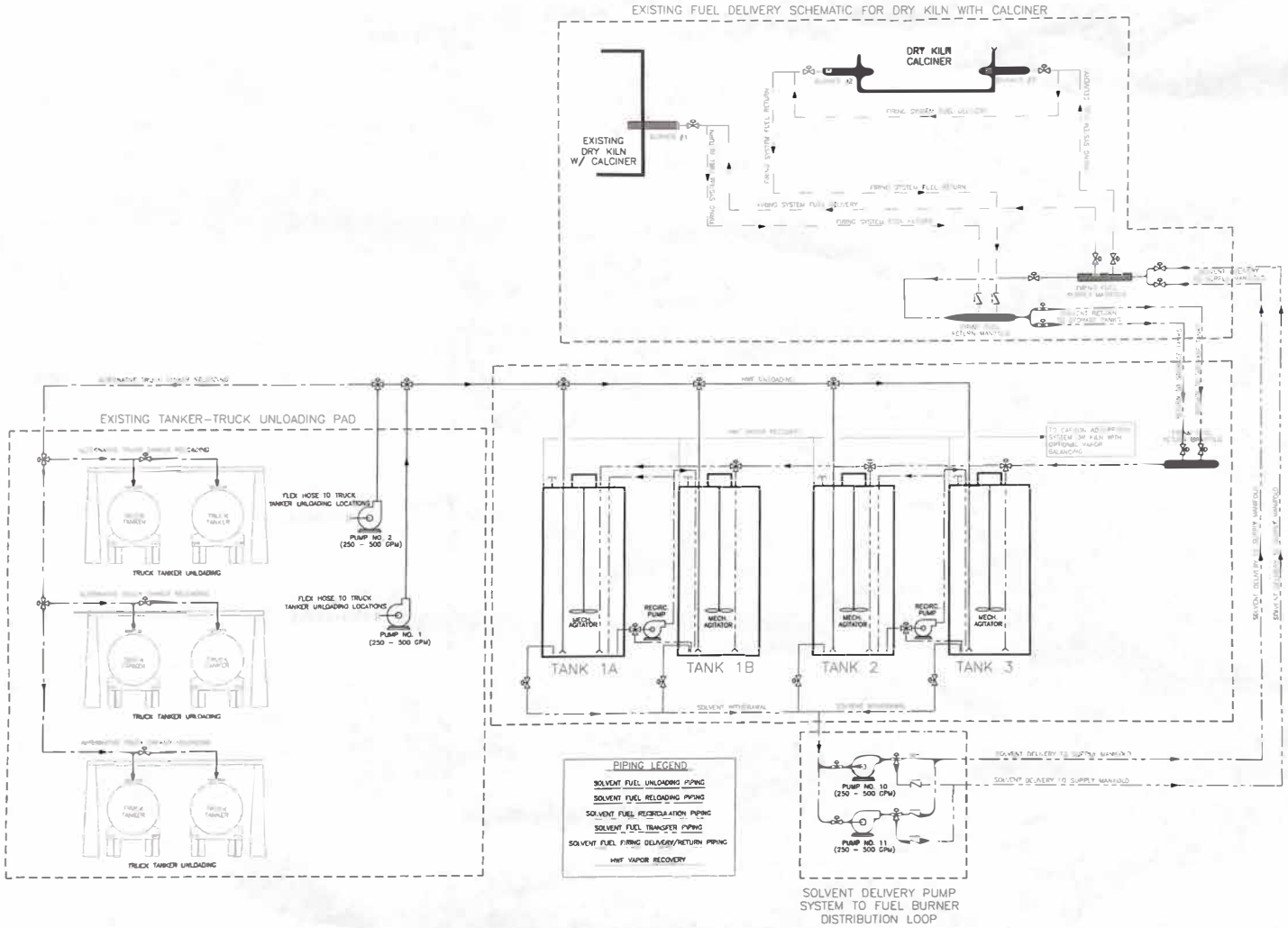
DRAWING TITLE
FINAL OPERATING SCENARIO

LAST UPDATE: –	ENGINEER: SPH
DATE: 7/21/22	CHECKED: SPH
SCALE: AS NOTED	DRAWN: ARL

SEAL: COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — STEPHEN P. HOLT — ENGINEER — PE072081

DRAWING NUMBER: S1.2

REVISION LEVEL: R1



REV.	DATE	DESCRIPTION	BY	APP
1	07/21/22	PERMITTING MODIFICATION	AL	SH

KEYSTONE CEMENT COMPANY

East Allen Township, Northampton Co., PA

THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS PRIOR TO PROCEEDING WITH ANY WORK. WHERE DISCREPANCIES OCCUR BETWEEN THESE DOCUMENTS AND EXISTING CONDITIONS, THE DISCREPANCY SHALL BE REPORTED TO THE OWNER AND/OR ENGINEER FOR EXPLAINING AND RESOLUTION.

MAY 16, 2018
ORIGINAL BASE MAP PROVIDED BY:
EQUIPMENT PRO INC.

PROJECT TITLE
MIXING SYSTEM PROJECT FLOW DIAGRAM

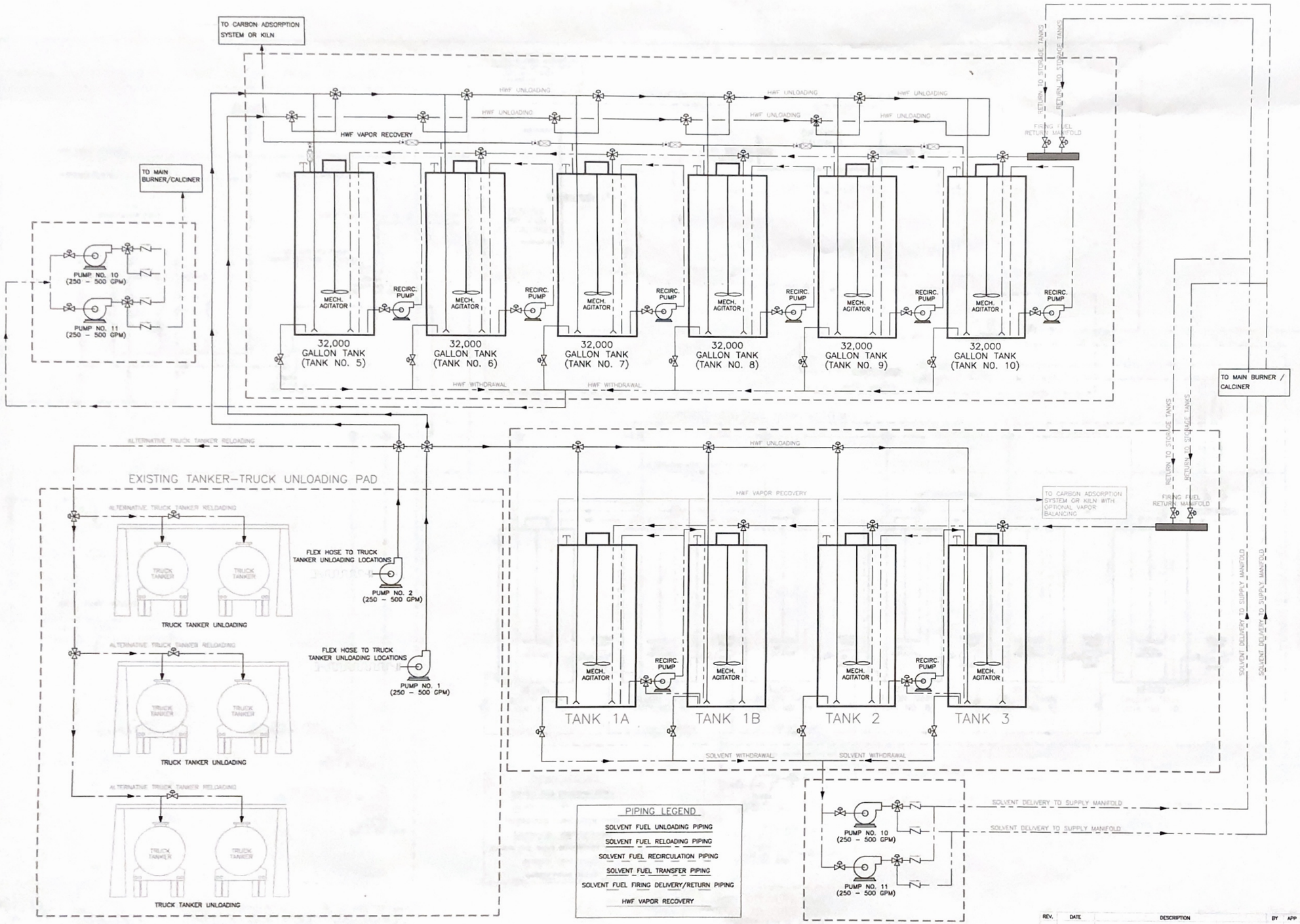
DRAWING TITLE
EXISTING OPERATING SCENARIO

LAST UPDATE —
ENGINEER SPH
DATE 7/21/22
CHECKED SPH
SCALE AS NOTED
DRAWN ARL

SEAL
COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL STEPHEN P. HOLT ENGINEER
SEAL HERE

DRAWING NUMBER
S1.3

REVISION LEVEL
R1



REV.	DATE	DESCRIPTION	BY	APP
2	12/8/22	PERMITTING MODIFICATION	AL	SH
1	07/21/22	PERMITTING MODIFICATION	AL	SH

KEYSTONE CEMENT COMPANY

East Allen Township, Northampton Co., PA

THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS PRIOR TO PROCEEDING WITH ANY WORK. WHERE DISCREPANCIES OCCUR BETWEEN THESE DOCUMENTS AND EXISTING CONDITIONS, THE DISCREPANCY SHALL BE REPORTED TO THE OWNER AND/OR ENGINEER FOR EXPEDITING AND RESOLUTION.

MAY 16, 2018
ORIGINAL BASE MAP PROVIDED BY:
EQUIPMENT PRO INC.

PROJECT TITLE
MIXING SYSTEM PROJECT FLOW DIAGRAM

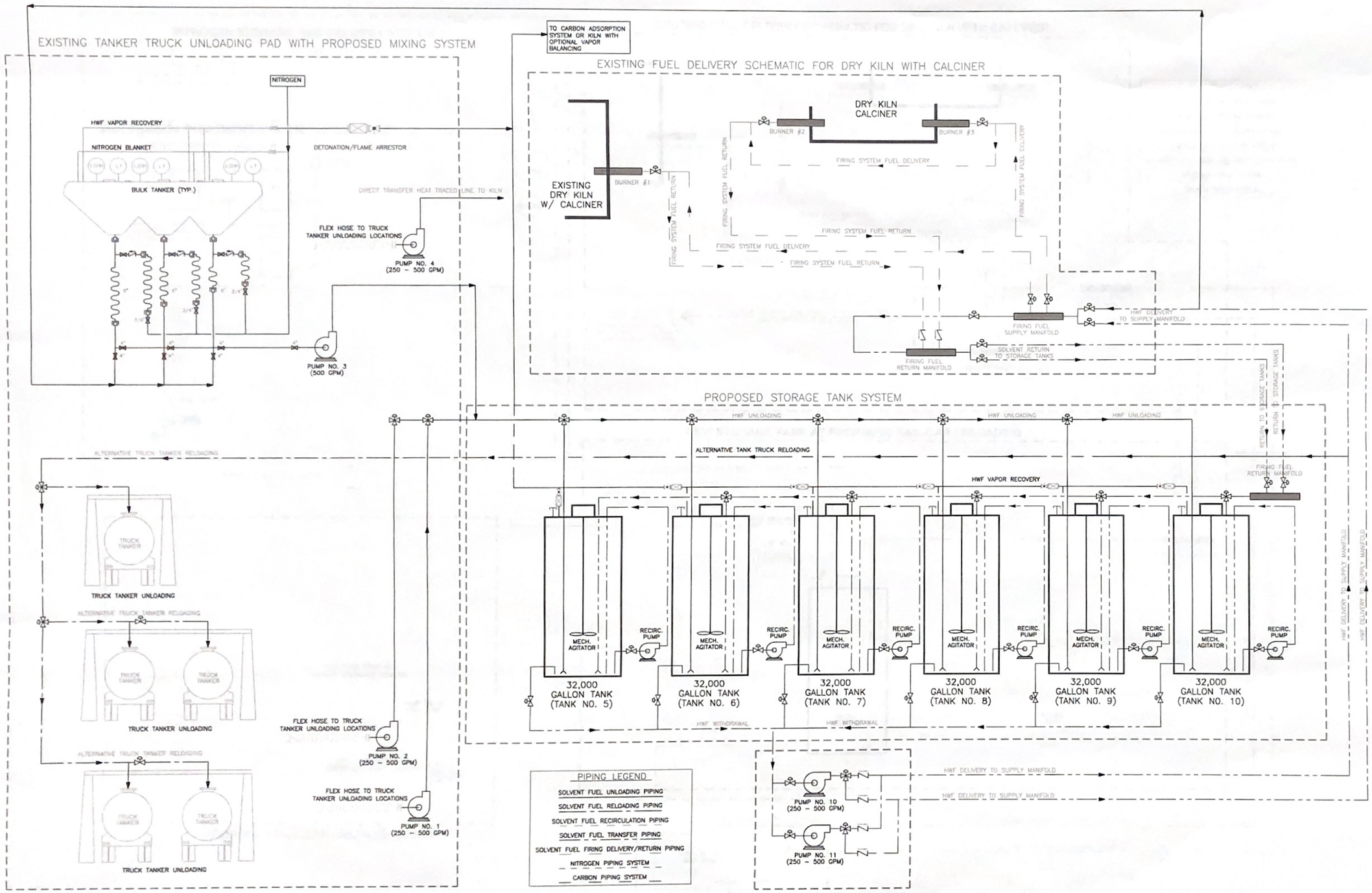
DRAWING TITLE
INTERIM OPERATING SCENARIO

LAST UPDATE: –	ENGINEER: SPH
DATE: 12/8/22	CHECKED: SPH
SCALE: AS NOTED	DRAWN: ARL

SEAL: COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — STEPHEN P. HOLT — ENGINEER — PE072081

DRAWING NUMBER: S1.4

REVISION LEVEL: R2



NOTE:
THE ACTUAL CAPACITY OF TANK NOS. 5, 6, 7, 8, 9, 10 ARE SUBJECT TO MODIFICATION BASED ON ACTUAL DIMENSIONS OF FINAL CONSTRUCTED TANKS. FINAL CONSTRUCTED TANKS WILL BE BETWEEN 30,000 - 32,000 GALLON CAPACITY EACH.
THE NUMBER AND LAYOUT OF RECIRCULATION PUMPS IS SUBJECT TO CHANGE. HOWEVER, THE NUMBER OF RECIRCULATION PUMPS FOR THE NEW TANK SYSTEM WILL NOT EXCEED 8.

REV.	DATE	DESCRIPTION	BY	APP
1	07/21/22	PERMITTING MODIFICATION	AL	SH

KEYSTONE CEMENT COMPANY

East Allen Township, Northampton Co., PA

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MAY 16, 2018
ORIGINAL BASE MAP PROVIDED BY:
EQUIPMENT PRO INC.

PROJECT TITLE
MIXING SYSTEM PROJECT FLOW DIAGRAM

DRAWING TITLE
FINAL OPERATING SCENARIO

LAST UPDATE	ENGINEER
–	SPH
DATE	CHECKED
7/21/22	SPH
SCALE	DRAWN
AS NOTED	ARL

SEAL
COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
STEPHEN P. HOLT
ENGINEER
PE072001
7/21/22

DRAWING NUMBER
S1.5

REVISION LEVEL
R1

LAYOUT PLAN

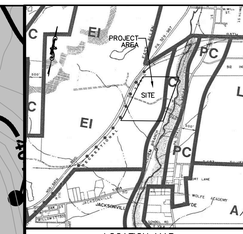
PROPOSED LIQUID FUELS HANDLING FACILITY SITE PLAN WITH 300 FOOT PHYSICAL FEATURES DELINEATION

SOILS NOTE: AREA IDENTIFIED FOR LOCATION OF PROPOSED FUEL HANDLING AND STORAGE FACILITY HAS BEEN SUBJECT TO LONG–TERM OBSERVATION AND SURFACE MATERIAL COMPACTION. NO EVIDENCE OF POTENTIAL SINKHOLE ACTIVITY HAS BEEN OBSERVED OVER THE LAST 80 YEARS IN THIS LOCATION AND THERE IS NO OTHER EVIDENCE WITHIN A MINIMUM OF 300 FEET OF SOIL SUBSIDENCE, SETTLEMENT AND/OR CLOSED DEPRESSIONS. SOIL PROBES AND TESTING FOR THE AREA INDICATE AN AVAILABLE MINIMUM SOIL BEARING CAPACITY OF 4,000 PSF (3,000 PSF IS THE BASIS OF THE FOUNDATION DESIGN) AND NO EVIDENCE OF SINKHOLE ACTIVITY. DURING CONSTRUCTION, INVESTIGATIVE BORE HOLES WILL BE DRILLED FOR EVIDENCE OF SOLUTION CHANNELS OR SINKHOLES, AND SOIL BEARING TESTS WILL BE PERFORMED IN ACCORDANCE WITH THE SPECIAL INSEPCTION PROVISIONS OF THE 2009 I.B.C.

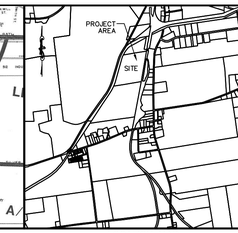
GRAPHIC SCALE

(IN FEET)
1 inch = 50 ft.

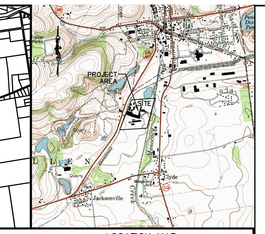
SEPARATION DISTANCE REQUIREMENTS FOR CLASS IB LIQUIDS
MIN. ALLOW. DIST. FROM PROP. LINE TO TANK = 50 FT (NFPA TABLE 4.3.2.1.1(b))
MIN. DIST. TO NEAREST PROP. LINE TO TANK = 330 FEET
MIN. ALLOW. DIST. NEAREST IMPORTANT BLDG. = 15 FT (NFPA TABLE 4.3.2.1.1(b))
MIN. DIST. TO NEAREST IMPORTANT BLDG. = 290 FEET
MIN. ALLOW. SEPARATION DIST. BETWEEN TANKS = 3 FT (NFPA TABLE 4.3.2.2.1)
MIN. SEPARATION DIST. BETWEEN TANKS = 4.50 FT
MIN. ALLOW. DIST. BETWEEN TANKS & NEAREST TRANSFER PT. = 25 FT. (NFPA 7.6.3)
MIN. SEPARATION DIST. BETWEEN TANKS & NEAREST TRANSFER PT. > 26 FT.



LOCATION MAP
SCALE: 1"=1320'
SOURCE: EAST ALLEN TOWNSHIP ZONING MAP, DEC. 9,1982



LOCATION MAP
SCALE: 1"=2000'
SOURCE: TAX MAP NORTHAMPTON COUNTY



LOCATION MAP
SCALE: 1"=2000'
SOURCE: USGS CATASAUQUA,PA. QUAD. MAP

NOTES

1. TOPOGRAPHIC AND PHYSICAL FEATURES OF PROJECT AREA SHOWN HEREON ARE FROM FIELD SURVEY PERFORMED BY RTCE CIRCA 2009.
2. ORIGINA OVERALL SYSTEM DESIGN BY PENTA ENGINEERING OF ST. LOUIS, MO. CIRCA JANUARY 7, 2003
3. APPROXIMATE TOTAL EXTENT OF PROPOSED SITE WORK = 0.50 ACRES

SOIL TYPE AT PROJECT AREA

REFERENCING SHEET 33 OF SOIL SURVEY OF NORTHAMPTON COUNTY, SOIL TYPE AT PROJECT AREA IS CLASSIFIED AS UHA (URBAN LAND, NEARLY LEVEL) BELONGING TO THE DUFFIELD–CLARKSBURG RYDER SOIL ASSOCIATION; THE UNDERLYING GEOLOGY IS OF THE ONTALAUNEE/JACKSONBURG FORMATION.

WETLANDS NOTE

A REVIEW OF THE US DEPT. OF INTERIOR'S NATIONAL WETLANDS INVENTORY MAP OF CATASAUQUA, PA. QUADRANGLE INDICATES THAT THERE ARE NO REGULATED WETLANDS IN THE PROJECT AREA.

PURPOSE

THE PURPOSE OF PREPARING THESE PLANS IS FOR THESE TO SERVE AS SUPPORTING DOCUMENTATION FOR KEYSTONE CEMENT COMPANY'S APPLICATION FOR BUILDING PERMIT TO EXPAND THE EXISTING LIQUID FUELS HANDLING AREA AND STORAGE FACILITIES AT THE EXISTING PLANT.

PROJECT INTENT

IT IS THE INTENT OF KEYSTONE CEMENT COMPANY TO CONSTRUCT AN ADDITION TO THE EXISTING LIQUID FUELS SYSTEM IN ORDER TO EXPAND ITS ABILITY TO RECEIVE AND BURN LIQUID FUEL FROM ITS EXISTING TRUCK–TANKER UNLOADING FACILITY. THIS EXPANSION WILL ALSO ALLOW FOR IMPROVED BLENDING AND MONITORING OF THE FUELS AND WILL PROVIDE IMPROVED BURN PERFORMANCE IN THE KILN.

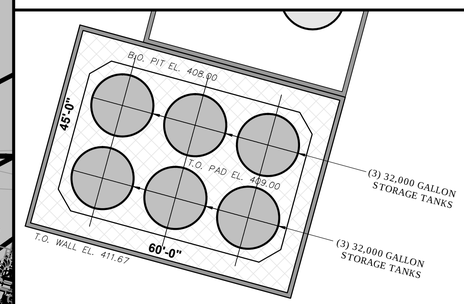
THE PROPOSED EXPANDED LIQUID FUELS STORAGE FACILITY WILL BE PLACED OVER AN EXISTING WELL COMPACTED (IMPERVIOUS) SURFACE. THE EXISTING COMPACTED CRUSHED STONE AREA IS CURRENTLY OVERLAIN WITH AN UNREINFORCED CONCRETE SURFACE. THE EXISTING UNREINFORCED CONCRETE SURFACE WILL BE REMOVED AND THE CONTAINMENT AREA WILL BE CONSTRUCTED OVER THE EXISTING CRUSHED STONE BASE, THERE WILL NOT BE ANY MEASUREABLE INCREASE IN HISTORICAL STORMWATER RUNOFF RESULTING FROM THE PROPOSED DEVELOPMENT SCOPE OF WORK.

NO ADDITIONAL WATER AND SEWER FACILITIES AND/OR USAGE IS PROPOSED. THE PROPOSED BUILDING ADDITION/EXPANSION IS LOCATED ENTIRELY WITHIN THE EI ZONING DISTRICT AND MEETS ALL BUILDING SET–BACK

IS PROPOSED WITH THIS APPLICATION. NO ADDITIONAL EMPLOYEES WILL RESULT FROM THE PROJECT CONSTRUCTION.

PROPOSED ADDITIONS

1. LIQUID FUELS CONTAINMENT AND STORAGE AREA
   ≈60' x 47' ▯ TOTAL CONTAINMENT = 4,886 C.F.
2. FIVE (5) NOMINAL 32,000 GALLON TANKS
   (ACTUAL OPERATING CAPACITY = 31,500 GAL.)

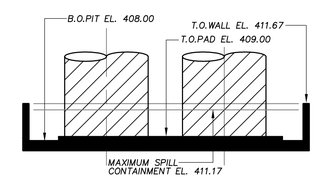


STORAGE TANK CONTAINMENT:
(45.00 x 60.00 x [3.67–0.50]) – [(3.14159 x 7.00 ^{2} x [3.67–1.50] x 6 TANKS] – (1718 x 1) = 5170 CF (AVAILABLE CONTAINMENT AREA VOLUME LESS SIX (6) TANKS & PAD VOLUME WITH 0.50 FREEBOARD)

CONTAINMENT VOLUME REQ'D. FOR ONE (1) TANK W/ VOLUME ABOVE FREEBOARD ELEV. = 4277 cf – 488 cf = 3789 cf

CONTAINMENT VOLUME AVAILABLE FOR TANK SPILL = 5170 cf > 3789 cf

SPILL CONTAINMENT PLAN VIEW



SPILL CONTAINMENT CROSS-SECTION

SITE DATA		
TOTAL AREA:	1,485,396 SQ. FT. 34.10 ACRES	
TAX MAP:	MAP K6 BLOCK 16 LOT 1	
DEED BOOK REF:	BOOK 1994–6 PAGE 042466	
EXISTING USE:	CEMENT PRODUCTION FACILITY	
PROPOSED USE:	CEMENT PRODUCTION FACILITY	
WATER:	ON–LOT (EXISTING WELLS)	
SEWER:	PUBLIC (EXISTING)	
TOWNSHIP	EAST ALLEN TOWNSHIP	
ZONING:	EI – EXTRACTIVE INDUSTRIAL DISTRICT	
	C – CONSERVATION DISTRICT (MINOR PORTION)	
		MIN. REQUIRED
MIN. LOT AREA:		EI = 2 ACRES C = 3 ACRES
MIN. LOT WIDTH:		EI = 180 FEET C = 220 FEET
MAX. IMPERVIOUS COVERAGE:		EI = 50% C = 10%
MAX. BUILDING COVERAGE:		EI = 40% C = 5%
MAX. BUILDING HEIGHT:		EI = 56 FT. – 4 STORIES C = 35 FT. – 2.5 STORIES
BUILDING SETBACKS:		
FRONT YARD:		EI = 40 FT. C = 40 FT.
SIDE YARD:		EI = 35 FT. 70 FT. (BOTH) C = 35 FT. 70 FT (BOTH)
REAR YARD:		EI = 56 FT. C = 35 FT.

OWNER/APPLICANT:
KEYSTONE CEMENT COMPANY
P.O. BOX "A"
BATH, PA 18014–0058
ATTN: MR. STEPHEN HOLT, VP
OR MR. SCOTT McGOLDRICK

REV.	DATE	DESCRIPTION	BY	APP.
1	07/17/18	REVISED FOR INSTALLATION OF SIX (6) TANKS	RT	RT
0	09/10/14	RELEASED FOR OWNER'S PERMITTING USE ONLY	RT	RT
		(NOT FOR CONSTRUCTION)		

LIQUID FUELS HANDLING PROJECT

KEYSTONE CEMENT COMPANY

East Allen Township, Northampton Co., PA

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RT CE
RT Consulting & Engineering, Inc.
65 E. Elizabeth Avenue, Suite 110
Bethlehem, PA 18018
610-866-7202 (office) 610-866-7206 (fax)

PROJECT TITLE
LIQUID FUELS HANDLING IMPROVEMENTS/ADDITIONS SOLVENT FUELS STORAGE & PIPING SYSTEM

DRAWING TITLE
TRUCK SOLVENT FUELS UNLOADING & STORAGE SYSTEM SITE PLAN

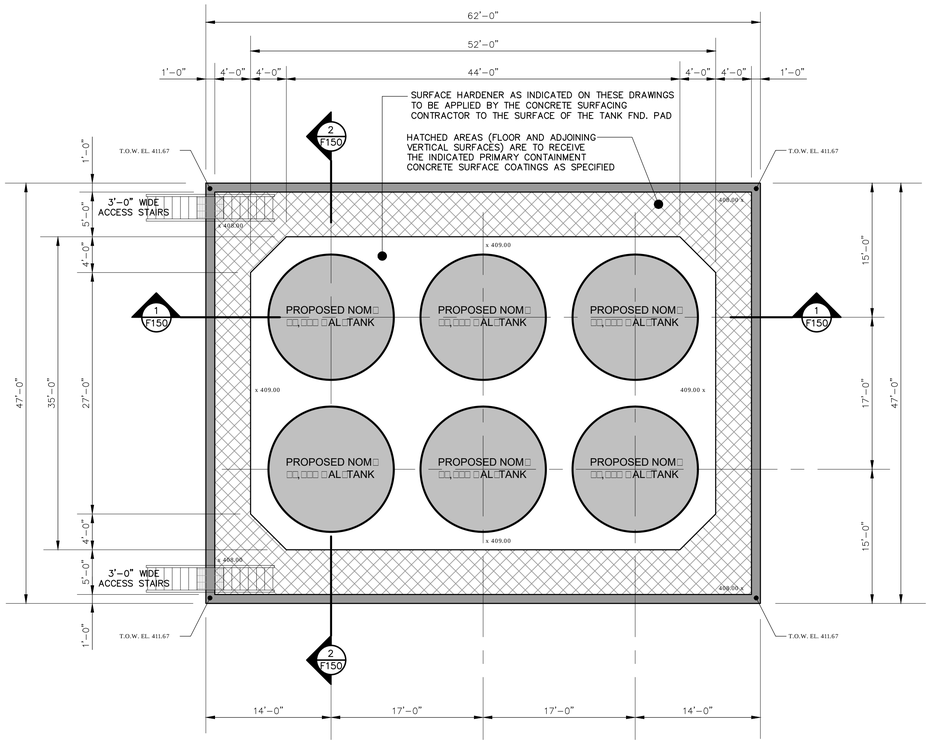
LAST UPDATE	ENGINEER	RTCE CONTRACT No.
–	RMT	21420
DATE	DESIGNER	CADD FILE No.
08/21/14	RMT	C150–R1
SCALE	DRAWN	XREF FILE(S)
AS NOTED	RMT	–

RECORDS CONTROL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
ROBERT M. TOEDTER
ENGINEER
No.28590-E

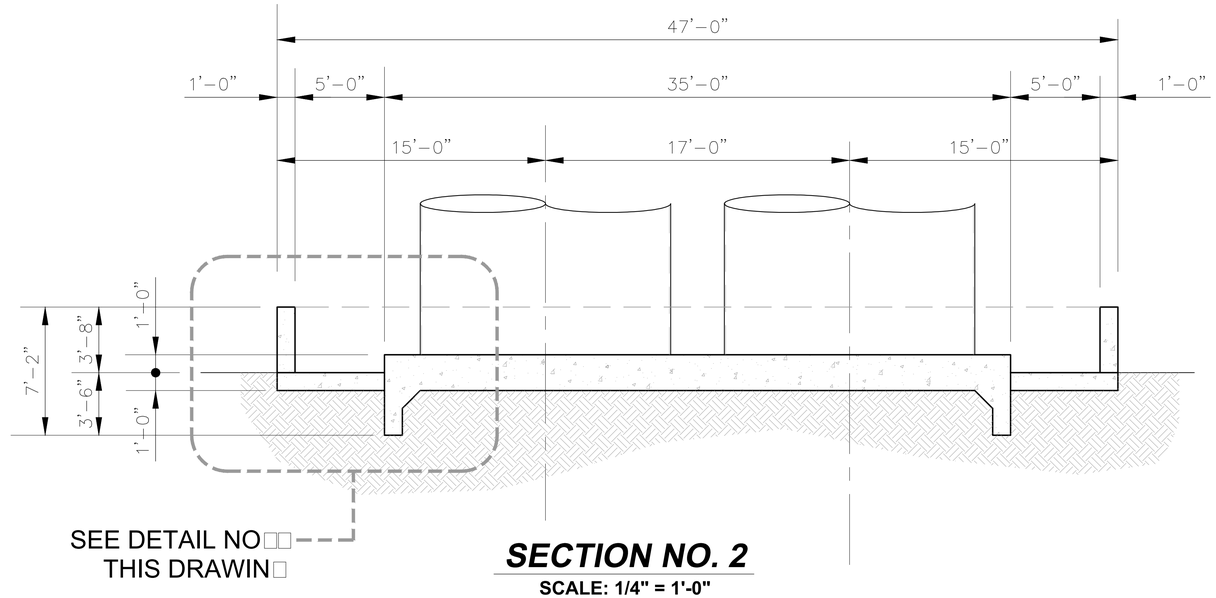
DRAWING NUMBER
C150

REVISION LEVEL
R1



TANK FND./CONTAINMENT LAYOUT PLAN

SCALE: 1/8" = 1'-0"



SECTION NO. 2

SCALE: 1/4" = 1'-0"

CONCRETE SURFACE TREATMENT NOTES:

(1) THE AREAS DESIGNATED AS RECEIVING A PRIMARY CONTAINMENT COATING SHALL RECEIVE THE FOLLOWING SYSTEM AS DIRECTED BY THE OWNER OR APPROVED EQUAL:

* CARBOLINE (314-644-1000)

FLOOR AND WALL PRIMER: SEMSTONE 110/110EP DAMP-PROOF PRIMER EPOXY. APPLICATION: TWO (2) COATS OVER SAND BLASTED CONC. SURFACE

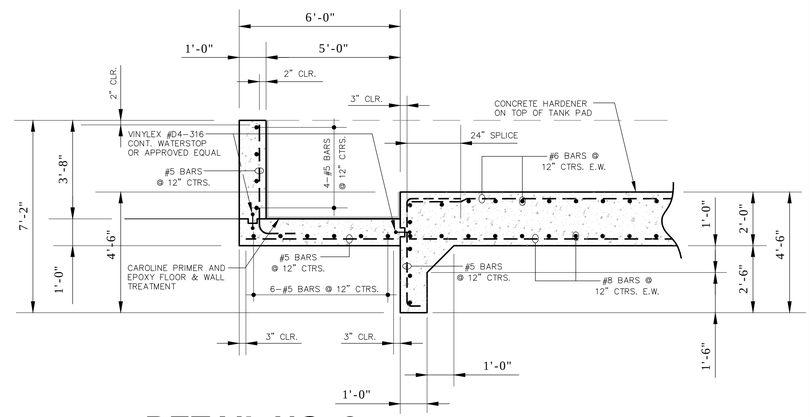
FLOOR AND WALL SURFACE TREATMENT: PLASITE 4500 HIGH PERFORMANCE EPOXY COATING. APPLICATION: TWO (2) 20 MIL COATS OVER EPOXY PRIMER

* E-POXY INDUSTRIES, INC. (1-800-833-3400)

JOINT SEALANT: EVAZOTE 380 EXPANSION JOINT FILLER

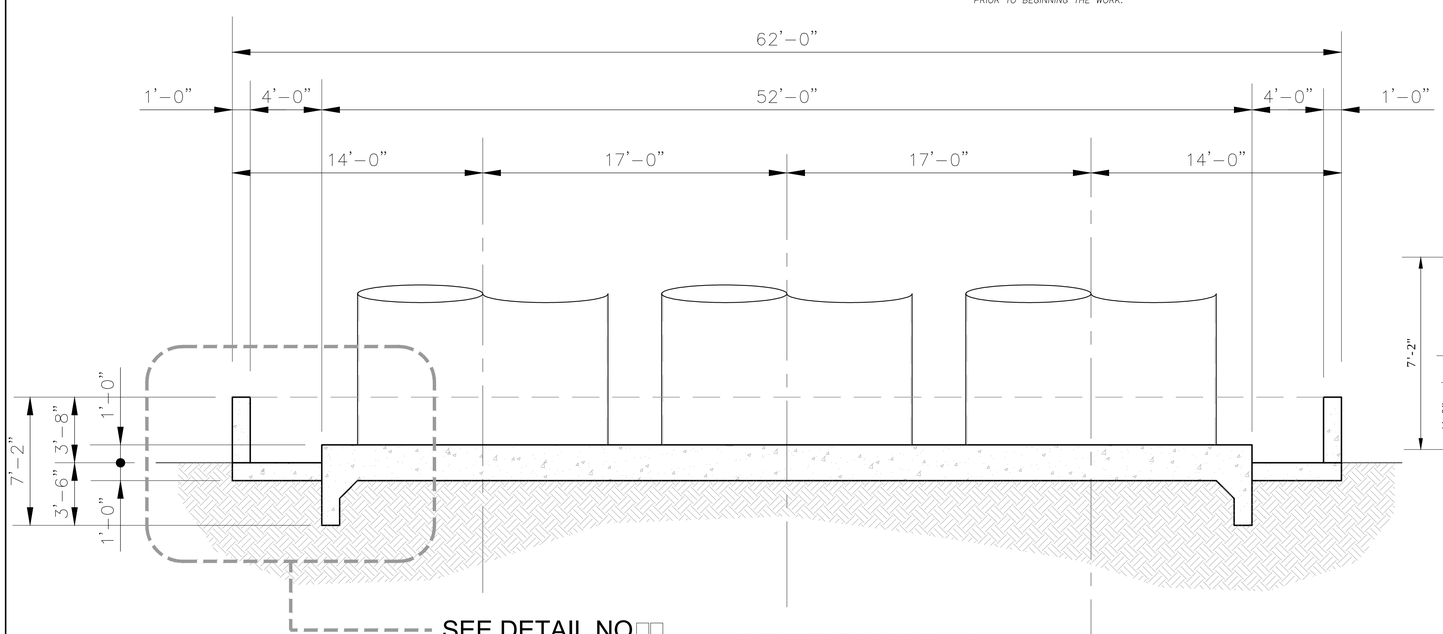
(2) ALL REMAINING EXPOSED CONCRETE SURFACES, WALLS, AND FLOORS WHERE NO TOPPING IS REQUIRED, ARE TO BE TREATED WITH "SPARTON-COTE CURE-SEAL-HARDENER" AS MAUNFACTURED BY BURKE CO. (609-662-5522) OR APPROVED EQUAL.

(3) THE INSTALLATION OF CONCRETE SURFACE COATINGS SHALL BE BY THE MANUFACTURER OR BY A SUB-CONTRACTOR APPROVED BY THE MANUFACTURER. THE CONTRACTOR SHALL CONSULT WITH THE MANU-FACTURER THROUGH ALL PHASES OF SURFACE PREPARATION AND INSTALLATION OF TOPPING, AND SHALL SUBMIT, TO THE OWNER. THE MANUFACTURER'S SPECIFICATIONS REGARDING MATERIAL AND INSTALLATION PRIOR TO BEGINNING THE WORK.



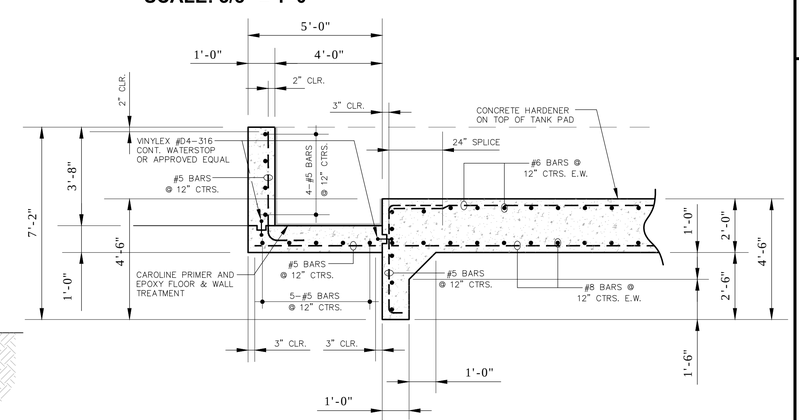
DETAIL NO. 2

SCALE: 3/8" = 1'-0"



SECTION NO. 1

SCALE: 1/4" = 1'-0"



DETAIL NO. 1

SCALE: 3/8" = 1'-0"

REV.	DATE	DESCRIPTION	BY	APP
1	07/17/18	REVISED FOR INSTALLATION OF SIX (6) TANKS	RT	RT
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LIQUID FUELS HANDLING PROJECT

KEYSTONE CEMENT COMPANY

East Allen Township, Northampton Co., PA

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RT CE
RT Consulting & Engineering, Inc.
65 E. Elizabeth Avenue, Suite 110
Bethlehem, PA 18018
610-866-7202 (office) 610-866-7206 (fax)

PROJECT TITLE
LIQUID FUELS HANDLING IMPROVEMENTS/ADDITIONS SOLVENT FUELS STORAGE & PIPING SYSTEM

DRAWING TITLE
TRUCK SOLVENT FUELS UNLOADING & STORAGE FOUNDATION PLAN

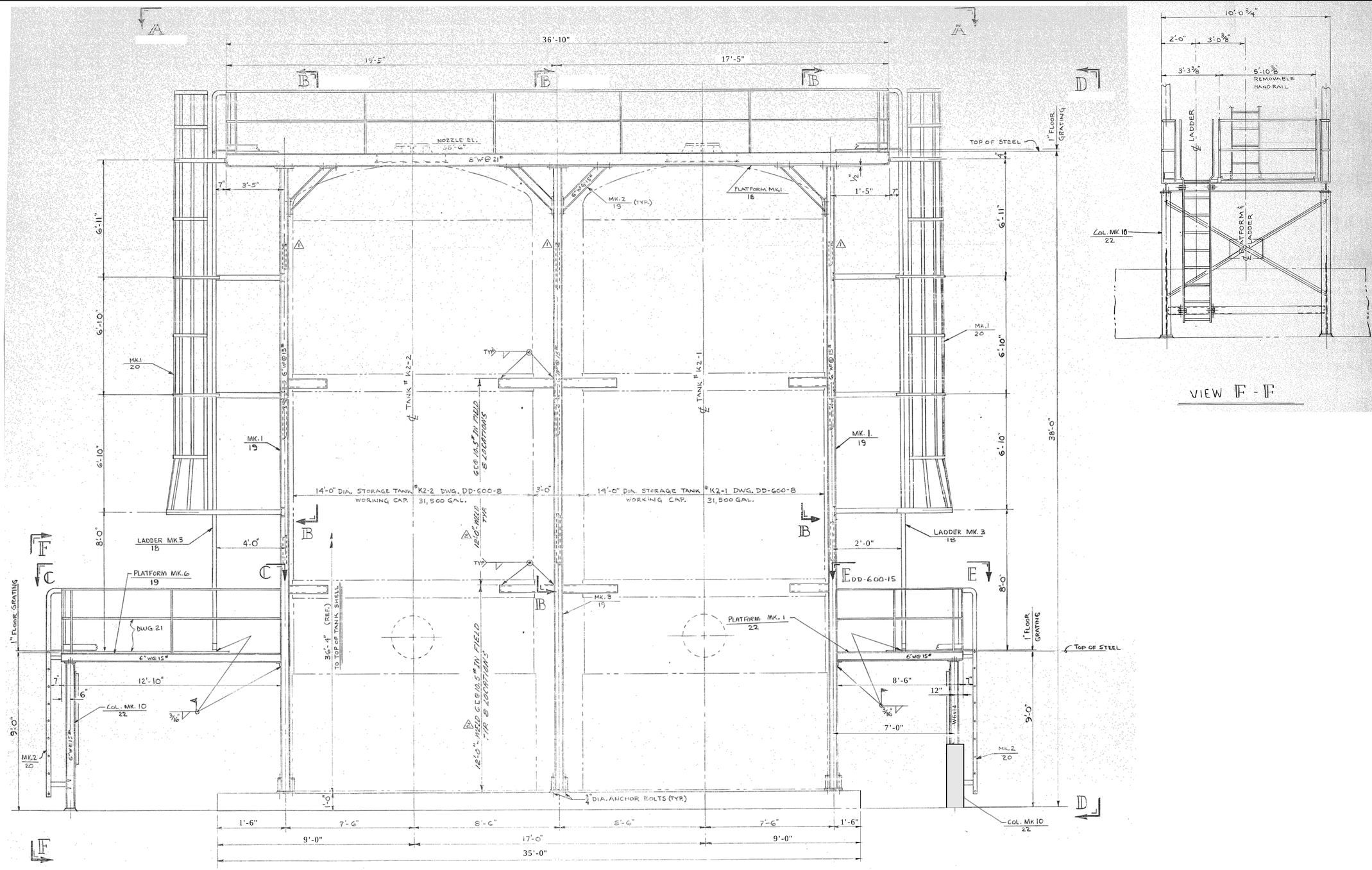
LAST UPDATE –	ENGINEER RMT	RTCE CONTRACT No. 21420
DATE 08/21/14	DESIGNER RMT	CADD FILE No. F150-R1
SCALE AS NOTED	DRAWN RMT	XREF FILE(S) –

RECORDS CONTROL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
ROBERT M. TOEDTER
ENGINEER
No.28590-E

DRAWING NUMBER
F150

REVISION LEVEL
R1



TWO (2) TANK ACCESS STRUCTURAL ELEVATION VIEW

SCALE: 3/4" = 1'-0" **(TYPICAL FOR THREE SETS OF TWO TANKS)**

(NOTE: THESE STRUCTURAL PLANS ARE FOR PERMITTING AND ILLUSTRATIVE PURPOSES ONLY. THE FINAL STRUCTURAL STEEL ARRANGEMENT MAY VARY BASED UPON CLIENT REVIEW AND FIELD CONDITIONS)

REV.	DATE	DESCRIPTION	BY	APP
0	09/10/14	RELEASED FOR OWNER'S PERMITTING USE ONLY	RT	RT
		(NOT FOR CONSTRUCTION)		

LIQUID FUELS HANDLING PROJECT

KEYSTONE CEMENT COMPANY

East Allen Township, Northampton Co., PA

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PROJECT TITLE
LIQUID FUELS HANDLING IMPROVEMENTS/ADDITIONS SOLVENT FUELS STORAGE & PIPING SYSTEM

DRAWING TITLE
TRUCK SOLVENT FUELS UNLOADING & STORAGE TANK STRUCTURAL PLAN

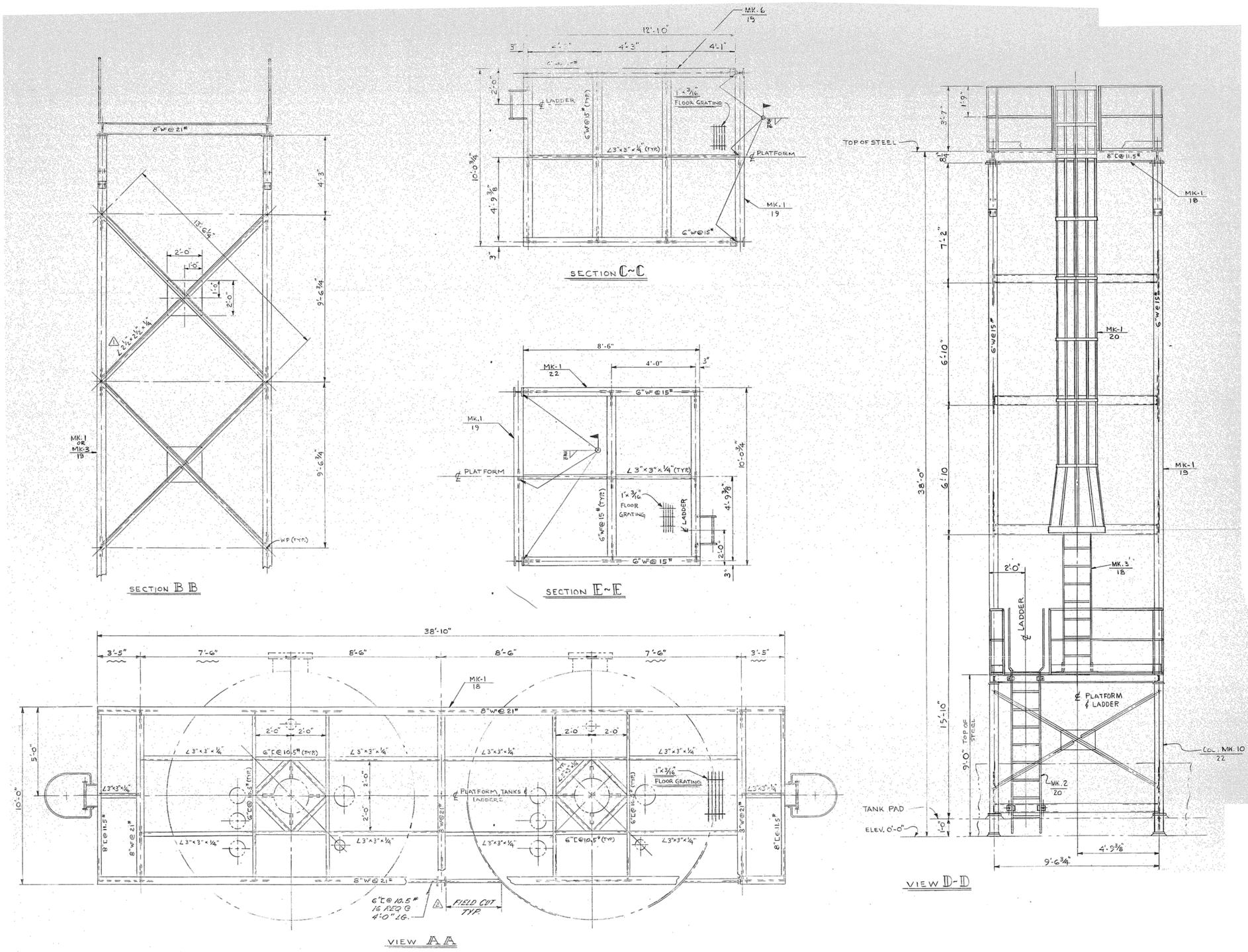
LAST UPDATE	ENGINEER	RTCE CONTRACT No.
–	RMT	21420
DATE 08/21/14	DESIGNER RMT	CADD FILE No. S150–R0
SCALE AS NOTED	DRAWN RMT	XREF FILE(S) –

RECORDS CONTROL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
ROBERT M. TOEDTER
No. 28590-E

DRAWING NUMBER
S150

REVISION LEVEL
R0



TWO (2) TANK ACCESS STRUCTURAL ELEVATION VIEW

SCALE: 3/4" = 1'-0" **(TYPICAL FOR THREE SETS OF TWO TANKS)**

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REV.	DATE	DESCRIPTION	BY	APP.
0	09/10/14	RELEASED FOR OWNER'S PERMITTING USE ONLY	RT	RT
		(NOT FOR CONSTRUCTION)		

LIQUID FUELS HANDLING PROJECT

KEYSTONE CEMENT COMPANY

East Allen Township, Northampton Co., PA

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PROJECT TITLE
LIQUID FUELS HANDLING IMPROVEMENTS/ADDITIONS SOLVENT FUELS STORAGE & PIPING SYSTEM

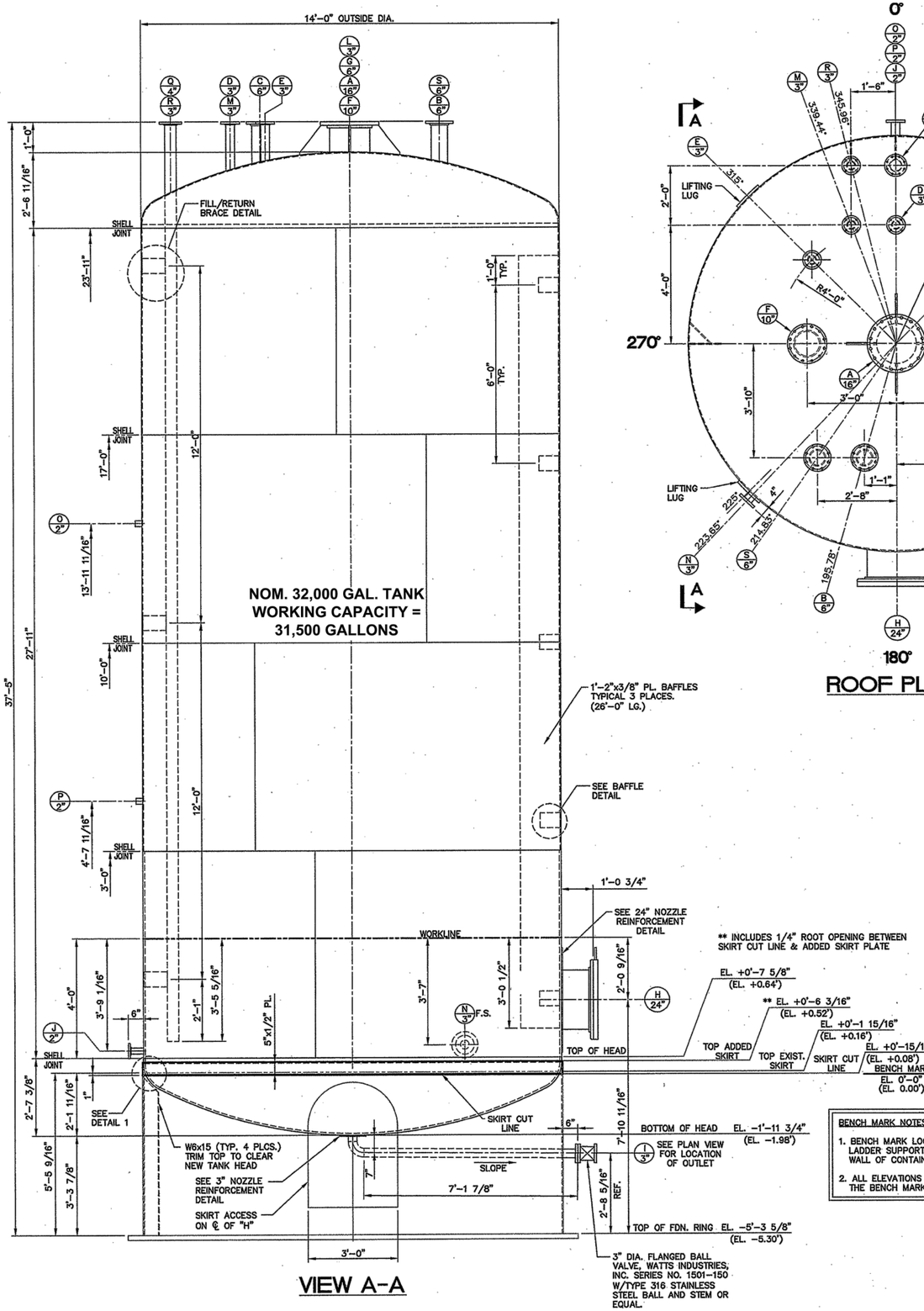
DRAWING TITLE
TRUCK SOLVENT FUELS UNLOADING & STORAGE TANK STRUCTURAL DETAILS

LAST UPDATE —	ENGINEER RMT	RECORDS CONTROL	RTCE CONTRACT No. 21420
DATE 08/21/14	DESIGNER RMT		CADD FILE No. T151-R0
SCALE AS NOTED	DRAWN RMT		XREF FILE(S) —

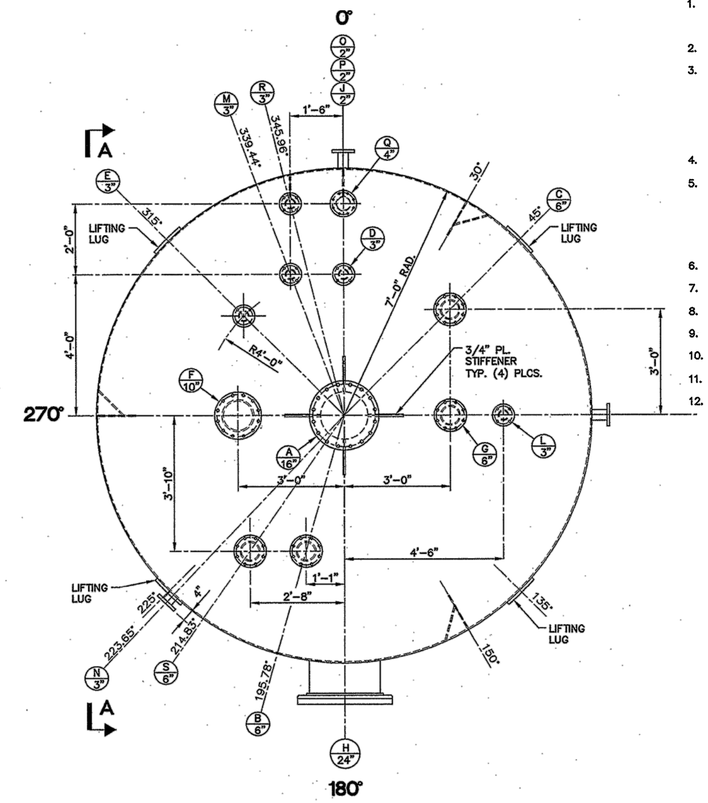
COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
ROBERT M. TOEDTER
ENGINEER
No.28590-E

DRAWING NUMBER
S151

REVISION LEVEL
R0



VIEW A-A



ROOF PLAN

BENCH MARK NOTES:

1. BENCH MARK LOCATED ON BOTTOM EDGE OF LADDER SUPPORT. LADDER LOCATED ON NORTH WALL OF CONTAINMENT AREA.
2. ALL ELEVATIONS SHOWN ARE REFERENCED TO THE BENCH MARK.

GENERAL NOTES:

1. ALL TANK RECONSTRUCTION SHALL COMPLY WITH API 650 AND API 653. CONTRACTOR SHALL FURNISH RECONSTRUCTION CERTIFICATION IN ACCORDANCE WITH API 653. RECONSTRUCTION NAMEPLATE SHALL BE FURNISHED AND ERECTED ADJACENT TO EXISTING NAMEPLATE.
2. EXISTING SKIRT TO REMAIN AND FIELD MODIFIED AS NECESSARY.
3. ALL EXTERIOR SURFACES SHALL BE PAINTED AS FOLLOWS:
   SURFACE PREP – SSPC–SP6 COMMERCIAL BLAST.
   PRIMER – SHERWIN WILLIAMS KEM KROMIK UNIVERSAL METAL PRIMER B50WZA, 4.0 MILS DFT MINIMUM.
   FINISH – SHERWIN WILLIAMS HI–SOLIDS POLYURETHANE B65 SERIES, ONE COAT 4.0 MILS DFT MINIMUM, COLOR WHITE.
4. FULL HYDROSTATIC TEST, HELD FOR 24 HOURS SHALL BE PERFORMED AFTER COMPLETION OF RECONSTRUCTION WORK.
5. A. BOTTOM HEAD SHALL BE SA516–70 ASME F&D WITH 168.00" O.D., 3/4" NOMINAL THICKNESS, 168.00" DISH RADIUS, 11.00" KNUCKLE RADIUS, 1.50" STRAIGHT FLANGE, 30.86" OVERALL HEIGHT, MANUFACTURED BY BRIGHTON TRU–EDGE HEADS, CINCINNATI, OH, OR EQUAL.
   B. TOP HEAD SHALL BE SA516–70 ASME F&D WITH 168.00" O.D., 3/8" NOMINAL THICKNESS, 168.00" DISH RADIUS, 11.00" KNUCKLE RADIUS, 1.50" STRAIGHT FLANGE, 30.68" OVERALL HEIGHT, MANUFACTURED BY BRIGHTON TRU–EDGE HEADS, CINCINNATI, OH, OR EQUAL.
6. SHELL COURSING SHALL BE 3/8" THICK ASTM A–36 PLATE.
7. ALL FLANGES SHALL BE 150# TYPE A–105 CARBON STEEL SLIP–ON U.N.O.
8. ALL FLANGE GASKETS SHALL BE 1/8" THK. "GORE–TEX GR" PTFE U.N.O..
9. ALL NOZZLES NECKS CONSTRUCTED OF PIPE SHALL BE TYPE A–106–B U.N.O.
10. FLANGE BOLTS SHALL STRADDLE TANK CENTERLINES.
11. WHERE HORIZONTAL WELDS INTERSECT VERTICAL WELDS; THE VERTICAL WELDS MUST BE STAGGARED 12" MINIMUM.
12. REFER TO DRAWING D03 FOR ADDITIONAL DETAILS AND SECTIONS.

NOZZLE SCHEDULE

NOZZLE									COMMENTS	
MARK	SIZE	QTY.	REPAD	SETBACK	EXT PROJ.	INT PROJ.	FLANGE	SCHEDULE	DESCRIPTION	GENERAL
A	16"	1	YES	3/8"	12"	FLUSH	150#	160	AGITATOR MOUNTING	
B	6"	1	NO	3/8"	18 15/16"	FLUSH	150#	80	SPARE	
C	6"	1	NO	3/8"	19 7/8"	FLUSH	150#	80	FLAME DETONATOR/BREATHING VENT	
D	3"	1	NO	3/8"	19"	FLUSH	150#	80	N2 REGULATOR	
E	3"	1	NO	3/8"	19"	FLUSH	150#	80	SPARE	
F	10"	1	NO	3/8"	15 7/8"	FLUSH	150#	80	PRESSURE VENT	
G	6"	1	NO	3/8"	15 7/8"	FLUSH	150#	80	HIGH LEVEL	
H	24"	1	YES	3/8"	12 3/4"	FLUSH	150#	NA	MANWAY	1/2" A36 ROLLED PLATE
I	3"	1	YES	3/8"	6"(1)	FLUSH	150#	160	DISCHARGE	(1)FROM OUTSIDE FACE OF SKIRT
J	2"	1	NO	3/8"	6"	FLUSH	150#	160	SPARE	
L	3"	1	NO	3/8"	20 7/8"	FLUSH	150#	80	SPARE	
M	3"	1	NO	3/8"	20"	FLUSH	150#	80	N2 INLET	
N	3"	1	YES	3/8"	4"	FLUSH	150#	80	LEVEL INDICATOR	
O	2"	1	NO	3/8"		FLUSH	NA	NA	SPARE	COUPLING WITH PLUG
P	2"	1	NO	3/8"		FLUSH	NA	NA	SPARE	COUPLING WITH PLUG
Q	4"	1	YES	3/8"	28 3/16"	FLUSH	150#	160	FILL PORT	
R	3"	1	YES	3/8"	29 1/4"	FLUSH	150#	160	FILL PORT	
S	6"	1	NO	3/8"	21 5/8"	FLUSH	150#	80	PRESSURE TRANSMITTER	

REV.	DATE	DESCRIPTION	BY	APP.
0	09/10/14	RELEASED FOR OWNER'S PERMITTING USE ONLY	RT	RT
		(NOT FOR CONSTRUCTION)		

LIQUID FUELS HANDLING PROJECT

KEYSTONE CEMENT COMPANY

East Allen Township, Northampton Co., PA

NOTE:
THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS PRIOR TO PROCEEDING WITH ANY WORK. WHERE DISCREPANCIES OCCUR BETWEEN THESE DOCUMENTS AND EXISTING CONDITIONS, THE DISCREPANCY SHALL BE REPORTED TO THE OWNER AND/OR ENGINEER FOR EXPEDITING AND RESOLUTION.

RT CE
RT Consulting & Engineering, Inc.
65 E. Elizabeth Avenue, Suite 110
Bethlehem, PA 18018
610-866-7202 (office) 610-866-7206 (fax)

PROJECT TITLE
LIQUID FUELS HANDLING IMPROVEMENTS/ADDITIONS SOLVENT FUELS STORAGE & PIPING SYSTEM

DRAWING TITLE
TRUCK SOLVENT FUELS UNLOADING & STORAGE TANK CONSTRUCTION PLAN

LAST UPDATE –	ENGINEER RMT	RTCE CONTRACT No. 21420
DATE 08/21/14	DESIGNER RMT	CADD FILE No. T150–R0
SCALE AS NOTED	DRAWN RMT	XREF FILE(S) –

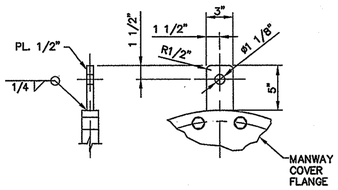
RECORDS CONTROL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
ROBERT M. TOEDTER
ENGINEER
No.28590-E

DRAWING NUMBER
T150

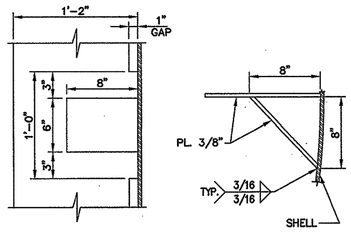
REVISION LEVEL
R0

REV.	DATE	DESCRIPTION	BY	APP
0	09/10/14	RELEASED FOR OWNER'S PERMITTING USE ONLY	RT	RT
		(NOT FOR CONSTRUCTION)		



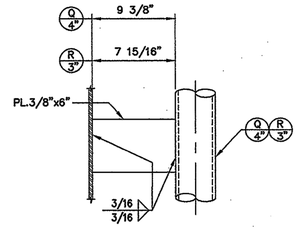
MANWAY COVER LUG DETAIL

SCALE: NONE



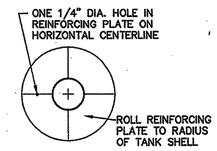
BAFFLE DETAIL

SCALE: NONE



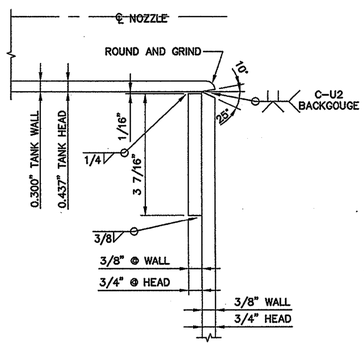
FILL/RETURN BRACE DETAIL

SCALE: NONE



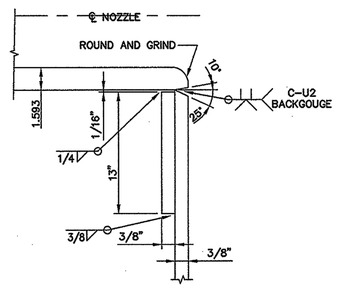
TYPICAL REINFORCEMENT PLATE

SCALE: NONE



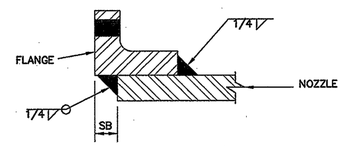
3" NOZZLE REINFORCEMENT

SCALE: NONE



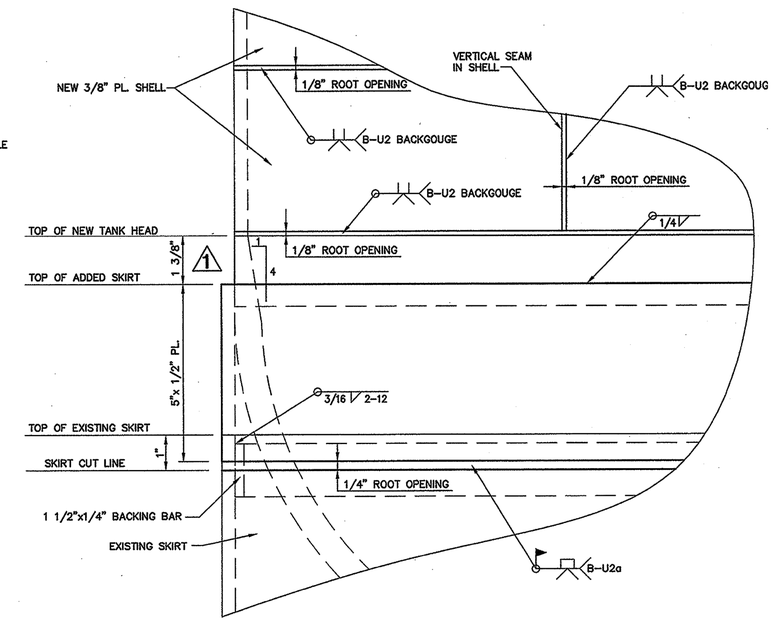
16" NOZZLE REINFORCEMENT

SCALE: NONE



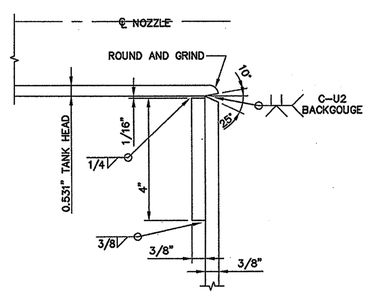
SLIP ON FLANGE

SCALE: NONE



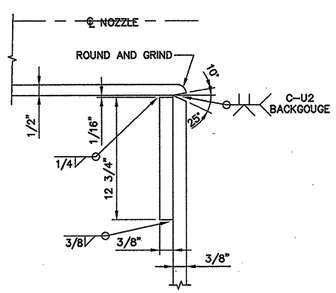
DETAIL 1

SCALE: 6"=1'-0"



4" NOZZLE REINFORCEMENT

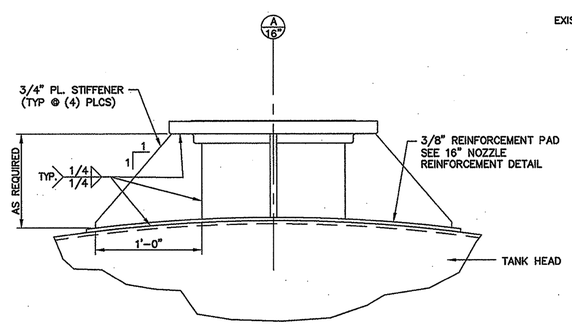
SCALE: NONE



24" NOZZLE REINFORCEMENT

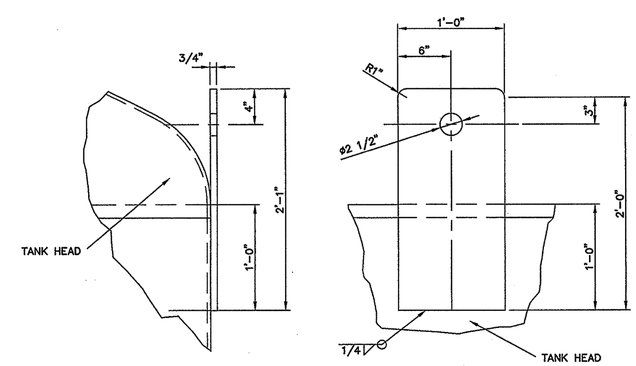
SCALE: NONE

1 NOTE: TRIM BOTTOM OF REINFORCEMENT TO CLEAR HEAD WELD



AGITATOR SUPPORT FLANGE DETAIL

SCALE: 1 1/2" = 1'-0"



LIFTING LUG DETAIL

SCALE: 1 1/2" = 1'-0"

LIQUID FUELS HANDLING PROJECT

KEYSTONE CEMENT COMPANY

East Allen Township, Northampton Co., PA

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RT CE
RT Consulting & Engineering, Inc.
65 E. Elizabeth Avenue, Suite 110
Bethlehem, PA 18018
610-866-7202 (office) 610-866-7206 (fax)

PROJECT TITLE
LIQUID FUELS HANDLING IMPROVEMENTS/ADDITIONS SOLVENT FUELS STORAGE & PIPING SYSTEM

DRAWING TITLE
TRUCK SOLVENT FUELS UNLOADING & STORAGE TANK CONSTRUCT. DETAILS

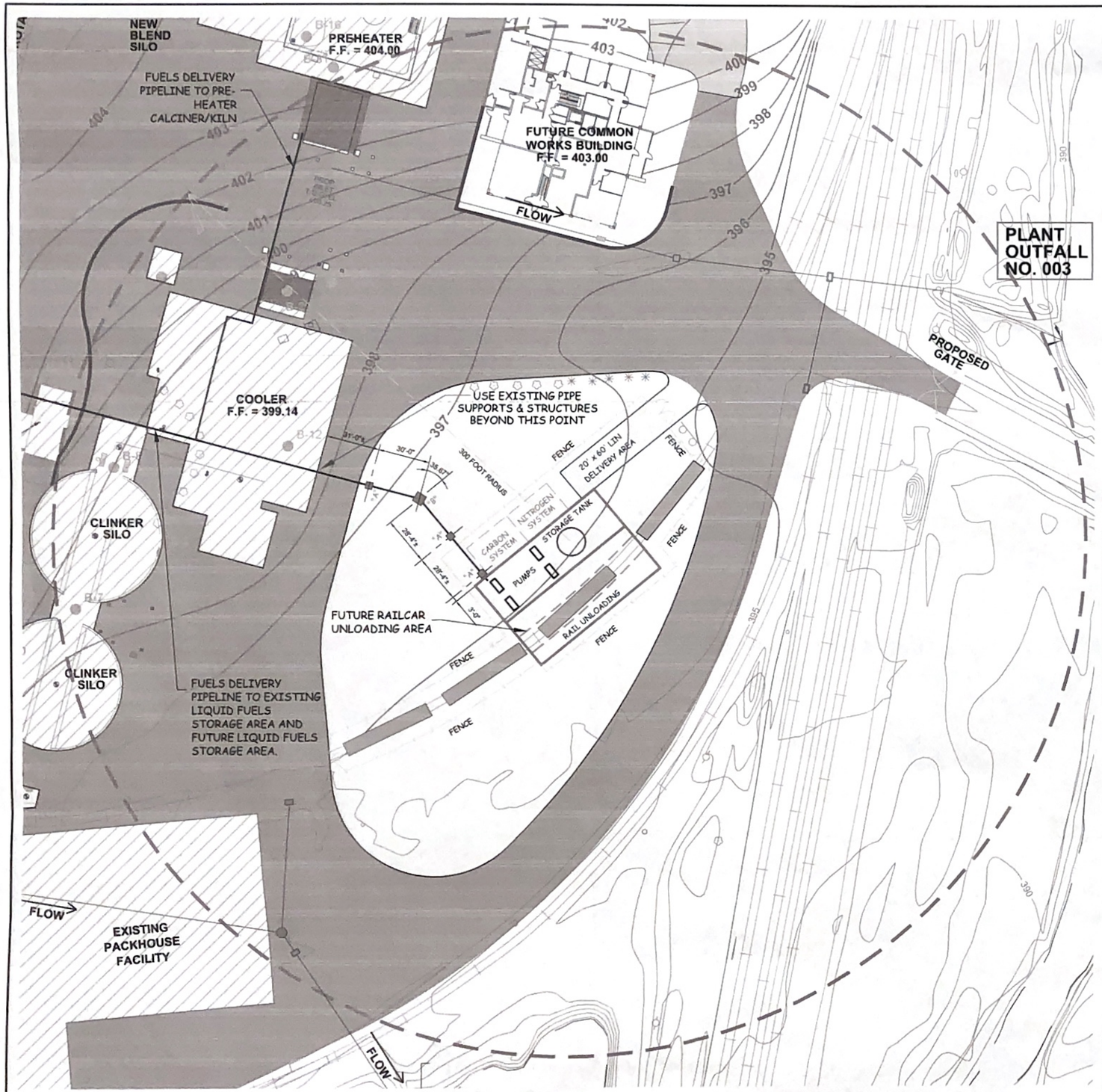
LAST UPDATE	ENGINEER	RTCE CONTRACT No.
–	RMT	21420
DATE	DESIGNER	CADD FILE No.
08/21/14	RMT	T151-R0
SCALE	DRAWN	XREF FILE(S)
AS NOTED	RMT	–

RECORDS CONTROL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
ROBERT M. TOEDTER
ENGINEER
No.28590-E

DRAWING NUMBER
T151

REVISION LEVEL
R0



LAYOUT PLAN

NOTES

1. TOPOGRAPHIC AND PHYSICAL FEATURES OF PROJECT AREA SHOWN HEREON ARE FROM FIELD SURVEY PERFORMED BY FTSC CIRCA 2008.
2. ORIGINAL OVERALL SYSTEM DESIGN BY PENTA ENGINEERING OF ST. LOUIS, MO. CIRCA JANUARY 1, 2003
3. APPROXIMATE TOTAL EXTENT OF PROPOSED SITE WORK = 0.50 ACRES
4. THIS DRAWING IS MODIFIED FROM BT CONSULTING AND ENGINEERING INC. DRAWING C100 DATED 11/18/14.

SOIL TYPE AT PROJECT AREA

REFERENCING SHEET 32 OF SOIL SURVEY OF NORTHAMPTON COUNTY, SOIL TYPE AT PROJECT AREA IS CLASSIFIED AT 3HA (URBAN LAND, NEARLY LEVEL) BELONGING TO THE DUFFIELD-CLARKSBURG RIVER SOIL ASSOCIATION. THE UNDERLYING GEOLOGY IS OF THE ONTALAUNEE/GROSSMOUNT FORMATION.

WETLANDS NOTE

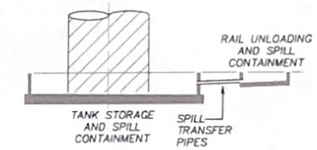
A REVIEW OF THE US DEPT. OF INTERIOR'S NATIONAL WETLANDS INVENTORY MAP OF CATASAUQUA, PA. QUADRANGLE INDICATES THAT THERE ARE NO REGULATED WETLANDS IN THE PROJECT AREA.

PURPOSE

THE PURPOSE OF PREPARING THESE PLANS IS FOR THESE TO SERVE AS SUPPORTING DOCUMENTATION FOR KEYSTONE CEMENT COMPANY'S APPLICATION FOR A RCRA PERMIT.

PROPOSED ADDITIONS

1. LIQUID FUELS CONTAINMENT AND STORAGE AREA 75' x 48' TOTAL SECONDARY CONTAINMENT DETAILED BELOW
2. ONE (1) NOMINAL 28,000 GALLON TANK



SPILL CONTAINMENT CROSS-SECTION

SECONDARY CONTAINMENT VOLUME REQUIRED:

ONE (1) 50,000 GALLON RAILCAR (4,011 C.F.) + 25-YEAR, 24-HOUR RAINFALL EVENT OVER TOTAL SURFACE AREA OF TANK STORAGE AREA AND RAILCAR UNLOADING AREA (5.68 IN / 12 IN/FT x (1,800 SQ FT + 675 SQ FT) = 1,155 C.F.) + 0.5 FEET FREEBOARD OVER SURFACE AREA OF TANK STORAGE AREA AND RAILCAR UNLOADING AREA (0.5 FT x (1,800 SQ FT + 675 SQ FT)) = 1,238 C.F.) = 6,403 C.F. TOTAL

SECONDARY CONTAINMENT VOLUME AVAILABLE:

TANK STORAGE AREA: 7,493.7 C.F. + TANK STORAGE AREA (24 FT x 75 FT x 4.5 FT = 8,100 C.F.) MINUS DISPLACEMENT FROM PUMP AND TANK PAD VOLUMES (606 C.F.)

RAIL CAR UNLOADING AREA: 2,306.3 C.F. = 9 FT X 75 FT X 3.42 FT

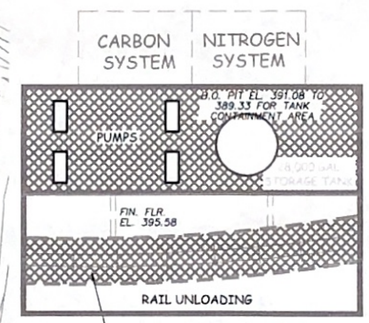
TOTAL VOLUME AVAILABLE = 7,493.7 C.F. + 2,306.3 C.F. = 9,799.9 C.F.

TOTAL VOLUME AVAILABLE (9,799.9 C.F.) > TOTAL VOLUME REQUIRED (8,077 C.F.)

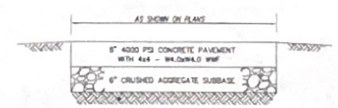
STORM WATER CONTAINMENT NOTE: THE 25-YR, 24 HR STORM EVENT FOR NORTHAMPTON COUNTY, PA PRODUCES 5.68 INCHES OF PRECIPITATION PER TABLE 5.1 OF THE PA EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL, LAST REVISED MARCH 2012. THE TANK STORAGE AREA MAY BE COVERED BY A ROOF, EXCEPT AT THE TANK PENETRATION. CONSERVATIVELY ASSUMING THE ENTIRE SURFACE AREA IS UNCOVERED, THE TOTAL VOLUME OF STORM WATER IS CALCULATED TO BE (5.68 IN / 12 IN/FT) X (1,800 SQ FT + 675 SQ FT) = 1,155 C.F. OR 8,639.4 GALLONS

GENERAL NOTE: ONLY A PORTION OF THE TANK STORAGE AREA (I.E., PUMP AREA) AND RAILCAR UNLOADING AREA SECONDARY CONTAINMENT IS REQUIRED IF THE TANK IS NOT CONSTRUCTED AT THE SAME TIME AS THE RAILCAR UNLOADING AREA. THE MINIMUM PUMP AREA SECONDARY CONTAINMENT IS: 2,814 C.F. = PUMP AREA (24 FT x 19 FT x 4.5 FT = 1,192 C.F.) MINUS DISPLACEMENT FROM PUMP PAD VOLUMES (378 C.F.). TOTAL VOLUME AVAILABLE (5,130 C.F.) > TOTAL VOLUME REQUIRED (5,104 C.F.).

GENERAL NOTE: REFER TO FIGURES F160, F161, F162, F163 FOR ADDITIONAL SECONDARY CONTAINMENT DETAILS.



SPILL CONTAINMENT PLAN VIEW



NOTES:
1. THE CONTRACTOR SHALL INSTALL A CEMENT CONCRETE PAVEMENT AS SHOWN IN THE CROSS-SECTION FOR THE CONSTRUCTION OF THE PROPOSED INTERNAL ROADWAY. 6" WELL-COMPACTED CRUSHED AGGREGATE SUB-BASE AND 8" THICK 4000 PSI CONCRETE PAVEMENT WITH 4x4 - W4.0xW4.0 WIRE WELDED FABRIC. NO ALTERNATIVE ALLOWED.
2. ALL MATERIALS, CONSTRUCTION PROCEDURES AND OTHER SPECIFICATIONS SHALL BE IN CONFORMANCE WITH THE LATEST EDITION OF PennDOT FORM 408 SPECIFICATIONS.

CROSS-SECTION OF PROPOSED DELIVERY AREA PAVING

PROJECT INTENT: IT IS THE INTENT OF KEYSTONE CEMENT COMPANY TO CONSTRUCT AN ADDITION TO THE EXIST. LIQUID FUELS SYSTEM IN ORDER TO PROVIDE FOR THE DELIVERY, STORAGE AND BURNING OF LIQUID FUELS FROM RAIL CARS. THIS EXPANSION WILL ALSO ALLOW FOR IMPROVED TESTING, BLENDING, AND BURN PERFORMANCE IN THE KILN.

THE PROPOSED RAIL CAR UNLOADING FACILITY WILL BE PLACED OVER AN EXIST. WELL-COMPACTED (ESSENTIALLY IMPERVIOUS) SURFACE. THE EXIST. TIGHTLY PACKED CRUSHED STONE AREA, FOR ALL PRACTICAL PURPOSES, IS AN IMPERVIOUS SURFACE. AS THE PROPOSED UNLOADING FACILITY WILL REPLACE EXISTING IMPERVIOUS AREA, THERE WILL BE NO MEASURABLE INCREASE IN STORMWATER RUNOFF RESULTING FROM THE INSTALLATION'S CONSTRUCTION.

NO ADDITIONAL WATER & SEWER FACILITIES AND/OR USAGE IS PROPOSED. PROPOSED FACILITY IS LOCATED ENTIRELY WITHIN THE "EI" ZONING DISTRICT OF EAST ALLEN TOWNSHIP AND MEETS ALL BUILDING SET-BACK & HEIGHT RESTRICTIONS. THE PROPOSED FACILITY IS FOR THE TRANSFER, STORAGE, AND STAGING OF PERMIT LIQUID FUELS DELIVERED BY RAIL CAR. no ADDITIONAL EMPLOYEES WILL RESULT FROM THE PROJECT.

SITE DATA

TOTAL AREA:	1,485,396 SQ. FT. 34.10 ACRES
TAX MAP:	MAP K5 BLOCK 18 LOT 1
DEED BOOK REF:	BOOK 1994-6 PAGE 042468
EXISTING USE:	CEMENT PRODUCTION FACILITY
PROPOSED USE:	CEMENT PRODUCTION FACILITY
WATER:	ON-LOT (EXISTING WELLS)
SEWER:	PUBLIC (EXISTING)
TOWNSHIP	EAST ALLEN TOWNSHIP
ZONING	EI - EXTRACTIVE INDUSTRIAL DISTRICT
	C - CONSERVATION DISTRICT (MINOR PORTION)
	MIN. REQUIRED
MIN. LOT AREA:	EI = 2 ACRES C = 3 ACRES
MIN. LOT WIDTH:	EI = 180 FEET C = 220 FEET
MAX. IMPERVIOUS COVERAGE:	EI = 50% C = 10%
MAX. BUILDING COVERAGE:	EI = 40% C = 5%
MAX. BUILDING HEIGHT:	EI = 50 FT. - 4 STORIES C = 35 FT. - 2.5 STORIES
BUILDING SETBACKS:	
FRONT YARD:	EI = 40 FT. C = 40 FT.
SIDE YARD:	EI = 35 FT. TO FT. (30%) C = 35 FT. TO FT (30%)
REAR YARD:	EI = 50 FT. C = 35 FT.

REV.	DATE	DESCRIPTION	BY	APP
1	11/1/22	PERMITTING MODIFICATION	AL	SH

SOILS NOTE: AREA IDENTIFIED FOR LOCATION OF PROPOSED FUEL HANDLING AND STORAGE FACILITY HAS BEEN SUBJECT TO LONG-TERM OBSERVATION AND SURFACE MATERIAL COMPACTION. NO EVIDENCE OF POTENTIAL SINKHOLE ACTIVITY HAS BEEN OBSERVED OVER THE LAST 80 YEARS IN THIS LOCATION AND THERE IS NO OTHER EVIDENCE WITHIN A MINIMUM OF 300 FEET OF SOIL SUBSIDENCE, SETTLEMENT AND/OR CLOSED DEPRESSIONS. SOIL PROBES AND TESTING FOR THE AREA INDICATE AN AVAILABLE MINIMUM SOIL BEARING CAPACITY OF 4,000 PSF (3,000 PSF IS THE BASIS OF THE FOUNDATION DESIGN) AND NO EVIDENCE OF SINKHOLE ACTIVITY DURING CONSTRUCTION. INVESTIGATIVE BORE HOLES WILL BE DRILLED FOR EVIDENCE OF SOLUTION CHANNELS OR SINKHOLES, AND SOIL BEARING TESTS WILL BE PERFORMED IN ACCORDANCE WITH THE SPECIAL INSPECTION PROVISIONS OF THE 2009 I.B.C.

SEPARATION DISTANCE REQUIREMENTS FOR CLASS IB LIQUIDS
MIN. ALLOW. DIST. FROM PROP. LINE TO TANK = 50 FT (NFPA TABLE 4.3.2.1.1(a))
MIN. DIST. TO NEAREST PROP. LINE TO TANK = 330 FEET
MIN. ALLOW. DIST. NEAREST IMPORTANT BLDG. = 15 FT (NFPA TABLE 4.3.2.1.1(b))
MIN. DIST. TO NEAREST IMPORTANT BLDG. = 290 FEET
MIN. ALLOW. SEPARATION DIST. BETWEEN TANKS = 3 FT (NFPA TABLE 4.3.2.2.1)
MIN. SEPARATION DIST. BETWEEN TANKS = 4.50 FT
MIN. ALLOW. DIST. BETWEEN TANKS & NEAREST TRANSFER PT. = 25 FT. (NFPA 7.6.3)
MIN. SEPARATION DIST. BETWEEN TANKS & NEAREST TRANSFER PT. > 28 FT.

KEYSTONE CEMENT COMPANY

East Allen Township, Northampton Co., PA

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DRAWING MODIFIED FROM:
GOLDER ASSOCIATES, INC.
FIGURE: C160 DATED: 7/23/18

PROJECT TITLE
RCRA PART B PERMIT RENEWAL

DRAWING TITLE
RAILCAR SOLVENT FUELS UNLOADING AND STORAGE SYSTEM SITE PLAN

LAST UPDATE –	ENGINEER SPH
DATE 11/1/22	CHECKED ROC
SCALE AS NOTED	DRAWN ARL

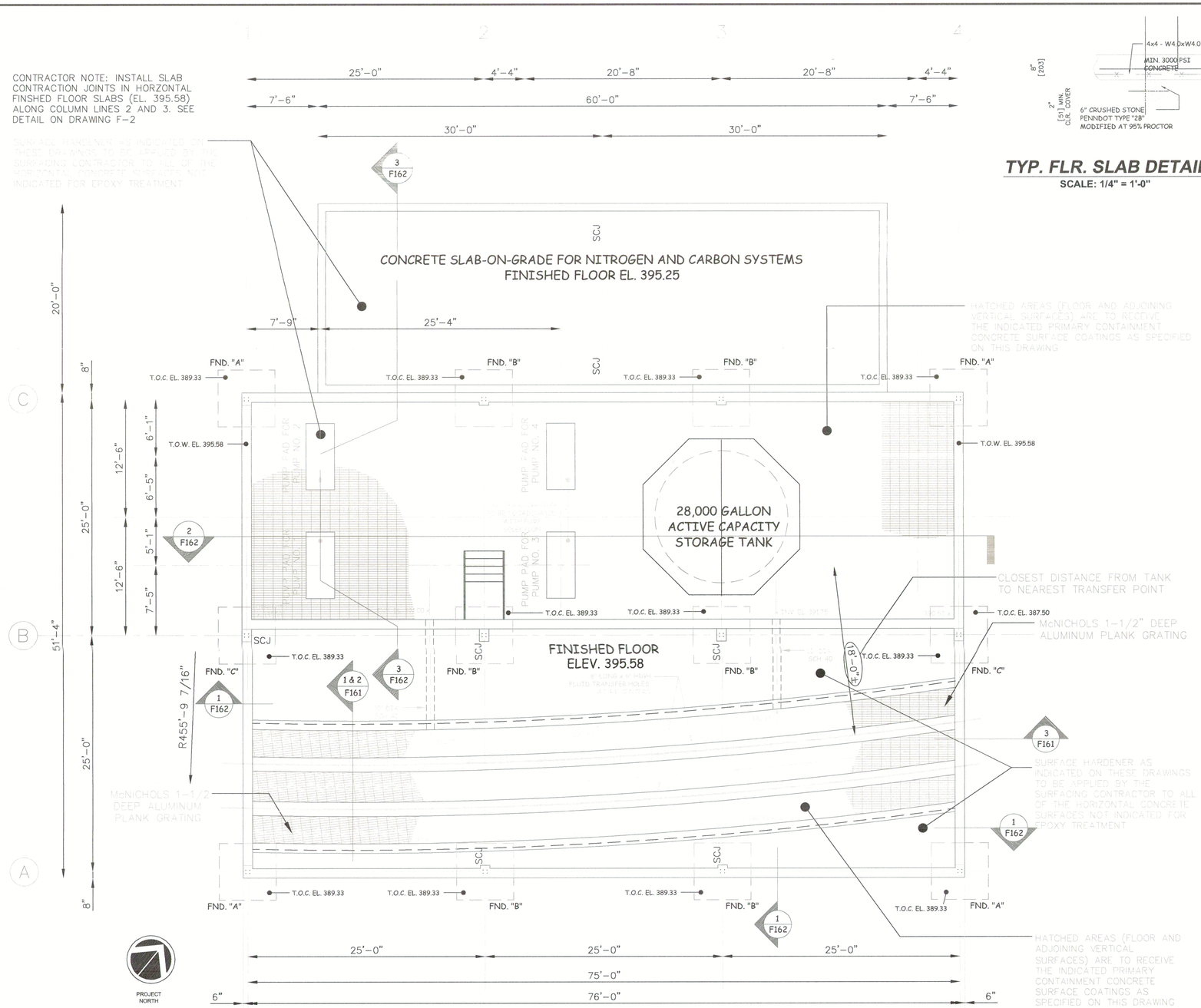
SEAL: COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL STEPHEN P. HOLT ENGINEER PE072081

DRAWING NUMBER
C160

REVISION LEVEL
R1

CONTRACTOR NOTE: INSTALL SLAB CONTRACTION JOINTS IN HORZONTAL FINSHED FLOOR SLABS (EL. 395.58) ALONG COLUMN LINES 2 AND 3. SEE DETAIL ON DRAWING F-2

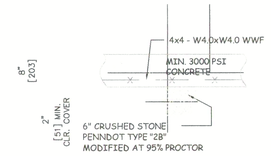
SURFACE HARDENER AS INDICATED ON THESE DRAWINGS TO BE APPLIED BY THE SURFACING CONTRACTOR TO ALL OF THE HORIZONTAL CONCRETE SURFACES NOT INDICATED FOR EPOXY TREATMENT



SCALE: 3/16" = 1'-0"

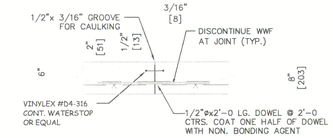
NOTES

1. DRAWING MODIFIED FROM RT CONSULTING AND ENGINEERING INC. DRAWING F160 DATED 11/18/14.
2. PUMP PAD LOCATIONS FOR PUMPS 1 THROUGH 4 MAY CHANGE FROM SHOWN SO LONG AS THEY ARE CONSTRUCTED WITHIN CONTAINMENT.
3. TANK 11 RECIRCULATION PUMP NOT SHOWN, BUT WILL BE LOCATED WITHIN CONTAINMENT, PUMPS 1-4 MAY ALSO RECIRCULATE.



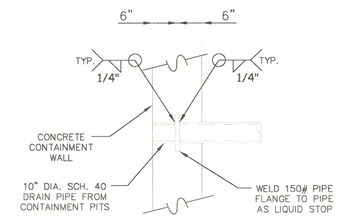
TYP. FLR. SLAB DETAIL

SCALE: 1/4" = 1'-0"



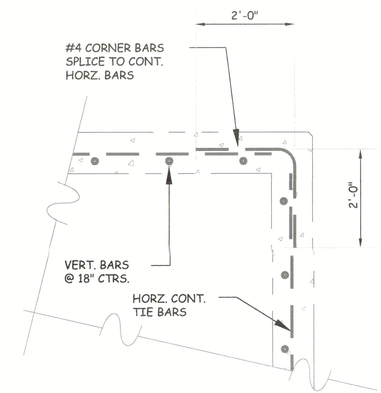
TYPICAL SLAB CONTROL JOINT DETAIL

SCALE: 1/4" = 1'-0"



TYPICAL PIPE ENTRY DETAIL

SCALE: NONE



TYP. FND. CORNER REINF.

SCALE: NONE

CONCRETE SURFACE TREATMENT NOTES:

(1) THE AREAS DESIGNATED AS RECEIVING A PRIMARY CONTAINMENT COATING SHALL RECEIVE THE FOLLOWING SYSTEM AS DIRECTED BY THE OWNER OR APPROVED EQUAL:

* CARBOLINE (314-644-1000)

FLOOR AND WALL PRIMER: SEMSTONE 110/110EP DAMP-PROOF PRIMER EPOXY. APPLICATION: TWO (2) COATS OVER SAND BLASTED CONC. SURFACE

FLOOR AND WALL SURFACE TREATMENT: PLASITE 4500 HIGH PERFORMANCE EPOXY COATING. APPLICATION: TWO (2) 20 MIL COATS OVER EPOXY PRIMER

* E-POXY INDUSTRIES, INC. (1-800-833-3400)

JOINT SEALANT: EVAZOTE 380 EXPANSION JOINT FILLER

(2) ALL REMAINING EXPOSED CONCRETE SURFACES, WALLS, AND FLOORS WHERE NO TOPPING IS REQUIRED, ARE TO BE TREATED WITH "SPARTON-COTE CURE-SEAL-HARDENER" AS MANUFACTURED BY BURKE CO. (609-662-5522) OR APPROVED EQUAL.

(3) THE INSTALLATION OF CONCRETE SURFACE COATINGS SHALL BE BY THE MANUFACTURER OR BY A SUB-CONTRACTOR APPROVED BY THE MANUFACTURER. THE CONTRACTOR SHALL CONSULT WITH THE MANUFACTURER THROUGH ALL PHASES OF SURFACE PREPARATION AND INSTALLATION OF TOPPING, AND SHALL SUBMIT, TO THE OWNER. THE MANUFACTURER'S SPECIFICATIONS REGARDING MATERIAL AND INSTALLATION PRIOR TO BEGINNING THE WORK.

REV.	DATE	DESCRIPTION	BY	APP

KEYSTONE CEMENT COMPANY

East Allen Township, Northampton Co., PA

THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS PRIOR TO PROCEEDING WITH ANY WORK. WHERE DISCREPANCIES OCCUR BETWEEN THESE DOCUMENTS AND EXISTING CONDITIONS, THE DISCREPANCY SHALL BE REPORTED TO THE OWNER AND/OR ENGINEER FOR EXPEDITING AND RESOLUTION.

DRAWING ISSUED FOR RCRA PERMITTING ONLY.

1) DRAWING MODIFIED FROM: RT CONSULTING AND ENGINEERING, INC. FIGURE: F160 DATED: 11/18/2014
2) DRAWING MODIFIED FROM: GOLDER ASSOCIATES, INC. FIGURE: F160 DATED: 7/23/18

PROJECT TITLE

RCRA PART B PERMIT RENEWAL

DRAWING TITLE

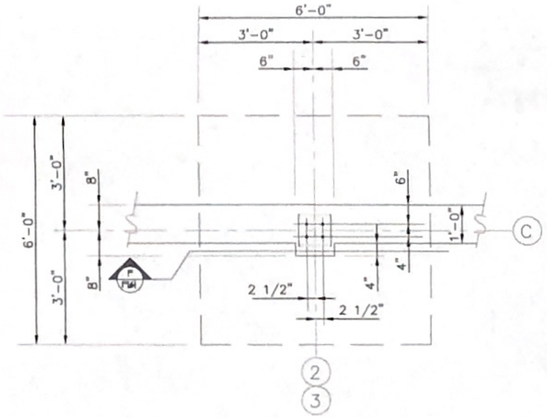
RAILCAR SOLVENT FUELS UNLOADING AND STORAGE CONTAINMENT LAYOUT PLAN

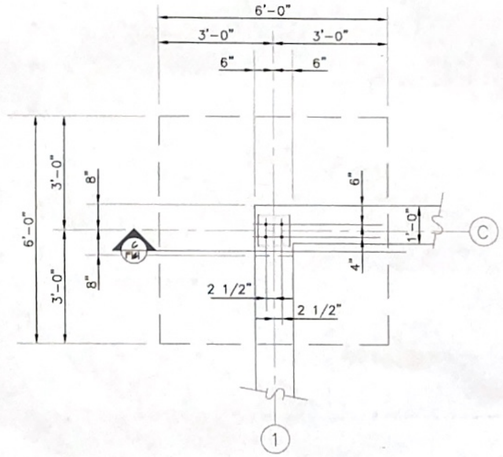
LAST UPDATE	ENGINEER
–	SPH
DATE	CHECKED
7/21/22	SPH
SCALE	DRAWN
AS NOTED	ARL

SEAL: COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL STEPHEN P. HOLT ENGINEER PE072081

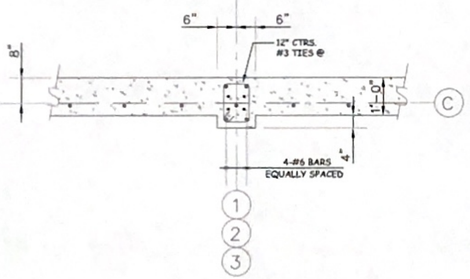
DRAWING NUMBER: F160

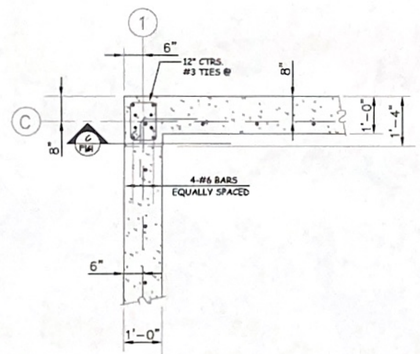
REVISION LEVEL: R1





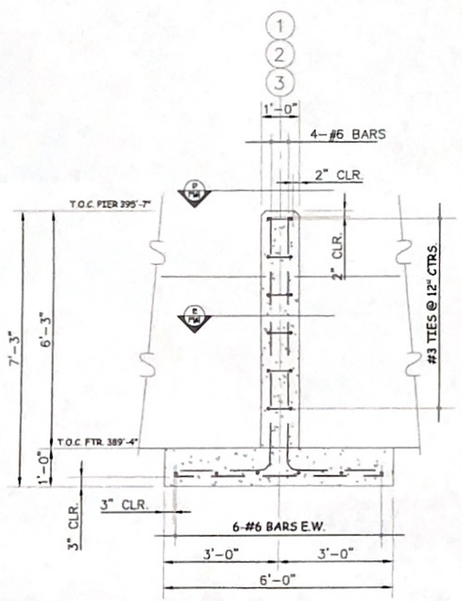
PLAN VIEW - FND. "A": SECTION "A"





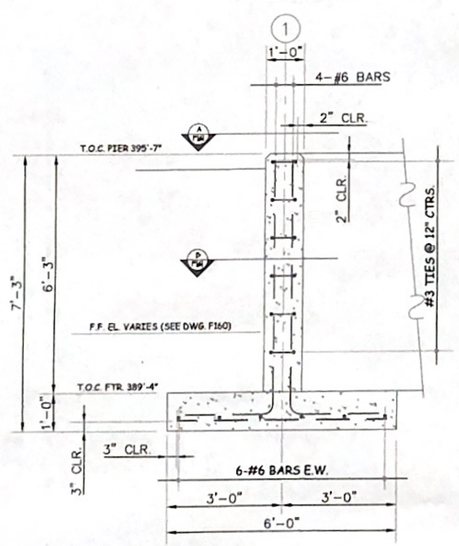
SECTION THRU FND. "A": SECTION "B"

SCALE: 3/16" = 1'-0"



ELEVATION THRU FND. "B": SECTION "F"

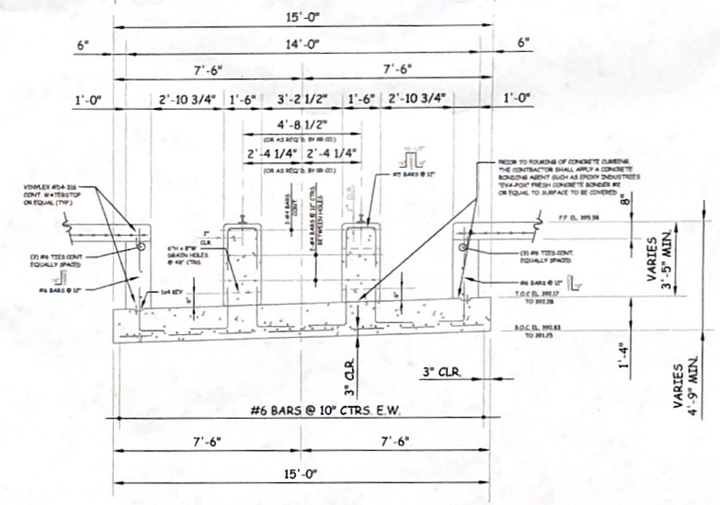
SCALE: 3/16" = 1'-0"



ELEVATION THRU FND. "A": SECTION "C"

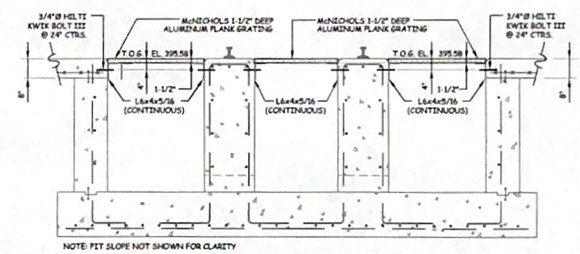
SCALE: 3/16" = 1'-0"

CONTRACTOR NOTE: CONTAINMENT SLAB SHOWN LEVEL FOR CLARITY. SLOPE BASE GRADE AS REQUIRED TO ACHIEVE FINAL CONCRETE GRADES AND SLOPES AS SHOWN ON FOUNDATION PLAN



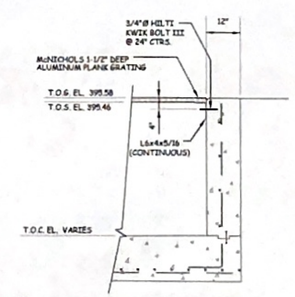
TYP. RAILCAR CONTAINMENT PIT SECTION SECTION NO. 1

SCALE: 3/8" = 1'-0"



TYP. RAILCAR CONTAINMENT PIT FLOOR GRATING & SUPPORT - SECTION NO. 2

SCALE: 1/4" = 1'-0"



RAILCAR CONTAINMENT PIT END GRATING & SUPPORT - SECTION NO. 3

SCALE: 1/4" = 1'-0"

KEYSTONE CEMENT COMPANY

East Allen Township, Northampton Co., PA

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DRAWING ISSUED FOR RCRA PERMITTING ONLY.

1) DRAWING MODIFIED FROM: RT CONSULTING AND ENGINEERING, INC. FIGURE: F161 DATED: 11/18/2014

2) DRAWING MODIFIED FROM: GOLDER ASSOCIATES, INC. FIGURE: F161 DATED: 7/23/18

PROJECT TITLE

RCRA PART B PERMIT RENEWAL

DRAWING TITLE

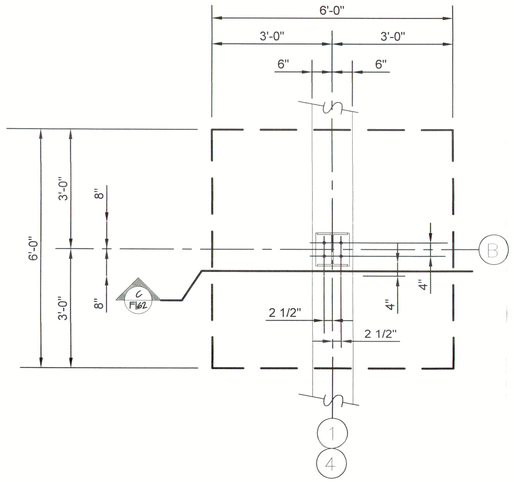
RAILCAR SOLVENT FUELS UNLOADING AND STORAGE FOUNDATION DETAILS

LAST UPDATE: –	ENGINEER: SPH
DATE: 11/1/22	CHECKED: ROC
SCALE: AS NOTED	DRAWN: ARL

SEAL: COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL STEPHEN P. HOLT ENGINEER PE072081

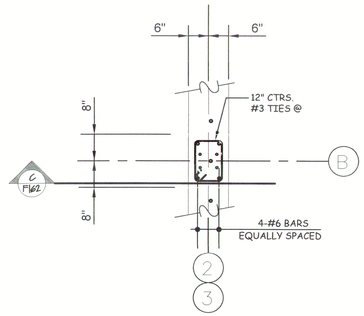
DRAWING NUMBER: F161

REVISION LEVEL: R1



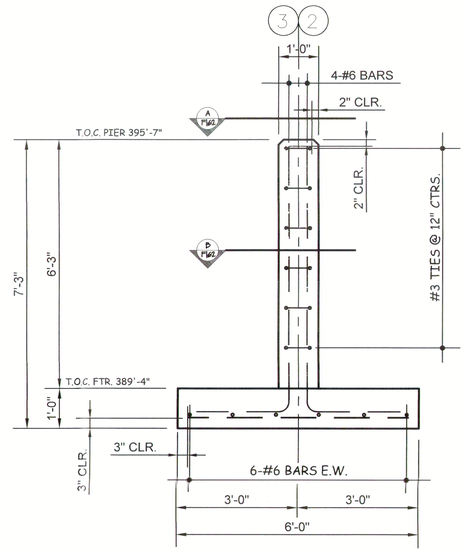
PLAN VIEW - FND. "C": SECTION "A"

SCALE: 3/16" = 1'-0"



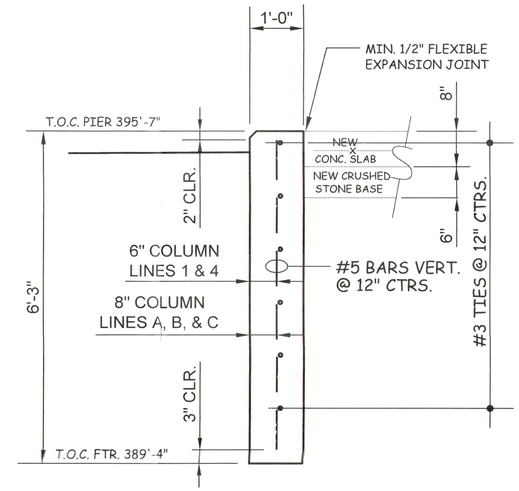
SECTION THRU FND. "C": SECTION "B"

SCALE: 3/16" = 1'-0"



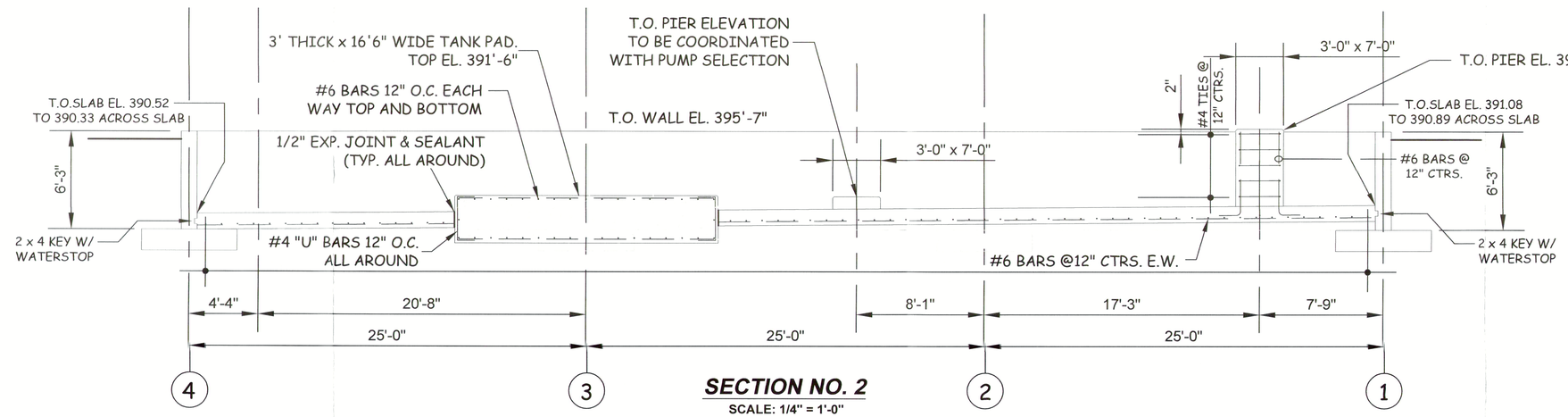
ELEVATION THRU FND. "C": SECTION "C"

SCALE: 3/16" = 1'-0"



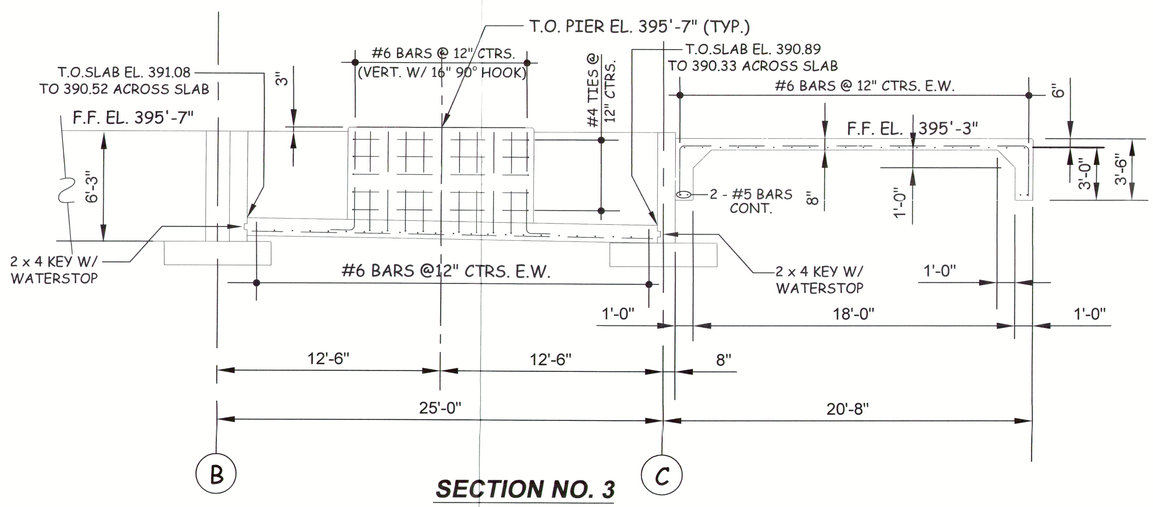
GRADE BEAM - SECTION NO. 1

SCALE: 1/4" = 1'-0"



SECTION NO. 2

SCALE: 1/4" = 1'-0"



SECTION NO. 3

SCALE: 1/4" = 1'-0"

NOTES

1. DRAWING MODIFIED FROM RT CONSULTING AND ENGINEERING INC. DRAWING F162 DATED 11/18/14.

SEAL

PE 030571 E 11/23/2018

PGEO

REV	DESCRIPTION	DATE	DR	CK	APPROVED
0	RCRA PART B PERMIT RENEWAL - NOT FOR CONSTRUCTION	2018-07-23	BJE	MAK	BJE

PROJECT
KEYSTONE CEMENT COMPANY
EAST ALLEN TOWNSHIP
NORTHAMPTON COUNTY, PA

CONSULTANT
GOLDER ASSOCIATES INC.
58 OAK BRANCH DRIVE
GREENSBORO, NORTH CAROLINA
USA
(336) 852-4903
www.golder.com

GOLDER

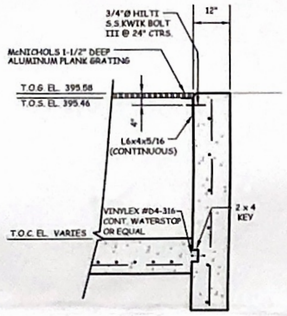
PROJECT
RCRA PART B PERMIT RENEWAL

TITLE
RAILCAR SOLVENT FUELS UNLOADING & STORAGE RAIL TANKER UNLOADING FACILITY STRUCTURAL ELEVATION

PROJECT NO 1895348

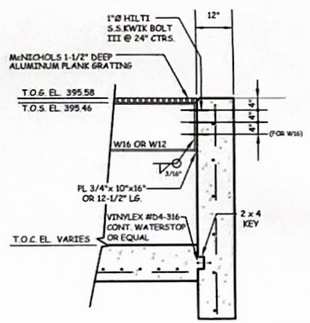
PHASE 200

REV 0 of DRAWING F162



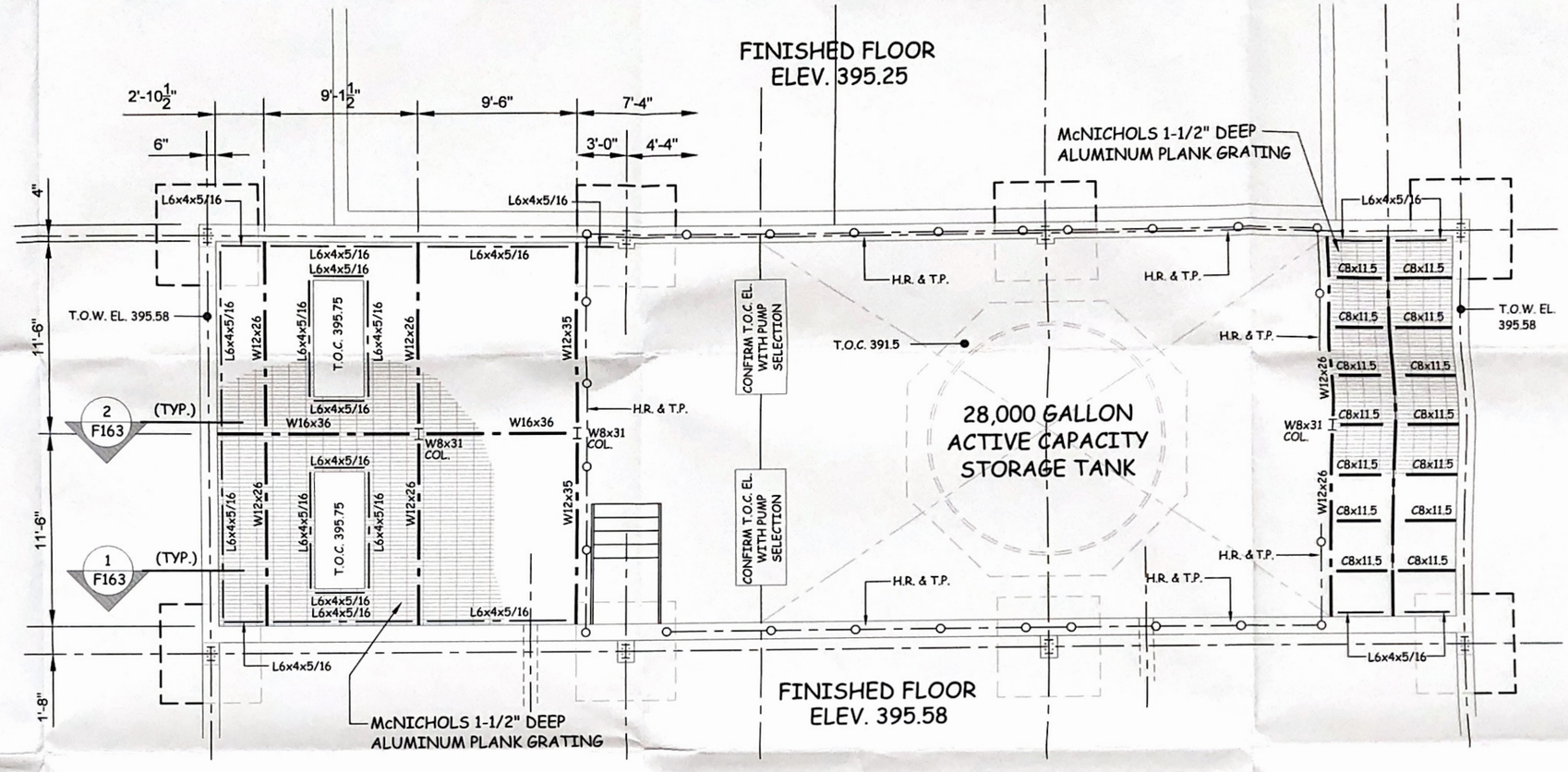
SECTION NO. 1

SCALE: 1/4" = 1'-0"



SECTION NO. 2

SCALE: 1/4" = 1'-0"



STORAGE TANK CONTAINMENT PIT STEEL FRAMING

SCALE: 1/4" = 1'-0" (T.O.S. ELEV. 395'-7" - 1-1/2" = 395.5 1/2")

CONCRETE NOTES:

1. Reinforced concrete shall be in accordance with the latest edition of the "Building Code Requirements for Reinforced Concrete (ACI 318)" as published by the American Concrete Institute.
2. Concrete shall have a minimum twenty-eight (28) day compressive strength of 4,000 psi for all project applications other than slabs-on-grade, which shall have a minimum 28-day concrete compressive strength of 3,000 psi.
3. Concrete slabs shall be constructed in accordance with the latest edition of the "Guide for Concrete Floor and Slab Construction (ACI 302)" as published by the American Concrete Institute.
4. Concrete shall not have any additives and shall be air-entrained.
5. Concrete shall be kept moist for 14 days. Protection and curing shall be such that moisture loss from curing is not excessive during the curing period.
6. Control joints in concrete slabs shall be provided so the slab is divided into panels from fifteen (15) to twenty (20) feet on a side, unless otherwise indicated on drawings.
7. All concrete (including footings and slabs) shall be mechanically vibrated, supplemented by hand-spading, rodding or tamping.
8. All details of reinforcement and accessories shall be fabricated and approved in accordance with the latest edition of the "Manual of Standard Practice for Detailing Reinforced Concrete Structures" as published by the American Concrete Institute.
9. Reinforcing steel shall conform to ASTM A615, Grade 60.
10. All reinforcement shall be lapped 27 bar diameters (1'-6" minimum) unless noted otherwise.
11. Horizontal reinforcing bars in walls and footings shall be continuous around all corners.
12. Anchor bolts shall be of material conforming to ASTM A36 having a minimum yield strength of 36,000 psi.
13. Welded wire fabric (WWF) shall conform to ASTM A-185.
14. Grouting shall be nonshrinking, nonmetallic, nongas forming suitable for industrial application. Minimum 28-day compressive strength shall be 10,000 PSI. Follow manufacturer's instructions for placement.

GENERAL FOUNDATION NOTES:

1. Footing shall bear on approved soil with a minimum net allowable soil bearing value of 3,000 psf.
2. Slabs on grade shall be supported on the undisturbed soil or compacted structural backfill. Either material should be compacted to at least 95 percent of the maximum modified density (ASTM D-1557). A 6 inch thick (minimum) base course of 2B stone shall be placed directly below the slab, unless otherwise indicated on drawings.
3. Footings may be placed without forms if side banks are stable and of uniform dimensions. Otherwise, use side forms to avoid irregular footing shapes.
4. Exterior footings shall be founded a minimum of 3.0 feet below finished grade, unless otherwise indicated on drawings. All interior footings shall be founded a minimum of 3.0 feet below finished floor, unless otherwise indicated on drawings.
5. Top of footings to be as shown on foundation plans. These elevations shall be adjusted to the actual levels of approved bearing strata found upon excavation. Any unusual conditions shall be called to the attention of the Owner and Owner's Engineer.
6. All excavations shall be adequately dewatered, if required, before placement of concrete. Dewatering for pit areas shall be operated continuously until all foundation work, waterproofing, and ground floor slab construction in these areas is completed. Contractor shall secure Owner's approval before stopping dewatering operation.
7. All existing obstructions below grade which interfere with construction are to be removed. Do not damage existing piping, etc., which is to remain. Bottom of all footings must bear on undisturbed earth below bottom of existing construction. All excavations are to be backfilled. See specifications.
8. All stepping of footing bottoms to reach the required bearing material shall be made along vertical planes and the bottom of all footings must be horizontal.

NOTES:
1. DRAWING MODIFIED FROM RT CONSULTING AND ENGINEERING INC. DRAWING F163 DATED 11/18/14.

SEAL

PE 050571E 7/23/2018

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
0	2018-07-23	RCRA PART B PERMIT RENEWAL - NOT FOR CONSTRUCTION	BJE	MAK	BJE	BJE

CLIENT
KEYSTONE CEMENT COMPANY
EAST ALLEN TOWNSHIP
NORTHAMPTON COUNTY, PA

CONSULTANT
GOLDER ASSOCIATES INC.
58 OAK BRANCH DRIVE
GREENSBORO, NORTH CAROLINA USA
(336) 852-4903
www.golder.com
GOLDER

PROJECT
RCRA PART B PERMIT RENEWAL

TITLE
RAILCAR SOLVENT FUELS UNLOADING & STORAGE RAIL TANKER UNLOADING FACILITY STRUCTURAL ELEVATION

PROJECT NO 1895348
PHASE 200

REV 0 of DRAWING F163

GENERAL:

1. IN MOST CASES THE CRITERIA FOR THE STRUCTURE IS ESTABLISHED ON THE DRAWINGS AND IN THE SPECIFICATIONS. WHERE IT IS NOT, THESE NOTES SHALL GOVERN.
2. DURING CONSTRUCTION, TEMPORARY BRACING AND/OR SHORING SHALL BE DESIGNED BY AND PROVIDED WHEREVER NECESSARY BY THE CONTRACTOR TO TAKE CARE OF ALL LOADS TO WHICH THE STRUCTURE MAY BE SUBJECTED, INCLUDING EQUIPMENT AND THE OPERATION OF SAME. SUCH BRACING AND/OR SHORING SHALL BE LEFT IN PLACE AS LONG AS MAY BE REQUIRED FOR SAFETY.
3. THE DESIGN, DETAILING, FABRICATION, AND ERECTION OF ALL STRUCTURES SHALL CONFORM TO THE LATEST EDITION OF THE FOLLOWING CODES:
   A. INTERNATIONAL BUILDING CODE 2003
   B. AMERICAN CONCRETE INSTITUTE – "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318-02)
   C. "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT" (ACI 315-99) AND "MANUAL OF ENGINEERING AND PLACING DRAWINGS FOR REINFORCED CONCRETE STRUCTURES" (ACI 315R-99)
   D. AMERICAN INSTITUTE OF STEEL CONSTRUCTION – "MANUAL OF STEEL CONSTRUCTION" (NINTH EDITION) AND "DETAILING FOR STRUCTURAL STEEL" (2ND EDITION)
   E. AMERICAN WELDING SOCIETY –
      "STRUCTURAL WELDING CODE – REINFORCING STEEL" (AWS D1.4-98)
      "STRUCTURAL WELDING CODE – SHEET STEEL". (AWS D1.3-98)
      "STRUCTURAL WELDING CODE – STEEL". (AWS D1.1:2000)
   F. STEEL DECK INSTITUTE – "STEEL DECK INSTITUTE DESIGN MANUAL FOR COMPOSITE DECKS, FORM DECKS AND ROOF DECKS"
   G. AMERICAN IRON AND STEEL INSTITUTE – "SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS", LATEST EDITION.
   H. BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES (ACI 530/ ASCE 5/TMS 602) AND SPECIFICATIONS FOR MASONRY STRUCTURES (ACI 530/ASCE 6/TMS 602)
   I. METAL BUILDING MANUFACTURERS ASSOCIATION "METAL BUILDING SYSTEMS MANUAL", LATEST EDITION.
4. DESIGN LOADS USED IN THE DESIGN OF THIS STRUCTURE ARE:

A. WIND LOAD	90 MPH
B. EARTHQUAKE LOAD	AV=.10; AA=.10
C. ROOF SNOW LOAD	0.7 OF GROUND SNOW LOAD
D. STAIR/CATWALK LIVE LOAD	50 PSF
E. PLATFORMS LIVE LOAD	125 PSF
F. ROOF DUST	15 PSF
G. ROOF LIVE LOAD	30 PSF

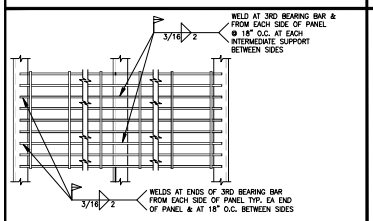
5. PROTECT EXISTING STRUCTURE DURING CONSTRUCTION.
6. WHEN WORKING WITHIN OR ADJACENT TO EXISTING STRUCTURES, ALL DIMENSIONS, GRADES AND OBSTRUCTIONS ARE TO BE OBSERVED AND VERIFIED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF FABRICATION, CONSTRUCTION AND EQUIPMENT INSTALLATION.
7. DO NOT SCALE DRAWINGS. WORK TO FIGURED DIMENSIONS ONLY.
8. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR BLOCKOUTS AND EMBEDDED ITEMS NOT SHOWN ON STRUCTURAL DRAWINGS.
9. WHEN CONFLICTS OCCUR BETWEEN DIMENSION, TYPICAL DETAILS, GENERAL NOTES, SPECIFICATIONS, AND THE ENGINEERING DRAWINGS THE CONTRACTOR SHALL MAKE NOTES OF SUCH CONFLICTS AND NOTIFY THE ENGINEER OF THESE CONFLICTS IMMEDIATELY.
10. PRIOR TO THE START OF CONSTRUCTION THE CONTRACTOR SHALL NOTIFY, VERBALLY AND IN WRITING, ALL VISIBLE AND/OR INDICATED ON DRAWINGS UTILITIES THAT MAY BECOME INVOLVED DURING THE CONSTRUCTION. ALL VISIBLE EXISTING UTILITY LINES, WATER LINES, SEWERS, ETC., ARE TO BE FULLY SUPPORTED AND PROTECTED DURING CONSTRUCTION.
11. SUBSTITUTIONS:
    A. MEMBERS OF EQUAL OR GREATER STRENGTH MAY BE SUBSTITUTED, SUBJECT TO APPROVAL. CHANGES IN SIZE OR DIMENSIONS OF MEMBERS OPENINGS, BEAM CUTS, OR SLEEVES ARE SUBJECT TO APPROVAL.

FOUNDATION:

1. MINIMUM DEPTH OF FOOTINGS SUBJECT TO FROST HEAVE SHALL BE 2'-6" BELOW FINAL GRADE.

EXISTING CONSTRUCTION

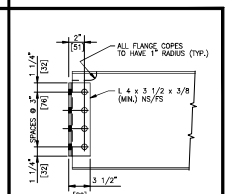
1. DIMENSIONS FOR EXISTING CONSTRUCTION MAY BE BASED ON FIELD MEASUREMENTS AND/OR EXISTING DESIGN DRAWINGS. ALL EXISTING CONSTRUCTION DIMENSIONS ARE SUBJECT TO NORMAL CONSTRUCTION AND MEASUREMENT TOLERANCES. NORMAL CONSTRUCTION TOLERANCES FOR CONCRETE MAY BE AS MUCH AS ± 1" FROM DIMENSIONS SHOWN. NORMAL CONSTRUCTION TOLERANCES FOR STRUCTURAL STEEL MAY BE AS MUCH AS ± 1/2" FROM DIMENSIONS SHOWN. MEASURED FLANGE TOLERANCE SHALL BE ± 3/8". ENGINEER SHALL NOT BE RESPONSIBLE FOR FIELD CONSTRUCTION DEVIATIONS NOT SHOWN ON ORIGINAL DRAWINGS.
2. SHORING AND BRACING SHOULD BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS, INCLUDING THE CURRENT OSHA EXCAVATION AND TRENCH SAFETY STANDARDS.



TYPICAL GRATING PANEL WELDING DETAIL

STRUCTURAL STEEL:

1. ALL STRUCTURAL STEEL SHALL CONFORM TO ASTM SPECIFICATION ASTM A992 GR 50 UNLESS OTHERWISE NOTED ON THE DRAWINGS. ALL BINS, CHUTES, CHANNELS, ANGLES, AND DUCTWORK SHALL BE ASTM A36. STRUCTURAL TUBE SHALL BE ASTM A500 GRADE B UNLESS NOTED. ALL STRUCTURAL PIPE SHALL BE ASTM A501 OR ASTM A53 TYPE E OR S GRADE B, Fy = 35 ksi.
2. ANCHOR BOLTS SHALL CONFORM TO ASTM A36 BAR STOCK UNLESS OTHERWISE NOTED.
3. HIGH STRENGTH BOLTED CONNECTION SHALL BE FABRICATED AND ASSEMBLED IN ACCORDANCE WITH SPECIFICATIONS ENDORSED BY THE A.I.S.C.
4. ALL BOLTS SHALL BE 3/4" DIAMETER ASTM A325 HIGH STRENGTH BOLTS WITH 13/16" DIAMETER HOLES, UNLESS OTHERWISE NOTED. A HARDENED WASHER SHALL BE PROVIDED UNDER THE TURNED ELEMENT. BOLTS FOR GIRTS, HANDRAILS AND EQUIPMENT SUPPORT CONNECTIONS SHALL BE 5/8" DIAMETER UNFINISHED BOLTS, (ASTM A307) UNLESS OTHERWISE NOTED.
5. STANDARD AISC BEARING TYPE CONNECTIONS, WITH THREADS INCLUDED IN SHEAR PLANE SHALL BE PROVIDED FOR CONNECTING BEAMS TO BEAMS AND BEAMS TO COLUMNS UNLESS OTHERWISE NOTED OR SHOWN ON THE DRAWINGS. BEAM CONNECTIONS SHALL HAVE THE MINIMUM REQUIREMENTS AS CALLED FOR IN "FRAMING CONNECTIONS TABLE 1" (SHOWN THIS DRAWING). WHEN LOADS EXCEED THE CAPACITY OF "TABLE 1" MINIMUM FRAMING CONNECTIONS, DETAILER/FABRICATOR SHALL DESIGN THE CONNECTION PER REACTION (R = XX kips) AND AXIAL LOADS (P = XX kips) SHOWN ON THE DRAWINGS. A MINIMUM TWO BOLT CONNECTION SHALL BE PROVIDED.
6. WHERE POSITION OF MEMBERS PROHIBITS THE USE OF A STANDARD CONNECTION, A CONNECTION EQUIVALENT TO A STANDARD CONNECTION SHALL BE PROVIDED.
7. BRACING CONNECTIONS SHALL BE DESIGNED FOR 50% OF THE MEMBER TENSILE CAPACITY UNLESS NOTED OTHERWISE ON THE DESIGN DRAWINGS.
8. COLUMN SPLICE CONNECTION COMPONENTS SHALL BE DESIGNED FOR 25% OF THE MEMBER TENSILE CAPACITY UNLESS NOTED OTHERWISE ON THE DESIGN DRAWINGS.
9. BEARING ENDS OF COLUMNS SHALL BE FINISHED.
10. STEEL FACES IN CONTACT WITH METAL WALL PANELS SHALL BE FREE OF PROJECTING NUTS AND BOLT HEADS.
11. WELDED CONNECTIONS SHALL DEVELOP FULL STRENGTH OF THE MEMBER UNLESS OTHERWISE NOTED.
12. ALL WELDS SHALL BE MADE WITH E70XX ELECTRODES. WELDS SHALL BE 1/4" FILLET UNLESS OTHERWISE NOTED.
13. FRAMING SHALL BE FLUSH ON TOP FOR LEVEL INDICATED UNLESS OTHERWISE SHOWN OR NOTED.
14. FRAMING MEMBERS WRITTEN WITH A SUFFIX THUS (±1 1/2") INDICATES DISTANCE FROM TOP OF MEMBER ABOVE OR BELOW TOP OF STEEL ELEVATIONS NOTED ON PLAN.
15. ALL STEEL GRATING SHALL HAVE 1" x 3/16" BEARING BARS AT 1 3/16" O.C. AND CROSS BARS AT 4" O.C. ALL STEEL GRATING SHALL BE WELDED STEEL GRATING. GRATING SHALL BE WELDED TO SUPPORTING STEEL MEMBERS IN ACCORDANCE WITH THE DETAIL SHOWN ON THIS DRAWING. GRATING SHALL BE PAINTED UNLESS NOTED OTHERWISE.
16. STAIR TREADS SHALL BE 1" x 3/16" GRATING WITH CHECKERED PLATE NOSING OR AS INDICATED ON DRAWINGS.
17. RISERS SHALL BE OPEN AND EQUALLY SPACED FOR EACH STAIR RUN.
18. PROVIDE SAFETY NOSING ON FLOOR EDGES AT TOP OF ALL STAIRS.
19. ALL STAIR STRINGERS SHALL BE C10x15.3 UNLESS NOTED ON DRAWINGS.
20. MEMBERS COMPOSED OF TWO (2) ANGLES OR CHANNELS BACK TO BACK SHALL HAVE STITCH BOLTS OR RING FILLS SPACED AT 5'-0" O.C. MAXIMUM. DEFAULT CONDITION – LONG LEGS BACK TO BACK (LLBB)
21. ALL LADDERS AND STAIRS TO BE ANCHORED TO CONCRETE WITH 5/8" DIAMETER EXPANSION ANCHORS.
22. ALL GRATING PANEL SEPARATIONS SHALL BE 1/2" MAXIMUM.
23. BAND ALL EXPOSED EDGES OF GRATING EXCEPT AT FLOOR PERIMETER SUPPORTS AND WHERE GRATING ABUTS CONCRETE, STEEL OR ADJACENT GRATING PANEL. PROVIDE LOAD CARRYING BANDS AT ALL BLOCKOUTS. ALL REMOVABLE GRATING SHALL BE BANDED ALL AROUND.
24. BINS SHALL BE WELDED WATERTIGHT.
25. CHECKERED FLOOR PLATE SHALL BE REGULAR QUALITY CARBON STEEL SAFETY PLATE. IT SHALL BE FASTENED TO THE SUPPORTING MEMBERS WITH 3/16" FILLET WELDS 2" LONG AT 8" O.C. OR 5/8" DIAMETER PLUG WELDS AT 8" O.C. WHERE PLATES DO NOT CONNECT OVER A BEAM SEAL WELD PLATE CONTINUOUSLY.
26. ALL SAG RODS SHALL BE 5/8" DIAMETER UNLESS NOTED.
27. ALL GUSSET PLATES SHALL BE 3/8" MINIMUM, UNLESS OTHERWISE NOTED.
28. FOR BEAM TO BEAM CONNECTION OF BEAMS GREATER THAN 10" DEEP AND BEAM TO COLUMN WEB CONNECTIONS CLIP ANGLES ARE TO BE SHOP BOLTED AT LEAST ON ONE END.
29. PROVIDE L3x3x3/8 BEAM ERECTION SEAT FOR BEAMS FRAMED TO OPPOSING SIDES OF COLUMN WEBS.
30. PROVIDE PROVISIONS FOR ATTACHING INTERIOR AND EXTERIOR PERIMETER SAFETY CABLES AS REQUIRED BY OSHA RULES FOR STEEL ERECTION.



FRAMED BEAM CONNECTION DETAIL
FOR 3/4"ø A325 BOLTS
TYPICAL UNLESS REACTION (R=XX) OR AXIAL LOAD (P=xx) IS SHOWN ON PLAN

GENERAL PRE-ENGINEERED METAL BUILDING NOTES:

1. SCOPE: The pre-engineered metal building system shall be manufactured by an AISC certified manufacturer (classification MB) and shall include all columns, rafters, endwall columns, girts, struts, clips, bracing, exterior metal coverings (specified in other sections), flashing, fasteners, and miscellaneous items necessary for a complete and weather tight structure consistent with the requirements of the Drawings.
2. MANUFACTURER AND SUPPLIER: As recommended by the Contractor and Approved by the Owner
3. DRAWINGS AND CERTIFICATIONS: Manufacturer to provide the following:
   a. Anchor Bolt Setting Plans: showing the diameters, locations and material specifications for the building anchor bolts and reaction schematics showing the rigid frame reactions.
   b. Erection Drawings: Including the elevations and details necessary to erect the building.
   c. Letter of Certification: sealed by a professional engineer stating that the loads were applied and the building was designed in accordance with the specified building code and/or purchase order documents.
   d. Design Calculations: submit design calculations sealed by a professional engineer.
4. DESIGN
   a. Structural Steel: All structural steel and welded plate members shall be designed in accordance with the allowable stresses and design requirements of the 9th edition of the AISC "Manual of Steel Construction".
   b. Cold-Formed: All cold-formed members, including exterior coverings, shall be designed in accordance with the allowable stresses and design requirements of the most current edition of the American Iron and Steel Institute's "Cold-Formed Steel Design Manual" with Addendums.
   c. Snow, Wind, Live and Collateral Loads: Loads and the application of loads are as specified on the Drawings. In no case shall the loads or the application of loads be less than those recommended by the most current edition of the MBMA Metal Building Systems Manual.
   d. Load Calculations: The design load combinations shall be as specified on the Drawings.
   e. Anchor Bolts: Anchor bolts shall be sized to resist loads induced by the structure and shall not be less than the diameters, material specifications and quantities shown by the metal building manufacturer. All anchor bolts shall be unpainted to bond to the concrete and shall be set in accordance with the metal building manufacturer's drawings.
5. FOUNDATION DESIGN: The foundation design, anchor bolts, and embedded concrete reinforcing shall be performed by others. The final reactions, anchor bolt diameters, quantities and material specifications shall be shown on the anchor bolt setting plans.
6. COMPONENT DESCRIPTION:
   a. Primary Framing:
      Columns – Primary frame columns shall be either prismatic or tapered sections composed of shop welded steel bar and plate. Wall columns may have either exterior or flush mounted girts. The depth and flange width of columns shall be as dictated by the specified design criteria.
   b. Secondary Structural Members:
      Cold-Formed Purlins and Girts – Purlins and girts shall be either 8", 9" or 12" "Z" sections, precision cold-formed from material with design thickness of 0.058" to 0.102". Exterior mounted simple span purlins and girts shall have 4-½" nominal end laps for alignment purposes. Continuous span purlins and girts shall have minimum end laps of 24" to develop continuity. All girts on buildings with flush girts shall be mounted so that the outside flanges of the girts are flush with the exterior face of the controlling outside flange of the columns. Purlins and girts shall be attached to the primary framing with ½" diameter bolts and nuts. Continuous purlins shall have four ½" diameter bolts and nuts through the webs to interlock the sections for continuity.
      Eave Struts – Eave struts shall be either 8", 9" or 12" "C" sections, precision cold-formed from material with design thickness of 0.075" to 0.102". The upper and lower flanges shall slope at the building roof slope and the webs shall be vertical to receive the sidewall covering. Eave struts shall be connected to the primary framing with the standard ½" diameter bolts.
      Wind and Seismic Bracing – Wind and seismic bracing shall be as shown on the building manufacturer's erection drawings and shall be accomplished by diagonal cable bracing, rod bracing, or other means necessary to resist roof and wall wind and seismic loads. All diagonal cable and rod bracing shall include necessary hardware for installation and adjustment of lengths.
      Flange Bracing – Flange bracing shall be steel angles attached to the purlins and/or girts and to the inner flanges of the primary framing. The quantity and location of all brace angles shall be as dictated by the building design and shall be located as shown on the metal building manufacturer's erection drawings.
      Connection Clips – Connection clips shall be provided by the building manufacturer, as necessary, to facilitate the assembly of the building components. Connection clips shall be located as shown by the building manufacturer's erection drawings.
      Base Angles – Base angle shall be 3"x2" angles precision cold-formed from galvanized steel with a minimum design thickness of 0.046". Base angles shall be attached to the concrete foundation with ¾" x 1-¾" minimum Metal Hit Anchors or equivalent at 24" maximum spacing. The metal building manufacturer shall not furnish the base angle anchors.
   c. End Frames:
      Non-Expandable Rigid Frame End Frames – Non-expandable rigid frame end frames shall consist of a primary frame designed to support one half of the end bay loadings. Endwall colum-to-rafter connections shall transmit shear loads only.
      Expandable End Frames – Expandable end frames shall consist of a primary frame designed to support a full bay and endwall columns of welded plate or hot rolled steel. Endwall column-to-rafter connections shall transmit shear loads only.
7. MATERIALS:
   a. Structural Plate: minimum yield strength of 55,000 psi.
   b. Cold-Formed Material: minimum yield strength of 55,000 psi.
   c. Hot-Rolled Sections: minimum yield strength of 36,000 psi.
   d. Pipe: minimum yield strength of 36,000 psi.
   e. Rod: minimum yield strength of 36,000 psi.
   f. Cable: extra high strength galvanized ("A" coat) wire strand (left-hand lay).
   g. High Strength Bolts: Bolts used in primary structural connections shall be ASTM A325 bolts.
   h. High Strength Nuts: ASTM 194, Grade 2H. Acceptable substitutes are ASTM 563 Grade C, C3, D, DH, DH3.
   i. Standard Bolts: ASTM A307 bolts.
   j. Standard Nuts: ASTM A563 Grade A or Grade 2.
8. SHOP FABRICATION:
   a. Scope: All fabricated members shall be sheared, formed, punched, welded, and painted in the plant of the manufacturer. All holes and clips required to facilitate the attachment of secondary framing shall be provided by the metal building manufacturer.
   b. Welding: All shop welding shall be ina accordance with the American Welding Society and the American National Standards Institute "Structural Welding Code (ANSI/AWS D1.1". Dimensional tolerances of fabricated components shall comply with the Metal Building Manufacturer's Association (MBMA) "Metal Building Systems Manual", Section 9 – "Fabrication and Erection Tolerances". All welding shall be done by welders certified in accordance with AWS Code. Flanges and webs of "I" sections shall be joined by a continuous automatic submerged arc welding (SAW) process or a semi-automatic gas metal arc welding (GMAW) process. Flange-to-web welds shall be applied on only one side of the web unless load transfer requirements dictate that welds be applied to both sides.
   c. Structural Primer: All fabricated members other than "galvalume", galvanized, or prepainted panel and flashing material shall receive a factory applied coat of rust inhibitive primer. The primer shall be a universal anti-corrosive, lead and chromate-free, fast drying, modified alkyd primer. Color = gray.
   d. Identification: All fabricated items shall have an identifying mark which corresponds to the mark shown on the erection drawings. The mark shall be stamped, stenciled, or printed on or attached to the items or to their containers.
9. FRAMED OPENINGS: Framed openings shall consist of cold-formed headers and jambs of sufficient depth designed and located to allow flush framing of the wall girts. Flashing shall be provided to ensure weather tightness and neat appearance.
10. SWING DOORS: Swing door frames shall be fabricated from 16 gauge galvanized or galvalume steel with strike and hinge reinforcements. Door frames shall be bonderized and cleaned to provide paint adhesion. Door frames shall be given one coat of primer and one finish coat of enamel paint in a color as specified by the Architect.
11. ERECTION: Erect structural steel in accordance with Building Code and AISC Specifications for Structural Steel for Buildings w/ modifications & additional requirements of this Section.
    a. Connections:
       1. Shop connections and field connections may be welded or bolted. Field connections may be bolted with A325 bolts except as otherwise noted on the drawings or required for strength, or required by AISC Specifications.
       2. Where a shop detail causes excessive eccentric load on a member, Contractor shall, at no additional cost to the Owner, modify the detail as required to produce minimum eccentricity.
       3. If the reaction of a beam is not shown on the drawings, the connections shall be selected to support half the total uniform load capacity shown in the table of the AISC manual for allowable load on beams for the given shape, span and steel specifications ofthe beam in question. The effect of concentrated loads near an end connection shall also be considered. Refer to drawings for particular end girder connection.
    b. Field Assembly – Erection:
       1. All column bases and leveling plates shall be set by the steel erector, but will be grouted in by the concrete contractor. Beam bearing plates will be set by the concrete contractor.
       2. Steel contractor shall set column bases on steel wedges or angle screeds to accurate elevations approximately 1-½" clear of concrete unless otherwise shown on drawings. Wooden wedges will not be permitted. Anchor bolts and other incidental items of structural steel required to be built into concrete shall be furnished to the respective trades at proper time and shall include instructions and templates for their installation.
       3. The Contractor shall erect the frame true and plumb with temporary bracing introduced as required to take care of all loads to which the structure may be subjected, including erection and operation of same. Any such bracing shall be left in place as long as required for safety and shall finally be removed by this Contractor. Where the prevention of movement of the steel frame is dependent on masonry, bracing shall be left in place until this work is completed.
       4. Tolerances shall be in accordance with the Code of Standard Practice for Steel Buildings and Bridges.
       5. Field errors shall be corrected by burning unless approved by Architect.
       6. Retouch surfaces where surfaces or shop coat of paint have been damaged using the same system as original shop painting. The cleaning, pretreatment and priming of welds and the areas adjacent thereto, shall be done promptly after the acceptance of the weld as specified under the shop painting.
    c. Field Quality Control:
       1. Testing Agency shall perform the following:
          – Qualification of filed high-strength bolted construction, welding and stud welding procedures and personnel.
          – Inspection of erected structural steel work for conformance with the requirements specified.
       2. Inspection of field assembled high strength bolted construction shall be in accordance with Section 6, AISC Specification for Structural Joints.
       3. Inspection of Field Welds shall be in accordance with Section 6 of AWS Building Code. Visual inspection of all field welds shall be in accordance with Article 605.
12. INSULATION All Roof Areas shall be insulated to achieve a minimum R-Value of 32 and All Wall Areas shall be insulated to achieve a minimum R-Value of 13

METAL DECK:

1. METAL DECK SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH THE STEEL DECK INSTITUTE.
2. METAL DECK SHALL BE WELDED TO THE SUPPORTING STRUCTURE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION. METAL DECK SHALL BE GALVANIZED UNLESS OTHERWISE NOTED. INSTALL DECK WITH ALL CLOSURES, FILLERS, FLASHING, WELDING WASHERS, ETC., AS REQUIRED.
3. METAL DECK FOR CONCRETE FLOORS SHALL BE 1 1/2" DEEP, COMPOSITE, 22 GA, GALVANIZED, WITH 5 1/2" CONCRETE (ABOVE BOTTOM OF DECK), & WITH 6x6 W1.4 x W1.4 W.W.F. (TOP), UNLESS OTHERWISE NOTED ON DRAWINGS.

LTSCALE= 1.00

REV.	DATE	DESCRIPTION	BY	APP
0	11/19/14	RELEASED FOR OWNER'S PERMITTING USE ONLY	RT	RT
		(NOT FOR CONSTRUCTION)		

KEYSTONE CEMENT COMPANY

LIQUID FUELS HANDLING PROJECT

East Allen Township, Northampton Co., PA

NOTE:
THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS PRIOR TO PROCEEDING WITH ANY WORK. WHERE DISCREPANCIES OCCUR BETWEEN THESE DOCUMENTS AND EXISTING CONDITIONS, THE DISCREPANCY SHALL BE REPORTED TO THE OWNER AND/OR ENGINEER FOR EXPEDITING AND RESOLUTION.

RT CE
RT Consulting & Engineering, Inc.
65 E. Elizabeth Avenue, Suite 110
Bethlehem, PA 18018
610-866-7202 (office) 610-866-7206 (fax)

PROJECT TITLE
LIQUID FUELS HANDLING IMPROVEMENTS/ADDITIONS SOLVENT FUELS STORAGE & PIPING SYSTEM

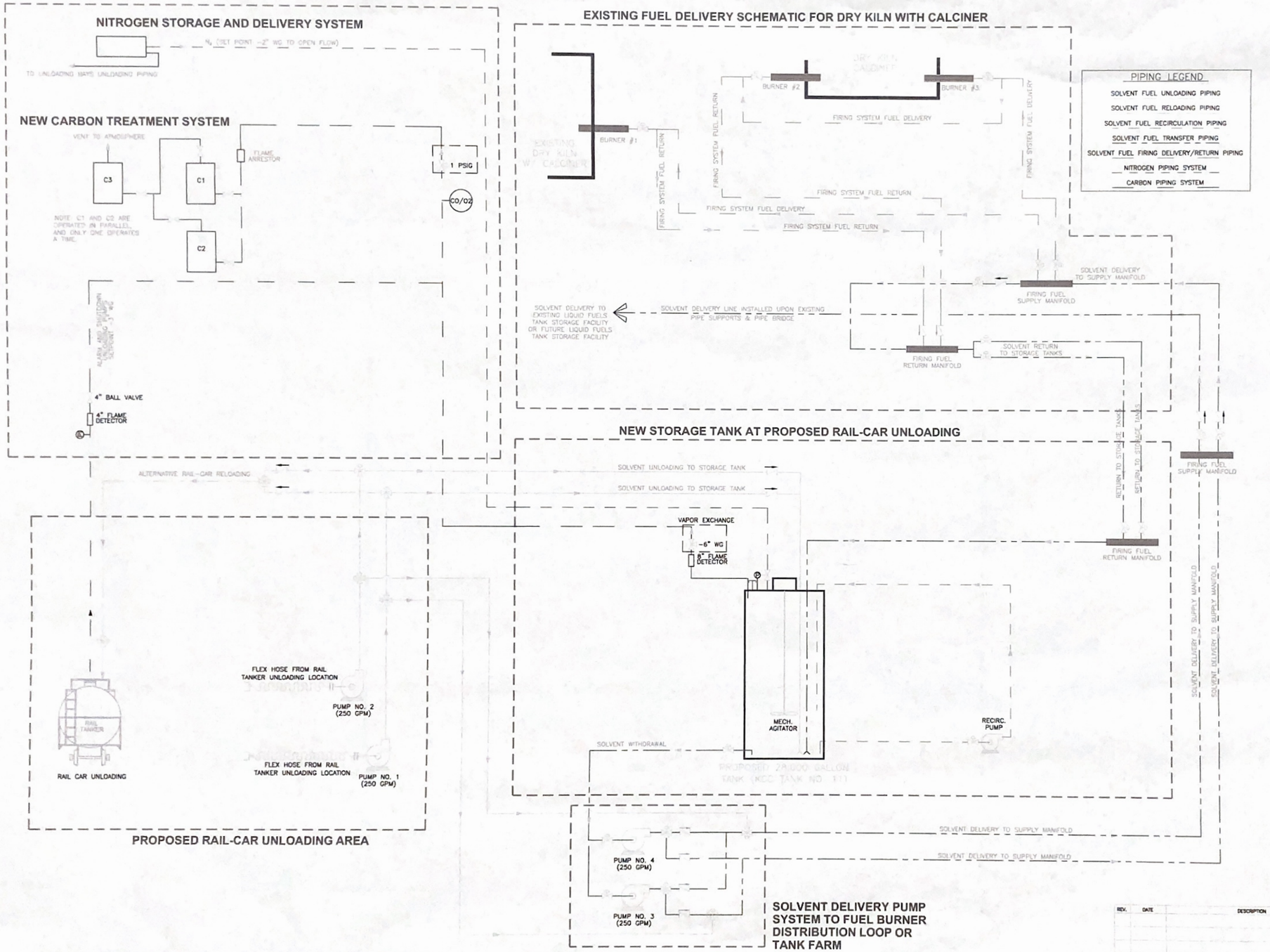
DRAWING TITLE
RAILCAR SOLVENT FUELS UNLOADING & STORAGE GENERAL CONST. NOTES

LAST UPDATE –	ENGINEER RMT	RTCE CONTRACT No. 21430
DATE 11/18/14	DESIGNER RMT	CADD FILE No. G160.3-R0
SCALE AS NOTED	DRAWN RMT	RECORDS COPY XREF FILE(S) –

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ROBERT M. TOEDTER ENGINEER No.28590-E

DRAWING NUMBER
G160

REVISION LEVEL
R0



NOTE: 1. VAPOR VENTING MAY BE ROUTED TO THE KILN.

REV.	DATE	DESCRIPTION	BY	APP
1	12/19/22	PERMITTING MODIFICATION	AL	SH
0	11/18/14	RELEASED FOR OWNER'S PERMITTING USE ONLY	RT	RT

LIQUID FUELS HANDLING PROJECT

KEYSTONE CEMENT COMPANY

East Allen Township, Northampton Co., PA

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ORIGINAL BASE MAP PROVIDED BY:
RT CONSULTING & ENGINEERING, INC.
NOVEMBER 18, 2014

PROJECT TITLE

LIQUID FUELS HANDLING IMPROVEMENTS/ADDITIONS SOLVENT FUELS STORAGE & PIPING SYSTEM

DRAWING TITLE

RAIL-CAR SOLVENT FUELS UNLOADING & STORAGE SYSTEM SCHEMATIC

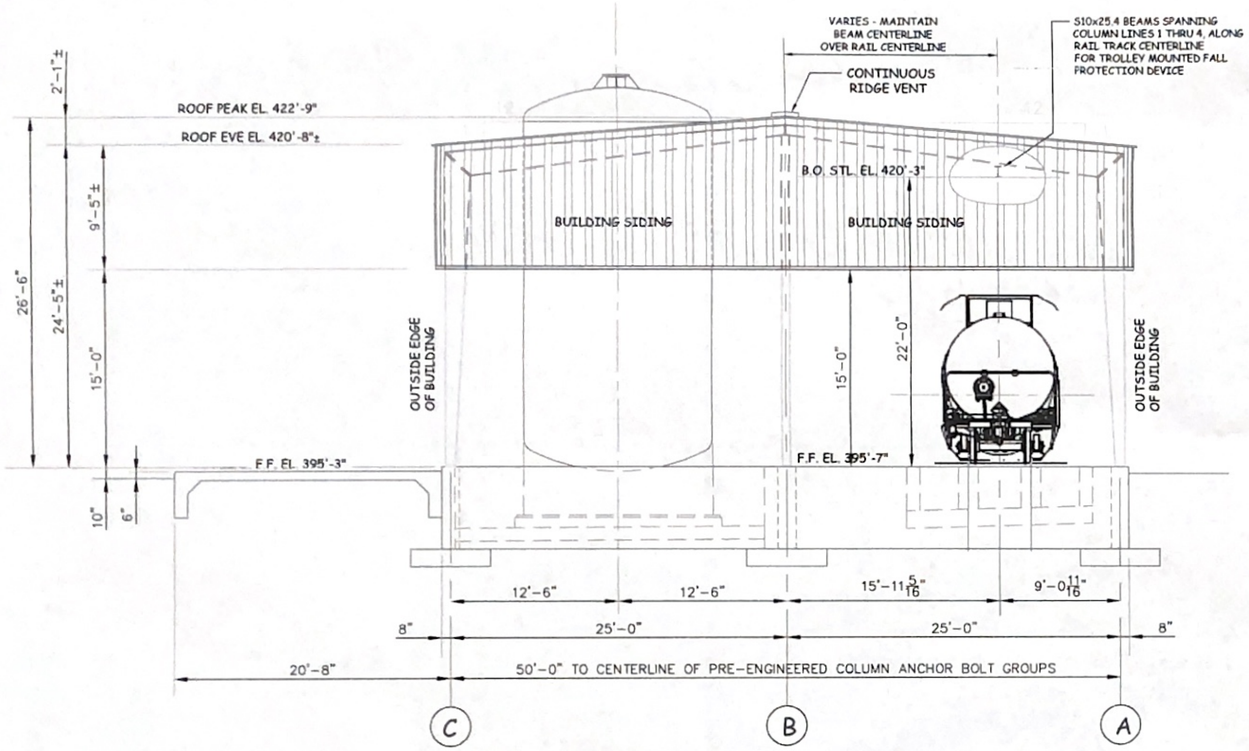
LAST UPDATE	ENGINEER	RTCC CONTRACT No.
–	RMT	21430
DATE	DESIGNER	CADD FILE No.
11/18/14	RMT	P160-R1
SCALE	DRAWN	XREF FILE(S)
AS NOTED	RMT	–

RECORDS CONTROL

SEAL: COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER STEPHEN P. HOLT

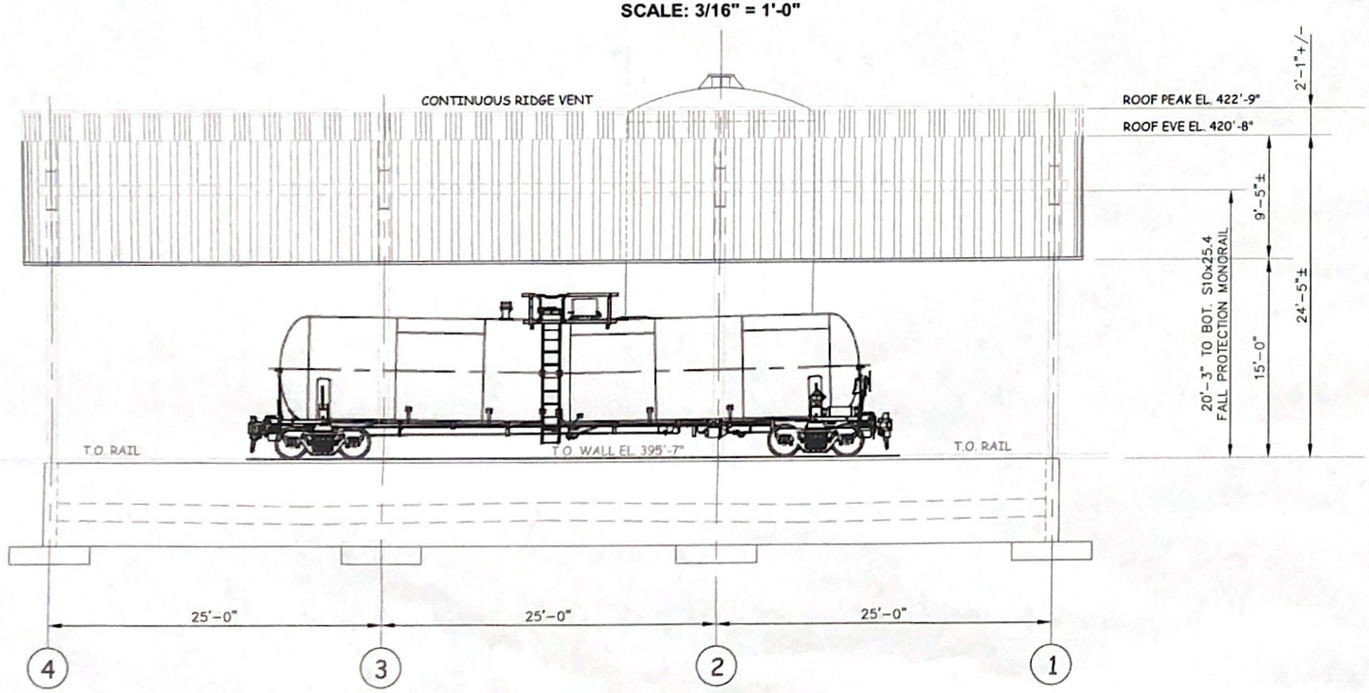
DRAWING NUMBER: P160

REVISION LEVEL: R1



WEST ELEVATION VIEW

SCALE: 3/16" = 1'-0"



SOUTH ELEVATION VIEW

SCALE: 3/16" = 1'-0"

NOTES

1. THESE STRUCTURAL PLANS ARE FOR PERMITTING AND ILLUSTRATIVE PURPOSES ONLY. THE FINAL STRUCTURAL STEEL ARRANGEMENT MAY VARY BASED UPON CLIENT REVIEW AND FIELD CONDITIONS).
2. DRAWING MODIFIED FROM RT CONSULTING AND ENGINEERING INC. DRAWING S160 DATED 11/18/14.
3. CONTAINMENT HOLDS LARGEST CONTAINER PLUS THE 24 HOUR, 25 YEAR RAIN EVENT. THEREFORE, THE ROOF IS OPTIONAL. SEE DRAWING NO. C160 FOR DETAILS.

REV.	DATE	DESCRIPTION	BY	APP
1	07/21/22	PERMITTING MODIFICATION	AL	SH

KEYSTONE CEMENT COMPANY

East Allen Township, Northampton Co., PA

THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS PRIOR TO PROCEEDING WITH ANY WORK. WHERE DISCREPANCIES OCCUR BETWEEN THESE DOCUMENTS AND EXISTING CONDITIONS, THE DISCREPANCY SHALL BE REPORTED TO THE OWNER AND/OR ENGINEER FOR EXPEDITING AND RESOLUTION.

DRAWING MODIFIED FROM:
GOLDER ASSOCIATES, INC.
FIGURE: F160 DATED: 7/23/18

PROJECT TITLE
RCRA PART B
PERMIT RENEWAL

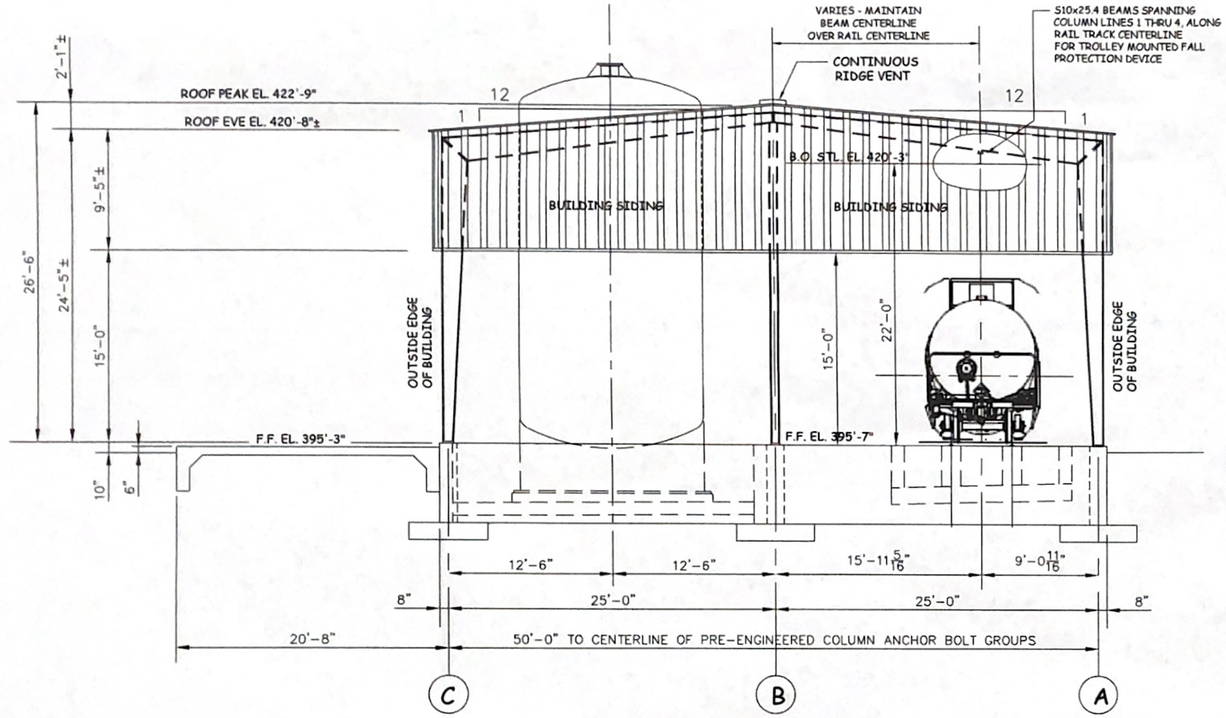
DRAWING TITLE
RAILCAR SOLVENT FUELS UNLOADING & STORAGE RAIL TANKER UNLOADING FACILITY STRUCTURAL ELEVATIONS

LAST UPDATE	ENGINEER
–	SPH
DATE 7/21/22	CHECKED SPH
SCALE AS NOTED	DRAWN ARL

SEAL
COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
STEPHEN P. HOLT
ENGINEER
PE072031

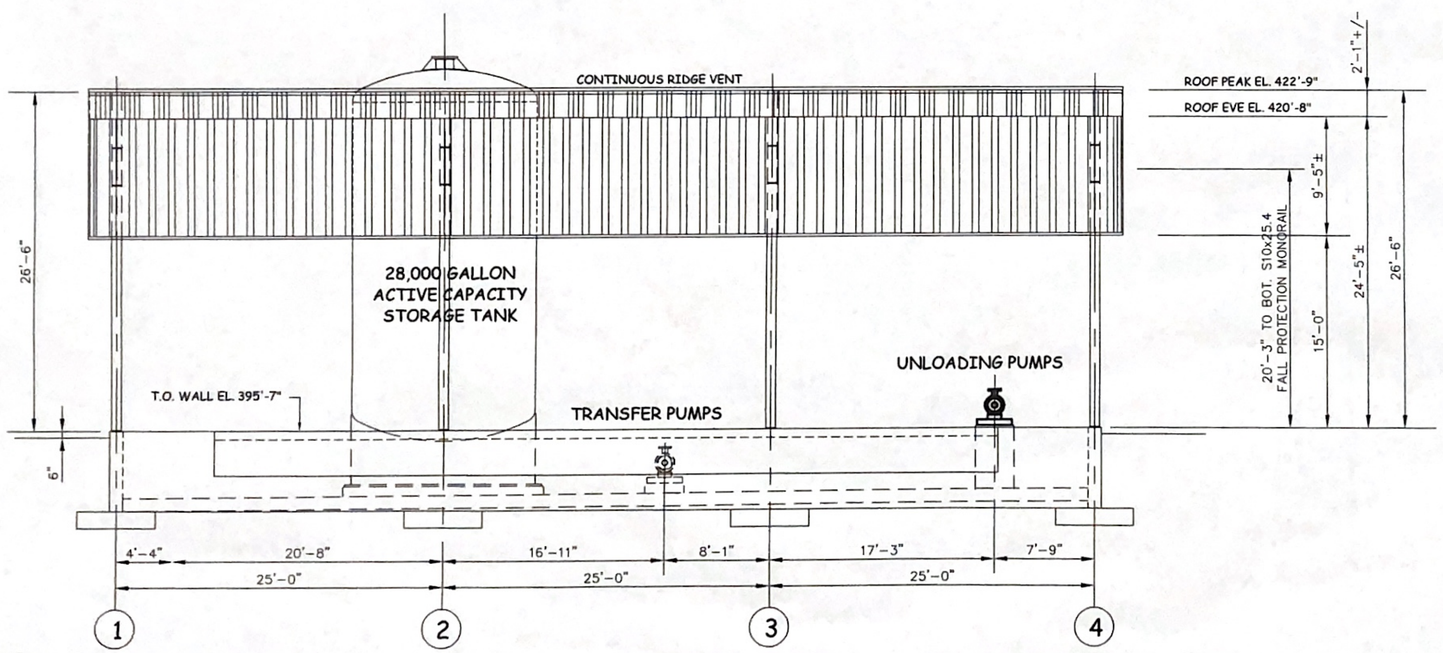
DRAWING NUMBER
S160

REVISION LEVEL
R1



EAST ELEVATION VIEW

SCALE: 3/16" = 1'-0"



NORTH ELEVATION VIEW

SCALE: 3/16" = 1'-0"

NOTES

1. THESE STRUCTURAL PLANS ARE FOR PERMITTING AND ILLUSTRATIVE PURPOSES ONLY. THE FINAL STRUCTURAL STEEL ARRANGEMENT MAY VARY BASED UPON CLIENT REVIEW AND FIELD CONDITIONS).
2. CONTAINMENT HOLDS LARGEST CONTAINER PLUS THE 24 HOUR, 25 YEAR RAIN EVENT. THEREFORE, THE ROOF IS OPTIONAL.
3. DRAWING MODIFIED FROM GOLDER ASSOCIATES INC. DRAWING S161 DATED 7/23/18

REV.	DATE	DESCRIPTION	BY	APP
1	07/21/22	PERMITTING MODIFICATION	AL	SH

KEYSTONE CEMENT COMPANY

East Allen Township, Northampton Co., PA

THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS PRIOR TO PROCEEDING WITH ANY WORK. WHERE DISCREPANCIES OCCUR BETWEEN THESE DOCUMENTS AND EXISTING CONDITIONS, THE DISCREPANCY SHALL BE REPORTED TO THE OWNER AND/OR ENGINEER FOR EXPEDITING AND RESOLUTION.

DRAWING MODIFIED FROM:
GOLDER ASSOCIATES, INC.
FIGURE: F160 DATED: 7/23/18

PROJECT TITLE
RCRA PART B
PERMIT RENEWAL

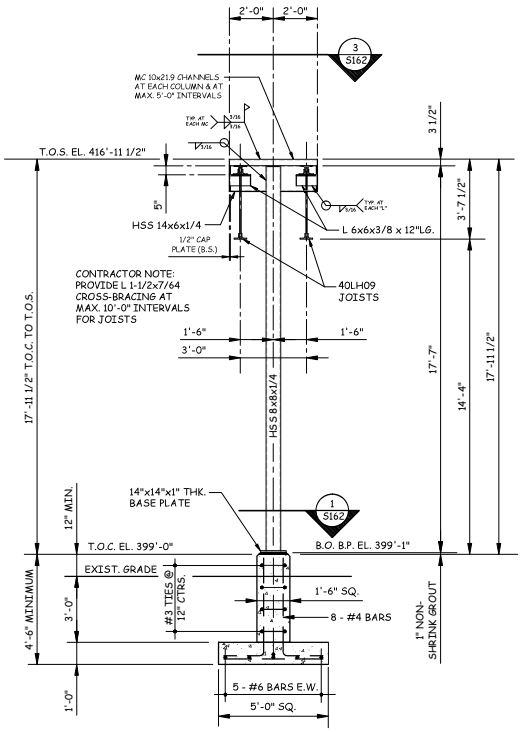
DRAWING TITLE
RAILCAR SOLVENT FUELS UNLOADING & STORAGE RAIL TANKER UNLOADING FACILITY STRUCTURAL ELEVATIONS

LAST UPDATE –	ENGINEER SPH
DATE 7/21/22	CHECKED SPH
SCALE AS NOTED	DRAWN ARL

SEAL: COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL STEPHEN P. HOLT ENGINEER PE072081

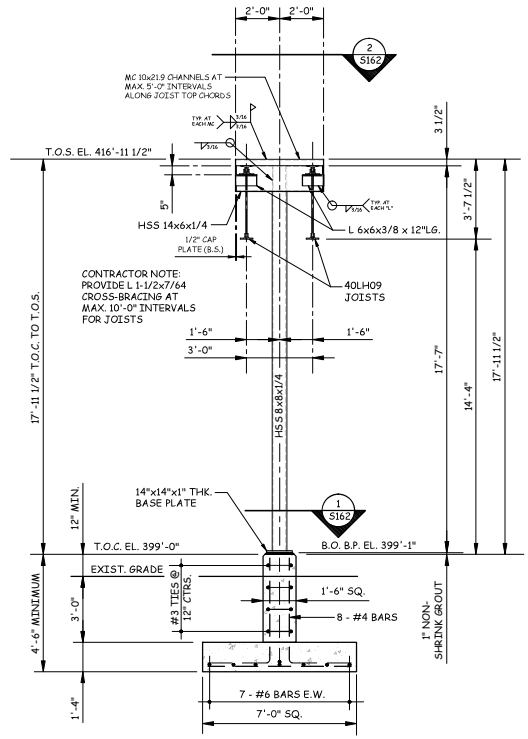
DRAWING NUMBER: S161

REVISION LEVEL: R1



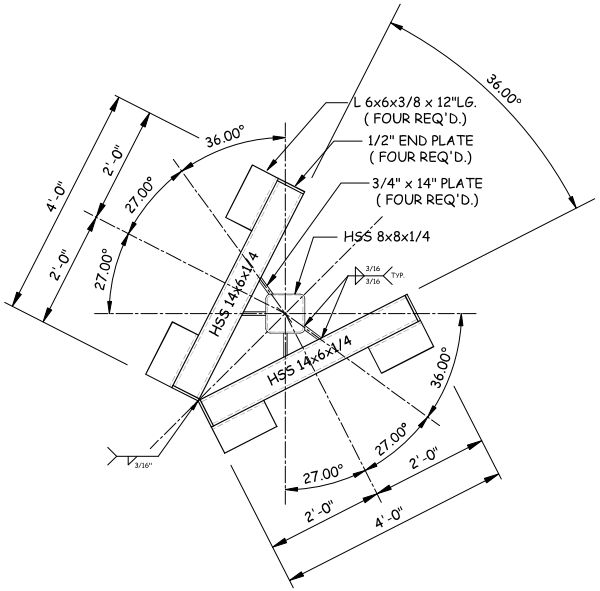
PIPE BRIDGE SUPPORT STRUCTURE TYPE "A"

SCALE: 3/8" = 1'-0"



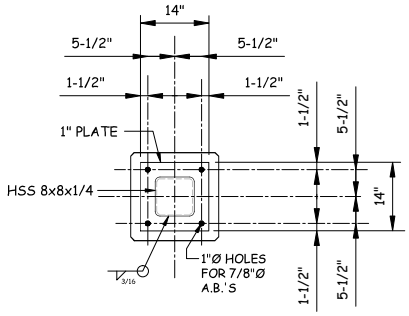
PIPE BRIDGE SUPPORT STRUCTURE TYPE "B"

SCALE: 3/8" = 1'-0"



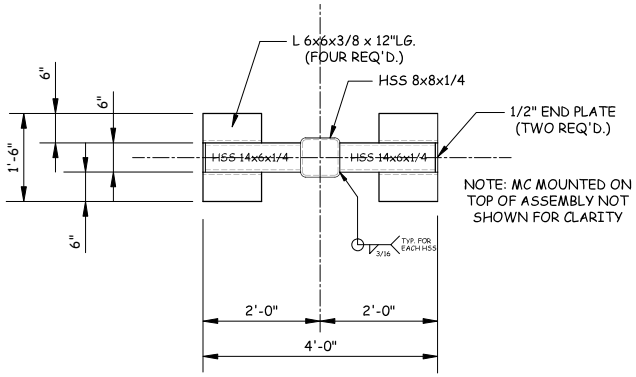
SECTION NO. 2
PIPE BRIDGE SUPPORT ARMS - TYPE "B"

SCALE: 1/2" = 1'-0"



SECTION NO. 1
TYPICAL PIPE BRIDGE COLUMN BASE PLATE DETAIL

SCALE: 1/2" = 1'-0"



SECTION NO. 3
PIPE BRIDGE SUPPORT ARMS - TYPE "A"

SCALE: 1/2" = 1'-0"

LTSCALE= 0.75

REV.	DATE	DESCRIPTION	BY	APP
0	11/19/14	RELEASED FOR OWNER'S PERMITTING USE ONLY	RT	RT
		(NOT FOR CONSTRUCTION)		

LIQUID FUELS HANDLING PROJECT

KEYSTONE CEMENT COMPANY

East Allen Township, Northampton Co., PA

NOTE:
THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS PRIOR TO PROCEEDING WITH ANY WORK. WHERE DISCREPANCIES OCCUR BETWEEN THESE DOCUMENTS AND EXISTING CONDITIONS, THE DISCREPANCY SHALL BE REPORTED TO THE OWNER AND/OR ENGINEER FOR EXPEDITING AND RESOLUTION.

RT CE
RT Consulting & Engineering, Inc.
65 E. Elizabeth Avenue, Suite 110
Bethlehem, PA 18018
610-866-7202 (office) 610-866-7206 (fax)

PROJECT TITLE
LIQUID FUELS HANDLING IMPROVEMENTS/ADDITIONS SOLVENT FUELS STORAGE & PIPING SYSTEM

DRAWING TITLE
RAILCAR SOLVENT FUELS UNLOADING & STORAGE PIPE BRIDGE SUPPORTS

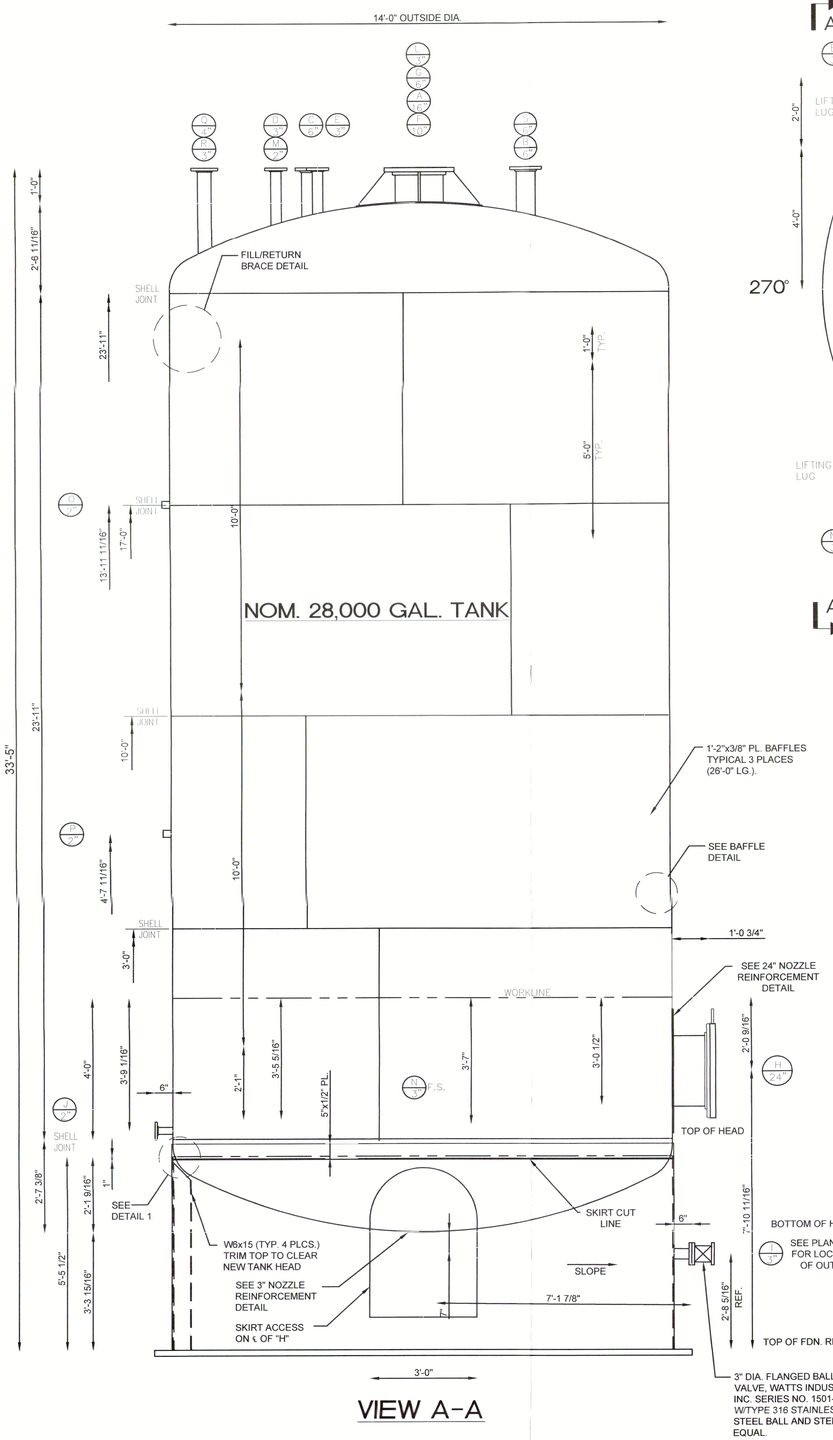
LAST UPDATE –	ENGINEER RMT	RTCE CONTRACT No. 21430
DATE 11/18/14	DESIGNER RMT	CADD FILE No. S162-R0
SCALE AS NOTED	DRAWN RMT	XREF FILE(S) –

RECORDS CONTROL

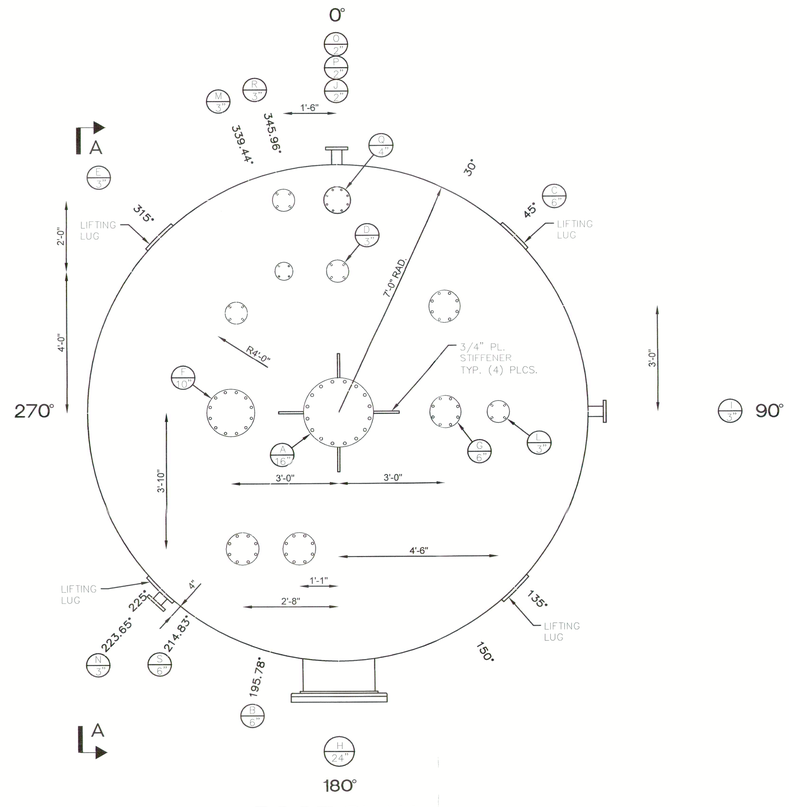
COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER ROBERT M. TOEDTER No.28580-E

DRAWING NUMBER
S162

REVISION LEVEL
R0



VIEW A-A



ROOF PLAN

BENCH MARK NOTES:

1. BENCH MARK LOCATED ON BOTTOM EDGE OF LADDER SUPPORT. LADDER LOCATED ON NORTH WALL OF CONTAINMENT AREA.

2. ALL ELEVATIONS SHOWN ARE REFERENCED TO THE BENCH MARK.

GENERAL NOTES:

1. DRAWING MODIFIED FROM RT CONSULTING AND ENGINEERING INC. DRAWING T160 DATED 11/18/14
2. ALL TANK CONSTRUCTION SHALL COMPLY WITH API 650 AND API 653. CONTRACTOR SHALL FURNISH NAMEPLATE AND CONSTRUCTION CERTIFICATION IN ACCORDANCE WITH API 653. CONSTRUCTION SHALL BE FURNISHED AND ERECTED ADJACENT TO EXISTING NAMEPLATE.
3. ALL EXTERIOR SURFACES SHALL BE PAINTED AS FOLLOWS:

   SURFACE PREP - SSPC-SP6 COMMERCIAL BLAST.

   PRIMER - SHERWIN WILLIAMS KEM KROMIK UNIVERSAL METAL PRIMER B50WZA, 4.0 MILS DFT MINIMUM.

   FINISH - SHERWIN WILLIAMS HI-SOLIDS POLYURETHANE B65 SERIES, ONE COAT 4.0 MILS DFT MINIMUM, COLOR WHITE.
4. FULL HYDROSTATIC TEST, HELD FOR 24 HOURS SHALL BE PERFORMED AFTER COMPLETION OF RECONSTRUCTION WORK.
5. A. BOTTOM HEAD SHALL BE SA516-70 ASME F&D WITH 168.00" O.D., 3/4" NOMINAL THICKNESS, 168.00" DISH RADIUS, 11.00" KNUCKLE RADIUS, 1.50" STRAIGHT FLANGE, 30.86" OVERALL HEIGHT, MANUFACTURED BY BRIGHTON TRU-EDGE HEADS, CINCINNATI, OH, OR EQUAL. B. TOP HEAD SHALL BE SA516-70 ASME F&D WITH 168.00" O.D., 3/8" NOMINAL THICKNESS, 168.00" DISH RADIUS, 11.00" KNUCKLE RADIUS, 1.50" STRAIGHT FLANGE, 30.68" OVERALL HEIGHT, MANUFACTURED BY BRIGHTON TRU-EDGE HEADS, CINCINNATI, OH, OR EQUAL.
6. SHELL COURSING SHALL BE 3/8" THICK ASTM A-36 PLATE.
7. ALL FLANGES SHALL BE 150# TYPE A-105 CARBON STEEL SLIP-ON U.N.O.
8. ALL FLANGE GASKETS SHALL BE 1/8" THK. "GORE-TEX GR" PTFE U.N.O..
9. ALL NOZZLES NECKS CONSTRUCTED OF PIPE SHALL BE TYPE A-106-B U.N.O.
10. FLANGE BOLTS SHALL STRADDLE TANK CENTERLINES.
11. WHERE HORIZONTAL WELDS INTERSECT VERTICAL WELDS, THE VERTICAL WELDS MUST BE STAGGERED 12" MINIMUM.

NOZZLE SCHEDULE

NOZZLE									COMMENTS	
MARK	SIZE	QTY.	REPAD	SETBACK	EXT PROJ.	INT PROJ.	FLANGE	SCHEDULE	DESCRIPTION	GENERAL
A	16"	1	YES	3/8"	12"	FLUSH	150#	160	AGITATOR MOUNTING	
B	6"	1	NO	3/8"	18 15/16"	FLUSH	150#	80	SPARE	
C	6"	1	NO	3/8"	19 7/8"	FLUSH	150#	80	FLAME DETONATOR/BREATHING VENT	
D	3"	1	NO	3/8"	19"	FLUSH	150#	80	N2 REGULATOR	
E	3"	1	NO	3/8"	19"	FLUSH	150#	80	SPARE	
F	10"	1	NO	3/8"	15 7/8"	FLUSH	150#	80	PRESSURE VENT	
G	6"	1	NO	3/8"	15 7/8"	FLUSH	150#	80	HIGH LEVEL	
H	24"	1	YES	3/8"	12 3/4"	FLUSH	150#	NA	MANWAY	1/2" A36 ROLLED PLATE
I	3"	1	YES	3/8"	6" (1)	FLUSH	150#	160	DISCHARGE	(1) FROM OUTSIDE FACE OF SKIRT
J	2"	1	NO	3/8"	6"	FLUSH	150#	160	SPARE	
L	3"	1	NO	3/8"	20 7/8"	FLUSH	150#	80	SPARE	
M	3"	1	NO	3/8"	20"	FLUSH	150#	80	N2 INLET	
N	3"	1	YES	3/8"	4"	FLUSH	150#	80	LEVEL INDICATOR	
O	2"	1	NO	3/8"		FLUSH	NA	NA	SPARE	COUPLING WITH PLUG
P	2"	1	NO	3/8"		FLUSH	NA	NA	SPARE	COUPLING WITH PLUG
Q	4"	1	YES	3/8"	28 3/16"	FLUSH	150#	160	FILL PORT	
R	3"	1	YES	3/8"	29 1/4"	FLUSH	150#	160	FILL PORT	
S	6"	1	NO	3/8"	21 5/8"	FLUSH	150#	80	PRESSURE TRANSMITTER	

SEAL

PE 050571 E 7/23/2018

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
0	2018-07-23	RCRA PART B PERMIT RENEWAL - NOT FOR CONSTRUCTION	BJE	MAK	BJE	BJE

CLIENT
KEYSTONE CEMENT COMPANY
EAST ALLEN TOWNSHIP
NORTHAMPTON COUNTY, PA

CONSULTANT
GOLDER ASSOCIATES INC.
5B OAK BRANCH DRIVE
GREENSBORO, NC
USA
(336) 852-4903
www.golder.com

GOLDER

PROJECT
RCRA PART B PERMIT RENEWAL

TITLE
RAILCAR SOLVENT FUELS UNLOADING & STORAGE RAIL TANKER UNLOADING FACILITY STRUCTURAL ELEVATION

PROJECT NO. 1895348

PHASE 200

REV. 0 of

DRAWING T160

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

Path: \\greensboro\CAD_2018\1895348 - Keystone Permit Renewal\PRODUCTION\a - Permit Renewal Figures\ | File Name: T160.dwg | Last Edited By: mkorche | Date: 2018-07-05 | Time: 2:55:25 PM | Printed By: ADRIANH | Date: 2018-07-18 | Time: 11:18:12 AM

APPENDIX I
MANAGEMENT OF WASTE OIL

Keystone Cement Company
Appendix I

Waste Oil Management Standards

Prepared for:

Keystone Cement Company
Bath, Pennsylvania

Prepared by:

Keystone Cement Company
Environmental Affairs Department
Bath, Pennsylvania

October 2005
Revised: October 2012, April 2015, August 2018

1.0 Introduction:

Keystone Cement Company (Keystone) operates a Portland cement manufacturing operation at its Bath, Pennsylvania facility. Keystone utilizes hazardous and non-hazardous waste derived fuels, in addition to virgin fossil fuels, to fire its rotary kiln and therefore, is subject to the RCRA permitting requirements associated with the storage and processing of hazardous waste derived fuels. In June 2005, Keystone submitted a Class 3 permit modification request to the Pennsylvania Department of Environmental Protection for the installation of a new pre-heater, pre-calciner cement kiln and a new waste fuels tank farm/unloading facility. As detailed in its June 2005 permit modification request, and its July 26, 2005 supplemental submittal (letter, Holt to Tomayko), Keystone may, in the future, close the existing hazardous waste fuel storage tanks in accordance with the facility's RCRA closure plan and subsequently convert two of the tanks to the storage of specification and off-specification waste oil. Keystone may also close and convert two other existing hazardous waste fuel storage tanks to the storage of specification and off-specification waste oil.

The DEP and Keystone have elected to incorporate the Pennsylvania Administrative Code (25 PA Code), Chapter 298 standards for the management of waste oil into the RCRA Part B permit. Therefore, Keystone developed this addendum to the June 2005 Part B permit application to demonstrate compliance with the applicable requirements of Chapter 298.

In 2012, Keystone elected to also install an 18,000 gallon, double-walled, above-ground storage tank at its facility for the storage of used oil to be burned in the kiln. The tank will store both on-specification and off-specification used oil, as defined under PA Code Chapter 298. On-specification used oil is not considered a residual waste in the State of Pennsylvania and therefore, is not subject to waste permitting. However, the off-specification used oil is subject to permitting and therefore, consistent with the 2005 RCRA permit modification, Keystone is including this used oil storage tank into its RCRA permit.

It should be noted that the storage and burning of the used oil in the Keystone cement kiln are not regulated under the RCRA standards under 40 CFR Part 264 (Pennsylvania Administrative Code 25, Section 298), but are included in this permit for convenience only. Therefore, the burning of the used oil in the Portland cement kiln is not considered as part of the maximum burning limitations detailed in the Part B permit.

2.0 Chapter 298, Subchapter B - Applicability/Waste Oil Specifications:

2.1 Specifications:

As detailed at Chapter 298.11, waste oil that is burned for energy recovery is subject to the Chapter 298 unless it is shown not to exceed any of the allowable levels of the constituents and properties in Table 2-1:

Table 2-1: Waste Oil Not Exceeding Any Specification Level Is Not Subject to Chapter 298 When Burned for Energy Recovery

Constituent/Property	Allowable Levels
Arsenic	5 ppm maximum
Cadmium	2 ppm maximum
Chromium	10 ppm maximum
Lead	100 ppm maximum
Flash Point	100° F minimum
Chlorides	1,000 ppm maximum for residential and commercial uses and 4,000 ppm maximum for industrial uses

Keystone Cement intends to manage waste oils that meet the above specifications (i.e.- on specification fuels) and those that may not meet the above specifications. Therefore, this Part B Permit application addendum is intended to demonstrate compliance with the standards detailed at 25 PA Code, Chapter 298, Subchapter G – Waste Oil Burners Who Burn Off-Specification Waste Oil for Energy Recovery.

All waste oils burned for energy recovery in the Keystone kilns will have a minimum energy content of 8,000 Btus/pound.

2.2 Prohibitions:

Keystone Cement intends to store waste oil in four (4) of the current hazardous waste tanks (after RCRA closure and conversion) and an 18,000 gallon double-walled above-ground storage tank (Tank AST-48). Waste oil will not be stored in surface impoundments nor will it be used as a dust suppressant at the Keystone facility.

All waste oil burned on-site, both specification and off-specification waste oil, will be burned for energy recovery in the on-site cement kiln, which is defined as an "industrial furnace" at 40 CFR §260.10, incorporated by reference in 25 PA Code Section 260a.1, or in an on-site boiler. On-specification fuel oil may be used for other operations such as the facility's coal heater.

3.0 Chapter 298, Subchapter C - Waste Oil Generators:

Keystone is a generator of waste oil at its Bath, Pennsylvania facility. However, the scope of this Permit Application addendum is to address the waste oil management requirements as they apply to the storage and burning of specification and off-specification waste oil in the facility tanks and the Portland cement kiln. Therefore, the requirements of Chapter 298, Subchapter C, Waste Oil Generators, are not being addressed in this application.

4.0 Chapter 298, Subchapter G – Waste Oil Burners Who Burn Off-Specification Waste Oil for Energy Recovery

4.1 § 298.60 – Applicability:

As detailed above, Keystone will accept and burn for energy recovery, both specification and off-specification waste oil as defined at § 298.11. Therefore, the facility is subject to the standards for waste oil burners in Subchapter G of Chapter 298. As detailed in § 298.61, a burner who generates used oil shall also comply with Subchapter C (relating to used oil generators). As discussed in Section 3.0 above, the scope of this Permit Application addendum is to address the waste oil management requirements as they apply to the storage and burning of specification and off-specification waste oil in the facility tanks and the Portland cement kiln. Therefore, the requirements of Chapter 298, Subchapter C, Waste Oil Generators, are not being addressed in this application.

4.2 § 298.61 – Restrictions on Burning:

Waste oils (specification and off-specification waste oils) will be burned for energy recovery in the on-site Portland cement rotary kiln. The cement kiln is classified as an industrial furnace per 40 CFR §260.10, incorporated by reference in § 260.1.

In addition, Keystone's existing Title V air permit incorporates the use of waste oils as fuel in its cement kiln. Therefore, Keystone has received "a plan approval and operating permit issued under Chapter 127 from the Bureau of Air Quality" as required under § 298.61(b).

Keystone may aggregate off-specification waste oil with virgin oil or on-specification waste oil for purposes of burning, but will not aggregate such wastes for purposes of producing on-specification waste oil. All waste oils that are blended with off-specification waste oil will be managed in accordance with the requirements for off-specification waste oils.

4.3 § 298.62 – Notification:

As a permitted RCRA facility, Keystone has previously submitted a site identification form (Form 8700-12) indicating that it is a burner of used oil (waste oil). A copy of the form is provided as Appendix A of this addendum).

4.4 § 298.63 - Rebuttable Presumption for Waste Oil:

Keystone will only manage specification and off-specification waste oils in the converted hazardous waste storage tanks and AST-48. Waste oils with halogen concentrations greater than 1,000 ppm are presumed to be hazardous waste and are not accepted at Keystone unless the facility can demonstrate that the halogen concentrations is not resulting from the mixture of used oil and hazardous wastes. Specific procedures for making this demonstration are provided in Keystone's "Waste Oil Sampling and

Analysis Plan" provided as Appendix B of this addendum.

4.5 § 298.64 – Waste Oil Storage:

As detailed above, all four of the storage tanks intended to be used for the storage of waste oil are currently subject to RCRA permitting under Chapter 264a. Tanks 1A and 1B are 15,000 gallon above ground storage tanks, and Tanks 2 and 3 are 35,000 gallon aboveground storage tanks. All tanks are constructed of carbon steel in accordance with American Petroleum Institute (API) Standard 650 (note all four tanks will be converted for the storage of used oil). Each of these tanks and its associated secondary containment system meets the RCRA standards for hazardous waste storage and therefore, are also considered to comply with any waste oil storage requirements detailed under § 298.64. Upon conversion of the tanks from RCRA hazardous waste storage to waste oil storage, each tank will be labeled with the words "Waste Oil."

For additional details concerning design specification parameters for Tanks 1A, 1B, 2, and 3, please refer to the existing Keystone Hazardous Waste Management Permit.

AST-48 is an 18,000 gallon above ground storage tank that is constructed of A-30 carbon steel and provides secondary containment through a double wall tank design to comply with the requirements of PA Code Section 298.64(c)(1)(ii). Specifications for the tank and its secondary containment system (double-walled design) are provided in Appendix C of this addendum. PA Code Section 298.64 requires that each aboveground tank meet the residual waste storage tank requirements at Section 299.122(b). A discussion of the Section 299.122 requirements and Keystone's compliance with this section is provided as Appendix D of this addendum.

As a RCRA permitted facility, Keystone currently has in place, an approved PPC plan detailing the procedures to be implemented in the event of a release of material from the hazardous waste tanks and AST-48 (note that a revised PPC Plan for the inclusion of AST-48 was submitted in May 2012). A copy of the PPC plan is included in the RCRA Permit Attachments. The existing PPC Plan incorporates procedures that will be implemented in the event of a release of non-RCRA regulated material, including used oils. As detailed in the Section G of the June 2005 modification request, a new PPC plan will be developed as new waste management facilities are constructed. Procedures for the response to a release from, and emergencies associated with the waste oil storage tanks (tanks 1A, 1B, 2, and 3, and AST-48) will be maintained in any revised PPC Plan.

The facility has also included the used oil Tank AST-48 in the facility's SPCC Plan to address any releases of used oil from that tank.

Sampling and analysis procedures for the acceptance of waste oil at the Keystone facility are provided in Appendix B of this addendum.

4.6 § 298.65 – Tracking:

Waste oil is typically shipped to the Keystone facility using a non-hazardous waste

manifest or other bill of lading. Other shipping papers may also be used. A record of each waste oil shipment to the Keystone facility shall be retained on-site for a period of 3 years. The record of each shipment shall include the following information:

- Name and address of the transporter who delivered the waste to Keystone;
- Name and address of the generator, transfer facility or processor/refiner from whom the waste oil was sent to Keystone;
- Identification number of the transporter who delivered the waste oil to Keystone;
- Identification number (if applicable) of the generator, transfer facility or processor/rerefiner from whom the waste oil was sent to Keystone;
- Quantity of waste oil accepted; and
- Date of acceptance.

4.7 § 298.66 – Notices:

Before Keystone accepts the first shipment of off-specification waste oil fuel from a generator, transporter, transfer facility or processor/rerefiner, Keystone will provide to the generator, transporter, transfer facility or processor/rerefiner, a one time written and signed notice certifying the following:

- Keystone has notified EPA stating the location and general description of its waste oil management activities, and
- Keystone will burn the waste oil only in an industrial furnace identified in § 298.61(a) (relating to restrictions on burning).

A copy of the notice will be maintained for 3 years from the date Keystone last receives shipment of off-specification waste oil from the generator, transporter, transfer facility or processor/rerefiner.

APPENDIX A

Keystone Cement Company

EPA Form 8700-12 - Site Identification
(Notification of Regulated Waste Activity)

United States Environmental Protection Agency
RCRA SUBTITLE C SITE IDENTIFICATION FORM

1. Reason for Submittal (Select only one.)

☐	Obtaining or updating an EPA ID number for on-going regulated activities (Items 10-17 below) that will continue for a period of time.
☐	Submitting as a component of the Hazardous Waste Report for _____ (Reporting Year)
	☐ Site was a TSD facility, a reverse distributor, and/or generator of ≥ 1,000 kg of non-acute hazardous waste, > 1 kg of acute hazardous waste, or > 100 kg of acute hazardous waste spill cleanup in **one or more months of the reporting year** (or State equivalent LQG regulations)
☐	Notifying that regulated activity is no longer occurring at this Site
☐	Obtaining or updating an EPA ID number for conducting Electronic Manifest Broker activities
☑	Submitting a new or revised Part A (permit) Form

2. Site EPA ID Number

P	A	D	0	0	2	3	8	9	5	5	9

3. Site Name

Keystone Cement Company

4. Site Location Address

Street Address	**Between Route 329 and RR track line parallel to Route 512**				
City, Town, or Village	**Bath (East Allen Twp)**			County	**Northampton**
State	**Pennsylvania**	Country	**United States**	Zip Code	**18014-0058**
Latitude	**40°42'53.2"N**	Longitude	**75°24'04.4"W**	☐ Use Lat/Long as Primary Address	

5. Site Mailing Address ☐ Same as Location Street Address

Street Address	**Route 329, P.O. Box A**				
City, Town, or Village	**Bath**				
State	**Pennsylvania**	Country	**United States**	Zip Code	**18014**

6. Site Land Type

☑ Private ☐ County ☐ District ☐ Federal ☐ Tribal ☐ Municipal ☐ State ☐ Other

7. North American Industry Classification System (NAICS) Code(s) for the Site (at least 5-digit codes)

A. (Primary)	**327310**	C.	
B.	**562211**	D.	

Site Contact Information ☐ Same as Location Address

First Name **Stuart**	MI **H**	Last Name **Guinther**
Title **Plant Manager**		
Street Address **Route 329, P.O. Box A**		
City, Town, or Village **Bath**		
State **Pennsylvania**	Country **United States**	Zip Code **18014**
Email **sguinther@gchi.com**		
Phone **610-837-1881**	Ext **8331**	Fax

9. Legal Owner and Operator of the Site

A. Name of Site's Legal Owner ☐ Same as Location Address

Full Name **Keystone Cement Company**	Date Became Owner (mm/dd/yyyy) **1/1/1927**
Owner Type ☑ Private ☐ County ☐ District ☐ Federal ☐ Tribal ☐ Municipal ☐ State ☐ Other	
Street Address **Route 329, P.O. Box A**	
City, Town, or Village **Bath**	
State **Pennsylvania**	Country **United States**	Zip Code **18014**
Email	
Phone **610-837-1881**	Ext	Fax **610-837-2267**
Comments	

B. Name of Site's Legal Operator ☐ Same as Location Address

Full Name **Keystone Cement Company**	Date Became Operator (mm/dd/yyyy) **1/1/1927**
Operator Type ☑ Private ☐ County ☐ District ☐ Federal ☐ Tribal ☐ Municipal ☐ State ☐ Other	
Street Address **Route 329, P.O. Box A**	
City, Town, or Village **Bath**	
State **Pennsylvania**	Country **United States**	Zip Code **18014**
Email	
Phone **610-837-1881**	Ext	Fax **610-837-2267**
Comments	

0. Type of Regulated Waste Activity (at your site)

Mark "Yes" or "No" for all current activities (as of the date submitting the form); complete any additional boxes as instructed.

A. Hazardous Waste Activities

☑ Y ☐ N	1. Generator of Hazardous Waste—If "Yes", mark only one of the following—a, b, c	
☑	a. LQG	-Generates, in any calendar month, 1,000 kg/mo (2,200 lb/mo) or more of non-acute hazardous waste (includes quantities imported by importer site); or - Generates, in any calendar month, or accumulates at any time, more than 1 kg/mo (2.2 lb/mo) of acute hazardous waste; or - Generates, in any calendar month or accumulates at any time, more than 100 kg/mo (220 lb/mo) of acute hazardous spill cleanup material.
☐	b. SQG	100 to 1,000 kg/mo (220-2,200 lb/mo) of non-acute hazardous waste and no more than 1 kg (2.2 lb) of acute hazardous waste and no more than 100 kg (220 lb) of any acute hazardous spill cleanup material.
☐	c. VSQG	Less than or equal to 100 kg/mo (220 lb/mo) of non-acute hazardous waste.
☐ Y ☑ N	2. Short-Term Generator (generates from a short-term or one-time event and not from on-going processes). If "Yes", provide an explanation in the Comments section. *Note: If "Yes", you MUST indicate that you are a Generator of Hazardous Waste in Item 10.A.1 above.*	
☑ Y ☐ N	3. Treater, Storer or Disposer of Hazardous Waste—Note: Part B of a hazardous waste permit is required for these activities.	
☑ Y ☐ N	4. Receives Hazardous Waste from Off-site	
☑ Y ☐ N	5 Recycler of Hazardous Waste	
☑	a. Recycler who stores prior to recycling	
☐	b. Recycler who does not store prior to recycling	
☐ Y ☑ N	6. Exempt Boiler and/or Industrial Furnace—If "Yes", mark all that apply.	
☐	a. Small Quantity On-site Burner Exemption	
☐	b. Smelting, Melting, and Refining Furnace Exemption	

B. Waste Codes for Federally Regulated Hazardous Wastes. Please list the waste codes of the Federal hazardous wastes handled at your site. List them in the order they are presented in the regulations (e.g. D001, D003, F007, U112). Use an additional page if more spaces are needed.

See attached list (Page 3A) for waste codes.						

C. Waste Codes for State Regulated (non-Federal) Hazardous Wastes. Please list the waste codes of the State hazardous wastes handled at your site. List them in the order they are presented in the regulations. Use an additional page if more spaces are needed.

N/A						

10.B. Waste Codes for Federally Regulated Hazardous Wastes

D001	D023	D043	K030	U004	U112	U194
D004	D024	F001	K035	U009	U113	U196
D005	D025	F002	K036	U012	U115	U210
D006	D026	F003	K048	U019	U117	U211
D007	D027	F004	K049	U031	U118	U213
D008	D028	F005	K050	U037	U121	U220
D009	D029	F037	K051	U043	U122	U226
D010	D030	F038	K052	U044	U127	U227
D011	D031	K014	K083	U051	U128	U228
D012	D032	K015	K085	U052	U131	U239
D013	D033	K016	K086	U055	U140	U359
D014	D034	K017	K087	U056	U153	
D015	D035	K018	K156	U057	U154	
D016	D036	K019	K169	U070	U159	
D017	D037	K020	K170	U072	U161	
D018	D038	K022	K171	U075	U162	
D019	D039	K023	K172	U077	U165	
D020	D040	K025	U001	U078	U169	
D021	D041	K026	U002	U080	U171	
D022	D042	K028	U003	U105	U188	

11. Additional Regulated Waste Activities (NOTE: Refer to your State regulations to determine if a separate permit is required.)

A. Other Waste Activities

☐ Y ☑ N	1. Transporter of Hazardous Waste—If "Yes", mark all that apply.
☐	a. Transporter
☐	b. Transfer Facility (at your site)
☐ Y ☑ N	2. Underground Injection Control
☑ Y ☐ N	3. United States Importer of Hazardous Waste
☐ Y ☑ N	4. Recognized Trader—If "Yes", mark all that apply.
☐	a. Importer
☐	b. Exporter
☐ Y ☑ N	5. Importer/Exporter of Spent Lead-Acid Batteries (SLABs) under 40 CFR 266 Subpart G—If "Yes", mark all that apply.
☐	a. Importer
☐	b. Exporter

B. Universal Waste Activities

☐ Y ☑ N	1. Large Quantity Handler of Universal Waste (you accumulate 5,000 kg or more) - If "Yes" mark all that apply. Note: Refer to your State regulations to determine what is regulated.
☐	a. Batteries
☐	b. Pesticides
☐	c. Mercury containing equipment
☐	d. Lamps
☐	e. Aerosol Cans
☐	f. Other (specify) _____
☐	g. Other (specify) _____
☐ Y ☑ N	2. Destination Facility for Universal Waste Note: A hazardous waste permit may be required for this activity.

C. Used Oil Activities

☐ Y ☑ N	1. Used Oil Transporter—If "Yes", mark all that apply.
☐	a. Transporter
☐	b. Transfer Facility (at your site)
☐ Y ☑ N	2. Used Oil Processor and/or Re-refiner—If "Yes", mark all that apply.
☐	a. Processor
☐	b. Re-refiner
☑ Y ☐ N	3. Off-Specification Used Oil Burner
☐ Y ☑ N	4. Used Oil Fuel Marketer—If "Yes", mark all that apply.
☐	a. Marketer Who Directs Shipment of Off-Specification Used Oil to Off-Specification Used Oil Burner
☐	b. Marketer Who First Claims the Used Oil Meets the Specifications

D. Pharmaceutical Activities

☐ Y ☑ N	1. Operating under 40 CFR Part 266, Subpart P for the management of hazardous waste pharmaceuticals—if "Yes", mark only one. Note: See the item-by-item instructions for definitions of healthcare facility and reverse distributor.
☐	a. Healthcare Facility
☐	b. Reverse Distributor
☐ Y ☑ N	2. Withdrawing from operating under 40 CFR Part 266, Subpart P for the management of hazardous waste pharmaceuticals. Note: You may only withdraw if you are a healthcare facility that is a VSQG for all of your hazardous waste, including hazardous waste pharmaceuticals.

12. Eligible Academic Entities with Laboratories—Notification for opting into or withdrawing from managing laboratory hazardous wastes pursuant to 40 CFR Part 262, Subpart K.

☐ Y ☑ N	A. Opting into or currently operating under 40 CFR Part 262, Subpart K for the management of hazardous wastes in laboratories— If "Yes", mark all that apply. Note: See the item-by-item instructions for definitions of types of eligible academic entities.
☐	1. College or University
☐	2. Teaching Hospital that is owned by or has a formal written affiliation with a college or university
☐	3. Non-profit Institute that is owned by or has a formal written affiliation with a college or university
☐ Y ☑ N	B. Withdrawing from 40 CFR Part 262, Subpart K for the management of hazardous wastes in laboratories.

13. Episodic Generation

☐ Y ☑ N	Are you an SQG or VSQG generating hazardous waste from a planned or unplanned episodic event, lasting no more than 60 days, that moves you to a higher generator category. If "Yes", you must fill out the Addendum for Episodic Generator.

14. LQG Consolidation of VSQG Hazardous Waste

☐ Y ☑ N	Are you an LQG notifying of consolidating VSQG Hazardous Waste Under the Control of the Same Person pursuant to 40 CFR 262.17(f)? If "Yes", you must fill out the Addendum for LQG Consolidation of VSQG hazardous waste.

15. Notification of LQG Site Closure for a Central Accumulation Area (CAA) (optional) OR Entire Facility (required)

☐ Y ☑ N	LQG Site Closure of a Central Accumulation Area (CAA) or Entire Facility.
	A. ☐ Central Accumulation Area (CAA) or ☐ Entire Facility
	B. Expected closure date: _____ mm/dd/yyyy
	C. Requesting new closure date: _____ mm/dd/yyyy
	D. Date closed : _____ mm/dd/yyyy ☐ 1. In compliance with the closure performance standards 40 CFR 262.17(a)(8) ☐ 2. Not in compliance with the closure performance standards 40 CFR 262.17(a)(8)

16. Notification of Hazardous Secondary Material (HSM) Activity

☐ Y ☑ N	Are you notifying under 40 CFR 260.42 that you will begin managing, are managing, or will stop managing hazardous secondary material under 40 CFR 260.30, 40 CFR 261.4(a)(23), (24), (25), or (27)? If "Yes", you must fill out the Addendum to the Site Identification Form for Managing Hazardous Secondary Material.

17. Electronic Manifest Broker

☐ Y ☑ N	Are you notifying as a person, as defined in 40 CFR 260.10, electing to use the EPA electronic manifest system to obtain, complete, and transmit an electronic manifest under a contractual relationship with a hazardous waste generator?

18. Comments (include item number for each comment)

19. Certification I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations. **Note: For the RCRA Hazardous Waste Part A permit Application, all owners and operators must sign (see 40 CFR 270.10(b) and 270.11).**

Signature of legal owner, operator or authorized representative Stephen P. Holt	Date (mm/dd/yyyy) 12/20/2022
Printed Name (First, Middle Initial Last) **Stephen P. Holt, P.E.**	Title **VP, Environmental, Health & Safety**
Email **sholt@gchi. com**	

Signature of legal owner, operator or authorized representative	Date (mm/dd/yyyy)
Printed Name (First, Middle Initial Last)	Title
Email	

APPENDIX B

Keystone Cement Company

Waste Oil Sampling and Analysis Plan

WASTE OIL SAMPLING AND ANALYSIS PLAN

KEYSTONE CEMENT COMPANY

Bath, Pennsylvania

PREPARED BY:

KEYSTONE CEMENT COMPANY
ENVIRONMENTAL DEPARTMENT

HARLEYVILLE, SC

October, 2005
Revised: October 2012, April 2015, August 2018

INTRODUCTION

Keystone Cement Company (Keystone) operates a portland cement manufacturing operation at its Bath, Pennsylvania facility. Keystone utilizes hazardous and non-hazardous waste derived fuels, in addition to virgin fossil fuels, to fire its rotary kilns and therefore, is subject to the RCRA permitting requirements associated with the storage and processing of hazardous waste derived fuels. As part of the Final Operating Scenario, Keystone has received approval from the Pennsylvania Department of Environmental Protection (DEP) for the installation of a new hazardous waste fuels tank farm and railcar unloading facility. As part of the approved facility modifications, Keystone may close the existing hazardous waste fuel storage tanks in accordance with the facility's RCRA closure plan and subsequently convert four of the tanks (Tanks 1A, 1B, 2, and 3) to the storage of specification and off-specification waste oil. In addition, the facility currently operates a 18,000 gallon, double walled, above-ground storage tank (AST-48) for the storage of used oil for use as a fuel in the new kiln.

The following plan provides the sampling and analysis procedures for the management of off-specification waste oil in Tanks 1A, 1B, 2, 3, and AST-48 at the Keystone facility.

2.0 FACILITY DESCRIPTION AND OPERATIONS

Keystone receives, stores, blends and burns waste oils for energy recovery in its on-site Portland cement kiln. Waste oils are delivered to the Keystone facility in bulk tanker truck shipments and stored in one of two 15,000 gallon above-ground storage tanks (Tanks 1A and 1B), one of the two 35,000 gallon above-ground storage tanks (Tanks 2 and 3),or an 18,000 gallon above-ground storage tank (Tank AST-48). Specifications for tanks 1A, 1B, 2, and 3 and their associated secondary containment are provided in Part III of the existing hazardous waste management permit. Specifications for AST-48 are provided in Appendix C of this Used Oil addendum.

The waste oils received by Keystone include both specification and off-specification waste oils as defined at 25 Pennsylvania Code (PA Code), Section 298.11. The procedures detailed in this Sampling and Analysis Plan apply to the management of off-specification waste oils.

3.0 WASTE OIL ACCEPTANCE PROCEDURES

All off-specification waste oils received by Keystone are required to be properly described, pre-qualified and documented before they may be shipped to the facility. This pre-qualification process includes a detailed review of the chemical and physical properties of the wastes during the waste profiling process (Form U process for residual wastes) followed by "fingerprint" analyses of fuel from each shipment. The following paragraphs and Figure 1 of this Plan, detail the waste oil acceptance procedures at the Keystone facility.

3.1. WASTES PREQUALIFICATION (FORM U) REVIEW:

Before off-specification waste fuel can be accepted from the generator at the Keystone facility, it must undergo pre-qualification and evaluation by Keystone and the DEP. The generator is required to submit a completed Form U and associated documents to Keystone, in accordance with its DEP approved "Module 1/Form U Profile Prequalification Standard Operating Procedure." Please refer to this SOP for detailed procedures of the pre-qualification process.

Keystone will manage only specification and off-specification waste oils in Tanks 1A, 1B, 2, 3 (after conversion), and AST-48. Waste oils with halogen concentrations greater than 1,000 ppm are presumed to be hazardous waste and are not accepted as waste oil at Keystone unless the generator can demonstrate that the halogen concentrations is not resulting from the mixture of used oil and hazardous wastes.

During the pre-qualification process, waste oils will be screened for halogen content greater than 1,000 ppm. In the event that waste oil halogen content exceeds 1,000 ppm, Keystone shall contact the generator to determine if the halogen content is the result of the mixing of used oil with hazardous waste (rebuttable presumption). If it is determined that the halogen content is not the result of the mixture of hazardous waste, all supporting documentation used to make this demonstration shall be maintained with the waste material profile form and the material may be approved for management at the facility.

If it is determined that the halogen content is a result of the mixing of used oil with hazardous waste, the material will be rejected for management as waste oil.

Active profile forms and associated documentation will be retained onsite and made available for State inspectors upon request. Inactive profile forms (generators no longer shipping waste oils to Keystone) and associated documentation shall be maintained on site for a period of three (3) years from the date the associated material is last received.

3.2. SHIPMENT RECEIPT/FINGER PRINT ANALYSES

Keystone will inspect all incoming shipments of off-specification waste oils prior to off-loading the material into Tanks 1A, 1B, 2, 3, and AST-48. The physical inspection will include a review of the shipping papers to confirm that the material is consistent with the type and quantity of material identified on the shipping papers.

Additionally, samples of all waste shipments delivered to the facility are collected, analyzed (fingerprint testing), and the results compared to the associated acceptance criteria detailed in Table 3-1, below, to confirm that the material is acceptable for processing at the Keystone facility.

Keystone will maintain a record of each waste oil shipment accepted by the facility. These records may be in the form of a log, invoice, manifest, bill of lading or other shipping document. The information provided on these documents will include the following, at a minimum:

- Name and address of the transporter who delivered the waste to Keystone;
- Name and address of the generator, transfer facility or processor/refiner from whom the waste oil was sent to Keystone;
- Identification number of the transporter who delivered the waste oil to Keystone;
- Identification number (if applicable) of the generator, transfer facility or processor/rerefiner from whom the waste oil was sent to Keystone;
- Quantity of waste oil accepted; and
- Date of acceptance.

These records will be maintained onsite a minimum of 3 years from their date of origination.

The procedures used to ensure that the waste received is acceptable for processing and storage include:

- Comparison of the shipping description on the waste manifest or shipping paper to the waste profile form (Form U); and
- Comparison of the fingerprint analyses to the acceptance criteria.

If a discrepancy in the type of waste indicates that the material shipped to Keystone should be properly characterized as a hazardous waste, the waste material will either be rejected back to the generator (if the type of material is not suitable for processing at Keystone) or it will not be accepted until all hazardous waste pre-acceptance procedures detailed in the Keystone Module 1/Form U Profile Prequalification SOP are implemented.

3.3. SAMPLING PROCEDURES

All waste oils are sampled in accordance with the same sampling procedures detailed in the Keystone SOP WF-01. These procedures are incorporated by reference.

3.4. FINGERPRINTING ANALYSES

Information submitted by the generator on the Waste Material Profile Form and shipping papers is confirmed through analytical testing of the incoming shipment's representative sample collected by Keystone personnel as described in Section 3.2 (herein, fingerprint analyses). The fingerprint analyses performed during shipment acceptance include Btu content, pH, compatibility, and PCBs. Acceptance criteria for the waste oils are specified in Table 3-1.

TABLE 3-1
Waste Oil Acceptance Criteria

PARAMETER	CRITERIA
Btu's	Waste oil must have a minimum heat content of 5,000 Btu/lb.
pH	pH must be greater than 2 and less than 12.5.
Compatibility	Must be demonstrated to be compatible with material with which it will be stored
PCBs	Not Quantifiable (See Section 3.5)

If an analysis of a waste shipment does not meet acceptable specifications, and the discrepancy is not able to be resolved with the generator, the following options are available, depending on the nature of the discrepancy:

- reject the shipment back to the generator;
- reject the shipment to an alternate waste oil management facility (or RCRA permitted TSDF if required);
- re-sample and reanalyze the waste (if laboratory error is suspected);
- complete the hazardous wastes prequalification and acceptance process for materials determined to be hazardous.

If laboratory/sampling error is suspected, a sample may be reanalyzed onsite (if the problem is found and corrected) or sent offsite for analyses.

3.5. PARAMETERS TO BE ANALYZED AND RATIONALE

Certain waste fuel parameters are important during shipment acceptance testing. Table 3-2 and the paragraphs that follow detail the parameters analyzed and test methods utilized during shipment acceptance testing and the rationale for each parameter.

Table 3-2
Summary of Analytical Methods

Parameter	Test Method[1]	Source	Keystone ID
Btu/lb	5050 (Mod)/E711 (Mod)	SW846/ASTM	RL.6
pH	9045C (Mod)	SW846	RL.14
Compatibility	D5058 (Mod)	ASTM	RL.9, RL.10, RL.11
PCBs Screen	3620B (Mod)/8000B (Mod)/8082 (Mod)	SW846	RL.18, RL.19, RL.20

1 One or more of the modified, amended, revised, updated, or replaced methods including equivalent or similar methods in accordance with the following quotations from the Federal Register – February 8, 1990, pages 4440-4445, EPA proposed Rules Preamble to SW-846 3rd Edition:

"This notice, or the subsequent final rule, should not be construed to require the use of SW-846, Third Edition methods except where specifically prescribed by regulation." "Except for those situations where the waste oil regulations specify use of a particular method, it is appropriate for the chemist to use judgment tempered by experience, in selecting and appropriate set of methods from SW-856 or the scientific literature for preparing and analyzing a given sample."

Btu/Heat Content

In a waste stream, this determines the waste's potential for use as a fuel and also serves as a general indicator of the composition of the waste stream. 25 PA Code Section 298.11 requires that waste oils burned for energy recovery in an industrial furnace have a minimum heat content of 8,000 Btu/lb.

pH

The pH is an indicator as to whether a waste is a corrosive. This test may be used to ensure that the waste is properly characterized.

Compatibility

A compatibility test is conducted for all wastes received at the Keystone facility for storage, blending or processing. A sample from each load received is tested to determine if the material reacts with other materials already in the system. The criteria used to determine if a load may be accepted, placed in storage and processed is a maximum temperature rise or a visible reaction such as bubbling or polymerization.

PCB Content

This facility may not accept waste oils containing a quantifiable level of PCBs as defined at 40 CFR Parts 279 and 761.

3.6 TEST METHODS

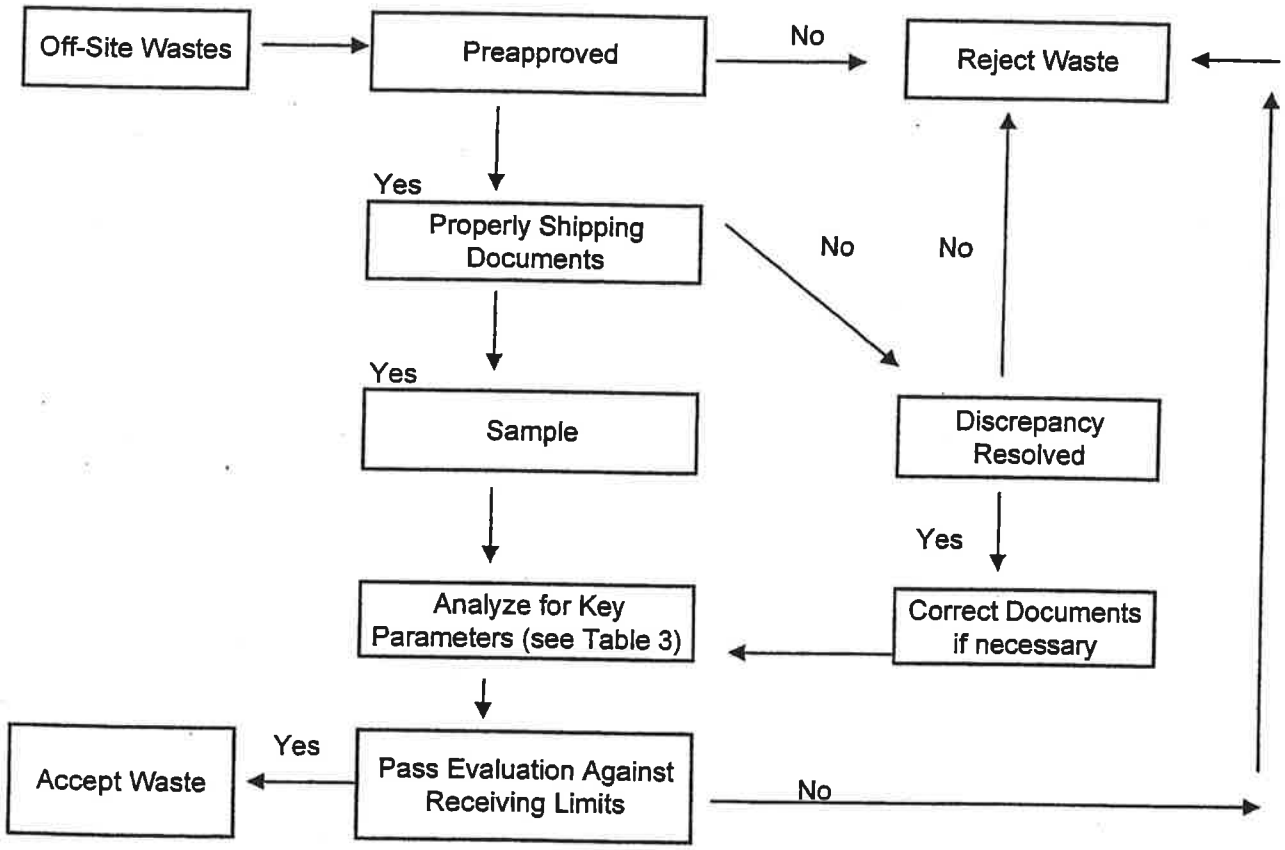
Table 3-2 lists the sample parameters and the test methods utilized to measure each parameter. Because of the varied nature of the waste fuels managed by Keystone, it may be desirable or necessary to modify or adapt the standard analytical methods or the sample preparation methods used prior to analysis, or to use entirely alternative methods. Modifications to the standard methods outlined in Table 3-2 may be implemented provided the methods provide reliable and accurate results for the analyses being performed and that quality assurance documentation of each such demonstration is placed in the facility operating record.

Figure 1

Keystone Cement Company

General Waste Oil Acceptance Procedures

FIGURE 1
KEYSTONE CEMENT COMPANY
GENERAL WASTE OIL ACCEPTANCE PROCEDURES



APPENDIX C

Keystone Cement Company

AST- 48 Specifications

18,000 GALLON
DOUBLE WALL TANK

In Select Markets

Capacity: 18,000 gallons
Height: 9′ 8″
Width: 8′ 6″
Length: 46′

All sizes are approximate

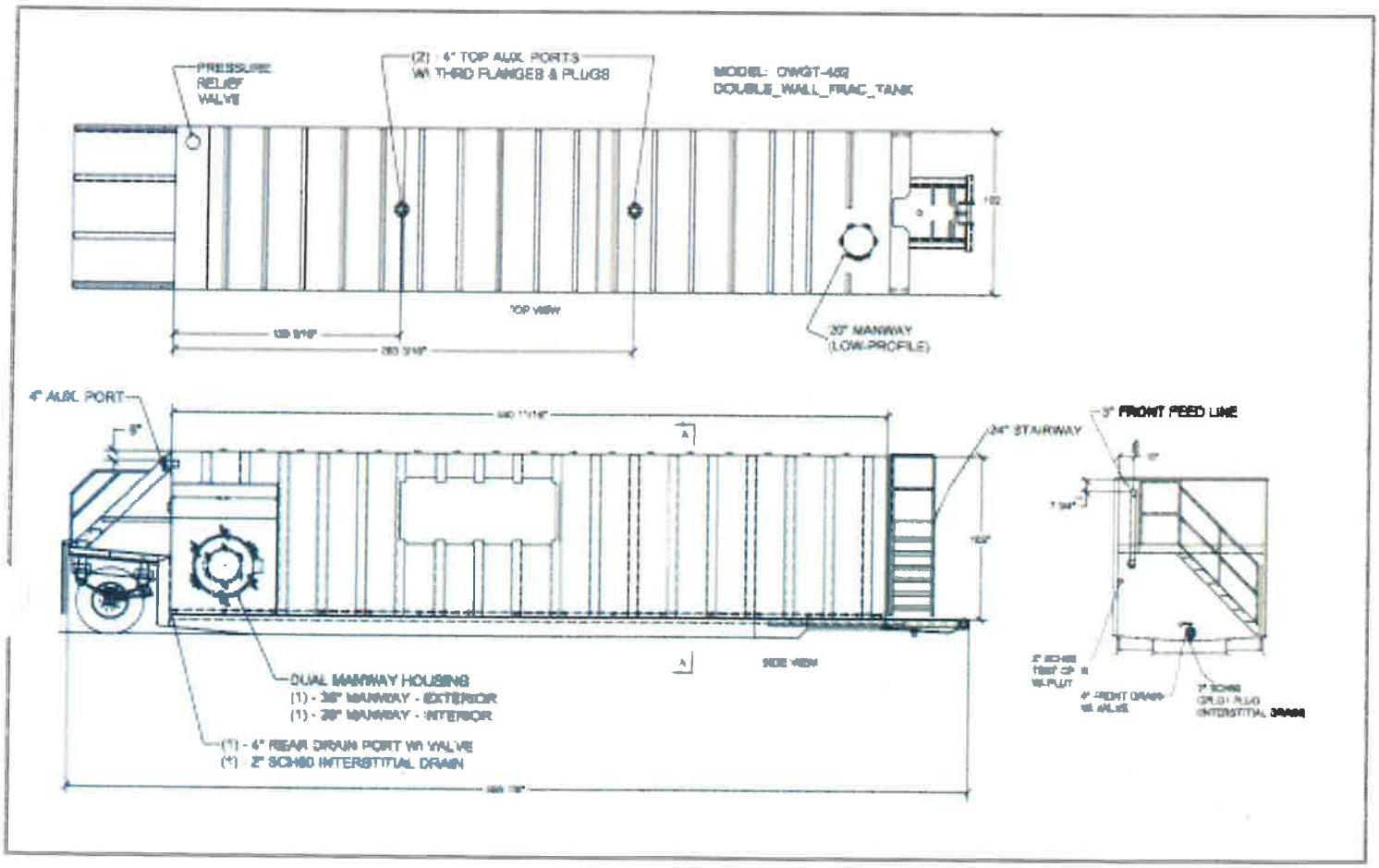
Mechanical features:

- 3″ top fill tube
- (4) Standard 22″ side hinged accessways
- Multiple 4″ valved fill/drain ports including floor level valves for low point drain out
- 4″ Vent
- Sloped bottom for 100% drain out and easier cleaning after use
- Smooth wall construction - no internal cross bracing
- Front mounted ladderwell for top access
- Fixed rear axle
- Nose rail cut - out for easy access when installing hose and fittings on the front /bottom of tank
- Double wall construction - 100% secondary containment, literally a tank built within a tank for storage of risk potential materials in environmentally sensitive areas

Safety features:

- All tanks are equipped with non-slip step material on ladderwells and catwalks
- All rails and catwalks are painted "safety yellow" for high visibility
- Safe operation reminder decals are applied on risk areas such as steps, valves and hatches
- Tanks are equipped with fill level charts and may be fitted with audible alarms, strobes and level gauges (digital and mechanical)

18,000 Gallon Double Wall Tank



APPENDIX D

Keystone Cement Company

25 PAC 299.122 – Residual Waste Storage Tank Requirements

Keystone Cement Company
Residual Waste Above-ground Storage Tank Requirements
25 PAC 299.122(b) (incorporated by reference at Section 298.64)

PA Code Section 298.64 requires that each aboveground tank meet the residual waste storage tank requirements at Section 299.122(b). A discussion of the Section 299.122 requirements and Keystone's compliance with this section are provided as follows:

25 PAC §299.122(b): *Aboveground residual waste storage tanks shall be designed and operated as follows, unless an alternative design is demonstrated to perform at a level equivalent to the requirements of this section and is otherwise approved by the Department:*

(1) Tanks shall be designed and constructed in accordance with an appropriate current code of practice developed by Nationally recognized associations such as UL, ACI, API, ASME, ASTM or NACE.

- AST-48 has been constructed by Sabre Manufacturing Co., Knoxville, TN in accordance with ANSI/ASME B 16.5 , AWS B 2.1-00 and BS 799.52010

(2) Tanks shall have a stable foundation, capable of supporting the total weight of the tank when full of waste without movement, rolling or unacceptable settling. The foundation shall minimize corrosion of the tank bottom and meet or exceed the specifications of the tank manufacturer. The foundation design and construction shall be based on sound engineering practices.

- AST-48 has been placed on a concrete pad surface located to the east of the former Kiln 2 burner deck with sufficient structural integrity for the storage of the AST. AST-48 is a mobile frac tanker, 48 feet in length with an elevated design and double wall containment to minimize corrosion to the tank bottom.

(3) Newly installed or repaired tanks shall be tested for tightness in accordance with current codes of practice developed by Nationally recognized associations and manufacturer's specifications. If a pneumatic test is used for manufactured (shop built) tanks, the fittings, welds, joints and connections shall be coated with a soap solution and checked for leaks. Deficiencies shall be remedied prior to tanks being placed into service. Hydrostatic test fluids shall be discharged or disposed of in accordance with State and Federal requirements.

- AST-48 was pressure tested prior to installation for the use of on-specification used oil storage. The tank was filled with water and pressurized to a pressure of 1.5 psi for a period of 20 minutes and a pressure gauge was installed to identify any pressure loss over that period as well as visually observing for leaks. After repairing one leak he results of the pressure test verified that the tank was secure and free of leaks. The results of the pressure testing are maintained in the operating record at the facility.

(4) Tank connections through which waste can flow shall be equipped with an operating valve adjacent to the tank to control flow of waste. Appropriate valves shall be installed to meet or exceed current codes of practice and jurisdictional requirements. Valves shall be designed, installed and maintained according to current codes of practice.

- All connections through which waste can flow from AST-48 are equipped with operating valves to control flow of waste. These valves are also designed in accordance with ASME Code B 16.5

(5) The exterior surfaces of above ground tanks and piping shall be protected by a suitable coating, which prevents corrosion and deterioration. The coating system shall be maintained throughout the entire operational life of the tank.

- As detailed in Appendix C of this addendum, AST-48 has been painted with high durability paint designed to minimize corrosion of the metal surfaces.

(6) Owners and operators shall ensure that releases from overfills do not occur. Transfer of stored waste may not exceed the volume available in receiving tank and the transfer shall be adequately monitored. Immediate action shall be taken to stop the flow of waste prior to exceeding tank capacity or in the event that an equipment failure occurs.

- All loading of used oil into AST-48 will be performed manually and will be attended at all times to minimize the potential for overfill. The tank level will be checked prior to loading to determine the available volume. The tank will have a high level alarm so that overfill alert supplements manual/visual observation and overfill does not occur.

(7) Tanks shall be installed with the following:

(i) A gauge or monitoring device which accurately indicates the level or volume in the tank and is visible to the individual responsible for the transfer of waste. The monitoring device shall be installed, calibrated and maintained in accordance with manufacturer's specifications.

(ii) A high-level alarm and an automatic high-level cut-off device or a high-level alarm and a manned operator shutdown procedure in operation.

- Tank AST-48 is manually filled and the tank level is manually checked before any waste is added to the tank. The facility has developed an SOP to ensure that these procedures are followed and that personnel will be present during the entire loading operations. In addition, the tank is fitted with an audible high level alarm so that the manned operator will be alerted of any high level circumstances.

(8) Containment structures shall be compatible with the wastes stored and minimize deterioration to the storage tank system.

- As detailed above and in Appendix C, AST-48 is a double-walled tank. Therefore, the containment is constructed of carbon steel which is compatible with the used oil to be stored in the tank.

(9) Containment areas shall be designed, maintained and constructed in accordance with sound engineering practices adhering to Nationally recognized codes of practice, such as NFPS, NACE, ACI or API and in compliance with State and Federal requirements.

- As detailed above, the double-walled tank is designed in accordance with AWS, ANSI, ASME and BS standards as stated previously. The secondary containment is capable of containing the entire contents of the inner tank.

(10) Secondary containment under the tank bottom and around underground piping shall be designed to direct any release to a monitoring point.

- As a double-walled tank, any released material will be contained with the double wall. The double wall is equipped with site glass monitoring ports to identify the presence of any liquid material in the containment space. Periodically, a manual dip stick test will be performed to determine whether any liquid has accumulated below the sight glass visible elevation.

(11) Permeability of the secondary containment shall be less than 1×10^{-7} cm/sec at anticipated hydrostatic head.

- As detailed above, secondary containment is provided by a double-wall tank design made of impermeable carbon steel.

(12) Above ground tanks shall have emergency containment structures, such as dike fields, curbing and containment collection systems, which contain releases from overfills, leaks and spills.

- AST-48 is a double-walled tank that is designed to contain any releases from the tank. Overfills are prevented through liquid level indicators, high level alarms, and manned operation. In addition, the tank is routinely inspected in accordance with the facility's PPC and SPCC Plans and spill response equipment is maintained on-site at all times.

(13) Permeability of emergency containment structures shall be less than 1×10^{-6} cm/sec at anticipated hydrostatic head and be of sufficient thickness to prevent the released waste from penetrating the containment structure for a minimum of 72 hours and until the release can be detected and recovered.

- See response to item 11 above.

(14) Emergency containment areas, such as dike fields, shall be able to contain 110% of the capacity of the largest tank in the containment area.

- There is only one tank at this location, and the tank is a double-walled design that can contain the entire contents of the internal tank. No additional capacity is

necessary for rainwater since the containment is entirely enclosed around the internal tank.

(15) Stormwater shall be removed from the emergency containment area as soon as possible or when the water is in contact with the tank or piping and prior to the capacity of containment being reduced by 10% or more. Manually operated pumps or siphons and manually operated gravity drains may be used to empty the containment. If drain valves are used, they shall be secured in the closed position when not in use. Discharge or disposal of wastes from the containment structure shall comply with applicable State and Federal requirements.

- As detailed above, the containment is provided through double-walled design and therefore, stormwater cannot enter the secondary containment structure.

(16) Aboveground tank systems shall provide method of leak detection capable of detecting a release. The leak detection method shall be monitored at least monthly and shall be installed, calibrated, operated and maintained in accordance with industry practices and manufacturer's specifications.

- As stated before the tank is double walled and is equipped with a sight glass for visual observation. In addition, a dip test will be performed monthly and recorded on the appropriate inspection documents.

(i) The area beneath the tank bottom shall be monitored for leakage by visual, mechanical or electronic leak detection methods.

- Area will be visually monitored for any leaks from the secondary containment.

(ii) Observation wells outside of the secondary containment structure do not satisfy the leak detection requirements.

- AST-48 is a double-walled tank designed to contain all leaks from the internal tank. The interstitial space between the inner and outer tank is also equipped with monitoring ports for the identification of any leaking material from the tank. The tank is inspected on a monthly basis (minimum), to include an inspection of this space for the presence of liquids.

APPENDIX J
CEMENT KILN DUST SAMPLING AND ANALYSIS PLAN

CEMENT KILN DUST SAMPLING AND ANALYSIS PLAN
(Dry Process CKD)

Prepared for:

Keystone Cement Company
Bath, Pennsylvania

Prepared by:

Keystone Cement Company
Environmental Department
Bath, Pennsylvania

November 2000
Revised: October 2005
Revised: August 2018

1.0 INTRODUCTION

This document defines the sampling and analysis protocol to be followed to ensure quality data for the characterization of discarded cement kiln dust (CKD) generated by Keystone Cement Company (Keystone). CKD sampling and analyses will be performed to satisfy the boiler and industrial furnace (BIF) rule requirements regarding regulation of residues as outlined in 40 CFR §266.112. All sampling and analysis will be performed in accordance with procedures specified in EPA's Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846, 3rd Edition, or equivalent as appropriate.

Keystone may modify this document to accommodate changes in regulations or to provide new or additional information.

1.1 CKD Process Description:

Keystone operates a dry process Portland cement plant. The cement kiln has a by-pass baghouse through which a relatively small percentage of the airflow from the rotary portion of the cement kiln is directed. Keystone currently pneumatically transports CKD to the kilns', or alternatively, to a storage silo, both of which are enclosed transport systems. The CKD will be used in the feed system as part of the raw feed material. Additionally, based on market demand, a portion of the dust placed in the silo may be sold as Stablesorb®. Occasionally, dust may also need to be discarded. If this dust is ultimately discarded, it is subject to residue testing at 40 CFR Part 266.112.

1.2 CKD Management Goals

Keystone expects a potential rate of 20-50 tons per day of CKD from its dry process, which will be incorporated into finished cement products or sold as Stablesorb®; of the potential 20-50 tons produced, it is not expected that a high percentage will have to exit the system and be placed into above ground storage. Keystone's long-term goals are to reuse 100% of the CKD in its production process and to continue to find legitimate other uses for this material. However, Keystone may need to temporarily store some dry process CKD in silos until the material can be sold as Stablesorb®. Keystone does not actively add to outside CKD storage. The product is either reused in the process or stored in cement silos until the product is sold. Keystone expects to reuse 100% of the CKD in its production process or other legitimate approved purposes.

2.0 ORGANIZATIONAL RESPONSIBILITY

Keystone will have overall responsibility for implementing the sampling activities discussed in this document. These activities include providing and training sampling personnel, scheduling sample collection events, periodically reviewing field sampling procedures to ensure that they are being conducted properly, and adhering to appropriate health and safety requirements. The Quality Manager and the Resource Recovery Manager will serve as the primary points of contact and control concerning sampling activities at the plant. However, Keystone may delegate any or all of these sampling activities at its discretion.

The laboratory selected by Keystone (either on site or contract) will have overall responsibility for implementing the analytical activities discussed in this document. These activities include training analytical personnel in the nuances of CKD sample preparation and analysis, ensuring that all analyses are conducted in a timely fashion according to specified SW-846 protocols, and adhering to any special analytical techniques and QA/QC procedures required by the nature of the CKD matrix. The Laboratory Manager or his/her designee will serve as the primary point of contact and control concerning analytical activities at the laboratory.

The laboratory may not subcontract any analytical work without informing the Keystone Plant Manager. If work is subcontracted, the original laboratory will be responsible for overseeing subcontractor operations.

The laboratory is responsible for supplying and preparing sampling kits as specified in Section 4.3 and sample containers as specified in Section 4.4 and obtaining them for use as needed. Preparation includes any necessary equipment pre-cleaning that must be performed to meet specified protocols.

3.0 DATA QUALITY OBJECTIVES

Data quality objectives (DQOs) are guidelines for certain characteristics of data that indicate the usefulness or reliability of the data. The DQOs for the Keystone CKD sampling and analysis episodes are specified in terms of accuracy, precision, comparability, completeness, representativeness, and practical quantitation limits (PQLs). The procedures prescribed in this document are intended to ensure that the specified DQOs for Keystone CKD sampling and analysis are achieved and valid data are obtained.

In any instance where a DQO is not achieved during a sampling and analysis episode, the Keystone Plant Manager and Environmental Compliance Manager will be notified in a timely manner. The Plant Manager and/or Quality Manager is responsible for ensuring that any necessary corrective action is taken as soon as practicable after notification.

3.1 Accuracy

Accuracy is a measure of how closely a measured value agrees with the true value of a parameter. Accuracy will be evaluated using matrix spike and surrogate recoveries to determine the extent of matrix interference, and field/trip/lab blank analysis to determine the extent of any sample contamination.

The DQO for matrix spike and surrogate recoveries is the recovery range specified in each applicable method in SW-846 or the acceptable recovery range specified by the laboratory performing the analysis.

Bias determined from the matrix spike recovery information will be used to correct measured analyte values when the average recovery is less than the minimum acceptable recovery range specified; bias corrections using the average recovery will be performed as specified in SW-846. No bias correction will be performed when the method used self-corrects for bias (e.g., isotope dilution), or when the matrix spike recovery is greater than or equal to the minimum of the acceptable recovery range specified in SW-846.

3.2 Precision

Precision is a measure of the agreement among individual measurements of the same parameter performed under similar conditions. It indicates the extent of inherent variability in sampling and analysis procedures. Analytical precision will be evaluated using matrix spike/matrix spike duplicate (MS/MSD) pairs.

The DQO for relative percent difference (RPD) between results of duplicate pair analyses for target organic analytes is 50% or less; for target inorganic analytes, the DQO for RPD is 30% or less. If a DQO for precision is not met, the impact on data quality will be evaluated. Where indicated, the more conservative of the matrix spike duplicate pair analyses, i.e., the one leading to higher analyte sample concentrations, will be used in lieu of the average recovery for any data reduction. In some instances, re-analysis may be warranted.

3.3 Comparability

Comparability is a measure of the degree of confidence with which one data set can be compared to another. Using the sampling and analysis procedures for each sampling episode will ensure the DQO for comparability. Analytical data will be reported in the same manner and using the same units for each test for all samples of the same fraction.

3.4 Completeness

Completeness is a measure of the amount of valid data that is collected from a sampling and analysis episode compared to the amount of data that was desired to be produced. Completeness may not always be achieved due to mishaps in sampling and sample shipping, analytical difficulties, etc.

The DQO for completeness for each sampling episode is 100%. If completeness for any sampling and analysis episode is less than 100%, the circumstances must be documented, and the impact on data quality must be evaluated. Supplemental sampling and analysis may be required if deemed appropriate.

3.5 Representativeness

Representativeness is a measure of the degree to which the analytical results represent the population from which the sample was obtained. Following standard sampling and analysis techniques prescribed in SW-846 and in this document will ensure the DQO for representativeness.

3.6 Practical Quantitation Limits (PQLs)

The PQLs for target metal analytes using the standard SW-846 methods specified in Section 5.2 will be less than or equal to the TCLP Extract Concentration Limits for those metals, as specified in 40 CFR Part 266, Appendix VII.

The PQLs for target organic analytes using the standard SW-846 methods specified in Section 5.2 will be less than or equal to the PQLs as listed in the methods for this type of matrix. In cases where the method-specified PQL is not attainable due to sample matrix interference, any data generated in those instances will be flagged accordingly.

4.0 SAMPLING PROCEDURES

The sampling procedures outlined below assume that the full set of sample fractions will be collected during the same sampling and analysis episode. If less than the full set of sample fractions for various different analyses is collected during a sampling episode, the procedures will be modified accordingly to accommodate only the specific sample fractions necessary for each particular sampling episode.

The prescribed sampling procedures may also require modification based on plant-specific circumstances. Keystone Plant Manager, Quality Manager, and Environmental Compliance Manager must give prior approval before any modifications to sampling procedures can be implemented.

All personnel involved in any aspect of sampling will be adequately trained to perform their specific duties. In addition, they will be familiar with and abide by all relevant health and safety requirements, including the proper use of any necessary personal protective equipment (PPE).

4.1 General Precautions

CKD is a powerful absorbent. It may adsorb volatile organic compounds (VOCs) that are present in surrounding air to the extent that VOCs are detected when CKD samples are analyzed, producing a "false positive" result. Since VOCs can be generated in various ways (e.g., from vehicles, machinery, paints, solvents, adhesives, etc.) and can occur virtually anywhere, utmost caution will be observed when collecting VOC fractions of CKD samples. Empty or filled VOC sample containers will not be stored near waste-derived fuel-burning operations; vehicle exhaust; or painting, spraying, waxing, or other chemical operations, etc., to the extent practicable. Samples will not be collected if conditions persist around the sampling location that is conducive to the present of VOCs (e.g., presence of gasoline generators, etc.). The Plant Manager or his designee will be responsible to ensure that conditions around the sampling location are conducive to collecting a sample.

4.A ORGANIC SAMPLING

Both grab and composite samples are required to be taken for organic constituents as detailed in Section 4.2 of this plan. Grab samples will be taken in accordance with the procedures detailed in this Section (Section 4.A). Composites, when necessary, will be prepared by the contract laboratory, using the individual grab samples taken over the composite period (See Section 4.2). Organic analyses to be performed include the following:

1. VOCs;

2. Semivolatiles, including Pesticides, PCBs*

3. Polychlorinated dibenzo-p-dioxins/dibenzofurans (Dioxins/Furans) (this fraction may be reduced following the initial sampling episode for Dioxins/Furans at each site after analytical results are evaluated)

* Metals are also analyzed and used for QA/QC purposes

4.A.1 Sampling Equipment

Sampling personnel will wear any necessary personal protective equipment for all sampling episodes. During VOC sampling episodes, sampling personnel must minimize the possibility of sample contamination.

Sampling kits for each sampling location will be supplied and prepared by the contractor laboratory. Each sampling kit will contain the equipment described below. Where exact quantities of equipment are not specified, the kit will contain a reasonable supply to ensure that an adequate quantity is provided to each sampling location. The kit may be modified depending on the sample fractions being collected.

1. Sample cooler(s) of adequate capacity to contain all required equipment and containers;

2. Small and large Zip-lock bags;

3. Kim-wipes;

4. One mild steel, 500 to 1,000-ml capacity scoop (with attached extension rod if needed);

5. Sample container labels;

6. Pencils;

7. Chain-of custody (COC) forms;

8. Bubblewrap;

9. Packing tape; and

10. One glass jar, laboratory-certified, VOC-free water to be used as a VOC field/trip blank. VOCs for this purpose are defined as only those VOCs that will be later analyzed in the CKD samples. The container should be filled completely, i.e., so that no headspace is present.

The trip blank CKD will be certified VOC-free by the same techniques and the same analyte detection limits used for the actual samples.

The sample kit, including sample containers will be assembled before each sampling episode. The sample cooler and 4-liter composite container will be stored in a clean location, away from potential sources of VOC contamination. All items in the sample cooler will be segregated within Zip-lock bags. Additional equipment may be required to collect the composite sample depending on the sampling location at each plant.

Ice, or another suitable cooling material, will be provided on site by Keystone.

4.A.2 Sample Containers

One glass sample composite container will be required regardless of the number of sample fractions being collected. Additional containers will be necessary for collecting split samples or field sample duplicates. All containers will be certified as pre-clean before use. The required containers for each type of sample fraction to be collected will be supplied by the testing lab.

4.A.3 Sampling Conditions

CKD will be sampled during normal operations.

4.A.4 Sampling Locations

According to 40 CFR §266.112(3)(b), to demonstrate that burning hazardous waste in a cement kiln does not affect waste-derived residue, (i.e., CKD), the residue must not contain toxic compounds (above specified health-based limits) that could reasonably be attributable to burning or processing the hazardous waste. Therefore, samples collected during each sampling episode will represent recently generated CKD to minimize any environmental contamination that is not attributable to burning or processing hazardous waste. As such, CKD samples will normally be taken from the continuous sampler from the bypass baghouse screw conveyor outlet chute as shown in the attached schematic (Appendix B, Figure 1).

4.A.5 Sampling Instructions

Specific step-by-step sampling instructions are provided below.

1. The certified container should be placed as close to the actual sampling point as practicable.

2. Using the mild steel scoop (attached to an extension rod if necessary), collect a grab sample at the designated sample point and fill the testing lab provided certified glass jars level with the top of the jar and then seal tightly. The glass container must remain closed except when CKD is actually being placed into it.

3. Carefully clean the sample container lip and cap screw threads with a Kim-wide to remove all dust particles. This must be done thoroughly to ensure a good cap seal and to inhibit VOC contamination.

4. Close the VOA vials by screwing the lids on until they are finger-tight. Overtightening will warp the sealing septum. The teflon (opaque) side of the sealing septum must face down (toward the bottle when the cap is in place).

5. Label all sample containers (in pencil) with the name of the plant; the lead sampling person; the date, time, and sample number; and any additional sample descriptors.

6. Place each VOA vial individually into bubblewrap and tape the wrap closed. Put the vial/bubble wrap into a small Zip-lock bag. Place all four Zip-lock bags into a large Zip-lock bag. Place the large Zip-lock bag into the sample cooler.

   (This completes the VOC field CKD sampling.)

7. Repeat steps 1 - 6 for VOA, Dioxan Furan sample bottles.

8. Prepare the COC form(s) in pencil, and sign and date it. Place it in its own Zip-lock bag and place it into the cooler.

9. Add ice bags to the cooler and tape it shut.

10. Ship the cooler to the contractor laboratory via overnight delivery, adhering to all U.S. DOT and IATA dangerous goods regulations.

11. Rinse the scoop with water. Box and return it and the other remaining sampling kit supplies to the contractor laboratory.

4.B. METALS SAMPLING

Both grab and composite samples are required to be taken for TCLP metals as detailed in Section 4.2 of this plan. The procedures for obtaining these samples are detailed as follows:

4.B.1 Sampling Equipment

1. One mild Steel, 500 to 1,000-ml capacity scoop (with attached extension rod if needed);

2. Sample Collection Bag

3. Mild steel sampling pail

4.B.2 Sampling Containers

The Sample Collection Bag will be used to deliver the composite to the Laboratory for analysis.

4.B.3 Sampling Conditions

CKD will be sampled during normal operations

4.B.4 Sampling Locations

According to 40 CFR §266.112(3)(b), to demonstrate that burning hazardous waste in a cement kiln does not affect waste-derived residue, i.e., CKD, the residue must not contain toxic compounds (above specified health-based limits) that could reasonably be attributable to burning or processing the hazardous waste. Therefore, samples collected during each sampling episode will represent recently generated CKD to minimize any environmental contamination that is not attributable to burning or processing hazardous waste. As such, CKD samples will normally be taken from the continuous sampler from the bypass baghouse screw conveyor outlet chute as shown in the attached schematic (Appendix B, Figure 1).

4.B.5 Sampling Instructions

Specific step-by-step sampling instructions are provided below.

1. To obtain grab samples, using the mild steel scoop (attached to an extension rod if necessary), collect a grab sample of several scoops of CKD from the designated sample point and place in a clean sampling pail to transport to the Cement Laboratory.

2. Place several level scoops of CKD from the sampling pail and place in a new Sample Collection Bag. If a grab sample is desired as detailed in Section 4.2, this ends the sampling procedures for obtaining grab samples. To prepare a composite sample as required in Section 4.2, subsequent grab samples for the daily and weekly composites are to be added to the same Sample Collection Bag in equal amounts as the first.

3. After the final grab sample is added to the Sample Collection Bag, the bag is to be delivered to the Laboratory for analysis.

4. The scoop and pail are to be rinsed with water prior to each sampling event.

4.2 Sampling Frequency

4.2.1 The CKD is sampled once per shift, making daily composites for 8 consecutive days and analyzing the daily samples for the parameters listed above.

4.2.2 After the initial 8 day sampling, once-per-day grab samples of CKD will be composited over each week and analyzed for the same parameters. The weekly composite samples will continue for 4 weeks.

4.2.3 After the 4 weekly samples, the program will continue for 8 weeks, taking a grab sample once every two weeks, and analyzing the bi-weekly samples for the same parameters

4.2.4 For the next 24 months, a monthly grab sample will be analyzed for the same parameters.

4.2.5 After completion of the initial program, a quarterly sample will be analyzed for the organic constituents and a monthly sample analyzed for the TCLP metals, unless a less frequent timeframe is justified.

5.0 ANALYTICAL PROCEDURES

5.1 General Precautions

CKD is a powerful adsorbent. It may adsorb volatile organic compounds (VOCs) that are present in surrounding air to the extent that VOCs are detected when LAKD samples are analyzed, producing a "false positive" result. Since VOCs can be generated in various ways (from vehicles, machinery, paints, solvents, adhesives, etc.) and can occur virtually anywhere, utmost caution will be observed when preparing or analyzing VOC fractions of CKD samples. VOC sample containers will not be stored near vehicle exhausts, or near painting spraying, waxing, or other chemical operations, etc., to the extent practicable.

5.2 Analytical Methods

As an initial screen, the samples from each sampling location will be analyzed for VOCs using SW-846 Method 8260, for Semi-volatiles using Method 8270, Pesticides and PCBs using Method 8080, Dioxins/Furans using Method 8280, for TCLP Metals using Methods 1311,6010, and 7000-series methods (as needed), and for miscellaneous VOCs and Herbicides using Methods 8015 and 8150, respectively. The VOC and Semivolatile sample fractions will be used for Methods 8015 and 8150, respectively. This method list may be condensed, expanded, otherwise substituted by the contractor laboratory as long as the methods selected adequately analyze all target analytes. All modifications to the method list must be approved by Keystone prior to analysis. All applicable laboratory calibration, quality assurance/quality control (QA/QC), and auditing procedures will be followed. If a potential "hit" is discovered during initial screening, subsequent sampling will be performed using appropriate SW-846 procedures to determine the status of the CKD. If the second analysis meets the TCLP health-based limits, the stockpile corresponding to the sample will have met the Bevill exclusion.

5.3 Target Analytes

Appendix A is an example of a Laboratory Report included to indicate target analytes and analytical methods used for analysis.

5.4 SW-846 Method Modification

In instances where SW-846 methods require modification for analysis of CKD samples with analyte detection limits at or below analyte health-based limits, the contractor laboratory will verify that the modification is valid and will document the procedures and data used to make the validity determination. No method modification can be

made without the prior consent of Keystone.

5.5 Data Validation and Reporting

The contractor laboratory will use its standard format in reporting all analytical data. The format will remain consistent for all sampling and analysis episodes conducted at each plant. The reports will flag all analytical data that are outside DQO specifications; any impacts on data usefulness or quality will be evaluated and explained.

APPENDIX A

Example of Laboratory Report

ASI
Environmental Monitoring & Laboratory Analysis
110 Technology Parkway Norcross, GA 30092
(770) 734-4200 FAX (770) 734-4201

Laboratory Report

Keystone Cement Company
P.O.Box A
Bath, PA 18014

Attention: Mr. Jerry Opresko
Report No. **115129-1**

P.O. No. LAB21031
December 10, 1999

Sample Description

Keystone Cement Company
CK Dust, grab, KI, 11/22/1999, 11:00am, received 11/23/1999

Analytical Method	Analyte	Result	Detection Limit	Units	Regulatory Limit Regulatory Limit
	General Chemistry				
EPA 9010/9014	Total Cyanide (CN)	BDL	0.4	mg/kg	1.8
EPA 9030/9034	Total Sulfide (S)	170	1	mg/kg	N/A
EPA 340.2M	Extractable Fluoride (F)	1040	7.5	mg/kg	N/A
	Gas Chromatography				
EPA 8015M	Methanol	BDL	250	mg/kg	N/A
	Volatile Organics				
EPA 8260B	Acetone	BDL	500	ug/kg	160000
EPA 8260B	Acetonitrile	BDL	500	ug/kg	N/A
EPA 8260B	Acrylamide	BDL	50	ug/kg	23000
EPA 8260B	Acrylonitrile	BDL	250	ug/kg	N/A
EPA 8260B	Allyl chloride	BDL	50	ug/kg	28000
EPA 8260B	Benzene	BDL	25	ug/kg	36000
EPA 8260B	Bromodichloromethane	BDL	50	ug/kg	15000
EPA 8260B	Bromoform	BDL	25	ug/kg	15000
EPA 8260B	Bromomethane	BDL	50	ug/kg	15000
EPA 8260B	Methyl ethyl ketone	BDL	500	ug/kg	36000
EPA 8260B	n-Butyl alcohol	BDL	2500	ug/kg	2600
EPA 8260B	Carbon disulfide	BDL	25	ug/kg	N/A
EPA 8260B	Carbon tetrachloride	BDL	25	ug/kg	5600
EPA 8260B	Chlorobenzene	BDL	25	ug/kg	5700
EPA 8260B	2-Chloro-1,3-butadiene (chloroprene)	BDL	25	ug/kg	N/A

BDL - Below Detection Limit
Modified Kiln Dust Acid Extraction

Sample Description

Keystone Cement Company

CK Dust, grab, KI, 11/22/1999, 11:00am, received 11/23/1999

Analytical Method	Analyte	Result	Detection Limit	Units	Regulatory Limit Regulatory Limit
EPA 8260B	Chlorodibromomethane	BDL	50	ug/kg	15000
EPA 8260B	Chloroethane	BDL	25	ug/kg	6000
EPA 8260B	2-Chloroethylvinyl ether	BDL	50	ug/kg	N/A
EPA 8260B	Chloroform	BDL	25	ug/kg	5600
EPA 8260B	Chloromethane	BDL	50	ug/kg	33000
EPA 8260B	Cyclohexanone	BDL	25	ug/kg	N/A
EPA 8260B	Dibromomethane	BDL	50	ug/kg	15000
EPA 8260B	Dichlorodifluoromethane	BDL	50	ug/kg	7200
EPA 8260B	1,2-Dichloroethane	BDL	25	ug/kg	7200
EPA 8260B	1,1-Dichloroethane	BDL	25	ug/kg	7200
EPA 8260B	1,2-Dichloroethene (total)	BDL	25	ug/kg	33000
EPA 8260B	1,1-Dichloroethene	BDL	25	ug/kg	33000
EPA 8260B	1,2-Dichloropropane	BDL	25	ug/kg	18000
EPA 8260B	1,3-Dichloropropene (cis + trans)	BDL	25	ug/kg	18000
EPA 8260B	1,4-Dioxane	BDL	750	ug/kg	170000
EPA 8260B	Ethyl acetate	BDL	500	ug/kg	33000
EPA 8260B	Ethylbenzene	BDL	25	ug/kg	6000
EPA 8260B	Ethyl cyanide (propionitrile)	BDL	500	ug/kg	360000
EPA 8260B	Ethyl ether	BDL	500	ug/kg	160000
EPA 8260B	Ethyl methacrylate	BDL	50	ug/kg	160000
EPA 8260B	Ethylene oxide	BDL	500	ug/kg	N/A
EPA 8260B	Iodomethane	BDL	500	ug/kg	65000
EPA 8260B	Isobutanol	BDL	5000	ug/kg	170000
EPA 8260B	Methacrylonitrile	BDL	500	ug/kg	84000
EPA 8260B	Methyl methacrylate	BDL	50	ug/kg	160000
EPA 8260B	4-Methyl-2-pentanone	BDL	250	ug/kg	33000
EPA 8260B	Methylene chloride	BDL	25	ug/kg	33000
EPA 8260B	Pentachloroethane	BDL	250	ug/kg	6000
EPA 8260B	1,1,1,2-Tetrachloroethane	BDL	25	ug/kg	42000
EPA 8260B	1,1,2,2-Tetrachloroethane	BDL	25	ug/kg	42000
EPA 8260B	Tetrachloroethene	BDL	25	ug/kg	5600
EPA 8260B	Toluene	BDL	25	ug/kg	28000
EPA 8260B	1,1,1-Trichloroethane	BDL	25	ug/kg	5600
EPA 8260B	1,1,2-Trichloroethane	BDL	25	ug/kg	5600
EPA 8260B	Trichloroethene	BDL	25	ug/kg	5600
EPA 8260B	Trichlorofluoromethane	BDL	25	ug/kg	33000
EPA 8260B	1,1,2-Trichloro- 1,2,2-trifluoroethane	BDL	50	ug/kg	28000
EPA 8260B	1,2,3-Trichloropropane	BDL	50	ug/kg	28000
EPA 8260B	Vinyl chloride	BDL	50	ug/kg	33000

BDL - Below Detection Limit

Modified Kiln Dust Acid Extraction

Sample Description

Keystone Cement Company

CK Dust, grab, KI, 11/22/1999, 11:00am, received 11/23/1999

Analytical Method	Analyte	Result	Detection Limit	Units	Regulatory Limit Regulatory Limit
EPA 8260B	Xylenes	BDL	25	ug/kg	28000
	Acid Extractables				
EPA 8270C	4-Chloro-3-methylphenol	BDL	330	ug/kg	14000
EPA 8270C	2-Chlorophenol	BDL	330	ug/kg	5700
EPA 8270C	4-Methylphenol (p-cresol)	BDL	330	ug/kg	3200
EPA 8270C	3-Methylphenol (m-cresol)	BDL	330	ug/kg	3200
EPA 8270C	2-Methylphenol (o-cresol)	BDL	330	ug/kg	5600
EPA 8270C	2,6-Dichlorophenol	BDL	330	ug/kg	14000
EPA 8270C	2,4-Dichlorophenol	BDL	330	ug/kg	14000
EPA 8270C	2,4-Dimethylphenol	BDL	330	ug/kg	14000
EPA 8270C	2,4-Dinitrophenol	BDL	1700	ug/kg	160000
EPA 8270C	4-Nitrophenol	BDL	1700	ug/kg	29000
EPA 8270C	2-Nitrophenol	BDL	330	ug/kg	13000
EPA 8270C	Pentachlorophenol	BDL	660	ug/kg	7400
EPA 8270C	Phenol	BDL	330	ug/kg	6200
EPA 8270C	2,4,6-Trichlorophenol	BDL	330	ug/kg	37000
EPA 8270C	2,4,5-Trichlorophenol	BDL	330	ug/kg	37000
EPA 8270C	2,3,4,6-Tetrachlorophenol	BDL	660	ug/kg	19000
	Base/Neutral Extractables				
EPA 8270C	Acenaphthylene	BDL	330	ug/kg	3400
EPA 8270C	Acenaphthene	BDL	330	ug/kg	4000
EPA 8270C	Acetophenone	BDL	330	ug/kg	9700
EPA 8270C	2-Acetylaminofluorene	BDL	330	ug/kg	140000
EPA 8270C	Aniline	BDL	330	ug/kg	14000
EPA 8270C	4-Aminobiphenyl	BDL	330	ug/kg	N/A
EPA 8270C	Anthracene	BDL	330	ug/kg	4000
EPA 8270C	Benzal chloride (benzyl dichloride)	BDL	330	ug/kg	6000
EPA 8270C	Benz(a)anthracene	BDL	330	ug/kg	8200
EPA 8270C	Benzo(a)pyrene	BDL	330	ug/kg	8200
EPA 8270C	Benzo(b)fluoranthene	BDL	330	ug/kg	3400
EPA 8270C	Benzo(k)fluoranthene	BDL	330	ug/kg	3400
EPA 8270C	Benzo(ghi)perylene	BDL	330	ug/kg	1500
EPA 8270C	Bis(2-chloroethoxy)methane	BDL	330	ug/kg	7200
EPA 8270C	Bis(2-chloroethyl)ether	BDL	330	ug/kg	7200
EPA 8270C	Bis(2-ethylhexyl)phthalate	BDL	330	ug/kg	28000
EPA 8270C	Bis(2-chloroisopropyl)ether	BDL	330	ug/kg	7200
EPA 8270C	4-Bromophenyl phenyl ether	BDL	330	ug/kg	15000

BDL - Below Detection Limit

Modified Kiln Dust Acid Extraction

Sample Description

Keystone Cement Company

CK Dust, grab, KI, 11/22/1999, 11:00am, received 11/23/1999

Analytical Method	Analyte	Result	Detection Limit	Units	Regulatory Limit Regulatory Limit
EPA 8270C	Butyl benzyl phthalate	BDL	330	ug/kg	7900
EPA 8270C	p-Chloroaniline	BDL	660	ug/kg	16000
EPA 8270C	2-Chloronaphthalene	BDL	330	ug/kg	5600
EPA 8270C	Chrysene	BDL	330	ug/kg	8200
EPA 8270C	Di-n-octylphthalate	BDL	330	ug/kg	28000
EPA 8270C	Dibenzo(a,e)pyrene	BDL	660	ug/kg	N/A
EPA 8270C	Dibenzo(a,h)anthracene	BDL	330	ug/kg	8200
EPA 8270C	Di-n-butylphthalate	BDL	330	ug/kg	28000
EPA 8270C	1,4-Dichlorobenzene	BDL	330	ug/kg	6200
EPA 8270C	1,2-Dichlorobenzene	BDL	330	ug/kg	6200
EPA 8270C	1,3-Dichlorobenzene	BDL	330	ug/kg	6200
EPA 8270C	Diethylphthalate	BDL	330	ug/kg	28000
EPA 8270C	Dimethylaminoazobenzene	BDL	330	ug/kg	N/A
EPA 8270C	Dimethylphthalate	BDL	330	ug/kg	28000
EPA 8270C	1,4-Dinitrobenzene	BDL	330	ug/kg	2300
EPA 8270C	2,4-Dinitrotoluene	BDL	660	ug/kg	140000
EPA 8270C	2,6-Dinitrotoluene	BDL	660	ug/kg	28000
EPA 8270C	Diphenylamine	BDL	330	ug/kg	N/A
EPA 8270C	1,2-Diphenylhydrazine	BDL	330	ug/kg	N/A
EPA 8270C	Diphenylnitrosamine	BDL	330	ug/kg	13000
EPA 8270C	Fluoranthene	BDL	330	ug/kg	8200
EPA 8270C	Fluorene	BDL	330	ug/kg	4000
EPA 8270C	Hexachlorobenzene	BDL	330	ug/kg	37000
EPA 8270C	Hexachlorobutadiene	BDL	330	ug/kg	28000
EPA 8270C	Hexachlorocyclopentadiene	BDL	330	ug/kg	3600
EPA 8270C	Hexachloroethane	BDL	330	ug/kg	28000
EPA 8270C	Hexachloropropene	BDL	330	ug/kg	28000
EPA 8270C	Indeno(1,2,3-cd)pyrene	BDL	330	ug/kg	8200
EPA 8270C	Isosafrole	BDL	1700	ug/kg	2600
EPA 8270C	Kepone	BDL	660	ug/kg	130
EPA 8270C	Methapyrilene	BDL	1500	ug/kg	1500
EPA 8270C	4,4'-Methylene-bis-(2-chloroaniline)	BDL	660	ug/kg	35000
EPA 8270C	3-Methylcholanthrene	BDL	1700	ug/kg	15000
EPA 8270C	Methyl methane sulfonate	BDL	1700	ug/kg	N/A
EPA 8270C	Naphthalene	BDL	330	ug/kg	3100
EPA 8270C	2-Naphthylamine	BDL	1700	ug/kg	N/A
EPA 8270C	2-Nitroaniline	BDL	1700	ug/kg	14000
EPA 8270C	4-Nitroaniline	BDL	1700	ug/kg	28000
EPA 8270C	Nitrobenzene	BDL	330	ug/kg	14000

BDL - Below Detection Limit

Modified Kiln Dust Acid Extraction

Sample Description

Keystone Cement Company

CK Dust, grab, KI, 11/22/1999, 11:00am, received 11/23/1999

Analytical Method	Analyte	Result	Detection Limit	Units	Regulatory Limit Regulatory Limit
EPA 8270C	5-Nitro-o-toluidine	BDL	330	ug/kg	28000
EPA 8270C	N-Nitrosodi-n-butylamine	BDL	330	ug/kg	17000
EPA 8270C	N-Nitrosodiethylamine	BDL	330	ug/kg	28000
EPA 8270C	N-Nitrosodimethylamine	BDL	330	ug/kg	2300
EPA 8270C	N-Nitrosodipropylamine	BDL	330	ug/kg	N/A
EPA 8270C	N-Nitrosomethylethylamine	BDL	330	ug/kg	2300
EPA 8270C	N-Nitrosomorpholine	BDL	330	ug/kg	2300
EPA 8270C	N-Nitrosopiperidine	BDL	330	ug/kg	35000
EPA 8270C	N-Nitrosopyrrolidine	BDL	660	ug/kg	35000
EPA 8270C	Pentachlorobenzene	BDL	330	ug/kg	37000
EPA 8270C	Pentachloronitrobenzene	BDL	330	ug/kg	4800
EPA 8270C	Phenacetin	BDL	1700	ug/kg	16000
EPA 8270C	Phenanthrene	BDL	330	ug/kg	3100
EPA 8270C	Phthalic acid and phthalic anhydride (as dimethyl phthalate)	BDL	330	ug/kg	28000
EPA 8270C	Pronamide	BDL	1500	ug/kg	1500
EPA 8270C	Pyrene	BDL	330	ug/kg	8200
EPA 8270C	Pyridine	BDL	330	ug/kg	16000
EPA 8270C	Safrole	BDL	1700	ug/kg	22000
EPA 8270C	1,2,4,5-Tetrachlorobenzene	BDL	330	ug/kg	19000
EPA 8270C	1,2,4-Trichlorobenzene	BDL	330	ug/kg	19000
EPA 8270C	Tris(2,3-dibromopropyl) phosphate	BDL	1700	ug/kg	37000
	Pesticides				
EPA 8081A	BHC-gamma (Lindane)	BDL	3.3	ug/kg	66
EPA 8081A	Chlordane	BDL	16.5	ug/kg	130
EPA 8081A	Endosulfan I	BDL	16.5	ug/kg	66
EPA 8081A	Endosulfan II	BDL	16.5	ug/kg	130
EPA 8081A	Endosulfan sulfate	BDL	16.5	ug/kg	130
EPA 8081A	Endrin	BDL	6.6	ug/kg	130
EPA 8081A	Endrin aldehyde	BDL	6.6	ug/kg	130
EPA 8081A	Heptachlor	BDL	3.3	ug/kg	66
EPA 8081A	Heptachlor epoxide	BDL	3.3	ug/kg	66
EPA 8081A	Methoxychlor	BDL	9.9	ug/kg	180
EPA 8081A	Toxaphene	BDL	66	ug/kg	1300
	PCB's				
EPA 8082	PCB 1016	BDL	33	ug/kg	920
EPA 8082	PCB 1221	BDL	33	ug/kg	920

BDL - Below Detection Limit

Modified Kiln Dust Acid Extraction

Sample Description

Keystone Cement Company

CK Dust, grab, KI, 11/22/1999, 11:00am, received 11/23/1999

Analytical Method	Analyte	Result	Detection Limit	Units	Regulatory Limit Regulatory Limit
EPA 8082	PCB 1232	BDL	33	ug/kg	920
EPA 8082	PCB 1242	BDL	33	ug/kg	920
EPA 8082	PCB 1248	BDL	33	ug/kg	920
EPA 8082	PCB 1254	BDL	33	ug/kg	1800
EPA 8082	PCB 1260	BDL	33	ug/kg	1800
	Chlorinated Herbicides				
EPA 8151A	2,4-D	BDL	165	ug/kg	10000
EPA 8151A	2,4,5-TP (Silvex)	BDL	330	ug/kg	7900
EPA 8151A	2,4,5-T	BDL	134	ug/kg	7900

Toxicity Characteristic Leaching Procedure

TCLP Non-volatile Extraction

	EPA HW Number	Parameter				
EPA 1311	—	Antimony (Sb)	BDL	0.1	mg/L	1.0
EPA 1311	D004	Arsenic (As)	BDL	2.5	mg/L	5.0
EPA 1311	D005	Barium (Ba)	BDL	0.3	mg/L	100 0
EPA 1311	—	Beryllium (Be)	BDL	0.005	mg/L	0.007
EPA 1311	D006	Cadmium (Cd)	0.30	0.01	mg/L	1.0
EPA 1311	D007	Chromium (Cr)	BDL	0.01	mg/L	5.0
EPA 1311	D008	Lead (Pb)	BDL	0.1	mg/L	5 0
EPA 1311	D009	Mercury (Hg)	BDL	0.005	mg/L	0.2
EPA 1311	—	Nickel (Ni)	0.06	0.02	mg/L	70
EPA 1311	D010	Selenium (Se)	0.11	0.05	mg/L	1.0
EPA 1311	D011	Silver (Ag)	BDL	0.01	mg/L	5.0
EPA 1311	—	Thallium (Tl)	BDL	0.05	mg/L	7.0

BDL - Below Detection Limit

Modified Kiln Dust Acid Extraction

Sample ID: MB1_3412_DF_SDS

Method 8290

Client Data		Sample Data		Laboratory Data			
Name:	Golder Associates Inc.	Matrix:	Solids	Project No.:	P5720	Date Received:	n/a
Project ID:	General Analytical HRMS	Weight/Volume:	10.00 g	Sample ID:	0_3412_MB001	Date Extracted:	19 Aug 05
Date Collected:	n/a	% Solids	#N/A	QC Batch No.:	3412	Date Analyzed:	27 Aug 05

Analyte	Conc. pg/g	DL pg/g	EMPC pg/g	Qualifier	Recoveries ES	Recoveries CS	
2,3,7,8-TCDD	ND	0.0934			92	93.8	
1,2,3,7,8-PeCDD	ND	0.309			97.4	96.9	
1,2,3,4,7,8-HxCDD	ND	0.169			106	98.4	
1,2,3,6,7,8-HxCDD	ND	0.171			100	98.4	
1,2,3,7,8,9-HxCDD	ND	0.177			104	98.4	
1,2,3,4,6,7,8-HpCDD	ND	0.134			106	92.9	
OCDD	ND	0.239			108	92.9	
2,3,7,8-TCDF	ND	0.0574			108	93.8	
1,2,3,7,8-PeCDF	ND	0.143			104	102	
2,3,4,7,8-PeCDF	ND	0.14			102	102	
1,2,3,4,7,8-HxCDF	ND	0.0551			99.6	98.4	
1,2,3,6,7,8-HxCDF	ND	0.052			101	98.4	
2,3,4,6,7,8-HxCDF	ND	0.0517			101	98.4	
1,2,3,7,8,9-HxCDF	ND	0.0715			99.2	98.4	
1,2,3,4,6,7,8-HpCDF	ND	0.0611			101	92.9	
1,2,3,4,7,8,9-HpCDF	ND	0.0893			95.8	92.9	
OCDF	ND	0.209			98.4	92.9	
TEQs							
TEQ (ND=0)	**0**		**0**	**ITEF**			
TEQ (ND=DL/2)	**0.204**		**0.204**	**ITEF**			

ANALYTICAL PERSPECTIVES

2714 Exchange Drive
Wilmington, NC 28405
USA

Tel: +1 910 794-1613
Toll Free: 866 846-8290
Fax: +1 910 794-3919
info@ultratrace.com
www.ultratrace.com

Checkcode: 3776

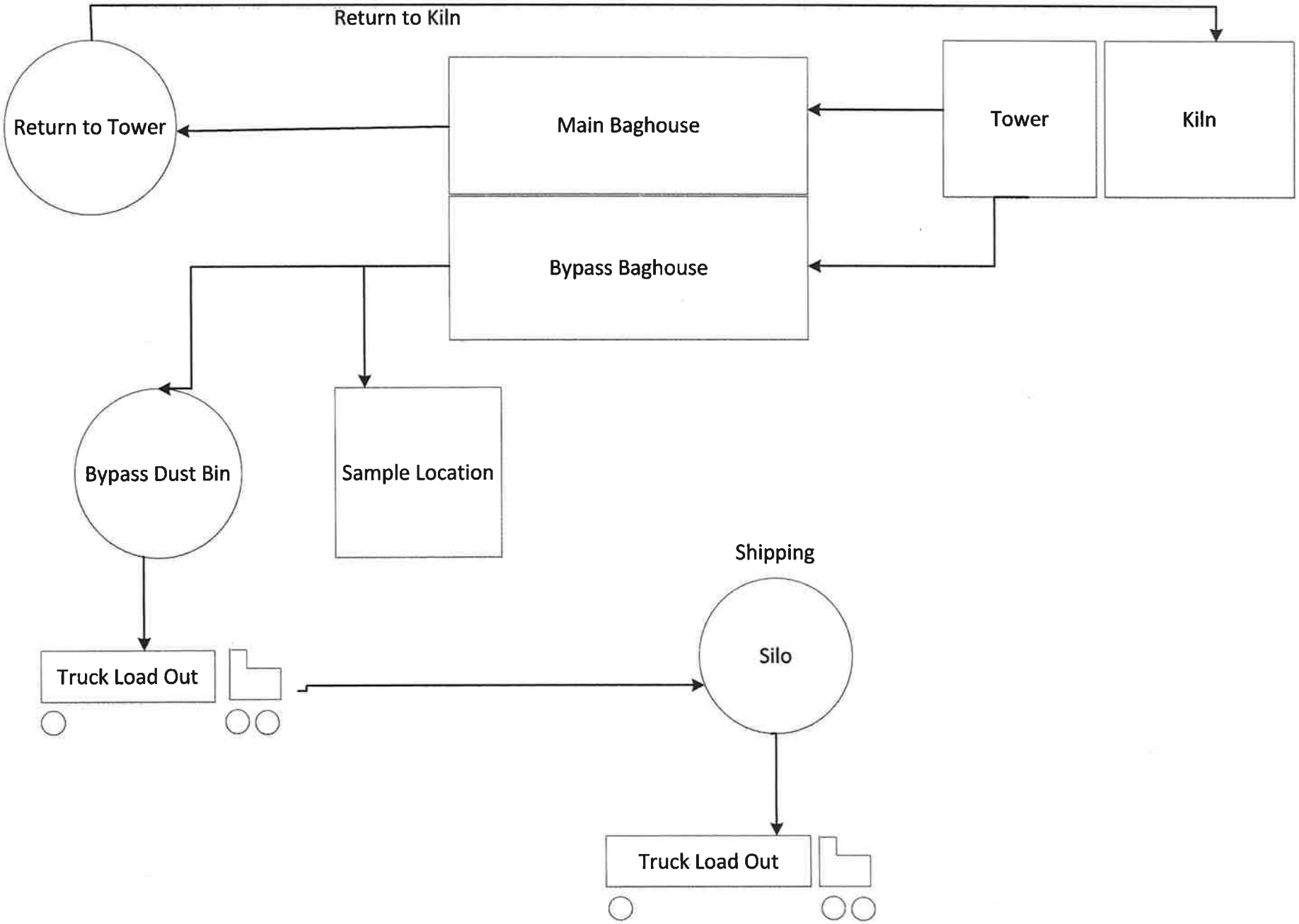
AP 2005 Rev. C

Reviewer .....
Date 07 Nov 06

APPENDIX B

Keystone Cement Company - CKD Flow Diagram

Keystone Cement Company
Figure 1 – CKD Flow Diagram



August 2018

APPENDIX C

Keystone Cement Company - Correspondence with PADEP

KEYSTONE CEMENT COMPANY

ADDRESS REPLY TO:
P. O. Box A
Bath, PA
18014-0058

PLANT:
Route 329
Bath, PA 18014
Tel.: (610) 837-2308
Fax: (610) 837-2267

November 8, 2000

Mr. William Tomayko
Program Manager
Bureau of Waste Management
2 Public Square
Wilkes-Barre, PA 18711-0790

Subject: Appendix to Keystone Cement Company's Waste Acceptance Plan

Dear Mr. Tomayko:

In follow-up to a conversation between Keystone Cement Company's (Keystone) consultant, Mark McClellan, and you, please find enclosed Keystone's cement kiln dust (CKD) flow diagram. This diagram illustrates Truck Outlet #2 (TO2) as the single point where CKD exits Keystone's manufacturing process and is normally sampled.

Keystone is adding this diagram as Appendix D.1 to supplement its Waste Analysis Plan, paralleling Keystone's on-site BIF CKD Sampling and Analysis Plan.

Keystone will begin utilizing TO2 as its normal CKD sampling point on or after November 22, 2000.

If you have any questions, please call me at 610-837-3213.

Sincerely,

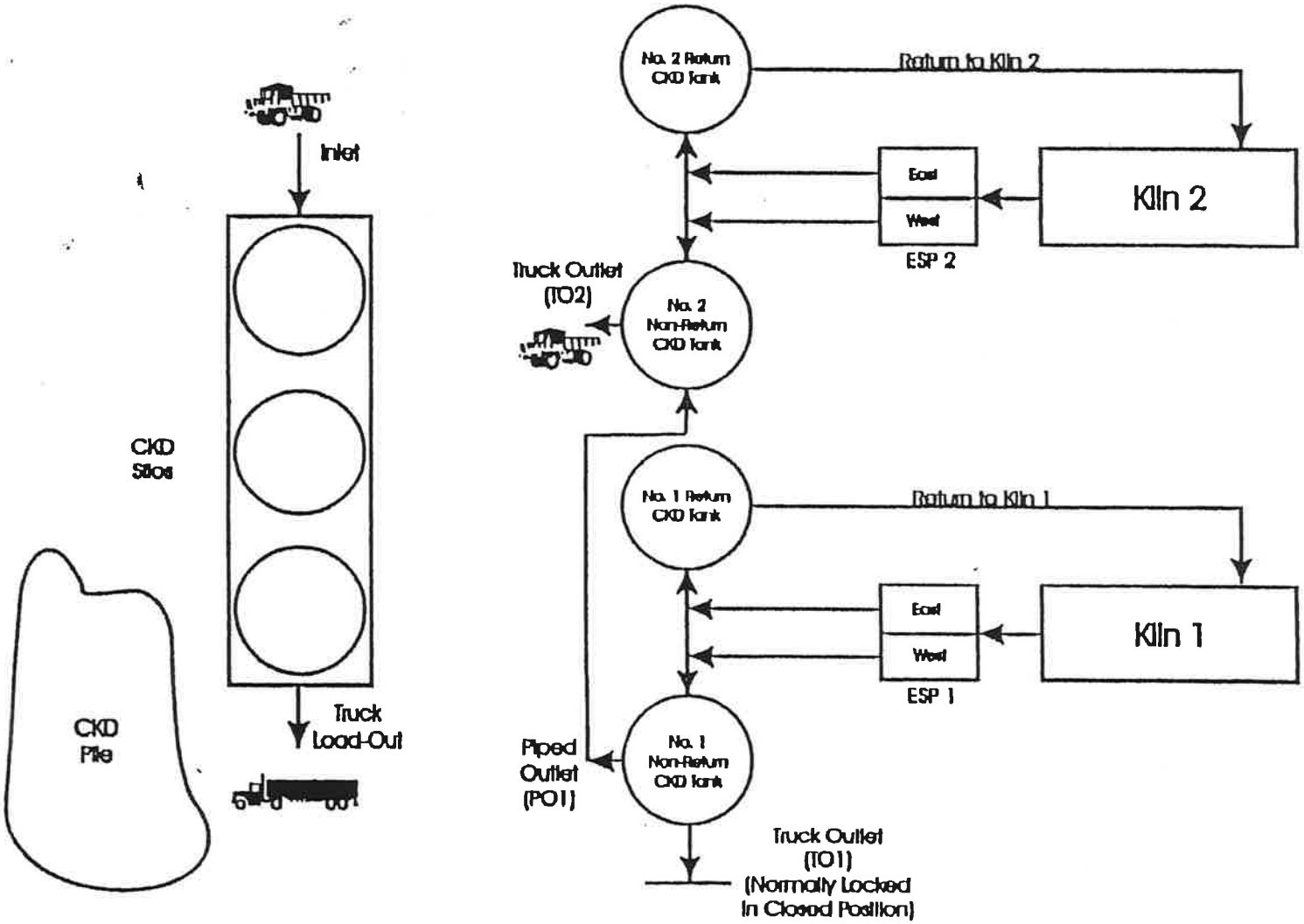
Rocco Marinaro
Manager, Environmental Compliance

Enclosure

cc: Steve Holt, Giant Cement Holding, Inc.
Steve Hayden, Keystone Cement Company
Jeff Kaboly, Keystone Cement Company
Fiona Adamsky, Keystone Cement Company
Jerry Opresko, Keystone Cement Company
Mark McClellan, Evergreen Environmental, Inc.

Certified Mail 0006 6779 8551

Keystone Cement Company - CKD Flow Diagram



APPENDIX K
REPORT ON DETAILS RELATIVE TO THE CONSTRUCTION OF THE NEW TANK FARM AND SUPPORTING UNLOADING FACILITIES

Report

To

Keystone Cement Company

On

Details Relative to Construction of New Tank Farm and Supporting Unloading Facilities

Revised
July 10, 2006

Prepared By

Robert Schoenberger P.E.
411 Township Line Road
Downingtown, PA 19335

Report

To

Keystone Cement Company

On

Details Relative to Construction of New Tank Farm and Supporting Unloading Facilities

Keystone Cement Company operates a Portland cement manufacturing facility in East Allen Township, Northampton County. The current tank farm facility and its improvement and enhancements have been in operation since the company started to utilize waste derived liquid fuel for clinker production. A plan to replace the currently operated fuel unloading and storage facility with the construction of a new storage and unloading operation has been prepared and submitted to the Department of Environmental Protection. The proposed construction is depicted in a folio of drawings prepared by the Martinson Group and dated January 21, 2005. The latest revision to the plans is dated June 2006.

After the initial submission of the plans to the Commonwealth of Pennsylvania Department of Environmental Protection Keystone had requested that the proposed facility be evaluated relative to the International Fire Code, Pennsylvania Construction Code Title 37 (Department of Labor and Industry) and relative NFPA documents including NFPA 30 and NFPA 70, OSHA, MSHA American Association of Railroads, American Petroleum Institute and the U.S. Department of Transportation. Many of these regulations or codes lie outside the applicable regulations, but may be used to provide guidance in the design and operation of the proposed facilities. In particular, the publications of the American Petroleum Institute (API) provide guidance on piping, pumps, site location distances, and other design considerations similar to the NFPA. NFPA also provides design guidance and hold the same regulatory status as API. The pertinent regulations for this facility are found in Title 37 of the Pennsylvania Department of Labor and Industry, Pennsylvania Department of Environmental Protection Title 75, Chapter 264. Both of these regulations incorporate by reference guidance codes including the International Fire Code (which incorporates NFPA by reference), API and National Association of Corrosion Engineers code.

Keystone Cement Company is a mining operation, so it is regulated by the Mine Safety and Health Administration. Some of the safety requirements for rail operations of the Department of Transportation reference OSHA standards in 29 CFR, but none of these references are relative to the facility design and construction.

After review of the respective codes and the plans and documents of the facility construction, the proposed design complies with all applicable construction, building, and

fire safety codes listed above with the exception of the issues raised in the following paragraphs: The items that require additional elaboration to avert possible imposition of non-applicable portions of the codes are summarized in the following four issues.

- Boil-over potential of waste oil.
- Use of truck unloading area for tank secondary containment.
- Separation distance between storage tank and unloading valves.
- Location of tanks within a building structure.

A detailed review was conducted for each of the four remaining issues, and the applicability of each item is discussed.

In addition the facility proposes to add 20 new waste codes to the list of constituents that could be managed in the facility. While these new constituents do not impact the facility design or selection of materials of construction, an evaluation of operation procedures was initiated.

Boil-Over Potential

Boil-over is a very specific event that is defined in Title 37 as well as in several other documents including NFPA 30. The definition of boil-over assumes that multiple phases exist in the liquid and that the solids are present in one of more of the phases. Under a defined set of conditions the solids may absorb heat from a fire and settle to the bottom where the water phase exists. Heat transfer from the solids can overheat the water phase causing boiling and expelling of steam through the upper phases.

It must be explicitly noted that this issue is peculiar to only one form of material, and it relates only unprocessed crude oil that is to be treated in API and/or CBI process units in a refinery. The definition of boil-over in NFPA 30 also states that it is applicable only to open top tanks. The tanks proposed at Keystone are not open-top, rather they are vertical closed top tanks. Therefore, the boil-over question is not applicable for both the type of material to be processed and for the type of tanks in which the processing is to occur.

When one further examines the boil-over definition, it references *certain oils* without defining what oil. The definition which describes residues that will sink due to negative density and heat the tank bottom liquids is one that describes only crude oil with high inorganic soil content. The solids in Keystone's waste fuel are organic in nature and the ash quantification verifies that there is insufficient ash mass to cause boil over. A heat transfer calculation was performed, and it was determined that a minimum of 20 percent inorganic solids is needed to heat the water to boiling when the water fraction is 25 percent of the crude. Obviously, this is a scenario that has an infinite number of solutions depending upon geometry and composition. The 20 percent solids in 25 percent water fraction are totally unrealistic. Additionally, the specific gravity of the solids in the waste

derived fuel indicates insufficient mass to absorb and transfer the energy needed to heat the water phase. This physical phenomenon can occur in crude where the inorganic solids are soil and drilling cuttings with a specific gravity of 2.0 or more and the fraction frequently exceeds 20 percent by volume.

While the Keystone fuel can have two phases, the water content in the second phase (typical range of 0-15%) is insufficient to cause boil-over. A surface burning liquid absent the inorganic solids will not sink and cause boil-over. Experience shows that the burnable fuel phase is reasonably homogeneous as is the water layer. Hence, it can be concluded that we have two separate and relatively homogeneous layers, and neither layer has the composition to facilitate boil-over.

It is clear that the definition of boil-over is not applicable to the proposed facilities at Keystone.

Use of Truck Unloading Area for Tank Secondary Containment

Keystone has designed the secondary containment for the truck unloading area, the tank farm and rail unloading facility to be interconnected and to provide cumulative storage volume for any spill or tank release.

The use of combined secondary containment is allowed for spill containment in storage and unloading areas in Title 37, Part I, Subpart B, Flammable and Combustible Liquids. Two separate sections, Title 37, 13.6(b) and (c), relate peripherally to NFPA 30 and address the issue of remote impounding. The issue is explained in Title 37, 13.6(c)(2) which states that this section applies only to the situation where the tanks are fixed roof and contain liquids with boil-over characteristics. As stated in the preceding section, the liquid waste fuel that will be stored in the tanks does not exhibit boil-over characteristics; therefore the two contradictory sections are not applicable. Section 13.6(b) likewise does not apply since any spill will be retained on site and will not discharge to an offsite drainage system.

While the use of combined secondary spill volume in all three portions of the facility (truck unloading, rail unloading and tank storage) is allowed under both Title 37 and NFPA 30, this design should receive special attention to prevent a domino effect should a leak and fire occur simultaneously. The combined area should have a viable foam system to quickly blanket any incipient fire. There is no requirement for the foam to be employed when a spill occurs. The initial objective should still be to isolate the spill so that cleanup can be facilitated and no off-site contamination will occur.

Separation Distance Between Storage Tank and Unloading Valves

NFPA 30, Section 5.6.3 could be interpreted to raise the issue that separation distance between the tanks and the unloading facility shall be 25 feet for a Class I liquid fuel. The waste fuel composition to be managed in tanks might vary from load to load, but generally it is a Class I liquid. The wording of Section 5.6.3 is all encompassing as

examination of the wording confirms, i.e. "Tank vehicle and tank car loading and unloading facilities shall be separated from above ground tanks, warehouses, other plant buildings, or the nearest line of adjoining property that can be built upon by a distance of at least 25 feet for Class I liquids.....". Title 37 approaches the separation issue in a different manner. Title 37 differentiates the tank distance from the property line and from the nearest building on the same property. The separation guidance is given in Tables 1 and 5 (Title 37), and that distance is (Table 1) one-half of 30 feet for the 45,000 gallon tank and one-half of 50 feet for the 65,000 gallon tank for distance to property line and opposite side of a public right of way. The same table provides for one-half of 10 feet for the 45,000-gallon tank and one-half of 15 feet for the 65,000-gallon tank to the nearest building on the property. NFPA 30 sets the distance between tanks at 3 feet as provided in Table 4.3.2.2.1.

It appears that Title 37 addresses the issue in the appropriate manner. The separation distance between tanks and other facilities should not be consolidated into a catchall separation distance, but the issue of property line and right of way separation should be treated independently of safety and fire control. Each tank has valves, relief devices, and controls, monitor probes and other electronic sensing and transmitting components. It is clear that the interpretation of 25 feet separation distance between the unloading area and tanks is applicable to property line and right of way, but other restrictions on process design should not be lumped into that requirement. Since approval by the Commonwealth of Pennsylvania will be based upon Title 37, the provisions of that Code should form the basis for the design. Based upon Title 37, the distance for separation is 7.5 feet. Further guidance is given in Title 37 in Section 13.33b relative to fill and return piping. That section required that all piping terminate at least 2 feet outside a building. The configuration in the unloading area meets this criterion.

Location of Tanks Within Building

The issue that storage tanks for Class I liquids shall not be installed inside buildings was addressed in the original design. Title 37. Section 13.32 explicitly states this prohibition. Unless installed in a vault that meets the criteria in Title 37, the structure as proposed requires a variance from the code. The criteria for defining a building is that no more that 25 percent sidewall supports and structures will obstruct the opening. If the proposed siding is removed from the building this criterion could be achieved. The revised design removes the sidewalls, and therefore the tanks are not being proposed for construction within a building.

Hazardous waste storage and unloading facilities are typically designed and constructed with roofs to control storm water collection in the secondary containment. This method of storm water management is allowed under the federal and state regulations that define the storage of hazardous waste in tanks.

Waste Code Evaluation

Keystone proposes to add 20 new waste codes to the list of constituents that may be managed in the fuel storage and energy recovery operation. All of these codes are listed as "U" or off specification or aged pure chemicals and almost all are already recognized as being managed because they are listed as constituents in either the "F" or "K" wastes already approved in the permit. Because of regulatory definitions of waste versus off-specification or aged product, these codes are added for completeness. It is not the expectation that large quantities of any single waste stream will be incorporated in the waste fuel, rather small quantities from operations such as laboratory packing and cleanup will be incorporated into larger bulk loads of fuel.

The issue of degradation products such as peroxide molecules from ether compounds is the same issue that exists for the currently received waste streams. Waste is tested upon receipt by the Keystone Quality Control laboratory and if peroxides are present, the load is rejected. There is no supporting information to indicate that any of the new codes will degrade to peroxides in a concentration that is greater than found in the currently managed waste fuel.

Temperature rise from exothermic reactions in mixtures can occur when there is either mutual interaction among compounds or reactions with other constituents such as water. Waste fuels are tested upon arrival for temperature and also are tested for compatibility with the inventory in storage tanks.

The presence of a constituent at a measurable concentration does not imply that reactions which occur at higher concentrations will occur. In fact for most reactions, including the exothermic reactions for some compounds and the degradation of ethers to peroxide higher concentrations are needed than are found in the fuel mixture. The reaction and rate of reaction are driven by concentration some can occur when a constituent is present as small as 10 percent, but more typically 25-50 percent concentration is needed to drive these reactions.

In addition, Keystone's design calls for the tanks to be nitrogen blanketed and therefore, the potential for oxide formation has been removed from the storage environment.

Summary

A review of the design and construction details for new truck and railcar unloading and the new tank farm has been completed. The facility as proposed by Keystone is not replicated elsewhere in the Commonwealth, rather fuel tank farms and unloading facilities which support pipelines and/or refineries, are the facilities for which the Code has been promulgated. Waste fuel facilities, such as Keystone, are regulated extensively by Hazardous Waste Regulations in 40 CFR Part 264 and in Pennsylvania Code Title 75.264. However, no conflicts are apparent at this time.

Reactions that occur in-situ are monitored as the waste fuel is received at the facility. The time frame from generation at the industry to blending, transport and testing at Keystone is rarely less than 2-3 days, and frequently is substantially longer. Exothermic

reactions and degradation reactions will mostly have occurred in storage at the generator facility or in transit. The program to monitor the waste upon arrival remains the method to assure safety. When a typical waste fuel load contains numerous (10-50) constituents anticipation of possible trace reactions is not a practical method for managing safety.

Robert J. Schoenberger P.E.

Date: 7-17-06

Appendix K-1

Supplement K-1 to Appendix K – Report on Details Relative to the Construction of the New Tank Farm and Supporting Unloading Facilities

Evaluation of Design Criteria

For

Proposed Tank Farm and Unloading Facility

At Keystone Cement Company

September 1, 2007

Prepared By

Robert Schoenberger Ph.D.,P.E.
411 Township Line Road
Downingtown, PA 19335

Robert Schoenberger 9/14/07

Evaluation of Design Criteria

For

Proposed Tank Farm and Unloading Facility
Keystone Cement Company

Keystone Cement Company has submitted an application to construct and operate a new hazardous waste management units at its East Allen Township cement production facility. The new units consists of:

- Storage tank system
- Railcar unloading
- Truck/tanker unloading

This proposed facility is classified as a "combined" HWMU by PADEP, and at a meeting with Keystone personnel and consultants on August 8, 2007 design criteria for secondary containment and fire code standards were discussed. Mr. James Berger, P.E. (DEP) indicated that DEP has several questions relative to the design and construction. Specifically, his questions include:

- Separation Distance of Tanks
- Separation of Storage Facility from unloading operations
- Joint secondary containment for unloading and storage units.

Mr. Berger requested that an assessment of relevant codes pertaining to these issues be conducted. This discussion is prepared in response to Mr. Berger's request.

Identification of Relevant Codes

Design, construction and operation of the "combined" HWMU are subject to the requirements of Title 25, Part 264 Subchapter J relative to tanks. The contents of this subchapter do not address the scope of design and facility integration, but do provide specific criteria for tanks and ancillary facility design and operation including:

- Corrosion control
- Soil and ground corrosion potential and cathodic protection
- Secondary containment
- Monitoring

Other aspects of the design such as those issues posed by Mr. Berger should be evaluated based upon guidance identified in other codes, or in the absence of guidance they must be evaluated by professionals, based upon expected best design and operation practices and Engineering Judgement.

DEP has suggested that possible candidate codes/guidance for consideration for this task may include the list given in Table No. 1.

Table No. 1 **List of Guidance/ Codes for Evaluation of Unloading Facility/Tank Farm**
International Fire Code (IFC)
Pennsylvania Construction Code Title 37
NFPA Title 30
NFPA Title 70
29 CFR (OSHA)
30 CFR (MSHA)
American Association of Railroads
American Petroleum Institute (API)
49 CFR (Transportation including Coast Guard)
American National Standards Institute (ANSI)
National Institute for Standards and Technology (NIST)
International Standards Organization (ISO)

A detailed review has been conducted for each of these guidance/candidate codes. Discussion and the focus of each will be discussed.

International Fire Code

The IFC is a comprehensive code that addresses residential, commercial and industrial building requirements for fire and safety. Compliance with the IFC is required by major building codes including the Southern Building Code, Uniform Construction Code and the International Building Code. The IFC provides codes for electrical standards and wiring, fire detection and protection, location with regard to community and neighborhood buildings and facilities, and testing and monitoring. The relevant section of the IFC is found in Section 3406.5 Bulk transfer and process transfer operation. Subpart 3406.5.1.1 states, "bulk transfer and process transfer operation shall be conducted in approved locations. Tank cars shall be unloaded only on private sidings or railroad-siding facilities equipped for transferring flammable or combustible liquids. Tank vehicle and tank car transfer facilities shall be separated from buildings above-ground tanks, combustible materials, lot lines, public streets, public alleys or public ways by a distance of 25 feet for Class I liquids and 15 feet for Class II and III liquids measured from the nearest position of any unloading or loading valve. Buildings for pumps or shelters for personnel shall be considered part of the transfer facility.

Clearly the IBC requirements for siting of the building relative to the property line, public ways and the above ground tank are being met with the reviewed design.

Pennsylvania Construction Code

In 2004 the Pennsylvania Construction Code was replaced by the Uniform Construction Code (UCC), and the responsibility for construction approval was delegated to the local government when that government agreed to accept the responsibility and adopted the UCC. East Allen Township has adopted the UCC and enforces the code. Section 414 of the UCC requires the dispensing and use of hazardous materials to meet the requirements of the IFC.

NFPA Publication 30

NFPA 30, Flammable and Combustible Liquids Code are the most relevant criteria for the majority of the questions under consideration. The relevant sections are 5.3-Facility Design and 5.6 Loading and Unloading. Spacing of the tanks is provided in Table 2.7. It is clear that the question of tank spacing is addressed in NFPA 30. Table (cite table) indicates that tanks of the design proposed by Keystone require a minimum separation of X feet is required. Keystone's design meets this requirement.

NFPA 70

NFPA 70 is the National Electrical Code and provides guidance on instrumentation and supplying power to mixers, valves and pumps. This code is consistent with the IFC and is regarded as duplication of any requirement in either the UCC or the IFC.

OSHA

The Occupational Safety and Health Administration regulations do address hazardous materials management specifically in the Section 29CFR 1926, Hazardous Waste Operations of HAZWAPOR. The issues are relevant to employee safety, and are silent on the issues considered in this discussion.

MSHA

Since the dolomite quarry operation produces the principle raw material used in cement clinker production, the entire Keystone facility is subject to MSHA regulations. The MSHA regulations are similar to the OSHA regulations in the intent is protection of the individual employee's safety. There are no relevant regulations that will influence the design of the unloading/storage facility.

Association American of Railroads

The Association of American Railroads has an extensive set of " Manual of Standards and Recommended Practices" that impact the operation of a rail car unloading facility. Standards are relevant for loading and unloading the cars, signage for rail crossings (both temporary and permanent) and inspection schedules. However, none of the design standards in question are addressed. In fact issues such as secondary containment for hazardous wastes are only addressed in the EPA (40 CFR 264 and PA Title 25 Part 264) regulations.

American Petroleum Institute

The American Petroleum Institute is the organization of collective membership for the producers, refiners and marketers of petroleum and petroleum products. The organization provides extensive guidance on more than 1000 topics, including design criteria for individual tanks, venting of tanks, materials of construction, pumps, valves and instrumentation and other ancillary requirements for construction and operation. No conflict with NFPA 30 or the UCC has been found during the review of the API codes and specifications.

Transportation

Transport of waste fuel does interface with the loading/unloading/tank farm storage facility at the point were the fuel is delivered to Keystone. The regulations for truck transport are contained in 49CFR and the marine terminal requirements found in 33CFR. A review of both codes finds requirements for facility siting relative to the surrounding community, waterways, public ways and structures. These requirements are consistent with the IFC and UCC and do intrude into the issues of separation of loading/unloading and storage tank farm separation. Regulations for explosion and safety such as static electricity, corrosion control and structural integrity are similar NFPA 30, the UCC and Title 25, 264 Subpart J. It is concluded that no additional guidance is obtained from either of these codes.

NIST, ANSI and ISO

As commerce becomes transnational efforts are extended to develop and adopt codes that are consistent among the trading nations. The "clearing house" for this effort is the International Standards Organization. The American National Standards Institute is the official designee to represent the United States to ISO. Hence, by *de facto* delegation all ANSI standards become ISO standards, although the inverse is not true. In general these three agencies provide codes to be used on a voluntary basis by nation states or governments/private sector participants. Emphasis is placed upon agreement on how to measure or monitor equipment/processes, but not in the design or engineering of facilities. For example, a standard exists that specifies the tests needed to apply a grade to a steel product, but does not guide the structural engineer in the design of the structure that will house the Keystone loading/unloading facility. Codes prepared by all three of these organizations are not relevant to the issues in question.

Pending Consideration

The requirements that are pertinent from the UCC, NFPA 30, IFC and PA Title 25. Part 264, Subpart J are likely to undergo re-evaluation based upon requirements proposed by the Department of Homeland Security relative to protection hazardous and chemical storage. Very serious conflicts loom for issues such as security fencing and access control. Whereas the IFC and UCC anticipate the need for access to provide emergency

services, and thus have placed requirements for walls, roofs, fences and support structures that likely do not meet the Homeland Security requirements. The Keystone unloading and tank storage facility will have controlled access equal or greater than the existing facility. The existing access control and monitoring program is expected to meet Homeland Security requirements, and therefore should be the model for evaluation of the proposed construction.

Summary

After a complete search for relevant codes and guidance that could effect the construction of the loading/unloading/tank farm facility, it is concluded that the applicable codes are NFPA 30, IFC and the UCC. It is also clear that the responsibility for construction details and approval is jurisdictionally with the Codes Administrator for East Allen Township. It is further concluded that for RCRA permit purposes that Keystone facility meets the relevant requirements of the NFPA 30, IFC and UCC codes with respect with separation between hazards.

APPENDIX L
RAILCAR MANAGEMENT PLAN

APPENDIX L
RAILCAR MANAGEMENT PLAN
KEYSTONE CEMENT COMPANY

Prepared for:

Keystone Cement Company
P.O. Box A
Route 329
East Allen Township
Bath, Pennsylvania 18014-0058

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1.0 GENERAL

1.1 Introduction

Keystone Cement Company (Keystone) operates a cement production plant (Plant) which includes a hazardous waste processing, storage and treatment facility (Facility), in Bath, Pennsylvania. The Plant is located on an over 800-acre tract of land in East Allen Township, Northampton County, one mile south of the Borough of Bath (Site). The Plant burns liquid hazardous waste for energy recovery in a cement kiln pursuant to the Federal Clean Air Act National Emission Standards for Hazardous Air Pollutants (NESHAP) for Hazardous Waste Combustors (HWC MACT), 40 CFR Part 63, Subpart EEE. The facility also burns non-hazardous waste fuels in accordance with its Air Quality permit. The storage of the liquid hazardous waste at the Facility is permitted by Keystone's Resource Recovery and Conservation Act (RCRA) Part B Permit (PAD002389559) governed by the Commonwealth of Pennsylvania. Hazardous waste is transported to the Facility via tanker trucks and via railcars, after the railcar facility is constructed. It is anticipated that hazardous waste will be transported in both tanker trucks and railcars and that railcars would replace a portion, but not all of the hazardous waste transported in trucks. This Railcar Management Plan (Plan) presents the procedures and requirements associated with the transportation and handling of hazardous waste by railcar.

Keystone has received approval from the Pennsylvania Department of Environmental Protection (PADEP or Department) for the construction of planned facilities on Site. The planned facilities, Combined Hazardous Waste Management Units (HWMUs), consist of the construction of a railcar unloading/loading facility (railcar facility), waste derived fuel storage tank farm, and associated fuel transfer piping and ancillary equipment (Planned Facility). The PADEP has authorized Keystone to construct and operate the railcar facility since December 1991. This Plan was initially approved by the PADEP in 2009 and is being updated with this permit renewal application. Prior to the operation of the railcar facility, Standard Operating Procedures (SOPs) specific to the railcar facility will be developed as described in this Plan. As required in the existing Facility Permit, these SOP's will be submitted to PADEP for approval a minimum of 15 days prior to operation of the Planned Facility. If during the development of detailed SOPs, Keystone determines that revisions to this Plan are necessary, a revised Plan will be submitted to the PADEP for approval.

In the production of cement, Keystone utilizes high temperatures in the rotary cement kiln to dry, calcine, and finally heat the materials introduced to the system to the fusion point of approximately 2,700 degrees Fahrenheit (F). This combustion activity produces clinker. To obtain these high temperatures, heat is supplied to the rotary kiln through the combustion of pulverized bituminous coal, natural gas, and PADEP-approved waste derived fuel materials that are used as a supplemental fuel. Kiln gas temperatures of approximately 3,000 degrees F assure destruction of organic components in the waste derived fuel at a destruction and removal efficiency in excess of 99.99 percent.

The purpose of this Plan is to outline the procedures and methods of operation that will be used to minimize the potential for accidental releases from incoming and outgoing railcars to the Keystone facility. These procedures will detail the unloading and loading methods and requirements of railcars using the existing rail-spur with a new railcar facility and equipment.

1.2 Description of Activity

The railcar facility will be located in the southeasterly section of the site (see Figure 3 of the Application). This area will serve as both an unloading/loading area and a staging area for waste derived fuel that is delivered in U.S. Department of Transportation (USDOT)-approved railcars. Keystone will only accept railcars that are USDOT-approved railcars. As newer, safer USDOT-approved railcars are available to generators, Keystone will encourage its generators to utilize these USDOT-approved railcars (e.g., USDOT-117s are preferred over USDOT-111s).

Currently, an average of 30,000 to 40,000 gallons of waste derived fuel is delivered to the facility on a normal weekday. It is expected that the frequency of railcar deliveries would be limited to every few days from Monday to Friday, with a maximum of three (3) railcars per delivery. Existing rail tracks will be used to convey railcars to the Combined HWMU. Normal hours for railcar waste acceptance at the facility are 6:00 am to 6:00 pm, however waste may be accepted at other times during hours of facility operation. Railcar deliveries to the facility will arrive on a siding from the tracks that are parallel to Route 512 at the plant entrance as shown on Figure 9 of the Application. The track is currently used for bulk materials deliveries and product (i.e., cement) transfer. The maximum number of railcars that can be accommodated at the new railcar unloading and staging facility is four (4) railcars. Railcars may also be staged on existing rail tracks on-site.

The railcar facility will be fenced for security purposes and monitored via a video surveillance system. The railcars enter the Site from a rail-spur off the regional and local rail lines, wherein they are moved to the railcar unloading/loading and staging area. The unloading/loading area will be sheltered by a roof and contains a secondary containment system to collect discharge that may occur during the unloading and loading of PADEP-approved materials from the railcars. Based on a federal rule promulgated in 1970, railcars constructed after November 15, 1971 cannot exceed 34,500 gallons in capacity. However, Keystone will not accept railcars that have a nominal capacity of more than 30,000 gallons.

The secondary containment system is designed to hold a total of approximately 73,303 gallons. This is greater than the capacity of one (1) railcar (30,000 gallons) plus adequate capacity for rainfall from a 25-year, 24-hour rain event over the total surface area of the tank storage area and railcar unloading area (5.60 inches rain x (1,800 square feet + 675 square feet) = 8,639.4 gallons), and 0.5 feet of freeboard over the surface area of the tank storage area and railcar unloading area (0.5 feet x (1,800 square feet + 675 square feet) = 9,256.5 gallons), which totals 47,896 gallons. The secondary containment system is shared with the 28,000 gallon tank and railcar unloading/loading facility. The tank secondary containment area and railcar unloading area are connected via spill transfer pipes. See Figures C160, F160, F161, F162, and F163 for details. If Keystone constructs the railcar unloading operation before tank no. 11, then only a portion of the secondary containment is required to be constructed. Keystone will install the railcar unloading area secondary containment, and a portion of the tank storage area (i.e., pump area which will have a minimum footprint area of 24 feet by 19 feet) to be able to hold adequate capacity per 40 CFR §264.175 and will be certified. The secondary containment design may change, but the constructed secondary containment will be greater than the required amount of 47,896 gallons. As-built drawings of the railcar unloading/loading area, including its secondary containment, will be certified by a Professional Engineer and submitted to the PADEP.

The railcars will be sampled on-site and the samples are compared to Keystone's acceptance criteria. The unloading/loading area is sized to accommodate one (1) railcar at a time and the staging area is designed to accommodate three (3) railcars.

2.0 REGULATORY REQUIREMENTS AND INDUSTRY STANDARDS

Hazardous materials, including Hazardous Waste Derived Fuels, are routinely shipped using railcars. The management of hazardous material (i.e., loading, unloading, sampling, etc.) is similar to that used for tanker trucks.

The USDOT establishes regulations for the specifications of railcars intended for the movement of hazardous materials. All railcars that carry hazardous materials must be equipped with double shelf couplers, which prevent separation of cars and possible punctures by a coupler in the event of an accident or derailment. The Federal Railroad Administration (FRA) regulates the rail tracks, safety, inspection frequency, and regulatory requirements for the railroad companies.

In the unlikely event a railcar carrying hazardous materials is involved in an accident, or somehow spills or leaks some of its cargo, specially trained Association of American Railroads (AAR) inspectors provide assistance or advise on how to handle the incident in the safest manner. Railroads also employ experts who are on call 24-hours each day.

The current technical specifications for Tank Cars, M-1002, are contained in the November 2014 edition, as revised in December 2019 and April 2020, of M-1002, Specifications for Tank Cars, Section C, Part III of the Manual of Standards and Recommended Practices (MSRP). The MSRP is published by the AAR, Transportation Technology Center, Inc. (TTCI). This issue of M-1002 replaces and updates the prior edition. Relevant portions of the Federal regulations pertaining to design and qualification of tank cars are included in M-1002. The standard addresses design, repair, and qualification of the tank and fittings. Also, M-1002 includes the requirements for pressure relief device sizing, tank car facility certification and registration, tank car marking, retest, qualification, top fittings profiles, coatings and linings, repair, testing, and welding railcar tanks.

An example of a mobile railcar mover that will be used to move railcars is provided in Attachment 1. Keystone may purchase a similar mover from another vendor for use at the Site.
The FRA has the authority to set regulations and guidelines for railroad safety. It works to ensure a safe, efficient and effective passenger and freight railroad network through inspections of railroad track, railcars, locomotives and signals and train control systems, in addition to

developing standards and regulations to enhance rail safety. The Rail Safety Act of 1970 authorized the States to work with the FRA to enforce Federal railroad safety regulations. A state is permitted to adopt additional or more stringent standards than the federal standards, provided it does not create an undue burden on interstate commerce, reduces public safety, or is incompatible with federal standards. The Commonwealth of Pennsylvania incorporates the Federal regulations as reference.

It is the responsibility of the transporter of the hazardous wastes that the railcars are DOT-approved bulk containers and meet the AAR's MSRP for tank cars and that the waste derived fuels are compatible with the railcar container materials. Prior to departure at each location, the railcars must, at a minimum, be inspected for any imminent hazardous condition that may result in an accident or casualty prior to the train arriving at its destination (49 CFR Part 215 Appendix D).

Industry standards published by the AAR, as related to the loading and unloading of materials from the tank cars are discussed in Section 3.4.

3.0 STANDARD OPERATING PROCEDURES

Keystone currently performs many of the procedures that will be implemented for the planned railcar facility at the existing truck unloading area. Most of the procedures for railcars will mimic those already in place for trucks. Thus, Keystone will either modify current SOPs, as appropriate, to include the railcars or develop new SOPs specifically for railcar activities. New and modified SOPs will be developed and submitted to PADEP for approval a minimum of 15 days prior to commencement of waste material acceptance via railcar in accordance with Keystone's RCRA Part B Permit. Table 1 presents a list of the expected railcar related SOPs. The scope of these procedures are described below.

3.1 Waste Acceptance/Rejection Procedure

Keystone currently has a procedure (SOP WF-02 – Waste Acceptance/Rejection) in place for receiving waste derived fuels in tanker trucks. This procedure is used to ensure compliance with federal and state waste acceptance limits and guidelines. These same procedures will be used for the acceptance of waste derived fuels by railcar.

The kiln can fire a variety of non-waste fuels and waste derived fuels including hazardous waste. Hazardous and/or residual wastes that may be accepted for storage and use at the Keystone facility are listed in Keystone's RCRA Part B Permit. Different classes of wastes require special handling procedures and storage requirements. Keystone has addressed this concern by only accepting wastes that are compatible with the transfer and storage facilities and by implementing SOPs for the handling and storage of wastes. As presented in WF-02, each incoming load is sampled and compared to the limits established in the approved "Waste Acceptance Criteria". Railcar sampling procedures will be developed as discussed in Section 3.3.

The samples are typically sent to the on-site laboratories for analysis, during which the railcar must wait for acceptance. During the implementation of the incoming shipment procedures, Keystone may need to move the railcars to allow another railcar to be sampled or unloaded. This maneuvering allows for the effectiveness of proper management and reduces the possibility of unnecessary traffic and congestion. A Railcar Staging Procedure will be developed to control the management of railcars as discussed in Section 3.2.

Once laboratory data confirming the acceptable composition of the waste is available, the railcar is moved to the unloading area and the contents of the railcar are unloaded into the storage tank(s) or pumped directly to the kiln. A Railcar Unloading Procedure will be developed as described in Section 3.4. If the material does not meet the acceptance criteria, the facility will follow its discrepancy resolution procedures, at which point the load is either accepted (if the discrepancy is resolved and the material is deemed acceptable) or rejected and the railcar is re-manifested to be transported off-site. Keystone will attempt to schedule any rejected railcars on the next available train, as practical considering the rail company schedule and availability. Until shipment off-site, the railcar will be staged on the on-site rail tracks. In the event of a rejected load, the corrective action procedures of WF-02 will be implemented. As presented in WF-02, these corrective actions may include completion of a new Module 1 if it is determined that a process modification has resulted in the generation of a new waste stream. The Waste Analysis Plan (WAP) describes the handling and testing requirements for all wastes, including potentially incompatible wastes. The WAP will not require modification to accommodate delivery of waste derived fuels by railcar.

Similar procedures currently used to measure volumes offloaded from tanker trucks, as presented in SOP WF-02 – Waste Acceptance/Rejection Procedures, will be used for measuring volumes offloaded from railcars with the exception that railcars will not be weighed. These procedures include:

- Manually measure tank volume offloaded. Prior to offloading determine inches of material in the vehicle. After offloading, determine inches of material remaining. Convert inches to gallons using the "volume" chart associated with the railcar dimensions (i.e., length and radius) and determine net gallons offloaded; or,
- Measuring inches of material remaining and convert to gallons using the "volume" chart. Subtract remaining gallons from the manifest volume to determine volume offloaded; or
- Using the manifest gallons.

3.2 Railcar Staging Areas Procedures

Keystone currently has in place an SOP (WF-60 Truck Staging and Parking Areas) to ensure that individuals managing the Facility are familiar with Keystone's permit conditions related to management of tanker trucks containing waste derived fuels. WF-60 identifies the steps that

Keystone personnel will take to ensure compliance. Prior to operation of the railcar facility, Keystone will prepare a new SOP to incorporate the following railcar staging requirements.

It is the responsibility of the transporter of the incoming shipment that the railcars are inspected prior to shipment and are DOT-approved bulk containers. It is also the responsibility of the transporter and generator that the waste derived fuels are compatible with the railcar container materials.

The railcars destined for Keystone are unhooked from the main transport (i.e., locomotive) and moved onto the Keystone property by the railroad company. Keystone anticipates that some railcars destined for Keystone may be unhooked from the main transport and will be staged off-site on the rail spur adjacent to the Keystone property before being moved onto the Keystone property by the railroad company. The rail spur is not owned or operated by Keystone and the railroad company is responsible for railcars that are stored incidental to movement of a hazardous material. However, Keystone personnel shall perform a daily inventory count and visual inspection of the hazardous waste railcars destined for Keystone that are staged on the rail spur by the railroad company. Keystone personnel shall visually inspect each railcar containing hazardous waste, for any visible defects, securement of closures, and any signs of leaks or unsafe conditions, as shown in Attachment 2.

Upon arrival on-site, Keystone personnel shall visually inspect each railcar containing hazardous waste, at ground level, for required markings, labels, placards, and securement of closures, as presented in Attachment 3. Any deviations will be noted for correction prior to acceptance. Persons shall not go over, under or between railcars unless the train is completely stopped, or if the train operator is notified and the notice is acknowledged. The manifest and associated paperwork (i.e., transporter certifications, etc.) will be reviewed for acceptability, as described in SOP WF-02. Keystone personnel will then move the railcars into the fenced railcar staging and unloading area within 10 days of arrival on-site. If the transporter is unable to deliver the hazardous waste to Keystone, or if the railcar is unacceptable to the designated Keystone personnel, the generator must either designate another facility or instruct the transporter to return the waste (40 CFR §262.20).

If a railcar exhibits issues during the initial inspection that are necessary to be corrected prior to off-loading, Keystone will correct the issues and document their completion. Keystone will be responsible for reporting, if required, to the regulatory authorities any releases of hazardous waste to the environment. If necessary, Keystone will implement its PPC Plan and ensure the containment of any releases and stopping the leakage. These measures may include the use of portable secondary containment, buckets or spill pans, or moving the leaking railcar to the secondary containment at the railcar unloading facility. Emergency response procedures for managing leaking railcars will be incorporated into the PPC Plan. Keystone will update the PPC Plan to incorporate the railcar facility following final construction and prior to commencement of the rail unloading/loading operations. No leaking or unsafe railcars will be sent off-site prior to corrective action (which may include emptying the contents of the railcar into storage) being implemented by Keystone.

In the scenario where a leaking or unsafe railcar does not meet the acceptance criteria of the WAP, Keystone may exercise a few different management options. For instance, Keystone may re-containerize the railcar into other containers to be managed appropriately (e.g., tanker trucks, 55-gallon drums, totes, railcar, etc.). Keystone may also unload the railcar into a storage tank once demonstrated that the material in the railcar is not incompatible with the waste derived fuel remaining in the tank (if any) and the storage tank's materials of construction. The material would be kept in the tank and remain segregated from all other storage tanks. After Keystone repairs the railcar or obtains an empty railcar, then the contents will be unloaded from the tank and sent off-site. Depending on which parameter of the WAP the fuel did not meet, Keystone may also contact the DEP to request approval for the material to be processed as a fuel. This is a very unlikely scenario, and Keystone anticipates that it may handle these rare occurrences differently depending on the specific situation.

Due to the inherent variability and intermittent nature of rail shipment schedules, the receipt of waste shipments using the rail system must be afforded certain timing considerations that are not applicable to conventional shipments (e.g., by truck). Unlike trucking shipments, rail shipments must be delivered and accepted according to the rail company's schedule, and not the receiving facility's, and rail shipments may not be re-routed or postponed during times that the facility may be experiencing unloading delays. Several of the operational delays that may result in staging of the full railcars on-site that must be considered include, but are not limited to, the following:

- Unexpected shut down or failure of the waste processing equipment may result in the inability to process rail shipments that were scheduled prior to the equipment shut down or failure;

- The railroad system will not necessarily transport railcars into the facility every day and may prefer to schedule railcar shipments in a clustered delivery;

- Inclement weather could prevent, or at least delay, the movement of waste materials from the rail unloading area to the processing area of the facility;

- An unexpected delivery of a railcar may occur occasionally, or on a date different from the intended date due to delays in transit outside of the control of Keystone; and

- As may occur with tanker truck shipments, delays in acceptance testing or delays associated with resolving discrepancies with generators may prevent the timely processing of incoming waste derived fuel shipments.

In addition, at times when the railcar shipment is delivered on a date other than originally scheduled date, the bulk shipments of waste derived fuel may contain a greater quantity than the available capacity of the storage tanks. In this situation, it may be necessary to hold the railcars on-site until the waste derived fuel can be unloaded. It is anticipated that a maximum of four (4) railcars will be able to fit within the railcar unloading/loading and staging area, which includes one (1) within the contained unloading area and three (3) in the staging area. Based on a federal rule promulgated in 1970, railcars constructed after November 15, 1971 cannot exceed 34,500 gallons in capacity. Keystone will full move railcars into the fenced railcar unloading and staging area within 10 days from their arrival on-site.

Although the facilities of Keystone are operational 24-hours a day, 7-days a week, the delivery of hazardous waste materials commonly occurs during the main business hours of the plant. Keystone will be notified by the regional rail line of any pending deliveries. If a delivery is scheduled to or may occur during non-business hours, a qualified Keystone personnel instructed in the Waste Acceptance/Rejection Procedures and the Rail Staging Area Procedures will be on call and available to meet the railcar to follow through with the required procedures.

Upon arrival on-site, the railcar will be moved onto the Keystone rail siding and tracks. Within 10 days, movement into the railcar staging and unloading area will occur. Once inside the railcar facility, Keystone will unload the waste derived fuel within 10 days. A railcar activity log (see Attachment 3) will be maintained to ensure compliance with the 10-day time frames. If necessary, a railcar will be rejected and scheduled with the rail company to be returned to the generator or re-manifested to another facility as soon as practicable.

If Keystone is unable to move the railcar into the railcar staging and unloading area, or unload a railcar within 10 days of being placed in the railcar staging and unloading area, then Keystone will notify the PADEP. Within three (3) days of either of these instances, Keystone will provide a notification to the Waste Management Program Manager stating why the movement or unloading is delayed beyond 10 days and the date by which it will be moved or unloaded.

With the exception of sampling the railcar, railcars located on-site must always be closed, and must not be opened, handled, or stored in a manner which may rupture the container or cause it to leak. Similar to the existing procedures for the truck staging areas (WF-60), Keystone will inspect the railcar staging and unloading area at least daily. Keystone will develop a daily inspection form for all full railcars on-site as part of the Railcar Staging Area SOP. Any discrepancies would be recorded on the inspection form and the Facility Manager would be notified.

Once the railcars are in the unloading and staging areas, a responsible Keystone employee must secure access to the track to prevent entry by other rail equipment. Methods of securing access to the track include securing the perimeter fence and gate. If the gate must be open to accommodate a tanker truck shipment, then other methods will be employed.

Once the contents are unloaded from the railcar, the residue remaining in the container is no longer considered a hazardous waste if all wastes have been removed that can be removed using the unloading pumps and that no more than 0.3 percent by weight of its total capacity of residue remains on the bottom of the container (40 CFR §261.7). Provided these conditions are met, the railcar will be moved outside of the unloading area prior to off-site transport. If these conditions are not met, as described in WF-02, then the railcar will be re-manifested and scheduled to be sent back to the generator or alternate facility. Rejected railcars will be maintained on the

Keystone rail siding and inspected daily until they are picked up by the rail company. Keystone does not currently expect to conduct railcar cleaning and decontamination procedures at the Planned Facility. If railcar cleaning and decontamination becomes necessary, Keystone will submit an SOP to PADEP for approval.

3.3 Railcar Sampling Procedures

Railcars will be sampled using the same general procedures as those currently used for sampling trucks as presented in approved SOP WF-01 – Sampling A Bulk Container. WF-01 will be used as a template to develop a railcar sampling procedure. These general procedures will include:

- Chocking the railcar wheels to prevent movement (first check that brakes have been set);
- Grounding the railcar;
- Depressurizing the railcar tanker by opening the vent valve (do not use the vacuum relief valve to vent pressure);
- Sampling the railcar tanker; and
- Inspecting and cleaning sampling equipment after the sample is collected.

Samples of liquids are taken using a modified COLIWASA technique or an alternate sampling device. These devices consist of a tube that collects a column (i.e., top to bottom) of the material contained in the railcar. This allows for collecting a representative sample of the material even if the liquids have stratified (i.e., phase separated). The sampling device consists of a ball valve closing device with an extended handle that reaches the bottom of the railcar. A cable running parallel with the tube is attached to the ball valve handle and the top of the tube. The sampling device with the valve in the open position is inserted in the top hatch of the railcar. When the sampling device reaches the bottom of the container, the sampling valve is closed, thus securing a cross-sectional representative sample.

Railcars may be sampled on any rail track located on-site, including within the railcar unloading and railcar staging area. When the railcars are sampled in an area that is not equipped with a secondary containment system, the potential for spills and leakage will be minimized by carefully wiping down the COLIWASA, sample container, and carefully wrapping the used absorbent pad. Any used absorbent pads are properly containerized and stored as generated waste.

3.4 Railcar Unloading Procedures

A review of Industry standards and discussions with ARR identified that Pamphlet 34 published by the ARR is the industry standard for railcar loading and unloading. Railcar unloading will performed in accordance with the recommended procedures established by the AAR in Pamphlet 34 and in approved SOP WF-05-Unloading Procedures. A copy of Pamphlet 34 is included as Attachment 5. Prior to operation of the railcar unloading facility SOP WF-05 will be revised to incorporate specifics related to railcar unloading and submitted to PADEP for approval. These changes are expected to be minimal.

All personnel involved in the unloading of hazardous materials from the railcars will be properly trained, qualified, and wear personal protective equipment as detailed in SOP WF-05.

Keystone plans to utilize a maximum of four (4) unloading pumps with grinders to transfer the acceptable waste derived fuel from the railcars to the waste derived fuel storage tanks or the kin system, and for loading railcars. These four (4) pumps may also recirculate, or separate recirculation pumps may be installed.

Upon receiving approval to unload/load the hazardous wastes to/from the railcars, personnel must verify that the railcar brakes have been set, the wheels are chocked, the grounding cable is attached, and caution signs are placed on the track, as required. Prior to unloading/loading activities, examine fittings and seals before removing for evidence of tampering and remove any dirt or debris from the fittings before opening them. The railcar facility will also have sufficient lighting and be free of obstacles and unnecessary equipment. Additionally, the rubber gaskets on the unloading/loading hoses must be inspected for any condition which would prevent a tight seal. These conditions may include cracks, missing pieces, or swelled gasket materials. Replacement of these parts is required, as necessary.

During connection and disconnection activities, qualified Keystone personnel will be present. The Keystone personnel will be properly instructed in unloading hazardous wastes and made responsible for compliance with the required procedures. The entire unloading operation will be observed by a responsible Keystone person that has an unobstructed view of the operation, or be

monitored by a signaling system (e.g., video system, sensing equipment, etc.) that is observed by a properly trained on-site employee.

The brakes of the railcars must be properly set and the wheels effectively blocked (chocked) on all cars being unloaded. If multiple railcars are coupled together, a sufficient number of wheels are to be blocked to prevent movement in both directions. Based on the availability of storage tank capacity, the railcars may be unloaded in incremental steps (e.g., 20,000 gallons one day and 6,500 gallons the following day).

Before the cover or outlet valve cap is removed on the railcar, confirmation will be made that the railcar is relieved of all interior pressure and there is no evidence of leakage. Personnel will be prepared to collect any materials trapped in the bottom outlet leg upon removal of the cap. Unloading connections will be securely attached to unloading pipes before any discharge valves are opened. If the connections are not secured or if leaking is observed, the connections will be secured, valves will be closed, drip pans or other spill response equipment will be deployed, leaks will be cleaned up, and any issues corrected. During unloading, the receiving storage tank may be vented back to the railcar, through an emissions control device (i.e., carbon absorption system), or to the kiln. Once unloading is completed, all valves and other closures will be made tight, and the unloading connections will be removed immediately. If it is necessary to discontinue unloading of the railcar for any reason, all discharge valves will be tightly closed. Railcars may also be unloaded from the top of the railcar. During this mode of unloading, the storage tanks will be vented to the carbon adsorption system or the kiln.

As noted above, any spillage on the railcar exterior or into the environment will be removed, cleaned, and reported, as necessary.

3.5 Loading Procedures

The loading of railcars will be handled using similar procedures as outlined for railcar unloading (Pamphlet 34 and SOPs). Prior to operation of the railcar facility, Keystone will submit a SOP for loading of railcars. The hazardous wastes to be transported off-site via railcar will be pumped from the storage tank(s) to the railcar. The receiving railcar must be compatible with the material being loaded and of sufficient capacity. Unless the railcar is RCRA-empty, ensure that the residue in the railcar is compatible with the materials being loaded into the railcar. Prior to

loading, the railcar should be inspected for overall integrity and any visible damage or leakage and any safety devices should be in proper working order and free of debris. Additionally, it should be confirmed that the railcar is not overdue for tests or inspections.

The pumping system will be connected to the railcar and a loading pump will be used to transfer the materials to the out-going railcar. Ensure that fittings, valves, gaskets, and hold-down bolts are in proper condition and no signs of corrosion, tears, or stripped bolts are present prior to transfer. Only one (1) railcar may be loaded at any one time. The level within the railcar must be checked to confirm that it will not be overfilled. If a level float is not contained in the railcar, the responsible personnel must climb the ladder onto the railcar and visually monitor the waste level. Ensure adequate space remains when loading to allow for expansion in transit. For safety reasons, the operator is not to stand directly above a gage rod when using it because internal pressure may rapidly force the rod upward and cause injury.

Once the material is transferred to the railcar, all openings will be sealed and the connections will be disconnected and the railcar will be re-checked for any signs of leakage via visible observations and leak checks. If leakage is detected, the contents of the railcar will be off loaded into another railcar and the leaking railcar will be properly labeled with “LEAKY TANK/DO NOT LOAD UNTIL REPAIRED” and an “X” will be placed on the location of the leak. Once loading is completed and the switching crews release the handbrakes, the railcar is then removed from the unloading/loading area and released for transport. Keystone must contact the railroad company and a pickup must be scheduled upon completion of loading one or more railcars. Keystone will be responsible for manifesting loads originating from the site.

3.6 Documentation Requirements for Railcars

Keystone will conduct regular inspections of the railcar containment system and other hazardous waste areas for equipment malfunctions, structural deterioration, operator errors, uncontrolled runoff, spills, and other situations that could cause the release of hazardous waste constituents. The purpose of the inspections is to detect potential problems and correct the situation before damage occurs. Records of inspections and the inspection schedule are kept on-site. The existing SOP WF-50 Documentation Requirements for the Waste Fuels Operations Plan will be updated to include any new documentation required. It is not anticipated that any new inspections or documentation will be required except for the proposed railcar inventory and inspection form,

incoming railcar inspection form, and railcar activity tracking form presented in Attachments 2, 3, and 4, respectively. As presented in SOP WF-50, records will be available on-site and maintained in the Plant Office.

The railcar tracking (Attachment 4) form will be used to track the following information:

- Railcar ID Number;
- Corresponding Manifest Number;
- Date and Time Railcar is received on-site as recorded by Keystone;
- Date and Time Railcar is moved into fenced railcar area;
- Date and Time Unloading Begins for Each Railcar; and
- Date and Time Unloading is Complete for Each Railcar.

If Keystone is unable to move the railcar into the railcar staging and unloading area or unload a railcar within 10-days of being placed in the railcar staging and unloading area, then Keystone will notify the PADEP. Within three (3) days of either of these instances, Keystone will provide a notification to the Waste Management Program Manager stating why the movement or unloading is delayed beyond 10-days and the date by which it will be moved or unloaded.

In general, the railcar unloading and staging areas will be inspected in a similar manner as the existing truck unloading and staging areas are inspected. These inspections include piping, containment, pumps, and response equipment.

All full railcars on-site will be inspected daily. The railcar containment area will be inspected to ensure that the containment system is free of cracks, spills, or debris. During the unloading process, all pumps, piping, and seals are examined to check for leakage and/or malfunctioning equipment. In addition, any equipment scheduled for maintenance will be properly tagged and "locked out." The piping systems that transport the waste derived fuel from the railcar is also visually inspected to check for leaks and proper function of pumps, piping, and valves.

Overall, the frequency of inspections is based on the need and the effectiveness of an inspection to prevent the occurrence of an uncontrolled event. Inspection forms will be developed containing checklists for use by the inspector.

The results of all inspections will be recorded on the appropriate facility inspection form along with the name and title of inspector, date of inspection, observations, and remedial action. All inspection forms will be maintained on Site.

4.0 SECURITY

Keystone employs general security measures relative to all facility operations. Refer to Section F.0 of the Narrative for details about general site security, which includes the railcar management area.

Warning signs around the railcar unloading/loading and staging area are legible from a distance of 25 feet are posted with the following messages:

- **"NO SMOKING OR VAPING"**
- **"NO ADMITTANCE AUTHORIZED PERSONNEL ONLY"**

These signs are posted according to RCRA regulations. All signs are printed in English.

Keystone personnel are instructed to report any unusual activities or suspicious persons to the supervisor. The supervisor is required to inspect the site to check for evidence of intruders, potential hazardous waste releases to the environment, and any other problems. If any such problems are observed, the supervisor will take appropriate measures to remedy the situation.

5.0 CONSEQUENCES OF DEVIATIONS

In an attempt to alleviate any potential consequences, several problems, but not all, are identified in this section and addressed accordingly as to the proper response.

If necessary, Keystone will implement the PPC Plan and contain any releases and stop leakage. These measures may include the use of portable secondary containment, buckets or spill pans, or moving the leaking railcar to the secondary contained railcar unloading facility. No leaking or unsafe railcars will be sent off-site prior to corrective action being implemented.

If the level of waste materials being loaded onto a railcar is not properly monitored, there is a potential that the railcar may be overfilled and a spillage will result. Although the loading and unloading of railcars is placed over a secondary containment area, the PPC Plan Emergency Coordinator must be notified and procedures of the PPC Plan enacted. Additionally, the operator is not to stand directly above a gage rod when using it because internal pressure may rapidly force the rod upward and cause injury.

The wheels of a railcar must be properly chocked to restrict the movement of the railcar in either direction. If movement of the railcars during unloading procedures is allowed, there is an increased potential for injury. In addition to potential injury, any movement of the railcars may alter the alignment of the valves and piping system. The movement may contribute to a spillage of hazardous wastes and equipment damage. Restriction of movement of all railcars must be strictly enforced. If a release occurs, the procedures outlined in the PPC Plan must be followed.

When the railcars are sampled in an area that is not equipped with a secondary containment system, the potential for spills and leakage will be minimized by carefully wiping down the COLIWASA, sample container, and carefully wrapping the used absorbent pad. Any used absorbent pads are properly containerized and stored as generated waste.

Railcars placed in the unloading area must be grounded prior to unloading activities. If the railcars are not properly grounded, the possibility of fire or shock may result. Due to the presence of hazardous wastes present, if a fire results, the procedures outlined in the PPC Plan must be followed.

TABLE

TABLE 1

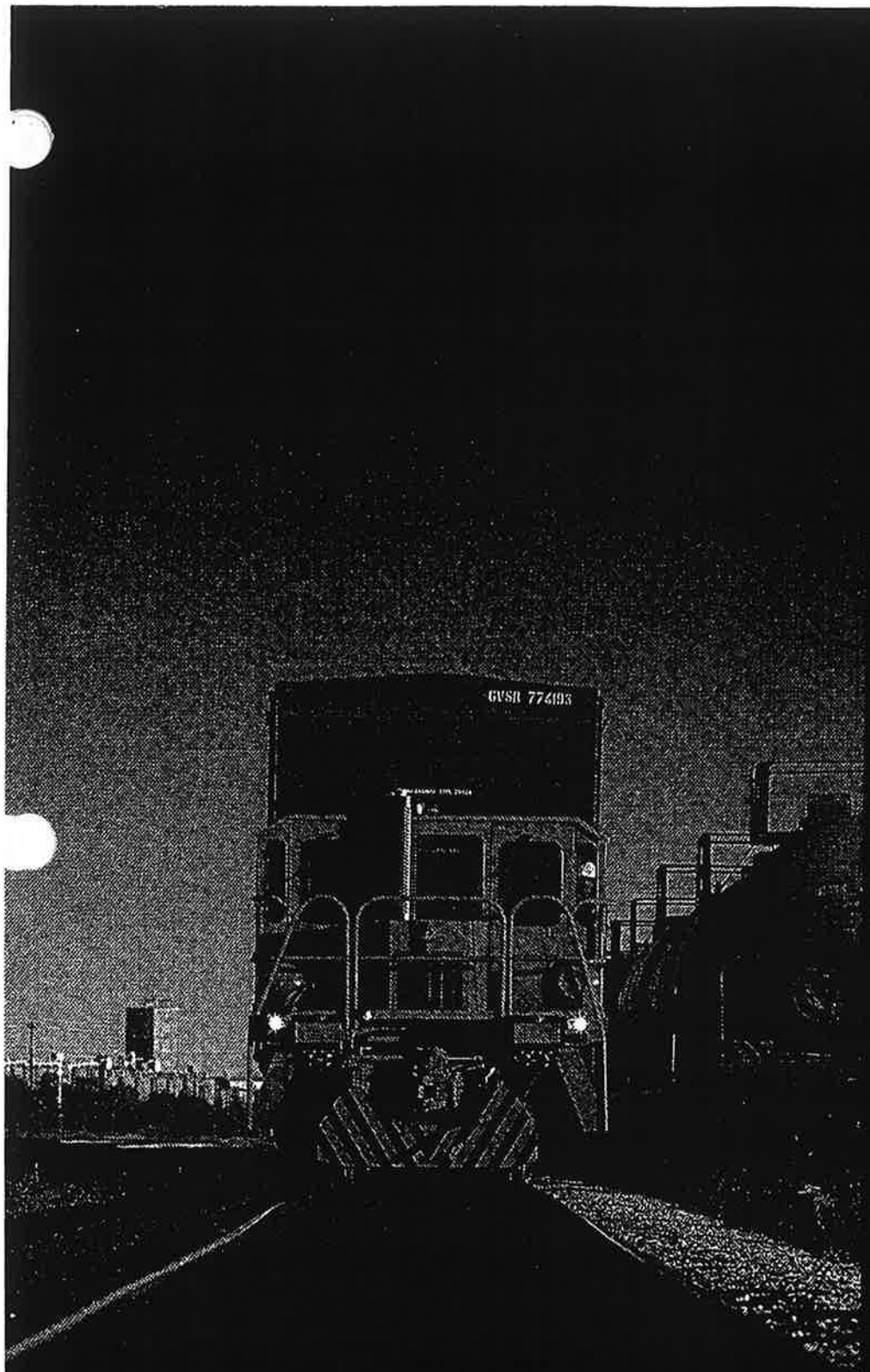
LIST OF STANDARD OPERATING PROCEDURES RAILCAR UNLOADING FACILITY

SOP Number	List of SOP	Summary of Requirements
New	Sampling a Railcar Container	Existing SOP WF-01-Sampling a Bulk Liquid Container will be used as a template to develop a railcar sampling plan.
WF-02	Waste Acceptance/Rejection Procedure	Existing SOP will be used for railcar waste acceptance/rejection procedures.
WF-05	Unloading Procedure	Existing SOP will be modified to include any specifics related to railcar unloading.
WF-08	Daily Waste Fuel Systems Inspection Procedure	Existing SOP WF-08 Daily Waste Fuel Systems Inspection will be updated to include any specifics related to railcar inspection procedures.
WF-50	Documentation Requirements for the Waste Fuels Operations Plans	Existing SOP will be updated to include Railcar Unloading related features.
WF-59	Vapor Recovery	Existing SOP will be modified to include any specifics related to railcar unloading.
New	Railcar Loading Procedure	New SOP will be developed.
New	Railcar Staging Area Procedures	New SOP will be developed that incorporates the requirements of Section 3.2 of the Railcar Management Plan. The new SOP will be developed using the existing SOP WF-60 – Truck Staging and Parking Areas as a template.

APPENDIX L

ATTACHMENT 1

Mobile Railcar Mover Specifications



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TAYLOR NORTHEAST

Rail King

Fred T. Piercy
Sales Engineer

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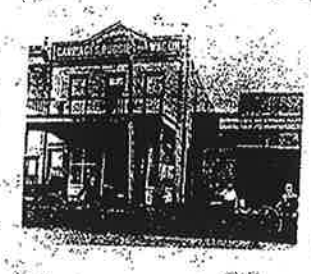
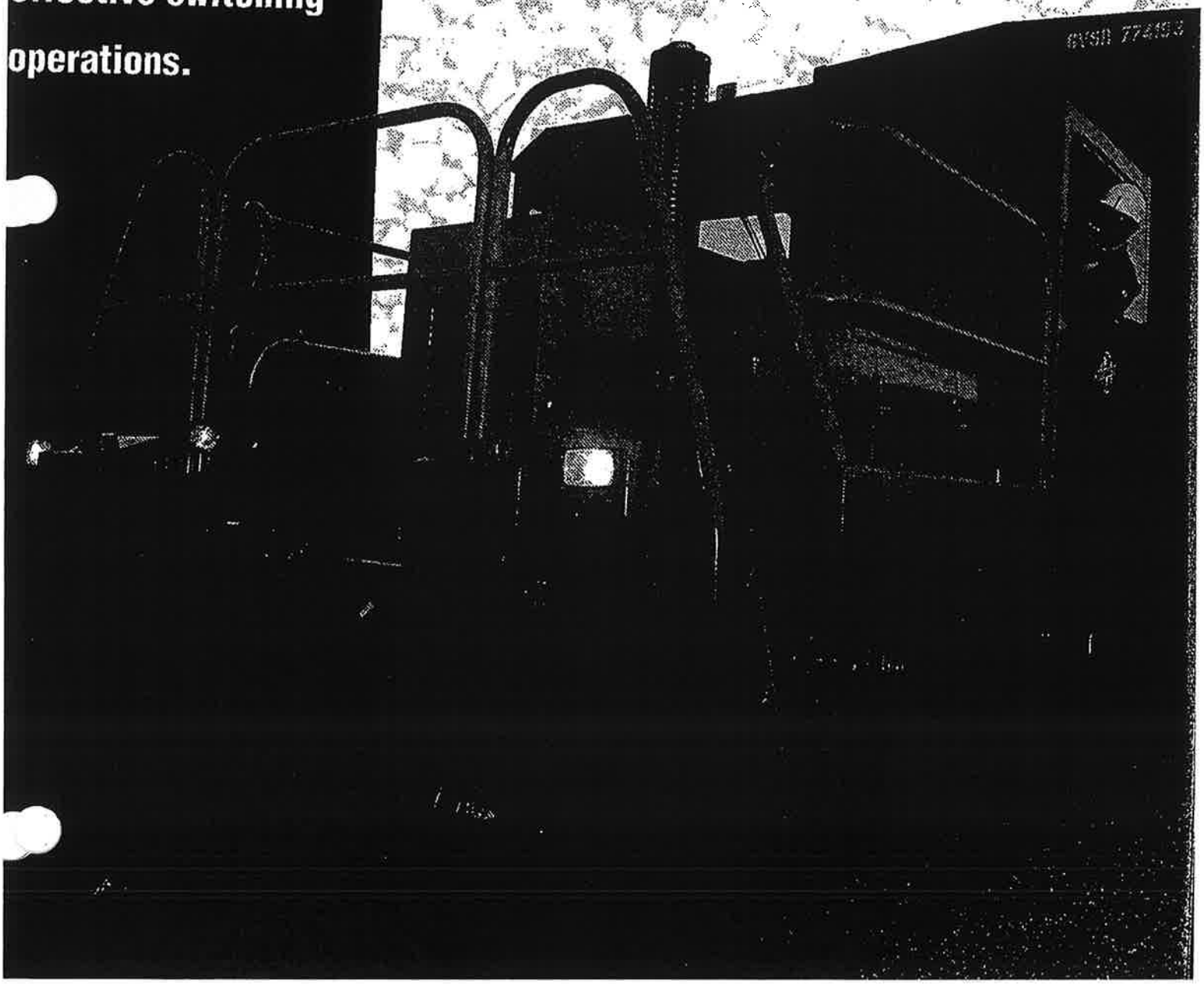
Stewart & Stevenson's Rail King® railcar movers are designed for simple, cost-effective switching operations.



Since 1902, Stewart & Stevenson has continued a tradition of excellence in their products and services. Today, Stewart & Stevenson is a billion-dollar company that manufactures a wide range of products that use a diesel or a gas turbine engine as its prime mover.

Commonality of components among Rail King® models increase manufacturing efficiencies and aftersales support.



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February 13, 2007

Quote #: DRM07008

Keystone Cement Co
Rt. 512
PO Box A
Bath, PA 18014
Attn: Carol Fritz, Senior Buyer

Dear Carol:

We are pleased to quote the following:

✓ ***One (1) Rebuilt 4500TM Trackmobile Mobile Railcar Mover***

- Condition: Reconditioned/Rebuilt

✓ General Specifications:

- Tractive Effort

Single Coupler -	33,000 lbs
Double Coupler -	45,000 lbs

*Note: Maximum Tractive Effort Weight Is Based On Full Weight Transfer Of 46,000 Lbs Per Coupler. Actual Tractive Effort Obtained Varies With Rail Conditions, Sanding And Weight Transfer.

- Dimensions

	On Rail	On Road
Wheel Base	138"	68"
Length	188"	188"
Width	121"	121"
Height	145"	155"

- Maximum Speeds

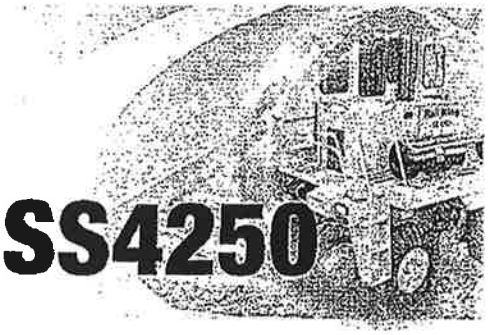
Rail Operations

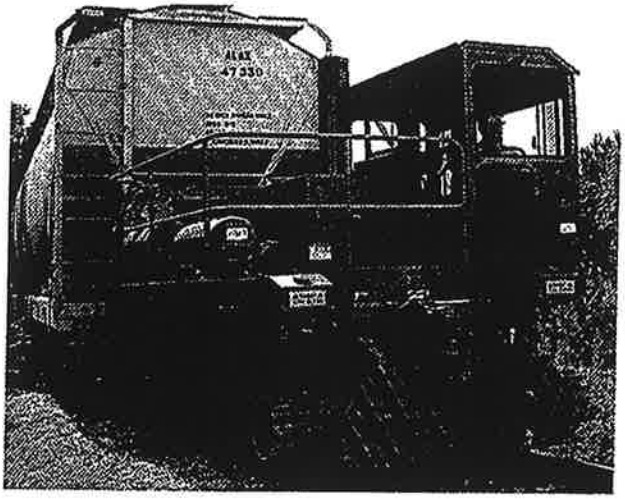
	Low Range	High Range
Low	1.8 MPH	4.4 MPH
Intermediate	3.5 MPH	8.3 MPH
High	9.5 MPH	22.3 MPH

- Rail Clearance: 4.5"
- Road Clearance: 9"
- Turning Radius: Outside: 20'
  Inside: 10'

Rail King®

MOBILE RAILCAR MOVER





RAIL KING® MODEL SS4250

The Rail King Model SS4250 Mobile Railcar Mover provides up to 42,500 pounds of tractive effort. Design features that increase operator safety and productivity include:

- Enclosed insulated cab with 360-degree visibility. Ergonomically designed with touch hydraulic controls. Standard equipment includes windshield wipers front and rear, cab heater, two defrost fans and full instrumentation including tachometer and tinted safety glass
- Patented cushion coupler system, full-floating frame and cab design that provides a smooth ride on rail.
- Wider and taller cab-entry doors, more floor space, more leg room, dual operator controls, one-piece dual seat, and insulated engine cowling for operator comfort
- Hydraulically driven train air compressor for reliable service
- Cab deck includes walkover platform, stair-step ladder and solid bar stock hand railing Large rubber isolators support cab.
- Full light package (coupler, railwheel, stop, red and white interior, headlights, step lights and flashing beacon)
- Hydraulic control system consolidated and located for ease of servicing and maintenance

Contact your local Rail King representative to find out how we can increase productivity for your switching operations

DESIGN FEATURES

- Friction roadwheel drive
- Four-speed transmission, autoshift or powershift selection
- Crossover platform
- 360° operator visibility
- Full width bumpers to protect powertrain
- Good floor space and cab height for ease of moving around
- Fabricated steel couplers

OPTIONS

- Air conditioning
- Air-ride seats
- Step extensions
- Spotlights
- Turn signals
- Fire extinguisher
- 75-gallon fuel tank
- Central lube system
- Remote control
- Other options available on request

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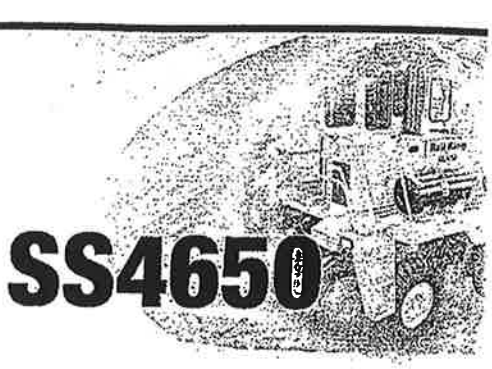
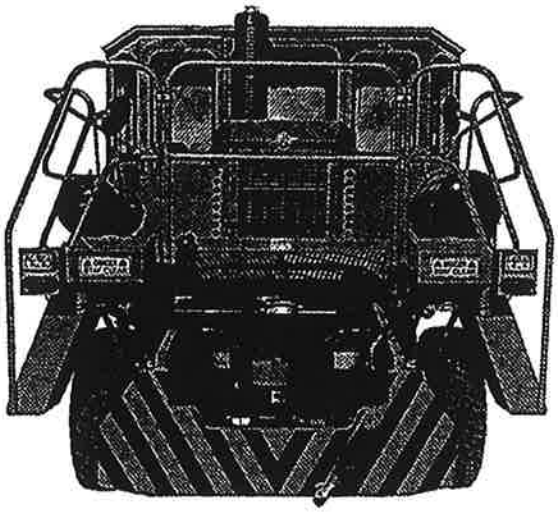


SS4650



RAIL KING® MODEL SS4650

The Rail King Model SS4650 Mobile Railcar Mover provides up to 46,500 pounds of tractive effort Design features that increase operator safety and productivity include:

- Enclosed insulated cab with 360-degree visibility Ergonomically designed with touch hydraulic controls Standard equipment includes windshield wipers front and rear, cab heater, two defrost fans and full instrumentation including tachometer and tinted safety glass Dual operators stations are standard
- Patented cushion coupler system, full-floating frame and cab design that provides a smooth ride on rail
- Wider and taller cab-entry doors, more floor space, more leg room, and insulated engine cowling for operator comfort
- Hydraulically driven train air compressor for reliable service
- Cab deck includes walkover platform, stair-step ladder and solid bar stock hand railing Large rubber isolators support the cab
- Full light package (coupler, railwheel, stop, red and white interior, headlights, step lights and flashing beacon).
- Hydraulic control system consolidated and located for ease of servicing and maintenance

Contact your local Rail King representative to find out how we can increase productivity for your switching operations.

DESIGN FEATURES

- Friction roadwheel drive
- Four-speed transmission, autoshift or powershift selection
- Crossover platform
- 360° operator visibility
- Full width bumpers to protect powertrain
- Good floor space and cab height for ease of moving around
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OPTIONS

- Air conditioning
- Air ride seats
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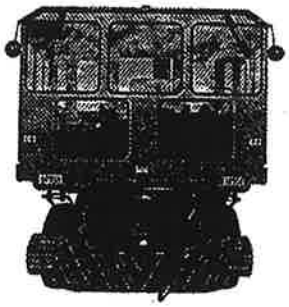
- Central lube system
- Remote control
- Other options available on request



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APPENDIX L

ATTACHMENT 2

Example Railcar Inventory and Inspection

EXAMPLE RAILCAR INVENTORY AND INSPECTION

FOR RAILCARS LOCATED ADJACENT TO THE KEYSTONE FACILITY

INSPECTED BY: _____ DATE:_____ TIME:_____

DATE CAR SITED	RAILCAR NUMBER	GENERATOR

Railcar Actively Leaking? YES NO

If Yes, Railcar No.: _____

If Yes, Action(s) Taken: _____

Closures Visibly Secure? YES NO

If No, Railcar No.: _____

If No, Action(s) taken: _____

APPENDIX L
ATTACHMENT 3

Example Incoming Railcar Inspection Items

Keystone Cement Company, Bath, PA **Railcar Unloading Checklist**

Tank Car No.: _____ Date Received: _____
Generator: _____ Sampled By: _____
Manifest Tracking Number: _____

Note: Checklist items not applicable to the car being inspected should be filled in as N/A in the O.K. Column.

Incoming Railcar Checklist			
Description	**O.K**	**Defective**	**Corrected**
Chocks, Stops in place and Locked where required. Brakes On, Connect ground cables			
Tank car number (agrees with above listed number). Manifest paperwork attached to Railcar/Placards			
Ladders, platform, railings (not damaged, bent, broken, or unsafe)			
Visual mechanical condition/Double shelf couplers in place			
Caution Signage is in place (yes)			
Safety Valve and Railcar Tank Inspection Test Dates OK? **(check O.K. only if dates are not expired)**			
Product appliances securely fastened			
Wrench tight and not damaged: vapor valves, top and bottom unloading valves, vacuum relief valve			
Safety valves, protective housing(s), bottom outlet operating mechanisms, and manway lid			
No evidence of leakage, corrosion, deterioration, or damage			
Gasket physically removed and checked for signs of deterioration or damage			

Incoming Operator Name: _____ Signature: _____ Date: _____

Unloading / Rejecting Checklist			
Description	**O.K.**	**Defective**	**Corrected**
Remove Manifest Paperwork			
Tank interior empty (verified by sticking car) Heel: _____ inches			
All lids, hatches, pins, bolts, nuts or elements in place and secured with a suitable tool			
Gasket installed and Bristol unit/vapor line plates secured with fasteners			
FID reads less than 500ppm: FID Reading _____ or LEL does not show explosive atmosphere			
Vent car before opening dome lid or removing plug from unloading lines (if applicable)			
*Manhole cover gasket (intact and clean and no signs of deterioration, damage or corrosion)/BTM cap gasket			
Vent and loading valves (closed, capped or plugged with chains attached (wrench tight))			
No evidence of leakage. Spills cleaned off			
Bottom outlet (closed; cap in place with chain attached)/Cap all interior steam coils			
*Tighten bottom outlet closure valve with 36" wrench			
Ground cable removed/Unloading Flags and Chocks removed			
Vapor hose removed. Hoses and wash unit hoisted above car			
Safety Valve and Railcar Tank Car Inspection Test Dates OK? **(check O.K. only if dates are not expired)**			
Make sure all placards are present and in good condition			
Required markings on the placard/tank car are legible			
Unlock rail track switch/stops to proper position (if applicable)			

THIS TANK CAR HAS BEEN INSPECTED / PREPARED FOR SAFE SHIPMENT BY:

Unloading Operator Name: _____ Signature: _____ Date: _____

Unloading Operator Name: _____ Signature: _____ Date: _____

BOTTOM UNLOADING VALVE SEAL NUMBER		
FITTING FLANGE COVER SEAL NUMBER		
MANWAY SEAL NUMBER		

PHOTO: ___ YES ___ NO **CIRLCE STATUS OF RAILCAR:** FULL EMPTY **Total Inches**: _____

Leadman Final Inspection Sign Off – Name: _____ Signature: _____ Date: _____

Notes:

1. Please enter the date in the following format: MM/DD/YYYY (i.e. 08/15/2022), or you may enter the date as August 15, 2022. Any other format is unacceptable.
2. Complete first and last name where required: For example, First name Last name. Initials are unacceptable.
3. The Unloading Operator may include up to two operators maximum, and the form will be completed accordingly.

APPENDIX L

ATTACHMENT 4

Railcar Activity Log Sheet

ATTACHMENT 4

EXAMPLE
KEYSTONE CEMENT COMPANY
RAILCAR ACTIVITIY LOG SHEET

Railcar ID No.	Date/Time Arrived Onsite	Date/Time Moved into Fenced Area	Date/Time Unloading Began	Date/Time Unloading Completed	Manifest Number	Storage Tank(s) Unloaded Into	Initials Upon Completion of Loading	Volume Unloaded	Initials Once Railcar Has Been Shipped Off-Site

APPENDIX L

ATTACHMENT 5

AAR NAR Pamphlet 34-Safe Loading and Unloading of Tank Cars

PAMPHLET 34

Recommended Methods for the Safe Loading and Unloading of Tank Cars

Preface

This document outlines general guidelines for the selection of tank cars and recommended procedures for loading and unloading of the cars. It is not a complete and comprehensive set of methods, instructions or procedures applicable for all situations and car types. Each user company is encouraged to develop specific procedures using this document for general guidance where it applies. A particular location may require the use of additional or different precautions for the loading or unloading operations to be performed safely. Appropriate individual company procedures and applicable governmental requirements, including U.S. Department of Transportation or Transport Canada hazardous materials regulations, must be followed.

Experienced, trained personnel who are knowledgeable about the safety requirements and loading/unloading operations must be used. They must be responsible for compliance with all corporate procedures and regulatory requirements during the complete operation.

A. General Instructions for Loading and Unloading

1. The car must have the brakes set and the wheels chocked before any loading/unloading activities are started.

2. While a car is connected for loading/unloading, caution signs must be placed on the track as required by regulations and corporate procedures.

3. Railroad defect cards must not be removed from their holders. Only the car owner or the authorized agent is permitted to remove a card. If a car enters a load/unload area having cardable defects without a defect card to cover, a joint inspection with the delivering carrier should be initiated.

4. Proper tools should be used for loading/unloading operations. They must be clean and in proper condition at all times.

5. It is strongly recommended that tank cars containing flammable or combustible gases or liquids be electrically grounded during loading and unloading operations. Grounding of cars carrying other commodities is also encouraged.

6. All loading and unloading operations must be performed by qualified persons who have been properly trained. They must also be responsible for compliance with all corporate procedures and regulatory requirements during the complete operation.

7. All loading/unloading inspections should be properly documented through a check list or similar method.

8. The loading/unloading area should have adequate lighting and be free of obstacles or unnecessary equipment.

9. Product spillage on the tank exterior must be removed.
Spills on the ground should be removed or should be collected in accordance with standard operating procedures. Note: Spills must be reported as required by corporate procedures and applicable government regulations.

10. During the loading/unloading process, cars must be attended by trained personnel or monitored by an approved monitoring system. Do not allow the load/unload operation to stand unattended or unmonitored while connections are attached to the car. If necessary to discontinue operations for a period of time, all valves should be closed and all connections removed and the car should be prepared as if ready for transportation.

11. Do not stand directly above a gage rod when using it. Internal pressure may rapidly force the rod upward.

12. Do not use a wrench for additional leverage to raise and lower sticking gage rods. First, clean the rod with a cloth and lubricate. If it is till hard to operate, loosen packing-gland nut slightly.

B. Loading a Tank Car

Before Loading a Tank Car:

1. Ensure that general procedures in Section A are followed.

2. Shippers must ensure that the correct tank car is selected for the commodity being loaded. The tank car must comply with DOT or Transport Canada regulations and AAR's current *Manual of Standards and Recommended Practices, Section C-Part III, (Specifications for Tank Cars, Specification M-1002).* For reference, the relevant DOT regulations are published in the current issue of Bureau of Explosives Tariff No. BOE-6000, or Transport Canada Dangerous Goods Regulations.

The tank car must be of the correct capacity, both by weight and volume to contain the contents of the product being loaded. (outage requirements must be taken into account.) Consult the appropriate regulations/corporate policies for specific filling requirements.
A tank car can be loaded with a commodity if the commodity is authorized by the current Certificate of Construction or Exhibit R-1, and as may be stenciled on the car.

3. Inspect the car for overall integrity and any visible damage. All safety appliances must be in proper condition. The car must be leak-free and with no obvious defects.

4. Review test stencils to confirm that the car is not overdue any test or qualification. Do not load a car with overdue tests or inspections.

5. Ensure that all fittings, valves, gaskets, hold-down bolts are in proper condition; i.e., no corrosion, tears or stripped bolts. All materials of construction must be compatible with the product being loaded into the car.

6. Unless the car is cleaned/purged, ensure that the residue in the car is compatible with the product being loaded into the car. Do not load a car that has an unidentified residue.

7. If equipped with a safety vent, the rupture disc must be inspected to assure proper rating and condition. If equipped with a safety valve, the valve must be inspected to ensure no debris is in the discharge area of the valve.

8 If equipped with bottom outlet(s), the outlet cap(s)/plugs(s) must be removed and the bottom outlet checked for integrity. (Upon removal of the cap, be prepared for the release of residual material in the outlet leg). Operate the bottom outlet to ensure its proper functioning. Close the valve and lock the handle in the closed position.

9. If equipped with a heating system, thoroughly inspect the exposed parts of the system. If the car is equipped with interior heater coils, remove the caps and check for leaks prior to loading the car.

10. Ensure adequate outage space remains in the car when loading is completed to prevent overloading and to allow expansion in transit. Refer to applicable regulations for correct outage for the commodity loaded.

After Loading a Tank Car

11. Upon completion of the loading, re-check the car for any signs of leakage. If there are any signs of leakage, the car ***must not be offered for transportation!***

12. If the leakage can not be stopped, the car must be off-loaded into another container. The car must be stenciled, in 3-inch letters, *LEAKY TANK / DO NOT LOAD UNTIL REPAIRED.* Mark the tank with an "X" at the leak location. FRA or Transport Canada must be contacted for one time movement authority for leaking cars.

13. Secure all fittings, valves and openings in the appropriate manner (all plugs and outlet caps must be secured with a suitable tool. Use non-sparking tools if required.) (Exception: Caps on exterior coils must not be attached in transit.) PTFE paste, or not more than three wraps of PTFE tape are acceptable materials on plugs and caps.

14. When securing a manway, be sure the gasketing material is compatible with the product and it is properly aligned. Use a "star" pattern when tightening manway bolts.

15. After the car is loaded and all openings, fittings and plugs are secured, leak detection tests should be conducted, if possible. Be sure to use compatible materials when conducting such tests. (an example is soapy water solution when checking LPG tank cars.) Check all flanges, packing glands, and plugs. In some cases monitoring pressure for a period of time before shipment should be considered. ***Do Not offer/ship the car if any leaks are found!*** See Section B, 11 and 12 above.

16. Ensure that switching crews release handbrakes before the car is moved.

C. Unloading a Tank Car

Before Unloading a Tank Car:

1. Ensure that general procedures in Section A are followed.

2. Examine that all fittings seals before removing them for evidence of tampering.

3. Ensure that all valves and fittings are closed before removing plugs, caps, flanges.

4. Remove any dirt or debris from the fittings before opening them.

5. If the tank car is a general service car, relieve tank pressure by one or more of the following methods:

   a. Slowly opening the vent valve
   b. Carefully opening the fillhole cover or manway cover. If using the manway cover for pressure relief, use caution when loosening bolts. The bolts by the handle are the safety bolts. Loosen the bolts by one or two turns at a time.
   c. If necessary, vent through a scrubber or vapor collection system.

   Note: Do not use the vacuum relief valve to vent pressure. It was not designed for this and its use may create a safety hazard.

   Note: Venting to the atmosphere may create a safety and/or environmental hazard.

   Venting is not necessary if the tank car is to be pressure-unloaded. A means to prevent over-pressure must be provided. Do not exceed 50% of tank test pressure **OR** follow corporate policies.

6. Positively identify the product prior to unloading.

If Heater Coils Are Needed For Unloading:

If it is necessary to heat the product before unloading, the following should be completed before beginning:

7 Remove heater coil caps, if equipped with interior heater coils. Check for leakage before connecting steam hoses.

8. Connect steam hoses to inlet connections of the heating system. Use a shut-off valve to control the steam flow. The tank should be vented before and during steaming to prevent excess pressure build-up.

9. Caution must be taken when applying steam to the system. Rapid expansion of the coils could cause breakage of the steam system. If steam is bubbling in the product, the interior steam pipe is probably broken. Shut off the steam. If there is a dual system on the car, use the other bank. Report defects to the shipper of the product or to the car owner.

10. If the bottom outlet is steam jacketed, steam should be applied to the outlet steam jacket. DO NOT apply steam directly into the outlet chamber!

Unloading

11. If unloading through the bottom outlet, with the manway open, take care to prevent contamination of the product.

12. Before removing the bottom outlet cap, check the valve for closure.

13. Be prepared to collect any materials trapped in the bottom outlet leg upon removal of the cap/plug assembly. Do not remove the cap completely if there is evidence of leakage. If more than 2 - 3 gallons are collected in the containment system, there is a probability of bottom outlet valve failure. Attempt to completely close (reset) the bottom outlet by operating it and allow the material to collect once more.

14. Before opening the unloading valves, securely attach and perform a leakage check on the transfer system, if possible.

15. If the tank car is being unloaded from the bottom outlet valve, a means of preventing a vacuum must be established. If the tank car does not have a vacuum relief valve or vent valve, the manway cover must be blocked open using a non-metallic wedge or block.

16. Relieve all pressure used to unload the car, except for those products that may have a nitrogen blanket applied. A tag should be applied to indicate a nitrogen blanket.

After Unloading a Tank Car

17. Ensure all valves are closed

18. Remove all unloading connections.

19. Secure all fittings, valves and openings in the appropriate manner (all plugs and outlet caps must be secured with a suitable tool. Use non-sparking tools if required.) (Exception: Caps on exterior heater system coils must not be attached in transit.)

20. If the manway was opened during the operation, be sure the manway gasket is properly aligned. Tighten the manway bolts using a star pattern. Check the heating system for complete removal of water and check for leaks.

21. If the car has a safety vent-style pressure relief device, inspect the rupture disc for damage and to ensure its burst rating.

22. Be sure the car is properly placarded or marked before release for transportation.

23. Assure proper documentation for transportation is available.

24. Visually inspect the car to ensure that no obvious defects are present.

25. Note: A car containing the residue of a product must be offered for transportation in the same condition as a loaded car.

26. Ensure that switching crews release handbrakes before the car is moved.

D. Additional Information – Websites

AAR/TTCI **NAR** Website - http://nar.aar.com

Federal Railroad Administration (FRA) - http://www.fra.dot.gov/

DOT Hazmat Safety Homepage - http://hazmat.dot.gov/

Transport Canada (Rail) - http://www.tc.gc.ca/rail/menu.htm

APPENDIX M
REPORT ON USE OF TANKS 1A AND 1B TO STORE WASTE OIL

June 3, 2020 Project No. 20141145

Rachel L. Odzer
Keystone Cement Company
P.O. Box A
Routes 329 & 987
Bath, PA 18014-0058

RESPONSE TO COMMENTS, KEYSTONE CEMENT COMPANY, APPLICATION# PAD002389559-A182, APS# 9742249, AUTH#1239125, EAST ALLEN TOWNSHIP, NORTHAMPTON COUNTY, PENNSYLVANIA

Dear Ms. Odzer:

This letter provides our responses to the comment provided by the Pennsylvania Department of Environmental Protection (PADEP) in their February 26, 2020 letter related to Appendix M – *Report to Keystone Cement Company Use of Tanks 1A and 1B to Store Waste Oil* by Robert Schoenberger, Ph.D., PE dated July 10, 2006 (Appendix M). PADEP's comment is provided in **bold**, followed by our response.

1) Appendix M: Report on use of Tanks 1A and 1B to store waste oil

a) This report was generated in 2006, before the 2009 permit issuance. Since the year for permit renewal is 2019 and a Class 3 modification for a new waste fuel mixing system is being included, please provide an updated report with the application.

Response:

Appendix M (Attachment 1) was prepared to evaluate the suitability of existing Tanks 1A and 1B, currently used to store hazardous waste fuels, for storage of waste oils. The following provides a summary of the scope and conclusions of Appendix M and an update based on a review of the current operation of Tanks 1A and 1B and applicable regulatory citations.

Overview of Appendix M (July 10, 2006)

Appendix M included a review and comparison of the applicable design and construction regulations when Tanks 1A and 1B were constructed for the storage of hazardous waste fuels in accordance with waste oil storage regulations applicable at the time (i.e., 2006). Appendix M concluded that the appropriate regulatory standard for storage of waste oils in tanks is PADEP Chapter 299.101 Standards for Storage of Residual Waste. Appendix M reviewed the construction materials, construction standards and operations (i.e., level control alarms), and maintenance program for Tanks 1A and 1B. Appendix M concluded that, with the exception of tank labeling changes, at that time (i.e., 2006), the tanks were suitable for use for the storage of waste oil. Appendix M was certified by a Professional Engineer (PE) registered and Licensed in Pennsylvania (PA).

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Report Update

PA Code Title 25 Article IX Residual Waste Management Chapter 299 became effective July 1992 and was last amended in January 2001 prior to the development of Appendix M in July 2006. An update to review the regulatory standards and tank construction standards presented in Appendix M is not necessary at this time as there have been no changes to Chapter 299.

On January 23, 2015, Keystone submitted a Class 1 Minor Permit Modification to PADEP to reduce the Resource Conservation and Recover Act (RCRA) permit minimum shell thickness of Tank 1A and 1B from 0.1875 inches to 0.150 inches. The modification was approved by PADEP on March 3, 2015. To support the reduction of the tank thickness criteria, Pany & Lentz Engineering Company of Allentown, PA (P&L) completed an assessment of Tanks 1A and 1B dated November 21, 2014 (Attachment 2). The assessment included a minimum calculated shell thickness for the tank bottom of 0.100 inches, assuming a maximum stored liquid specific gravity of 1.10. The assessment was certified by a PE registered in PA who recommended the tanks be removed from service when the shell thickness reaches 0.150 inches.

P&L conducted a Solvent Fuel System Audit in November 2019 as summarized in a report dated December 10, 2019 and certified by a PE registered in PA. The structual audit included the collection of field measurements of the tank thicknesses of Tanks 1A and 1B for comparison to the RCRA permitted minimum shell thickness value of 0.150 inches. The lowest shell thicknesses report by P&L for Tanks 1A and 1B were 0.1915 inches and 0.1868 inches, respectively, which are greater than the RCRA permitted minimum shell thickness value of 0.150 inches.

As noted above, the recommended minimum shell thickness of 0.150 inches was based on a maximum specific gravity of 1.10. Since the specific gravity of water is 1.0, and oils float on water, it is expected that the specific gravity of waste oils stored in Tanks 1A and 1B will be less than 1.10. A literature review of two sources reported specific gravities of 0.91[1] and 0.93[2] for used lube oils.

Since 2006, the operation and maintenance program for Tanks 1A and 1B has essentially not changed. Tanks 1A and 1B have been operated, maintained, and repaired in the same manner. An update to review the operation and maintenance program presented in Appendix M for Tanks 1A and 1B is not necessary at this time.

Conclusions

Review of Appendix M and available documentation regarding the current conditions of Tanks 1A and 1B confirms their suitability for storage of waste oil provided the tanks' shell thickness remains greater than 0.150 inches and the stored material has a specific gravity of 1.10 or less. As noted in Appendix M, the tanks should be relabeled at the time of change of service.

Closing

Please let us know if you need further clarification on these responses. We thank you for the opportunity to continue to provide our services to Keystone Cement Company.

[1] A Comparative Study of Recycling of Used Engine Oil Using Extraction by Composite Solvent, Single Solvent, and Acid Treatment Methods, Rashid Abro, Et.al., ISRN Chemical Engineering, Volume 2013

[2] A comparative study of recycling of used lubrication Oils using distillation, acid and activated charcoal with clay methods, JD Udonne, Journal of Petroleum and Gas Engineering, Vol 2, February 2011.

Sincerely,

Golder Associates Inc.

Michael Kircher
Project Engineer

Brian Eichlin, PE
Program Leader and Principal
PA PE # PE050571E, Expiration 09/30/2021

June 8, 2020

JRS/BE/jma

CC: Stephen P. Holt, PE, Keystone

Attachments: 1) Report to Keystone Cement Use of Tanks 1A and 1B to Store Waste Oil, Robert Schoenberger, Ph.D., PE, July 10, 2006

2) Assessment of Tanks 1A and 1B, Pany & Lentz Engineering Company, November 21, 2014

https://golderassociates.sharepoint.com/sites/18953482/deliverables/response to padep comments 200226/tank letter/20200603 rev 0 letter to keystone/20200603 appendix m keystone response letter rev 0.docx

ATTACHMENT 1

Report to Keystone Cement: Use of Tanks 1A and 1B to Store Waste Oil

Prepared by Robert Schoenberger, Ph.D., PE

July 10, 2006

Report to Keystone Cement Company

Use of Tanks 1A and 1B to store Waste Oil

Prepared By

Robert Schoenberger Ph.D., P.E.
Post Office Box 51
Uwchland, PA 19335-0051

July 10, 2006

Report to Keystone Cement Company

Use of Tanks 1A and 1B to Store Waste Oil

Keystone Cement Company utilizes waste fuels for energy recovery during the production of Portland cement clinker. Currently, tanks 1A,1B,2 and 3 are used to store these waste fuels. Keystone has submitted an application to the Department of Environmental protection to construct a new facility that will replace the currently used tanks. Upon finished construction of the new facility, tanks 1A and 1B will be used to store waste oil, that also will be used in cement production.

The existing tanks are permitted by DEP and were designed and constructed, and currently operated per the requirements of Title 25,§ 264 Subchapter J. When tanks 1A and 1B are converted to store waste oil, the applicable regulatory citation changes to Title 25, § 298.54 (Waste Oil Management) and Title 25 § 298.64 (Waste Oil Storage). Both of these sections reference Title 25 § 299.122(b) as the appropriate criteria for the design and operation of waste oil tanks.

Tanks 1A and 1B are steel tanks that have a nominal capacity of 15,000 gallon each. The tanks are piped so that fuel can be off-loaded from the receiving taker trucks to either tank. Likewise, either tank can be the source of fuel pumped to either kiln no.1 or kiln no.2. These two tanks plus tanks 2 and 3 are interconnected with a vapor balancing system and all tanks connected to an activated carbon system for treatment of any discharge to the atmosphere. In addition all four tanks are nitrogen blanketed for added safety. Because the vapor pressure of waste oil is negligible the nitrogen blanket will not be required for the waste oil

The tanks were originally designed and constructed by Trident Construction of Mertztown, PA. The tanks were designed according to the ASME code and were constructed with the ASME stamp of construction. The tanks were installed according to the guidelines of the National Association of Corrosion Engineers.

The tanks are vertical cylinders and are supported by a steel ring with legs that raise the tank bottom off the concrete base. This construction eliminates the potential corrosion at the interface between the tank bottom and the concrete base. The tanks have been in constant use for more than 12 years and an inspection of the base and foundation did not indicate any subsidence or base failure. The tanks sit on concrete foundation that also serves as the secondary containment base. Secondary containment is achieve with a continuous weld 3/16 inch steel plate over the entire base and side walls, over which a special electrical resistance coating has been applied. The steel plate and coating was applied in July 2001.

Before the tanks were placed in service they were hydrostatically tested for tightness and leaks. Through continuous use it is verified that the tanks are tight and do not leak. The tanks are inspected daily for leaks and spills.

All piping and valves on the tanks meet or exceed the standards of API, Guide for Inspection of Refinery Equipment, for storage of petroleum hydrocarbons in tanks. All connections are welded to eliminate the potential for leakage at threaded joints. Valve stems and other threaded joints such as vents; measurement and control devices are monitored per the requirements of 40 CFR Part 264, Subchapters AA and CC for gas phase leaks.

The tanks are painted white with the appropriate waste code makings easily visible painted on the tank. When the tanks are no longer used for hazardous waste, it will be necessary to change the making to "waste oil" per the requirements of §298.54(f). Tanks are inspected daily for leaks, spills and potential operational problems including tank condition. Re-painting is performed as required by observation.

To prevent overfill the tanks are monitored with both a high alarm and a high-high alarm which automatically stops the flow of material into the tank. The tank monitoring system prevents overfilling of the tanks. Alarms and all other support instrumentation is tested routinely to assure proper operation.

As stated previously the tank system has continuous welded steel plate as secondary containment. This system totally impervious and is non-reactive with the liquid hazardous waste and will be non-reactive with the waste oil. Stormwater will collect in the containment, and pumps remove rainfall accumulation so that adequate capacity is maintained in the containment area.

Certification

I have reviewed the design criteria for tanks 1A and 1B at Keystone Cement Company, and I have also inspected the tank installation including pipes, valves and appurtenances. I have also reviewed inspection records, including grounding tests, for the tanks. After this review and inspection of the tanks, I certify that these tanks meet the requirements of Title 25, §299.122(b)

7-12-06

Robert J Schoenberger Ph D.,P.E. BCEE

ATTACHMENT 2

Assessment of Tanks 1A and 1B, Pany & Lentz Engineering Company, November 21, 2014

PANY & LENTZ ENGINEERING COMPANY

RE: ASSESSMEMT OF LIQUID SOLVENT FUEL STORAGE TANKS 1A & 1B

November 21, 2014

Jeffrey C. Kaboly
Keystone Cement Company
P.O. Box A
Bath, PA 18014

Dear Mr. Kaboly:

In accordance with your request we have evaluated existing solvent storage tanks 1A and 1B to determine a practical limit for absolute minimum shell thickness. We understand that the tanks were placed in service in 1993. They are dimensionally similar. The tanks are vertical, 12'-0" diameter with ASME F&D heads top and bottom and are supported by nominally 5'-2" high skirts which are anchored to a shared concrete foundation. The height from outside to outside of the heads is 22'-8" and the outside of the top head is 26'-2" above the top of foundation. The shell courses are fabricated from ASTM A36 steel and it is assumed that the heads are fabricated from ASTM A516-70 steel. The tanks are equipped with 3 HP, 37 rpm mixers which are flange mounted from the top heads. The mixers are each equipped with two 5'-0" diameter 3-blade impellers. The liquid in the tanks is blanketed with low pressure nitrogen gas. The tank top emergency relief vents are set at 2 psi.

The nominal operating capacity of each tank is 17,860 U.S. gallons. The liquid solvent fuel is imported, delivered by tank truck from several offsite facilities. Each truck is sampled prior to unloading and tested for chemical and physical characteristics. In 2013, the average recorded specific gravity was 0.93 and the maximum specific gravity recorded was 1.08. For our evaluation, a specific gravity of 1.1 was used for calculations.

The tanks were evaluated based on API Standard 650 "Welded Steel Tanks for Oil Storage". API Standard 650 "Tank Inspection, Repair, Alteration, and Reconstruction", and the ASME Boiler & Pressure Vessel Code, Section 8, Div. 1. Dead, live, hydrostatic, dynamic, wind and seismic loads were considered. API 650 paragraph 5.6.1.1 requires the minimum thickness of a new tank to be 3/16" (0.1875") and we understand that this value is the DEP permitted thickness. With no corrosion allowance, the minimum calculated bottom course shell thickness and bottom head shell thickness is less than 0.100". API 653 paragraph 4.3.3.1 states that the bare minimum shell plate thickness for continued service is 0.100", regardless of the calculated value. Based on the nature of the material being stored in the tanks, it is our recommendation that the tanks be removed from service when their shell thicknesses reach 0.150", providing a safety factor of 1.5 of the calculated value.

If you want to further discuss this matter, please do not hesitate to contact me.

Yours very truly,

PANY & LENTZ ENGINEERING COMPANY

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
Jeffrey P. Lentz P.E.
ENGINEER
No 40630-E

Pany & Lentz Engineering Company
609 Hamilton Street • Allentown, PA 18101
PHONE: 610/433-1634 • FAX: 610/433-1636

APPENDIX N
AIR PERMIT RELATED CORRESPONDENCE

KEYSTONE CEMENT COMPANY

(610) 837-1881

ADDRESS REPLY TO:

P. O. Box A
Bath, PA
18014-0058

CORPORATE:
7311 Airport Road
Bath PA 18014
Tel: (800) 523-5442
Fax: (610) 837-2217

SALES:
7311 Airport Road
Bath PA 18014
(800) 523-5442
(610) 837-2306

PLANT OFFICE.
Route 329
Bath PA 18014
Fax: (610) 837-2267

PLANT
Route 329
Bath PA 18014
Fax: (610) 837-2291

March 3, 1999

Ms. Judith Katz, Director
Air Protection Division
U.S. EPA, Region III
841 Chestnut Building, 3rd Floor
Mailcode 3PM20
Philadelphia, PA 19107

Re: National Emission Standards for Hazardous Air Pollutants
Off-site Waste and Recovery Operations
40 CFR Part 63.697 Notification Requirements

Dear Ms. Katz:

Enclosed please find the forms fulfilling the notification requirements outlined in 40 CFR Part 63.697(a) and 63.9 for Keystone Cement Company (EPA #ID PAD002389559) located in Bath, PA 18014.

If you have any questions or require any additional information, please contact me at 610-837-2229.

Sincerely,

Michael J. Luybli
Manager, Corporate Environmental Affairs

MJL/db

Enclosures

cc: Mr. Thomas DiLazaro, DEP in Wilkes-Barre
Mr. Rocco Marinaro, Keystone Cement Company
Mr. Stephen Holt, Solite Corporation

CERTIFIED MAIL z 519 309 145

TABLE 1

Keystone Cement Company Tank System Specifications

Tank No.	Capacity (gallons)	Height (feet)	Diameter (feet)
1A	16,755	21.83	12
1B	16,755	21.83	12
2	35,620	33.50	14
3	35,620	33.50	14

**** dish-bottomed tanks***

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Section D. Source Level Requirements
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ID	Source Name	Capacity	Fuel/Material
127-5	WET CONVEYOR TRANSFER POINTS (30)		
131	MISCELLANEOUS SMALL BOILERS		
131-1	BOILER #1 - WASH HOUSE		
131-2	BOILER #2 - REPAIR SHOP		
131-3	BOILER #3 - REPAIR SHOP		
131-4	BOILER #4 - PACK HOUSE		
131-5	BOILER #5 - QUARRY HOUSE		
131-6	BOILER #6A - PLANT/OFFICE		
131-7	BOILER #6B - PLANT/OFFICE		
131-8	BOILER #7 - QUARRY HOUSE		
131-9	BOILER #8 - WAREHOUSE		
131-A	BOILER #9 - WAREHOUSE		
101	CEMENT KILN NO. 1	21.9 Tons/HR	CEMENT CLINKER
		5.3 Tons/HR	Bituminous
		852.0 Gal/HR	Solvent
102	CEMENT KILN NO. 2	75.0 Tons/HR	CEMENT CLINKER
		15.5 Tons/HR	Bituminous
		2,610.0 Gal/HR	Solvent
103	FINISH MILL NO 1	25.0 Tons/HR	CEMENT
104	FINISH MILL NO. 6	25.0 Tons/HR	CEMENT
105	PACKING MACHINE NO 1	100.0 Tons/HR	CEMENT
106	CRUSHING PLANT	450.0 Tons/HR	LIMESTONE
106-1	CRUSHER BUILDING PRIMARY LIMESTONE		
106-2	CRUSHER BUILDING OPERATIONS		
107	CLINKER COOLER NO 1	21.9 Tons/HR	CLINKER
108	CLINKER COOLER NO 2	75.0 Tons/HR	CLINKER
109	SILO GROUP NO. 1		
111	FINISH MILL NO 8	25.0 Tons/HR	CEMENT
112	SILO GROUP NO. 2		
113	FINISH MILL NO 2	25.0 Tons/HR	CEMENT
114	FINISH MILL NO. 3	25.0 Tons/HR	CEMENT
115	FINISH MILL NO. 4	25.0 Tons/HR	CEMENT
116	FINISH MILL NO. 5	25.0 Tons/HR	CEMENT
117	FINISH MILL NO. 7	25.0 Tons/HR	CEMENT
118	PACKING MACHINE NO. 2	100.0 Tons/HR	CEMENT
119	PACKING MACHINE NO. 3	100.0 Tons/HR	CEMENT
120	PACKING MACHINE NO. 4	100.0 Tons/HR	CEMENT
121	BULK LOADING NO 1	300.0 Tons/HR	CEMENT
122	BULK LOADING NO. 2	300.0 Tons/HR	CEMENT
123	SILO GROUP NO. 3		
124	BULK LOADING NO. 3	35.0 Tons/HR	CEMENT
125	MISC CONVEYORS & BINS		
126	MISC ROAD FUGITIVE EMISSIONS		
126-1	PAVED ROADWAYS		
126-2	UNPAVED RADWAYS		
127	STONE PLANT		

ID	Source Name	Capacity	Fuel/Material
C20	PACKING 3 BAGHOUSE		
C21	PACKING 4 BAGHOUSE		
C22	BULK LOADING 1 BAGHOUSE		
C23	BULK LOADING 2 BAGHOUSE		
C24	BULK LOADING 3 BAGHOUSE		
C25	O-SEPA SEPERATOR DC DF8		
C26	NEW FINISH MILL SYSTEM		
FM001	KILN 1 SOLVENT		
FM002	BITUMINOUS COAL		
FM003	KILN 2 SOLVENT		
FM004	KILN 2 COAL		
S01	UNSPECIFIED NAME		
S02	UNSPECIFIED NAME		
S03	UNSPECIFIED NAME		
S04	UNSPECIFIED NAME		
S05	UNSPECIFIED NAME		
S06	UNSPECIFIED NAME		
S07	UNSPECIFIED NAME		
S08	UNSPECIFIED NAME		
S09	UNSPECIFIED NAME		
S10	UNSPECIFIED NAME		
S11	UNSPECIFIED NAME		
S12	UNSPECIFIED NAME		
S13	UNSPECIFIED NAME		
S14	UNSPECIFIED NAME		
S15	UNSPECIFIED NAME		
S16	UNSPECIFIED NAME		
S17	UNSPECIFIED NAME		
S18	UNSPECIFIED NAME		
S19	UNSPECIFIED NAME		
S20	UNSPECIFIED NAME		
S21	UNSPECIFIED NAME		
S22	UNSPECIFIED NAME		
S23	UNSPECIFIED NAME		
S24	UNSPECIFIED NAME		
Z01	UNSPECIFIED NAME		
Z02	UNSPECIFIED NAME		
Z03	UNSPECIFIED NAME		

```
FML
FM002-->
        |
FML     |PROC    CNTL    CNTL    STAC
FM001-->101  -->C01  -->C02  -->S01
```

****

PROC	CNTL	STAC
111	-->C14	-->S12

****

PROC	CNTL	STAC
112	-->C16	-->S14

****

PROC	CNTL	STAC
113	-->C08	-->S06

****

PROC	CNTL	STAC
114	-->C09	-->S07

****

PROC	CNTL	STAC
115	-->C10	-->S08

****

PROC	CNTL	STAC
116	-->C11	-->S09

****

PROC	CNTL	STAC
117	-->C13	-->S11

****

PROC	CNTL	STAC
118	-->C19	-->S17

****

PROC	CNTL	STAC
119	-->C20	-->S18

****

#001 [25 Pa. Code § 121.1]
Definitions

Words and terms that are not otherwise defined in this permit shall have the meanings set forth in Section 3 of the Air Pollution Control Act (35 P.S. § 4003) and 25 Pa. Code § 121.1.

#002 [25 Pa. Code § 127.512(c)(4)]
Property Rights

This permit does not convey property rights of any sort, or any exclusive privileges.

#003 [25 Pa. Code § 127.446(a) and (c)]
Permit Expiration

This permit is issued for a fixed term of five (5) years from the effective date shown on Page 2 of this permit. The terms and conditions of the expired permit shall automatically continue pending issuance of a new Title V permit, provided the permittee has submitted a timely and complete application and paid applicable fees required under 25 Pa. Code Chapter 127, Subchapter I and the Department is unable, through no fault of the permittee, to issue or deny a new permit before the expiration of the previous permit. An application is complete if it contains sufficient information to begin processing the application, has the applicable sections completed and has been signed by a responsible official.

#004 [25 Pa. Code §§ 127.412, 127.413, 127.414, 127.446(e) & 127.503]
Permit Renewal

(a) An application for the renewal of the Title V permit shall be submitted to the Department at least six (6) months, and not more than 18 months, before the expiration date of this permit. The renewal application is timely if a complete application is submitted to the Department's Regional Air Manager within the timeframe specified in this permit condition.

(b) The application for permit renewal shall include the current permit number, the appropriate permit renewal fee, a description of any permit revisions and off-permit changes that occurred during the permit term, and any applicable requirements that were promulgated and not incorporated into the permit during the permit term.

(1) Enter at reasonable times upon the permittee's premises where a Title V source is located or emissions related activity is conducted, or where records are kept under the conditions of this permit;

(2) Have access to and copy or remove, at reasonable times, records that are kept under the conditions of this permit;

(3) Inspect at reasonable times, facilities, equipment including monitoring and air pollution control equipment, practices, or operations regulated or required under this permit;

(4) Sample or monitor, at reasonable times, substances or parameters, for the purpose of assuring compliance with the permit or applicable requirements as authorized by the Clean Air Act, the Air Pollution Control Act, or the regulations promulgated under the Acts.

(b) Pursuant to 35 P.S. § 4008, no person shall hinder, obstruct, prevent or interfere with the Department or its personnel in the performance of any duty authorized under the Air Pollution Control Act.

(c) Nothing in this permit condition shall limit the ability of the EPA to inspect or enter the premises of the permittee in accordance with Section 114 or other applicable provisions of the Clean Air Act.

#007 [25 Pa. Code §§ 127.25, 127.444, & 127.512(c)(1)]
Compliance Requirements

(a) The permittee shall comply with the conditions of this permit. Noncompliance with this permit constitutes a violation of the Clean Air Act and the Air Pollution Control Act and is grounds for one (1) or more of the following:

(1) Enforcement action

(2) Permit termination, revocation and reissuance or modification

(3) Denial of a permit renewal application

(b) A person may not cause or permit the operation of a source, which is subject to 25 Pa. Code Article III, unless the source(s) and air cleaning devices identified in the application for the plan approval and operating permit and the plan approval issued to the source are operated and maintained in accordance with specifications in the applications and the conditions in the plan approval and operating permit issued by the Department. A person may not cause or permit the operation of an air

of the permit under one or more of the following circumstances:

(1) Additional applicable requirements under the Clean Air Act or the Air Pollution Control Act become applicable to a Title V facility with a remaining permit term of three (3) or more years prior to the expiration date of this permit. The Department will revise the permit as expeditiously as practicable but not later than 18 monther after promulgation of the applicable standards or regulations. No such revision is required if the effective date of the requirement is later than the expiration date of this permit, unless the original permit or its terms and conditions has been extended.

(2) Additional requirements, including excess emissions requirements, become applicable to an affected source under the acid rain program. Upon approval by the Administrator of EPA, excess emissions offset plans for an affected source shall be incorporated into the permit.

(3) The Department or the EPA determines that this permit contains a material mistake or inaccurate statements were made in establishing the emissions standards or other terms or conditions of this permit.

(4) The Department or the Administrator of EPA determines that the permit must be revised or revoked to assure compliance with the applicable requirements.

(c) Proceedings to revise this permit shall follow the same procedures which apply to initial permit issuance and shall affect only those parts of this permit for which cause to revise exists. The revision shall be made as expeditiously as practicable.

(d) Regardless of whether a revision is made in accordance with (b)(1) above, the permittee shall meet the applicable standards or regulations promulgated under the Clean Air Act within the time frame required by standards or regulations.

#011 [25 Pa. Code § 127.543]
Reopening a Title V Permit for Cause by EPA

As required by the Clean Air Act and regulations adopted thereunder, this permit may be modified, reopened and reissued, revoked or terminated for cause by EPA in accordance with procedures specified in 25 Pa. Code § 127.543.

#016 [25 Pa. Code §§ 127.704, 127.705 & 127.707]
Fee Payment

(a) The permittee shall pay fees to the Department in accordance with the applicable fee schedules in 25 Pa. Code Chapter 127, Subchapter I (relating to plan approval and operating permit fees).

(b) Emission Fees. The permittee shall, on or before September 1st of each year, pay applicable annual Title V emission fees for emissions occurring in the previous calendar year as specified in 25 Pa. Code § 127.705. The permittee is not required to pay an emission fee for emissions of more than 4,000 tons of each regulated pollutant emitted from the facility.

(c) As used in this permit condition, the term "regulated pollutant" is defined as a VOC, each pollutant regulated under Sections 111 and 112 of the Clean Air Act and each pollutant for which a National Ambient Air Quality Standard has been promulgated, except that carbon monoxide is excluded.

(d) Late Payment. Late payment of emission fees will subject the permittee to the penalties prescribed in 25 Pa. Code § 127.707 and may result in the suspension or termination of the Title V permit. The permittee shall pay a penalty of fifty percent (50%) of the fee amount, plus interest on the fee amount computed in accordance with 26 U.S.C.A. § 6621(a)(2) from the date the emission fee should have been paid in accordance with the time frame specified in 25 Pa. Code § 127.705(c).

(e) The permittee shall pay an annual operating permit administration fee according to the fee schedule established in 25 Pa. Code § 127.704(c) if the facility, identified in Subparagraph (iv) of the definition of the term "Title V facility" in 25 Pa. Code § 121.1, is subject to Title V after the EPA Administrator completes a rulemaking requiring regulation of those sources under Title V of the Clean Air Act.

(f) This permit condition does not apply to a Title V facility which qualifies for exemption from emission fees under 35 P.S. § 4006.3(f).

#017 [25 Pa. Code §§ 127.14(b) & 127.449]
Authorization for De Minimis Emission Increases

(a) This permit authorizes de minimis emission increases from a new or existing source in accordance with 25 Pa. Code §§ 127.14 and 127.449 without the need for a plan approval or prior issuance of a permit modification. The permittee shall provide the Department with seven (7) days prior written notice before commencing any de minimis emissions

(1) Air conditioning or ventilation systems not designed to remove pollutants generated or released from other sources.

(2) Combustion units rated at 2,500,000 or less Btu per hour of heat input.

(3) Combustion units with a rated capacity of less than 10,000,000 Btu per hour heat input fueled by natural gas supplied by a public utility, liquified petroleum gas or by commercial fuel oils which are No. 2 or lighter, viscosity less than or equal to 5.82 c St, and which meet the sulfur content requirements of 25 Pa. Code § 123.22 (relating to combustion units). For purposes of this permit, commercial fuel oil shall be virgin oil which has no reprocessed, recycled or waste material added.

(4) Space heaters which heat by direct heat transfer.

(5) Laboratory equipment used exclusively for chemical or physical analysis.

(6) Other sources and classes of sources determined to be of minor significance by the Department.

(d) This permit does not authorize de minimis emission increases if the emissions increase would cause one or more of the following:

(1) Increase the emissions of a pollutant regulated under Section 112 of the Clean Air Act except as authorized in Subparagraphs (b)(4) and (5) of this permit condition.

(2) Subject the facility to the prevention of significant deterioration requirements in 25 Pa. Code Chapter 127, Subchapter D and/or the new source review requirements in Subchapter E.

(3) Violate any applicable requirement of the Air Pollution Control Act, the Clean Air Act, or the regulations promulgated under either of the acts.

(4) Changes which are modifications under any provision of Title I of the Clean Air Act and emission increases which would exceed the allowable emissions level (expressed as a rate of emissions or in terms of total emissions) under the Title V permit.

(e) Unless precluded by the Clean Air Act or the regulations thereunder, the permit shield described in 25 Pa. Code § 127.516 (relating to permit shield) applies to de minimis emission increases and the installation of minor sources made pursuant to this permit condition.

contaminants which would otherwise be in violation of this permit, the Air Pollution Control Act or the regulations promulgated thereunder, except that with prior approval of the Department, the device or technique may be used for control of malodors.

#020 [25 Pa. Code §§ 127.402(d) & 127.513(1)]
Submissions

(a) Reports, test data, monitoring data, notifications and requests for renewal of the permit shall be submitted to the:

Regional Air Program Manager
PA Department of Environmental Protection
(At the address given on the permit transmittal letter, or otherwise notified)

(b) Any report or notification for the EPA Administrator or EPA Region III should be addressed to:

Enforcement Programs Section (3AT13)
United States Environmental Protection Agency
Region 3
1650 Arch Street
Philadelphia, PA 19103-2029

(c) An application, form, report or compliance certification submitted pursuant to this permit condition shall contain certification by a responsible official as to truth, accuracy, and completeness as required under 25 Pa. Code § 127.402(d). Unless otherwise required by the Clean Air Act or regulations adopted thereunder, this certification and any other certification required pursuant to this permit shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate and complete.

#021 [25 Pa. Code § 127.441(c) & Chapter 139; §§ 114(a)(3), 504(b) of the CAA]
Sampling, Testing and Monitoring Procedures

(a) The permittee shall perform the emissions monitoring and analysis procedures or test methods for applicable requirements of this Title V permit. In addition to the sampling, testing and monitoring procedures specified in this permit, the Permittee shall comply with any additional applicable requirements promulgated under the Clean Air Act after permit issuance regardless of whether the permit is revised.

#023 [25 Pa. Code §§ 127.411(d), 127.442 & 127.511(c)]
Reporting Requirements

(a) The permittee shall comply with the reporting requirements for the applicable requirements specified in this Title V permit. In addition to the reporting requirements specified herein, the permittee shall comply with any additional applicable reporting requirements promulgated under the Clean Air Act after permit issuance regardless of whether the permit is revised.

(b) Pursuant to 25 Pa. Code § 127.511(c), the permittee shall submit reports of required monitoring at least every six (6) months unless otherwise specified in this permit. Instances of deviations (as defined in 25 Pa. Code § 121.1) from permit requirements shall be clearly identified in the reports. The reporting of deviations shall include the probable cause of the deviations and corrective actions or preventative measures taken, except that sources with continuous emission monitoring systems shall report according to the protocol established and approved by the Department for the source. The required reports shall be certified by a responsible official.

(c) Every report submitted to the Department under this permit condition shall comply with the submission procedures specified in Section B, Condition #020(c) of this permit.

(d) Any records, reports or information obtained by the Department or referred to in a public hearing shall be made available to the public by the Department except for such records, reports or information for which the permittee has shown cause that the documents should be considered confidential and protected from disclosure to the public under Section 4013.2 of the Air Pollution Control Act and consistent with Sections 112(d) and 114(c) of the Clean Air Act and 25 Pa. Code § 127.411(d). The permittee may not request a claim of confidentiality for any emissions data generated for the Title V facility.

#024 [25 Pa. Code § 127.513]
Compliance Certification

(a) Within one (1) year from the date of issuance of the Title V permit and each year thereafter, the permittee shall submit to the Department and EPA Region III a certification of compliance with the terms and conditions in this permit including the emission limitations, standards or work practices. This certification shall include:

(1) The identification of each term or condition of the permit that is the basis of the certification.

#026 [25 Pa. Code §§ 127.441(d), 127.512(i) and 40 CFR Part 68]
Risk Management

(a) If required by Section 112(r) of the Clean Air Act, the permittee shall develop and implement an accidental release program consistent with requirements of the Clean Air Act, 40 CFR Part 68 (relating to chemical accident prevention provisions) and the Federal Chemical Safety Information, Site Security and Fuels Regulatory Relief Act (P.L. 106-40).

(b) The permittee shall prepare and implement a Risk Management Plan (RMP) which meets the requirements of Section 112(r) of the Clean Air Act, 40 CFR Part 68 and the Federal Chemical Safety Information, Site Security and Fuels Regulatory Relief Act when a regulated substance listed in 40 CFR § 68.130 is present in a process in more than the listed threshold quantity at the Title V facility. The permittee shall submit the RMP to the federal Environmental Protection Agency according to the following schedule and requirements:

(1) The permittee shall submit the first RMP to a central point specified by EPA no later than the latest of the following:

(i) Three years after the date on which a regulated substance is first listed under § 68.130; or,

(ii) The date on which a regulated substance is first present above a threshold quantity in a process.

(2) The permittee shall submit any additional relevant information requested by the Department or EPA concerning the RMP and shall make subsequent submissions of RMPs in accordance with 40 CFR § 68.190.

(3) The permittee shall certify that the RMP is accurate and complete in accordance with the requirements of 40 CFR Part 68, including a checklist addressing the required elements of a complete RMP.

(c) As used in this permit condition, the term "process" shall be as defined in 40 CFR § 68.3. The term "process" means any activity involving a regulated substance including any use, storage, manufacturing, handling, or on-site movement of such substances or any combination of these activities. For purposes of this definition, any group of vessels that are interconnected, or separate vessels that are located such that a regulated substance could be involved in a potential release, shall be considered a single process.

(d) If the Title V facility is subject to 40 CFR Part 68, as part of the certification required under this permit, the permittee shall:

(b) Nothing in 25 Pa. Code § 127.516 or the Title V permit shall alter or affect the following:

(1) The provisions of Section 303 of the Clean Air Act, including the authority of the Administrator of the EPA provided thereunder.

(2) The liability of the permittee for a violation of an applicable requirement prior to the time of permit issuance.

(3) The applicable requirements of the acid rain program, consistent with Section 408(a) of the Clean Air Act.

(4) The ability of the EPA to obtain information from the permittee under Section 114 of the Clean Air Act.

(c) Unless precluded by the Clean Air Act or regulations thereunder, final action by the Department on minor or significant permit modifications, and operational flexibility changes shall be covered by the permit shield. Upon taking final action granting a request for an administrative permit amendment, the Department will allow coverage of the amendment by the permit shield in § 127.516 for administrative amendments which meet the relevant requirements of 25 Pa. Code Article III.

(d) The permit shield authorized under § 127.516 is in effect for the permit terms and conditions in this Title V permit, including administrative operating permit amendments and minor operating permit modifications.

#004 [25 Pa. Code §123.41]
Limitations

Visible Emissions

(a) A person may not permit the emission into the outdoor atmosphere of any visible air contaminants in such a manner that the opacity of the emission is either of the following:
(1)Equal to or greater than 20% for a period or periods aggregating more than three minutes in any 1 hour.
(2)Equal to or greater than 60% at any time.
(b) The limitations of this condition shall not apply to a visible emission in any of the following instances:
(1)When the presence of uncombined water is the only reason for failure of the emission to meet limitation.
(2)When the emission results from the operation of equipment used solely to train and test persons in observing the opacity of visible emissions.
(3)When the emissions result from sources specified in Site Level Condition #001.

II. TESTING REQUIREMENTS.

#005 [25 Pa. Code §123.43]
Measuring techniques

Visible Emissions may be measured using either of the following:

(1)A device approved by the Department and maintained to provide accurate opacity measurements.
(2)Observers trained and qualified to measure plume opacity with the naked eye or with the aid of devices approved by the Department.

#006 [25 Pa. Code §127.441]
Operating permit terms and conditions.

If at any time the Department has cause to believe that air contaminant emissions from the aforementioned source(s) may be in excess of the limitations specified in, or established pursuant to, any applicable rule or regulation contained in Article III of the Rules and Regulations of the Department of Environmental Protection, the Permittee shall be required to conduct whatever tests are deemed necessary by the Department to determine the actual emission rate(s). Such testing shall be conducted in accordance with the provisions of the most current publication of the DEP Source Testing Manual and Chapter 139 of the Rules

and collectors are in operation. If the observer is unable to record the pressure drop due to unit downtime, etc., the observer shall note such conditions on the data record sheet and make at least three (3) attempts to record the pressure drop at approximately 2-hour intervals throughout the day. The permittee shall attempt to record the pressure drop daily until a valid measurement is obtained. The recordings shall be maintained in a manner approved by the Department.

#010 [25 Pa. Code §127.511]
Monitoring and related recordkeeping and reporting requirements.

Visible Emissions

(a)At least once per month, visual emission checks of each emission point subject to an opacity limit (excluding sources covered by an opacity CEM) shall be conducted during periods of normal facility operation for a sufficient time interval to determine if the unit has visible emissions present. If sources of visible emissions are identified during the survey, or at any other time, the permittee shall conduct a 40 CFR §60 Appendix A, Method 9 evaluation within one (1) hours. A Method 9 evaluation shall not be required if the visible emission condition is corrected in a timely manner and the units are operating at normal operating conditions. For the purposes of this requirement, the duration of the Method 9 observations may be reduced from 3 hours (thirty 6-minute averages) to 1 hour (ten 6-minute averages) only if the following conditions apply:
(1)there are no individual readings greater than 10% opacity; and
(2)there are no more than 3 readings of 10% for the 1-hour period.
A record of each visible emission check required above shall be maintained in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. At a minimum, the most recent 2 years of data shall be retained on site. The remaining 3 years of data may be retained off site. Such files may be maintained on microfilm, on a computer, on computer floppy disks, on magnetic tape disks, or on microfiche. Said record shall include, but not be limited to, the date, time, name of emission unit, the applicable visible emissions requirement, the results of the check, what action(s), if any, was/were taken and the name of the observer. In the event that visible emissions are observed and that Method 9 readings are required, prior notification and a pre-test plan are not required to be submitted for each set of observations conducted.

(b)The permittee shall use the following monitoring schedule for conducting the visible emissions observations required by this condition:
(1)The initial monitoring frequency for determining the presence of

#012 [25 Pa. Code §127.511]
Monitoring and related recordkeeping and reporting requirements.

Each permitted fabric collector must be equipped with a device for monitoring the pressure differential.

IV. RECORDKEEPING REQUIREMENTS.

#013 [25 Pa. Code §127.511]
Monitoring and related recordkeeping and reporting requirements.

Visible Emissions

The permittee shall maintain records of all visible emission inspections and any exceedance of the visible emission limitations, (for sources not handled by an Opacity CEM).

#014 [25 Pa. Code §127.511]
Monitoring and related recordkeeping and reporting requirements.

All records, reports and analytical results required by or generated to demonstrate compliance with the requirements of any section of this permit shall be maintained in accordance with General Title V Requirement #022, Section (B), and shall be made available to the Department upon written or verbal request at a reasonable time.

#015 [25 Pa. Code §127.511]
Monitoring and related recordkeeping and reporting requirements.

The facility shall record the results of the inspections of each air pollution control device. The results of the inspections shall be recorded on a weekly basis and made available to the Department upon request.

#016 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.63]
Subpart F - Standards of Performance for Portland Cement Plants
Monitoring of operations.
The owner or operator shall record the daily production rates and feed rates for the No. 1 and No. 2 cement kilns.

(b) Unless otherwise required by this permit, any other malfunction that is not subject to the reporting requirements of condition (a) above shall be reported to the Department, in writing, within five (5) days of discovery of the malfunction.

#020 [25 Pa. Code §135.3]
Reporting

(a) The owner or operator shall submit by March 1 of each year, a source report for the proceeding calendar year. The report shall include information for all previously reported sources, new sources which were first operated during the preceding calendar year and sources modified during the same period which were not previously reported.

(b) The source owner or operator may request an extension of time from the Department for the filing of a source report, and the Department may grant the extension for reasonable cause.

#021 [25 Pa. Code §135.21]
Emission statements

(a) The permittee shall provide the Department with a statement of each stationary source in a form as prescribed by the Department, showing the actual emissions of oxides of nitrogen and volatile organic compounds (VOCs) from the permitted facility for each reporting period, a description of the method used to calculate the emissions and the time period over which the calculation is based.

(b) The annual emission statements are due by March 1 for the preceding calendar year and shall contain a certification by a company officer or the plant manager that the information contained in the statement is accurate. The Emission Statement shall provide data consistent with requirements and guidance developed by the EPA.

(c) The Department may require more frequent submittals if the Department determines that one or more of the following applies:

(1) A more frequent submission is required by the EPA.
(2) Analysis of the data on a more frequent basis is necessary to implement the requirements of the Air Pollution Control Act.

equipment cannot be operated on site for a period exceeding 180 days.

#025 [25 Pa. Code §127.441]
Operating permit terms and conditions.

The company shall keep on hand a sufficient quantity of spare fabric collector bags for each fabric collector in order to be able to immediately replace any bags requiring replacement due to deterioration resulting from routine operation of the fabric collectors.

#026 [25 Pa. Code §127.512]
Operating permit terms and conditions.

Whenever the sources are in operation, the control devices for these sources shall be in operation. On a weekly basis, the control devices for the sources shall be inspected. The inspection shall consist of a visible inspection to insure compliance with Site Level Condition #001 and #002.

#027 [25 Pa. Code §129.14]
Open burning operations

(a) Air basins. No person may permit the open burning of material in an air basin.

(b) Exceptions: The requirements of subsections (a) do not apply where the open burning operations result from:

(1) A fire set to prevent or abate a fire hazard, when approved by the Department and set by or under the supervision of a public officer.

(2) A fire set for the purpose of instructing personnel in fire fighting, when approved by the Department.

(3) A fire set for the prevention and control of disease or pests, when approved by the Department.

(4) A fire set in conjunction with the production of agricultural commodities in their unmanufactured state on the premises of the farm operation.

(5) A fire set solely for recreational or ceremonial purposes.

(6) A fire set solely for cooking food.

(c) Clearing and grubbing wastes. The following is applicable to clearing and grubbing wastes:

VII. ADDITIONAL REQUIREMENTS.

No additional requirements exist except as provided in other sections of this permit including Section B (relating to Title V General Requirements).

VIII. COMPLIANCE CERTIFICATION.

No additional compliance certifications exist except as provided in other sections of this permit including Section B (relating to Title V General Requirements).

IX. COMPLIANCE SCHEDULE.

No compliance milestones exist.

***** PERMIT SHIELD IN EFFECT. *****

Group Name: 10
Sources included in this group:

ID	Name
101	CEMENT KILN NO. 1
102	CEMENT KILN NO. 2

I. RESTRICTIONS.

Emission Limitation(s).

#001 [25 Pa. Code §123.13]
Processes

No person may permit the emission into the outdoor atmosphere of particulate matter, at any time, either in excess of the rate calculated by the formula below, or 0.02 gr/dscf, whichever is greater:

Formula: A = 0.76(150*W) 0.42

Where: A = Allowable emissions in pounds per hour
W = Dry solids feed rate in pounds per hour

#002 [25 Pa. Code §123.21]
General

No person may permit the emission into the outdoor atmosphere of sulfur oxides from a source in a manner that the concentration of sulfur oxides, expressed as SO2, in the effluent gas exceeds 500 ppmv dry basis.

#003 [25 Pa. Code §127.441]
Operating permit terms and conditions.

The permittee shall not accept, or at any time, fire waste fuels in the cement kiln(s) having an as-received chloride content which exceeds 3% by weight. Additionally the permittee shall not accept or, at any time, fire any waste fuels in the cement kiln(s) containing any PCBs as received.

#004 [25 Pa. Code §127.441]
Operating permit terms and conditions.

This permit allows the Permittee to operate the Nos. 1 and 2 kilns while firing any non-hazardous and hazardous waste fuels approved by the Department's Bureau of Waste Management, having a minimum heating value of 8000 BTU per pound, as received, and meeting the metal content limitations, chloride content limitations, and PCB content limitations

Cadmium		0.0276		0.085
Hexavalent Chromium		0.007		0.02
Mercury		0.041		0.121
Nickel	0.032			0.099
Lead	0.046			0.137
HCl	8.85		30.55	
Chlorine		1.03		2.70

(2) The emissions of PCDD and PCDF (expressed as 2,3,7,8 TCDD equivalents) shall not exceed 2.764 x 10-7 lbs per hour for the No. 1 cement kiln and 8.216 x 10-7 lbs per hour for the No. 2 cement kiln. The emissions of PCDD and PCDF (expressed as 2,3,7,8 TCDD equivalents) when modeled together for both cement kilns shall not exceed the limit of 0.30 x 10-7 ug/m3.

(3) The above limits shall be met when any waste fuels are fired in the kilns. Compliance with these limits shall be based on the average of three (3) valid test runs, excluding none.

(4) Particulate emissions shall at all times comply with 25 PA Code Section 123.13(b).

#010 [40 CFR Part 63 NESHAPS for Source Categories §40 CFR 63.1340]
Subpart LLL -- National Emission Standards for Hazardous Air Pollutants From the Portland
Applicability and designation of affected sources.
The kilns shall comply with all applicable provisions of this regulation by June 10, 2002. This regulation will only apply during periods when the kilns are not firing hazardous waste fuel.

Throughput Restriction(s).

#011 [25 Pa. Code §127.441]
Operating permit terms and conditions.

The permittee shall at no time exceed a total hazardous waste fuel feed rate of 14.2 gallons per minute for the No. 1 kiln or 43.5 gallons per minute in the No. 2 kiln, or the levels established for the two kilns in the most recent EPA BIF Compliance Certification Test, whichever is lower. This feed rate applies on an hourly rolling average basis. Furthermore, the total hazardous waste fuel feed through both kilns shall at no time exceed 57,600 gallons per calendar day (midnight to midnight Eastern Standard Time).

As (ppm)	Hg (ppm)
Be (ppm)	Ni (ppm)
Cd (ppm)	Pb (ppm)
Cr (ppm)	PCB (ppm)

The following information must be recorded and maintained on file for each load of waste fuel:

(a) The manifest number
(b) Date and time of sampling
(c) Date analysis was performed
(d) Company or entity that performed the analysis
(e) The analytical techniques or methods used.
(f) The results of the analyses
(g) Acceptance or rejection of the load or any part thereof
(h) If rejected, to whom the load or partial load was returned.

#017 [25 Pa. Code §127.511]
Monitoring and related recordkeeping and reporting requirements.

The Permittee should operate and maintain opacity monitors No. 485 and 585 and CO/O2 monitors in conformance with 40 CFR, Part 60, Appendix B; 25 PA Code Chapter 139, and the Department's latest approved version of the Continuous Source Monitoring Manual.

#018 [25 Pa. Code §127.511]
Monitoring and related recordkeeping and reporting requirements.

The Permittee must comply with all of the applicable Continuous Emission Monitoring (CEM) requirements as specified in the Federal Environmental Protection Agency regulations governing the Burning of Hazardous Waste in Boilers and Industrial Furnaces contained in 40 CFR, Parts 260, 261, 264, 265, 266, 270, and 271 and according to the schedule mandated by those regulations. Continuous monitoring shall be conducted in accordance with 25 PA Code Chapter 139, and be approved by the Department.

#019 [25 Pa. Code §127.511]
Monitoring and related recordkeeping and reporting requirements.

Continuous emissions monitors for NOx shall be installed, operated, and maintained in accordance with the Department's latest approved version of the Continuous Source Monitoring Manual.
(a) Continuous monitoring shall be conducted in accordance with 25 PA Code Chapter 139 and approved by the Department.
(b) Monitoring and recording of exhaust gas flowrate shall be conducted in accordance with the applicants procedure submitted to and approved by

stack sampling and a sketch with dimensions indicating the location of sampling ports and other data to ensure the collection of representative samples.
(c) Within ninety (90) days of conducting the required stack sampling for Nitrogen Oxides, two (2) copies of the complete stack sampling report, including all operating conditions, shall be submitted to the Regional Air Quality Program Manager for approval.

#024 [25 Pa. Code §127.511]
Monitoring and related recordkeeping and reporting requirements.

The Permittee may begin accepting waste fuel from a new generator 10 days after notifying the Department. The notification to the Department must provide an analysis for the items listed in Group Level Condition #016.

#025 [25 Pa. Code §127.511]
Monitoring and related recordkeeping and reporting requirements.

The Permittee shall submit quarterly reports for opacity, CO, and O2 and maintain records as specified in the Continuous Source Monitoring Manual. The reports shall include information listed in the "Recordkeeping and Reporting" section of the Manual.

#026 [25 Pa. Code §127.511]
Monitoring and related recordkeeping and reporting requirements.

All nitrogen oxides CEMS reports shall be submitted to the Department within thirty (30) days after each quarter, but no later than the time frame established in the Department's latest approved version of the Continuous Source Manual. The Department reserves the right to require the report submissions on floppy disks with a format acceptable to the Department.

#027 [25 Pa. Code §127.511]
Monitoring and related recordkeeping and reporting requirements.

The Permittee shall provide the Department with access to all certified continuous emission monitor and waste fuel feed rate read-outs required by this permit via telephone dial-up (modem) from the Departments computer. It will be the Permittee's responsibility to provide all hardware, software, and funds required to provide this access at the Permittee's location. The Department shall specify the acquisition configuration.

Regional Air Quality Program Manager
Department of Environmental Protection
2 Public Square
Wilkes-Barre, Pa 18711-0790

#030 [25 Pa. Code §127.441]
Operating permit terms and conditions.

The Permittee shall provide a system of interlocks, which will automatically stop and prevent any flow of waste fuel to the kiln if any of the following conditions exist:
(a) Temperature in the chain section of less than 1280.7°F (hourly rolling average) for the No. 1 cement kiln and 1567.3°F (hourly rolling average) for the No. 2 cement kiln.
(b) Electrostatic precipitator, induced draft fan or combustion air fan malfunction or outage;
(c) Total interruption of non-waste fuel flow (including fossil fuel, approved co-product fuel and other approved non-waste fuels), raw material flow, or kiln rotation;
(d) CO emissions in excess of 100 ppm over an hourly rolling average corrected to 7% O2
(e) Visible air contaminants from each kiln as measured by opacity is equal to or greater than 20% for any six minute rolling average, or equal to or greater than 60% for any one minute block average.
(f) Loss of atomization to the liquid fuel line;
(g) Slurry feed rate hourly rolling average less than 65 gpm for the No. 1 cement kiln and 260 gpm for the No. 2 cement kiln.
(h) Waste fuel feed rate in excess of allowable, as defined in Group Level Condition #011.
(i) Maximum temperature greater than 1562°F for the No. 1 cement kiln and 1821°F for the No. 2 cement kiln, as measured by temperature probes in mid-kiln, or alternatively, in the case of the No. 2 cement kiln, a flame zone temperature of greater than 2796.7 F°. These temperature interlocks are based on hourly rolling averages. These temperature limits must be automatically updated by the facility to reflect the temperature limits established under the most recent certification test conducted pursuant to 40 CFR 266 Subpart H.
The interlocks shall not be manually over-ridden. The flow of waste fuel to each kiln shall not resume until the condition which caused the interlock to operate has been corrected. Documentation of each interlock usage shall be maintained on file by the Permittee, including the following:
(a) The date and time the interlock engaged.
(b) The reason interlock engaged.
(c) The corrective action engaged

VII. ADDITIONAL REQUIREMENTS.

#034 [40 CFR Part 63 NESHAPS for Source Categories §40 CFR 63.1211]
Subpart EEE -- National Emission Standards for Hazardous Air Pollutants From Hazardous Was
Notification requirements.

The kilns shall comply with all applicable provisions of this regulation by September 30, 2002. The applicable provisions of this regulation will apply only during periods when the kilns are firing hazardous waste fuel.

#035 [40 CFR Part 63 NESHAPS for Source Categories §40 CFR 63.1353]
Subpart LLL -- National Emission Standards for Hazardous Air Pollutants From the Portland
Notification requirements.

Initial notification as required by 40 CFR 63.9(b) through (d) must be made. For the purposes of this subpart, a Title V permit application may be used in lieu of the initial notification required under 40 CFR 63.9(b), provided the same information is contained in the permit application as required by 63.9(b), and the State to which the permit application has been submitted has an approved operating permit program under 40 CFR Part 70 and has received delegation of authority from the EPA. Permit applications shall be submitted by the same due dates as those specified for the initial notification.

IV. RECORDKEEPING REQUIREMENTS.

No additional recordkeeping requirements exist except as provided in other sections of this permit including Section B (relating to Title V General Requirements).

V. REPORTING REQUIREMENTS.

#001 [40 CFR Part 63 NESHAPS for Source Categories §40 CFR 63.1353]
Subpart LLL -- National Emission Standards for Hazardous Air Pollutants From the Portland Notification requirements.

Initial notification as required by 40 CFR 63.9(b) through (d) must be made. For the purposes of this subpart, a Title V permit application may be used in lieu of the initial notification required under 40 CFR 63.9(b), provided the same information is contained in the permit application as required by 63.9(b), and the State to which the permit application has been submitted has an approved operating permit program under 40 CFR Part 70 and has received delegation of authority from the EPA. Permit applications shall be submitted by the same due dates as those specified for the initial notification.

VI. WORK PRACTICE STANDARDS.

No additional work practice requirements exist except as provided in other sections of this permit including Section B (relating to Title V General Requirements).

VII. ADDITIONAL REQUIREMENTS.

#002 [40 CFR Part 63 NESHAPS for Source Categories §40 CFR 63.1340]
Subpart LLL -- National Emission Standards for Hazardous Air Pollutants From the Portland Applicability and designation of affected sources.

The Permittee shall comply with all applicable regulations of this Subpart by the June 10, 2002 compliance date.

III. MONITORING REQUIREMENTS.

No additional monitoring requirements exist except as provided in other sections of this permit including Section B (relating to Title V General Requirements).

IV. RECORDKEEPING REQUIREMENTS.

#002 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.7]
Subpart A - General Provisions
Notification and record keeping.
The owner or operator shall maintain a file of all measurements, including continuous monitoring system, monitoring device, and performance testing measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required by this part recorded in a permanent form suitable for inspection. The files shall be retained for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. At a minimum, the most recent 2 years of data shall be retained on site. The remaining 3 years of data may be retained off site. Such files may be maintained on microfilm, on a computer, on computer floppy disks, on magnetic tape disks, or on microfiche.

#003 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.7]
Subpart A - General Provisions
Notification and record keeping.
The owner or operator shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative.

V. REPORTING REQUIREMENTS.

No additional reporting requirements exist except as provided in other sections of this permit including Section B (relating to Title V General Requirements).

Group Name: 13
Sources included in this group:

ID	Name
134-1	NO. 1A SOLVENT STORAGE TANK
134-2	NO. 1B SOLVENT STORAGE TANK
134-3	NO. 2 SOLVENT STORAGE TANK
134-4	NO. 3 SOLVENT STORAGE TANK
147	WASTE FUEL TRANSFER SYSTEM
148	MATERIALS ADDITIVE SYSTEM

I. RESTRICTIONS.

No additional requirements exist except as provided in other sections of this permit including Section B (relating to Title V General Requirements).

II. TESTING REQUIREMENTS.

No additional testing requirements exist except as provided in other sections of this permit including Section B (relating to Title V General Requirements).

III. MONITORING REQUIREMENTS.

No additional monitoring requirements exist except as provided in other sections of this permit including Section B (relating to Title V General Requirements).

IV. RECORDKEEPING REQUIREMENTS.

#001 [40 CFR Part 63 NESHAPS for Source Categories §40 CFR 63.7]
Subpart A--General Provisions
Performance testing requirements.
Relevant records for each source must be maintained which include:
(a)The occurrence and duration of each startup, shutdown, or malfunction of process equipment;
(b)The occurrence and duration of each malfunction of the air pollution control equipment;
(c)All maintenance performed on air pollution control equipment (Source ID 148 only);
(d)Actions taken during startup, shutdown, or malfunction when such actions differ from the procedures specified in the source's startup, shutdown, and malfunction plan;
(e)All information necessary to demonstrate conformance with the source's startup, shutdown, and malfunction plan;
(f) All required measurements needed to demonstrate compliance with a relevant standard;
(g)All results of performance tests and opacity observations;
(h)All measurements to determine the conditions of performance tests and evaluations;

VII. ADDITIONAL REQUIREMENTS.

#005 [40 CFR Part 63 NESHAPS for Source Categories §40 CFR 63.12]
Subpart A--General Provisions
State authority and delegations.

All information submitted to the Department must also be sent to the EPA Administrator.

#004 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.672] Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants Standard for particulate matter.

Opacity shall not exceed 7% for stack emissions from any transfer point on belt conveyors or from any other affected facility.

II. TESTING REQUIREMENTS.

No additional testing requirements exist except as provided in other sections of this permit including Section B (relating to Title V General Requirements).

III. MONITORING REQUIREMENTS.

No additional monitoring requirements exist except as provided in other sections of this permit including Section B (relating to Title V General Requirements).

IV. RECORDKEEPING REQUIREMENTS.

No additional recordkeeping requirements exist except as provided in other sections of this permit including Section B (relating to Title V General Requirements).

V. REPORTING REQUIREMENTS.

No additional reporting requirements exist except as provided in other sections of this permit including Section B (relating to Title V General Requirements).

VI. WORK PRACTICE STANDARDS.

#005 [25 Pa. Code §127.441]
Operating permit terms and conditions.

The water spray dust suppression system(s) associated with the aforementioned source(s) shall be operated on any and all occasions that the respective sources are operated, except in those unusual instances where conditions are such that operation of the sources without the simultaneous operation of the water spray dust suppression system can take place without creating air contaminant emissions in excess of the limitations specified in any applicable Department Rule or Regulation. If however, the water spray dust suppression system(s) associated with the aforementioned source(s) is incapable of operation due to weather conditions or any other reason the aforementioned source(s) may not be operated at all.

Group Name: 3
Sources included in this group:

ID	Name
125	MISC CONVEYORS & BINS

I. RESTRICTIONS.

Emission Limitation(s).

#001 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.62]
Subpart F - Standards of Performance for Portland Cement Plants
Standard for particulate matter.
On and after the date on which the performance test required to be conducted by 40 CFR §60.8 is completed, no owner or operator shall cause to be discharged into the atmosphere from any affected facility any gases which exhibit 10 percent opacity, or greater.

II. TESTING REQUIREMENTS.

No additional testing requirements exist except as provided in other sections of this permit including Section B (relating to Title V General Requirements).

III. MONITORING REQUIREMENTS.

No additional monitoring requirements exist except as provided in other sections of this permit including Section B (relating to Title V General Requirements).

IV. RECORDKEEPING REQUIREMENTS.

#002 [25 Pa. Code §127.441]
Operating permit terms and conditions.

The owner or operator shall maintain files of all information (including all reports and notifications) required for this source recorded in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. At a minimum, the most recent 2 years of data shall be retained on site. The remaining 3 years of data may be retained off site. Such files may be maintained on microfilm, on a computer, on computer floppy disks, on magnetic tape disks, or on microfiche.

Group Name: 4
Sources included in this group:

ID	Name
128-1	NEW FINISH MILL LIMESTONE SILO
128-2	NEW FINISH MILL & AIR SEPARATOR
128-3	NEW CEMENT FINISHING MILL ADDITIVE SYSTE

I. RESTRICTIONS.

Emission Limitation(s).

#001. [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.62] Subpart F - Standards of Performance for Portland Cement Plants Standard for particulate matter.

On and after the date on which the performance test required to be conducted by 40 CFR §60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility any gases which exhibit 10 percent opacity, or greater.

II. TESTING REQUIREMENTS.

No additional testing requirements exist except as provided in other sections of this permit including Section B (relating to Title V General Requirements).

III. MONITORING REQUIREMENTS.

No additional monitoring requirements exist except as provided in other sections of this permit including Section B (relating to Title V General Requirements).

IV. RECORDKEEPING REQUIREMENTS.

No additional recordkeeping requirements exist except as provided in other sections of this permit including Section B (relating to Title V General Requirements).

V. REPORTING REQUIREMENTS.

No additional reporting requirements exist except as provided in other sections of this permit including Section B (relating to Title V General Requirements).

Group Name: 5
Sources included in this group:

ID	Name
134-1	NO. 1A SOLVENT STORAGE TANK
134-2	NO. 1B SOLVENT STORAGE TANK
134-3	NO. 2 SOLVENT STORAGE TANK
134-4	NO. 3 SOLVENT STORAGE TANK

I. RESTRICTIONS.

Emission Limitation(s).

#001 [25 Pa. Code §127.441]
Operating permit terms and conditions.

The emissions from these sources shall not at any time cause or create a malodor condition.

#002 [40 CFR Part 63 NESHAPS for Source Categories §40 CFR 63.685]
Subpart DD -- National Emission Standards for Hazardous Air Pollutants from Off-Site Waste Standards: Tanks.
The owner or operator must control air emissions from the affected storage tanks in accordance with the provisions of 40 CFR 63, Subpart OO, National Emission Standards for Tanks-Level 1.

#003 [40 CFR Part 63 NESHAPS for Source Categories §40 CFR 63.905]
Subpart OO -- National Emission Standards for Storage Tanks - Level 1
Test methods and procedures.
The Procedure for determining no detectable organic emissions for the purpose of complying with 40 CFR 63, subpart DD is as follows:
(a)The test shall be conducted in accordance with the procedures specified in Method 21 of 40 CFR part 60, appendix A. Each potential leak interface on the cover and associated closure devices shall be checked. Potential leak interfaces that are associated with covers and closure devices include, but are not limited to: the interface of the cover and its foundation mounting; the periphery of any opening on the cover and its associated closure device; and the sealing seat interface on a spring-loaded pressure-relief valve.
(b)The test shall be performed when the unit contains a material having a total organic concentration representative of the range of concentrations for the materials expected to be managed in the unit. During the test, the cover and closure devices shall be secured in the closed position.
(c)The detection instrument shall meet the performance criteria of Method 21 of 40 CFR part 60, appendix A, except the instrument response

(2) For a seal around a shaft that passes through a cover opening, the potential leak interface is determined to operate with no detectable organic emissions if the organic concentration value determined in paragraph (h) is less than 10,000 ppmv.

II. TESTING REQUIREMENTS.

#004 [40 CFR Part 63 NESHAPS for Source Categories §40 CFR 63.694] Subpart DD -- National Emission Standards for Hazardous Air Pollutants from Off-Site Waste Testing methods and procedures.

(a) Determination of maximum HAP vapor pressure for off-site material in a tank.

(1) The maximum HAP vapor pressure of the off-site material composition managed in a tank for compliance with the standards specified in 40 CFR §63.685 shall be determined using either direct measurement as specified in paragraph (2) of this condition or by knowledge of the off-site material as specified by paragraph (3) of this condition.

(2) Direct measurement to determine the maximum HAP vapor pressure of an off-site material.

(i) Sampling. A sufficient number of samples shall be collected to be representative of the off-site material contained in the tank. All samples shall be collected and handled in accordance with written procedures prepared by the owner or operator and documented in a site-sampling plan. This plan shall describe the procedure by which representative samples of the off-site material is collected such that a minimum loss of organics occurs throughout the sample collection and handling process and by which sample integrity is maintained. A copy of the written sampling plan shall be maintained on-site in the plant site operating records. An example of an acceptable sampling plan includes a plan incorporating sample collection and handling procedures in accordance with the requirements specified in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication No. SW-846 or Method 25D in 40 CFR Part 60, appendix A.

(ii) Analysis. Any one of the following methods may be used to analyze the samples and compute the maximum HAP vapor pressure of the off-site material:

(A) Method 25E in 40 CFR Part 60, Appendix A;

(B) Methods described in American Petroleum Institute Bulletin 2517, "Evaporation Loss from External Floating Roof Tanks,"

(C) Methods obtained from standard reference texts;

will be kept for the life of the source.

#008 [40 CFR Part 61 NESHAPs §40 CFR 61.356]
Subpart FF--National Emission Standard for Benzene Waste Operations
Recordkeeping requirements.
Each owner or operator shall maintain records that identify each waste stream at the facility subject to this subpart, and indicate whether or not the waste stream is controlled for benzene emissions in accordance with this subpart.

#009 [40 CFR Part 61 NESHAPs §40 CFR 61.356]
Subpart FF--National Emission Standard for Benzene Waste Operations
Recordkeeping requirements.
Each owner or operator of a facility subject to the provisions of 40 CFR 61, subpart V shall comply with the recordkeeping requirements of 40 CFR 61 All records shall be recorded in a form suitable and readily available for inspection and review. The files shall be retained for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. At a minimum, the most recent 2 years of data shall be retained on site. The remaining 3 years of data may be retained off site. Such files may be maintained on microfilm, on a computer, on computer floppy disks, on magnetic tape disks, or on microfiche.

#010 [40 CFR Part 63 NESHAPS for Source Categories §40 CFR 63.10]
Subpart A--General Provisions
Recordkeeping and reporting requirements.
(a) The owner or operator subject to this subpart shall comply with the following recordkeeping requirements:
(1)All records shall be recorded and maintained in accordance with Group Level Condition #008.
(2)The owner or operator of an affected source subject to the provisions of 40 CFR Part 63, Subpart DD shall maintain relevant records for such source of:
(i) The occurrence and duration of each startup, shutdown, or malfunction of operation;
(ii)Actions taken during periods of startup, shutdown, and malfunction including corrective actions to restore malfunctioning process to its normal or usual manner of operation when such actions are different from the procedures specified in the affected source's startup, shutdown, and malfunction plan;
(iii) All information necessary to demonstrate conformance with the affected source's startup, shutdown, and malfunction plan when all actions taken during periods of startup, shutdown, and malfunction

V. REPORTING REQUIREMENTS.

#014 [40 CFR Part 63 NESHAPS for Source Categories §40 CFR 63.697]
Subpart DD -- National Emission Standards for Hazardous Air Pollutants from Off-Site Waste
Reporting requirements.

(a) The owner or operator subject to 40 CFR 63, Subpart DD should comply with the following reporting requirements:
(1)All reports required by this condition must be submitted to the Department and the EPA.
(2)The owner or operator of an affected source shall report the results of a required performance test to the Department and EPA before the close of business on the 60th day following the completion of the performance test, unless specified otherwise in a relevant standard or as approved otherwise in writing by the Department. The results of the performance test shall be submitted as part of the notification of compliance status required by 40 CFR §63.9(h).
(3)(i) Periodic startup, shutdown, and malfunction reports. If actions taken by an owner or operator during a startup, shutdown, or malfunction of an affected source (including actions taken to correct a malfunction) are consistent with the procedures specified in the source's startup, shutdown, and malfunction plan, the owner or operator shall state such information in a startup, shutdown, and malfunction report. Reports shall only be required if a startup, shutdown, or malfunction occurred during the reporting period. The startup, shutdown, and malfunction report shall consist of a letter, containing the name, title, and signature of the owner or operator or other responsible official who is certifying its accuracy, that shall be submitted to the Department and EPA semiannually (or on a more frequent basis if specified otherwise in a relevant standard or by the Department). The startup, shutdown, and malfunction report shall be delivered or postmarked by the 30th day following the end of each calendar half (or other calendar reporting period, as appropriate). If the owner or operator is required to submit excess emissions and continuous monitoring system performance (or other periodic) reports under this part, the startup, shutdown, and malfunction reports required under this paragraph may be submitted simultaneously with the excess emissions and continuous monitoring system performance (or other) reports. If startup, shutdown, and malfunction reports are submitted with excess emissions and continuous monitoring system performance (or other periodic) reports, and the owner or operator receives approval to reduce the frequency of reporting for the latter under paragraph (e) of this section, the frequency of reporting for the startup, shutdown, and malfunction reports also may be reduced if the Department does not object to the intended change. The procedures to implement the allowance in the preceding sentence shall be the same as the procedures specified in 40 CFR §63.10(e)(3).
(ii) Immediate startup, shutdown, and malfunction reports.
Notwithstanding the allowance to reduce the frequency of reporting for

monitoring systems performance report; or
(C) Makes a determination of suitable progress towards compliance following the submission of a compliance progress report, whichever is applicable.
(v) A waiver of any recordkeeping or reporting requirement granted under this paragraph may be conditioned on other recordkeeping or reporting requirements deemed necessary by the Department.
(vi) Approval of any waiver granted under this section shall not abrogate the Department's authority under the Act or in any way prohibit the Department from later canceling the waiver. The cancellation will be made only after notice is given to the owner or operator of the affected source.

VI. WORK PRACTICE STANDARDS.

#015 [25 Pa. Code §127.441]
Operating permit terms and conditions.

The carbon canisters shall be replaced when a concentration of 180 ppmv, measured as propane pursuant to Group Level Condition #004, is detected by the HNu photoionization detector or Department approved equivalent.

#016 [25 Pa. Code §127.441]
Operating permit terms and conditions.

The Permittee shall not operate the sources unless the control devices are fully operational and properly employed.

#017 [40 CFR Part 61 NESHAPs §40 CFR 61.355]
Subpart FF--National Emission Standard for Benzene Waste Operations
Test methods, procedures, and compliance provisions.
An owner or operator shall determine the total annual benzene quantity from facility waste by the procedures described below:

(a)The determination of annual waste quantity for wastes that are received at hazardous waste treatment, storage, or disposal facilities from offsite shall be made at the point where the waste enters the hazardous waste treatment, storage, or disposal facility.

(b)An owner or operator shall determine the flow-weighted annual average benzene concentration in a manner that meets the requirements given in Group Level Condition #020. The determination for wastes that are received from offsite shall be made at the point where the waste enters the hazardous waste treatment, storage, or disposal facility.

#021 [40 CFR Part 63 NESHAPS for Source Categories §40 CFR 63.906] Subpart OO -- National Emission Standards for Storage Tanks - Level 1 Inspection and monitoring requirements.

Owners and operators that use a tank equipped with a fixed roof in accordance with the provisions of 40 CFR §63.902 shall meet the following requirements:

(a)The fixed roof and its closure devices shall be visually inspected by the owner or operator to check for defects that could result in air emissions.

(b)The owner or operator must perform an initial inspection following installation of the fixed roof. Thereafter, the owner or operator must perform the inspections at least once every calendar year except as provided for in Group Level Condition #005.

(c) In the event that a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of Group Level Condition #021.

(d)The owner or operator shall maintain a record of the inspection in accordance with the requirements specified in Group Level Condition #011.

#022 [40 CFR Part 63 NESHAPS for Source Categories §40 CFR 63.906] Subpart OO -- National Emission Standards for Storage Tanks - Level 1 Inspection and monitoring requirements.

The owner or operator shall repair defects as follows:

(a)The owner or operator shall make first efforts at repair of the defect no later than five (5) calendar days after detection and repair shall be completed as soon as practicable but no later than 45 calendar days after detection except as provided in paragraph (b).

(b)Repair of a defect may be delayed beyond 45 calendar days if the owner or operator determines that repair of the defect requires emptying or temporary removal from service of the tank and no alternative tank capacity is available at the site to accept the regulated material normally managed in the tank. In this case, the owner or operator shall repair the defect the next time alternative tank capacity becomes available and the tank can be emptied or temporarily removed from service, as necessary to complete the repair.

the total annual benzene waste quantity specified in 40 CFR 61.342(a).

#027 [40 CFR Part 61 NESHAPs §40 CFR 61.355]
Subpart FF--National Emission Standard for Benzene Waste Operations
Test methods, procedures, and compliance provisions.
Knowledge of the waste. The owner or operator shall provide sufficient information to document the flow-weighted annual average benzene concentration of each waste stream. Examples of information that could constitute knowledge include material balances, records of chemicals purchases, or previous test results provided the results are still relevant to the current waste stream conditions. If test data are used, then the owner or operator shall provide documentation describing the testing protocol and the means by which sampling variability and analytical variability were accounted for in the determination of the flow-weighted annual average benzene concentration for the waste stream. When an owner or operator and the Administrator do not agree on determinations of the flow-weighted annual average benzene concentration based on knowledge of the waste, the procedures under 40 CFR §61.355(c)(3) shall be used to resolve the disagreement.

#028 [40 CFR Part 61 NESHAPs §40 CFR 61.357]
Subpart FF--National Emission Standard for Benzene Waste Operations
Reporting requirements.
If the total annual benzene quantity from facility waste is less than 10 Mg/yr but is equal to or greater than 1 Mg/yr, then the owner or operator shall submit to the Administrator a report that updates the information listed in 40 CFR §61.357(a)(1) through (a)(3). The report shall be submitted annually and whenever there is a change in the process generating the waste stream that could cause the total annual benzene quantity from facility waste to increase to 10 Mg/yr or more. If the information in the annual report required by 40 CFR §61.357(a)(1) through (a)(3) is not changed in the following year, the owner or operator may submit a statement to that effect.

#029 [40 CFR Part 63 NESHAPS for Source Categories §40 CFR 63.902]
Subpart OO -- National Emission Standards for Storage Tanks - Level 1
Standards--Tank fixed roof.
(a)The fixed roof and its closure devices shall be designed to form a continuous barrier over the entire surface area of the liquid in the tank.
(b)The fixed roof shall be installed in a manner such that there are no visible cracks, holes, gaps, or other open spaces between roof section joints or between the interface of the roof edge and the tank wall.
(c) Each opening in the fixed roof, and any manifold system associated with the fixed roof, shall be either:
(i) Equipped with a closure device designed to operate such that when the

Group Name: 6
Sources included in this group:

ID	Name
131-1	BOILER #1 - WASH HOUSE
131-2	BOILER #2 - REPAIR SHOP
131-3	BOILER #3 - REPAIR SHOP
131-4	BOILER #4 - PACK HOUSE
131-5	BOILER #5 - QUARRY HOUSE
131-6	BOILER #6A - PLANT/OFFICE
131-7	BOILER #6B - PLANT/OFFICE
131-8	BOILER #7 - QUARRY HOUSE
131-9	BOILER #8 - WAREHOUSE
131-A	BOILER #9 - WAREHOUSE

I. RESTRICTIONS.

Emission Limitation(s).

#001 [25 Pa. Code §123.22]
Combustion units

[Compliance with the requirements specified in this permit condition assures compliance with the provisions in 40 CFR 52.2020]

No person may permit the emission into the outdoor atmosphere of sulfur oxides, expressed as SO2, from any combustion unit, at any time, in excess of the rate of 3 lb/MMBtu heat input over any 1-hr period.

#002 [25 Pa. Code §123.22]
Combustion units

No person may, at any time, offer for sale, deliver for use, exchange in trade, or permit the use of commercial fuel oil No. 2 which contains sulfur in excess of 0.3% sulfur by weight.

II. TESTING REQUIREMENTS.

No additional testing requirements exist except as provided in other sections of this permit including Section B (relating to Title V General Requirements).

Group Name: 7
Sources included in this group:

ID	Name
101	CEMENT KILN NO. 1
102	CEMENT KILN NO. 2
131-1	BOILER #1 - WASH HOUSE
131-2	BOILER #2 - REPAIR SHOP
131-3	BOILER #3 - REPAIR SHOP
131-4	BOILER #4 - PACK HOUSE
131-5	BOILER #5 - QUARRY HOUSE
131-6	BOILER #6A - PLANT/OFFICE
131-7	BOILER #6B - PLANT/OFFICE
131-8	BOILER #7 - QUARRY HOUSE
131-9	BOILER #8 - WAREHOUSE
131-A	BOILER #9 - WAREHOUSE
134-1	NO. 1A SOLVENT STORAGE TANK
134-2	NO. 1B SOLVENT STORAGE TANK
134-3	NO. 2 SOLVENT STORAGE TANK
134-4	NO. 3 SOLVENT STORAGE TANK

I. RESTRICTIONS.

No additional requirements exist except as provided in other sections of this permit including Section B (relating to Title V General Requirements).

II. TESTING REQUIREMENTS.

No additional testing requirements exist except as provided in other sections of this permit including Section B (relating to Title V General Requirements).

III. MONITORING REQUIREMENTS.

No additional monitoring requirements exist except as provided in other sections of this permit including Section B (relating to Title V General Requirements).

IV. RECORDKEEPING REQUIREMENTS.

No additional recordkeeping requirements exist except as provided in other sections of this permit including Section B (relating to Title V General Requirements).

V. REPORTING REQUIREMENTS.

No additional reporting requirements exist except as provided in other sections of this permit including Section B (relating to Title V General Requirements).

Group Name: 8
Sources included in this group:

ID	Name
131-4	BOILER #4 - PACK HOUSE
131-6	BOILER #6A - PLANT/OFFICE
131-7	BOILER #6B - PLANT/OFFICE

I. RESTRICTIONS.

Emission Limitation(s).

#001 [25 Pa. Code §123.11]
Combustion units

A person may not permit the emission into the outdoor atmosphere of particulate matter from a combustion unit in excess of 0.4 lb/MMBtu heat input, for units with a rated heat input greater than 2.5 MMBtu/hr and less than 50 MMBtu/hr.

II. TESTING REQUIREMENTS.

No additional testing requirements exist except as provided in other sections of this permit including Section B (relating to Title V General Requirements).

III. MONITORING REQUIREMENTS.

No additional monitoring requirements exist except as provided in other sections of this permit including Section B (relating to Title V General Requirements).

IV. RECORDKEEPING REQUIREMENTS.

No additional recordkeeping requirements exist except as provided in other sections of this permit including Section B (relating to Title V General Requirements).

V. REPORTING REQUIREMENTS.

No additional reporting requirements exist except as provided in other sections of this permit including Section B (relating to Title V General Requirements).

VI. WORK PRACTICE STANDARDS.

No additional work practice requirements exist except as provided in other sections of this permit including Section B (relating to Title V General Requirements).

Group Name: 9
Sources included in this group:

ID	Name
109	SILO GROUP NO. 1
112	SILO GROUP NO. 2
125	MISC CONVEYORS & BINS
127-2	KAPCO SECONDARY/TERTIARY CRUSHING/SCREEN
128-1	NEW FINISH MILL LIMESTONE SILO
128-2	NEW FINISH MILL & AIR SEPARATOR
128-3	NEW CEMENT FINISHING MILL ADDITIVE SYSTE

I. RESTRICTIONS.

Emission Limitation(s).

#001 [25 Pa. Code §127.441]
Operating permit terms and conditions.

No person may permit the emission into the outdoor atmosphere of particulate matter in a manner that the concentration of particulate matter in the effluent gas exceeds 0.02 grains per dry standard cubic foot.

II. TESTING REQUIREMENTS.

No additional testing requirements exist except as provided in other sections of this permit including Section B (relating to Title V General Requirements).

III. MONITORING REQUIREMENTS.

No additional monitoring requirements exist except as provided in other sections of this permit including Section B (relating to Title V General Requirements).

IV. RECORDKEEPING REQUIREMENTS.

No additional recordkeeping requirements exist except as provided in other sections of this permit including Section B (relating to Title V General Requirements).

V. REPORTING REQUIREMENTS.

No additional reporting requirements exist except as provided in other sections of this permit including Section B (relating to Title V General Requirements).

No Alternative Operations exist for this Title V Facility

DEP ID	Source Description	Emission Limit	Pollutant

No Emission Restrictions listed in this section of the permit.

APPENDIX O
DESIGN RELATED INFORMATION

Appendix O
Table 1
Planned Hazardous Derived Fuel Tanks
Nozzle Schedule
Keystone Cement Company

NOZZLE	LOCATION	SIZE	FLANGE	SCH.	PRELIMINARY USE (2)
A	Roof	10	150#	40	Mixer/Agitator
B	Roof	6	150#	40	Fuel Recirculation from KILN
C	Roof	6	150#	40	Fuel in From Unloading
D	Roof	3	150#	40	Nitrogen Inlet
E	Roof	3	150#	40	Spare
F	Roof	8	150#	40	Emergency Pressure Vent
G	Roof	6	150#	40	Vapor Balance
H	Side	24	150#	40	Man way
I	Bottom	3	150#	40	Fuel Out
J	Side	2	150#	40	Low Low Level
K	Bottom	2	150#	40	Drain/Purge/Cleanout
L	Roof	3	150#	40	Pressure Transducer
M	Roof	2	150#	40	CO Monitor
N	Roof	3	CP'LG	40	Temperature
O	Side	2	CP'LG	40	Spare
P	Side	2	CP'LG	40	Low Level
Q	Top	4	150#	40	Adjustable High Level Indicator
R	Top	3	150#	40	Nitrogen Pressure Regulator
S	Side	2	CP'LG	40	High High Level
T	Side	2	CP'LG	40	High High High Level

1) Nozzles sizes are taken form Drawing T-1 (dated January 2005) and T-2 (dated May 2005) prepared by the The Martinson Group as presented in Appendix H.

2) Nozzle sizes and location maybe adjusted to accommodate equipment needs.

Golder Associates

SUBJECT Keystone Cement: Pump Sizing Calc - Hydrant		
Job No. 043 6375 / Ref.	Made by C.D. MUNSON / Checked / Reviewed	Date 7-26-06 / Sheet 1 of 1

Problem: Determine pump-horsepower requirements

Assume: Max vertical head = 30 ft

Max pipe length = 1000 ft

Pipe is 6" SCH 40 STEEL

No loss calculated for elbows, Tees, or valves

Parameters: Deliver 1000 gallons/minute of liquid water through 6" steel pipe at 90 psi

$$\text{Water Hp} = \frac{\text{Flow [gpm]} * \text{Head loss [ft]}}{3960}$$

$$\text{Total Head loss} = H_{LIFT} + H_{FRICTION} + H_{PRESSURE}$$

$$= 30\text{ ft} + \left[\frac{6.3\text{ ft}}{100\text{ ft pipe}}\left(1000\text{ ft pipe}\right)\right] + 90\text{ psi}\left(\frac{2.31\text{ ft}}{\text{psi}}\right)$$

$$= (30 + 63 + 207.9)\text{ ft}$$

$$\text{Total Head} = 300.9\text{ ft}$$

$$\text{Water Hp} = \frac{(1000)(300.9)}{3960} = 76\text{ Hp required @ pump}$$

No consideration given to motor or pump inefficiency.

Formulas

TEMPERATURE CONVERSIONS:

$$\text{Degrees C} = \frac{5}{9} \times (\text{Degrees F} - 32)$$

$$\text{Degrees F} = \left(\frac{9}{5} \times \text{Degrees C}\right) + 32$$

Area of a Circle:

$$\text{Area} = \pi r^2$$

Circumference of a Circle:

$$\text{Circumference} = 2\pi r$$

$$r = \text{radius}$$

$$\pi = 3.14$$

Volume of a Tank or Cistern:

$$3.14 \times (\text{radius of tank})^2 \times (\text{ht. of tank}) \times 7.48 = \text{Gallons}$$

Radius and height of tank measured in feet

7.48 = number of gallons per cubic foot of water

WORK, POWER, AND EFFICIENCY:

The amount of work required to lift 1 pound to a height of 1 foot is defined as 1 ft.-lb. To lift 100 pounds to a height of 60 feet is 100 pounds x 60 feet = 6,000 ft-lbs. This amount of energy remains the same whether it takes one minute or one hour to lift the weight. The rate of working, however, is referred to as **power** and was 6,000 ft-lbs. per minute in the first case and 100 foot pounds per minute in the second case.

Power can be represented either mechanically or electrically. **Mechanical power** is measured in horsepower (HP). One HP is the theoretical power required to raise 33,000 pounds to a height of one foot in one minute, or:

1 HP = 33,000 ft.-lb. / minute
= 550 ft.-lb. / second

Electrical power is measured in watts (w) or kilowatts (kw), and:

1,000 w = 1 kw = 1.34 hp, or
1 HP = 746 w = 0.746 kw

WATER HORSEPOWER (WHP):

Water horsepower is the power required to raise water at a specified rate against a specified head, assuming 100% efficiency.

$$\text{WHP} = \frac{\text{GPM} \times \text{Total Pumping Head}}{3{,}960}$$

BRAKE HORSEPOWER (BHP):

Brake horsepower is based on test data and can be either the horsepower developed at the motor shaft (motor output) or that absorbed at the pump shaft (pump input).

$$\text{Pump BHP} = \frac{\text{WHP} \times 100}{\text{Pump Efficiency (\%)}}$$

$$= \frac{\text{GPM} \times \text{Total Pumping Head} \times 100}{3{,}960 \times \text{Pump Efficiency (\%)}}$$

$$\text{Motor BHP} = \frac{\text{Power input} \times \text{Motor Efficiency (\%)}}{100}$$

$$= \frac{1.34 \times \text{kw input} \times \text{Motor Efficiency (\%)}}{100}$$

PUMP EFFICIENCY:

Pumps and motors, like all machines, are not 100% efficient. Not all of the energy supplied to them is converted into useful work. Pump efficiency is the ratio of power output to power input, or:

$$\text{Efficiency (\%)} = \frac{\text{Power Output} \times 100}{\text{Power Input}}$$

$$\text{Pump Eff. (\%)} = \frac{\text{WHP} \times 100}{\text{Pump BHP (Input)}}$$

$$= \frac{\text{GPM} \times \text{Total Pumping Head} \times 100}{3960 \times \text{Pump BHP (Input)}}$$

$$\text{Motor Eff. (\%)} = \frac{\text{Motor BHP (Output)} \times 100}{1.34 \times \text{kw input}}$$

$$\text{Plant Eff. (\%)} = \frac{\text{GPM} \times \text{Total Pumping Head} \times 100}{5{,}300 \times \text{kw Input}}$$

ELECTRIC POWER (AC):

E = Electrical pressure (volts). Similar to hydraulic head.
I = Electrical current (amps). Similar to rate of flow.
W = Electrical power (watts) = E x I x PF
kw = Kilowatt (1,000 watts)
kw-hr. = Kilowatt-hour = 1,000 watts for one hour
Apparent Power = E x I = volt-amperes
PF = Power Factor = Useful Power ÷ Apparent Power

Power Calculations for Single-Phase Power

W (Watts) = E x I x PF

NOTE: When measuring single-phase power use a single-phase wattmeter.

Input HP to motor = W ÷ 746 = 1.34 x kw

Power Calculations for Three-Phase Power

W (Watts) = 1.73 x E x I x PF

Where: E = effective (RMS) voltage between phases
I = average current in each phase

NOTE: When measuring three-phase power use either (1) three-phase wattmeter, (2) single-phase wattmeters, or the power company's revolving disc wattmeter.

When calculating power with a revolving disc wattmeter use the following formulas:

$$\text{kw Input} = \frac{K \times R \times 3.60}{t}$$

$$\text{Input HP (to motor)} = \frac{K \times R \times 3{,}600}{746 \times t}$$

$$= \frac{K \times R \times 4.83}{t}$$

$$\text{Motor BHP (output)} = \frac{\text{Input HP} \times \text{Motor Eff. (\%)}}{100}$$

Where K = Meter constant = watts per revolution of revolving disc (value of K is marked on the meter nameplate or on the revolving disc). Where current transformers are used, multiply meter constant by current transformer ratio.

R = Number of disc revolutions counted.

t = Time in seconds for R revolutions.

Golder Associates	SUBJECT Keystone Cement - Pipe Support CALC - deflection & bend stress		
	Job No. 043 6335 Ref.	Made by C.D. Munson Checked SDGLAZER Reviewed	Date 7-27-06 Sheet 1 of 2

Problem: Determine max bending stress & deflection of simply supported C5x6.7 pipe support beam

Assumptions: 10' max distance between supports (see attached B-Line pipe support ref sheet)

(3) 2" SCH 160, fluid-filled pipes + (3) 2½" SCH 160, fluid-filled pipes is max # of pipes between supports

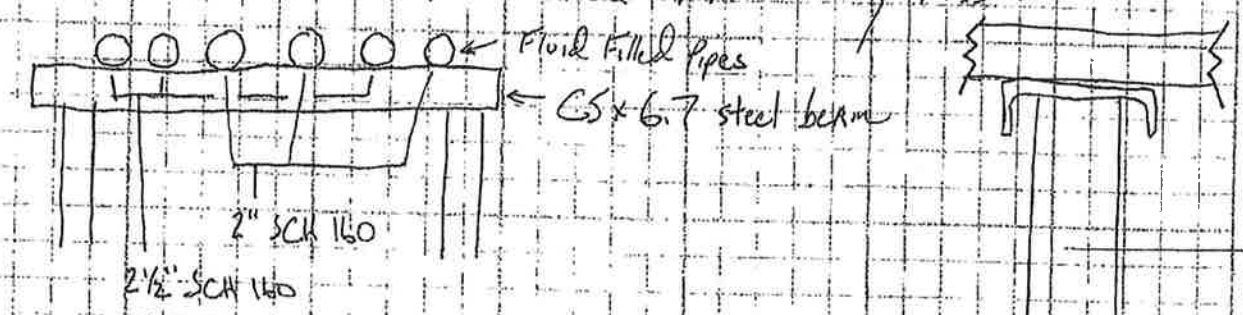
Fluid specific gravity of 1.2

Evenly distributed loading

Pipe support beam is 36" long, C5x6.7, simply supported

σ_{yield} = 30 ksi min (AISI 1020 hot rolled carbon steel)

Methodology: a) calculate weight carried by each support
b) calculate max deflection in beam
c) calculate associated max bending stress



a) 2" SCH 160 filled w/ fluid (S.G = 1.2): Weight per linear foot

$$W_{TOTAL-2"} = W_{pipe} + W_{FLUID} = W_{pipe} + \left[(\rho_{H_2O} \times 1.2) \cdot V_{pipe}\right] \Rightarrow$$

$$= 7.46 \text{ lbs} + \left[\left(62.43 \frac{\text{lbs}}{\text{ft}^3} \cdot 1.2\right)\left(1' \left(\pi \cdot \left(\frac{.8435}{12} \text{ ft}\right)^2\right)\right)\right]$$

$$= 7.46 \text{ lbs} + \left[74.916 \frac{\text{lbs}}{\text{ft}^3}\left(0.0155224 \text{ ft}^3\right)\right]$$

$$= 7.46 \text{ lbs} + 1.16 \text{ lbs.}$$

$$= 8.6229 \text{ lbs} \doteq \frac{8.62 \text{ lbs}}{\text{ft.}}$$

Golder Associates	SUBJECT Keystone Cement - Pipe Support CALC		
	Job No. 043 6335 Ref.	Made by C.O. MUNSON Checked SD GLAZIER Reviewed	Date 7-27-06 Sheet 2 of 2

a cont.) 2½" SCH 160 filled w fluid (S.G. = 1.2)

$$W_{TOTAL-2\frac{1}{2}"} = 10.01\ lbs + \left[74.916\ \frac{lbs}{ft^3}\left(1'\left(\pi\left(\frac{1.0625}{12}\ ft\right)^2\right)\right)\right]$$

$$= 10.01\ lbs + \left[74.916\ \frac{lbs}{ft^3}\left(0.024629\ ft^3\right)\right]$$

$$= 10.01\ lbs + 1.845\ lbs$$

$$= 11.8551 = \underline{11.86\ \frac{lbs}{ft.}}$$

Weight per support

$$W_{support} = W_{2"pipes} + W_{2\frac{1}{2}"pipes} + W_{support\ beam}$$

$$= 3\left(8.6229\ \frac{lbs}{ft} \cdot 10\ ft\right) + 3\left(11.8551\ \frac{lbs}{ft} \cdot 10\ ft\right) + 3ft\left(6.7\ \frac{lbs}{ft}\right)$$

$$= 258.687\ lbs + 355.653\ lbs + 20.1\ lbs$$

$$= 634.44\ lbs \text{ per support}$$

b) $$\delta_{MAX} = \frac{5wl^4}{384EI} = \frac{5\left[\frac{634.44\ lbs}{3\ ft}\right](3\ ft)^4}{384\left(30E6\ \frac{lbs}{in^2}\right)\left(0.478\ in^4\right)} = \frac{5\left(211.48\ \frac{lbs}{ft}\right)\left(81\ ft^4\right)\left(\frac{12\ in}{ft}\right)^4}{550656E4\ lbs \cdot in^2}$$

$$= \frac{148002163.2\ lbs \cdot in^3}{550656E4\ lbs \cdot in^2} = 0.026877\ in = 2.7E-2\ in$$

c) $$\sigma_{MAX} = \frac{wl}{8Z}$$ where Z = section modulus

$$= \frac{(634.44\ lbs)(36\ in)}{8\left(\frac{0.478\ in^4}{1.266\ in}\right)} = \frac{22839.84\ in \cdot lbs}{3.02054\ in^3} = 7562\ psi$$

$$S.F\ (\text{safety factor}) = \frac{\sigma_{yield}}{\sigma_{MAX}} = \frac{3063\ psi}{7562\ psi} = 3.97$$

SCHEDULE 40 STEEL PIPE DATA

Nominal Pipe Size In	mm	Pipe O.D. In	mm	Wall Thickness In	mm	Weight of Pipe Lbs./Ft.	kg/m	Weight of Pipe Filled With Water Lbs./Ft.	kg/m	Maximum* Span Ft.	Meter	Recommended Hanger Rod Size
3/8"	(10)	.675	(17.1)	.091	(2.3)	.6	(.9)	.7	(1.0)			
1/2"	(15)	.840	(21.3)	.109	(2.7)	.8	(1.2)	.9	(1.3)	7	(2.13)	3/8"-16
3/4"	(20)	1.050	(26.7)	.113	(2.9)	1.1	(1.7)	1.3	(2.0)	7	(2.13)	3/8"-16
1"	(25)	1.315	(33.4)	.133	(3.4)	1.7	(2.5)	2.1	(3.0)	7	(2.13)	3/8"-16
1 1/4"	(32)	1.660	(42.1)	.140	(3.5)	2.3	(3.4)	2.9	(4.3)	7	(2.13)	3/8"-16
1 1/2"	(40)	1.900	(48.2)	.145	(3.7)	2.7	(4.0)	3.6	(5.3)	9	(2.74)	3/8"-16
2"	(50)	2.375	(60.3)	.154	(3.9)	3.6	(5.4)	5.0	(7.5)	10	(3.05)	3/8"-16
2 1/2"	(65)	2.875	(73.0)	.203	(5.1)	5.8	(8.6)	7.9	(11.7)	11	(3.35)	1/2"-13
3"	(80)	3.500	(88.9)	.216	(5.5)	7.6	(11.2)	10.8	(15.9)	12	(3.66)	3/8"-16
3 1/2"	(90)	4.000	(101.6)	.226	(5.7)	9.1	(13.5)	13.4	(19.8)	13	(3.96)	1/2"-13
4"	(100)	4.500	(114.3)	.237	(6.0)	10.8	(16.0)	16.3	(24.2)	14	(4.27)	5/8"-11
5"	(125)	5.563	(141.3)	.258	(6.5)	14.6	(21.7)	23.2	(34.6)	16	(4.87)	5/8"-11
6"	(150)	6.625	(168.3)	.280	(7.1)	19.0	(28.2)	31.5	(46.8)	17	(5.18)	3/4"-10
8"	(200)	8.625	(219.1)	.322	(8.2)	28.5	(42.5)	50.1	(74.6)	19	(5.79)	3/4"-10
10"	(250)	10.750	(273.0)	.365	(9.3)	40.5	(60.2)	74.6	(110.9)	22	(6.69)	7/8"-9
12"	(300)	12.750	(323.8)	.406	(10.3)	51.1	(75.9)	102.1	(151.9)	23	(7.01)	7/8"-9
14"	(350)	14.000	(355.6)	.437	(11.1)	63.0	(93.7)	121.5	(180.7)	25	(7.62)	1"-8
16"	(400)	16.000	(406.4)	.500	(12.7)	83.0	(123.5)	159.5	(237.3)	27	(8.23)	1"-8
18"	(450)	18.000	(457.2)	.563	(14.3)	105.0	(156.2)	202.2	(300.8)	28	(8.53)	1"-8
20"	(500)	20.000	(508.0)	.593	(15.1)	123.0	(183.0)	243.4	(361.8)	30	(9.14)	1 1/4"-7
24"	(600)	24.000	(609.6)	.687	(17.4)	171.0	(254.5)	345.2	(513.7)	32	(9.75)	1 1/4"-7

SCHEDULE 80 STEEL PIPE DATA

Nominal Pipe Size In	mm	Pipe O.D. In	mm	Wall Thickness In	mm	Weight of Pipe Lbs./Ft.	kg/m	Weight of Pipe Filled With Water Lbs./Ft.	kg/m	Maximum* Span Ft.	Meter	Recommended Hanger Rod Size
3/8"	(10)	.675	(17.1)	.126	(3.2)	.7	(1.1)	.8	(1.2)			
1/2"	(15)	.840	(21.3)	.147	(3.7)	1.1	(1.6)	1.2	(1.7)	7	(2.13)	3/8"-16
3/4"	(20)	1.050	(26.7)	.154	(3.9)	1.5	(2.2)	1.7	(2.5)	7	(2.13)	3/8"-16
1"	(25)	1.315	(33.4)	.179	(4.5)	2.2	(3.2)	2.5	(3.6)	7	(2.13)	3/8"-16
1 1/4"	(32)	1.660	(42.1)	.191	(4.8)	3.0	(4.4)	3.5	(5.2)	7	(2.13)	3/8"-16
1 1/2"	(40)	1.900	(48.2)	.200	(5.1)	3.6	(5.4)	4.3	(6.5)	9	(2.74)	3/8"-16
2"	(50)	2.375	(60.3)	.218	(5.5)	5.0	(7.5)	6.3	(9.4)	10	(3.05)	3/8"-16
2 1/2"	(65)	2.875	(73.0)	.276	(7.0)	7.6	(11.4)	9.4	(14.1)	11	(3.35)	1/2"-13
3"	(80)	3.500	(88.9)	.300	(7.6)	10.2	(15.2)	13.0	(19.4)	12	(3.66)	3/8"-16
3 1/2"	(90)	4.000	(101.6)	.318	(8.1)	12.5	(18.6)	16.3	(24.3)	13	(3.96)	1/2"-13
4"	(100)	4.500	(114.3)	.337	(8.5)	15.0	(22.3)	20.0	(29.7)	14	(4.27)	5/8"-11
5"	(125)	5.563	(141.3)	.375	(9.5)	20.8	(30.9)	28.7	(42.6)	16	(4.87)	5/8"-11
6"	(150)	6.625	(168.3)	.432	(11.0)	28.6	(42.5)	39.9	(59.3)	17	(5.18)	3/4"-10
8"	(200)	8.625	(219.1)	.500	(12.7)	43.4	(64.5)	63.1	(93.9)	19	(5.79)	3/4"-10
10"	(250)	10.750	(273.0)	.593	(15.0)	64.4	(95.8)	95.5	(142.1)	22	(6.69)	7/8"-9
12"	(300)	12.750	(323.8)	.687	(17.4)	88.6	(131.8)	132.6	(197.3)	23	(7.01)	7/8"-9
14"	(350)	14.000	(355.6)	.750	(19.0)	107.0	(159.2)	158.2	(235.4)	25	(7.62)	1"-8
16"	(400)	16.000	(406.4)	.843	(21.4)	137.0	(203.9)	206.7	(306.6)	27	(8.23)	1"-8
18"	(450)	18.000	(457.2)	.937	(23.8)	171.0	(254.5)	259.5	(386.2)	28	(8.53)	1"-8
20"	(500)	20.000	(508.0)	1.031	(26.2)	209.0	(311.0)	318.4	(473.8)	30	(9.14)	1 1/4"-7
24"	(600)	24.000	(609.6)	1.218	(30.9)	297.0	(442.0)	455.2	(677.4)	32	(9.75)	1 1/4"-7

Based on ASTM A53-86.
1 cubic ft. of water weighs 62.41 lbs.
1 gallon (U.S.) weighs 8.335 lbs.
1 cubic meter of water weighs 999.97 kg.
1 liter weighs .999 kg.

Based on MSS SP-69 Table 3 & 4.
*Many codes require pipe hangers to be spaced every 10' (3.048 meters) regardless of size. Check local codes.
Spacing and capacities are based on water filled pipe. Closer hanger spacing may be required where additional valves and fittings increase the load.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

APPENDIX P
PERSONNEL TRAINING

Appendix P Table of Contents

Appendix P-1	**Outline of Training Program**
Appendix P-2	**Example Facility Job Titles/Job Descriptions**
Appendix P-3	**Example Hazardous Waste Training Course Content**
Appendix P-4	**Example Training Roster**
Appendix P-5	**Personnel Training Matrices**

APPENDIX P.1

Outline of Training Program

TYPICAL ITEMS COVERED IN KEYSTONE CEMENT COMPANY'S HAZARDOUS WASTE TRAINING COURSES

1. INTRODUCTION AND REGULATORY OVERVIEW
   A. Pennsylvania Hazardous Waste Regulations
   B. Resource Conservation and Recovery Act Regulations
   C. Other PA Water and Air Quality Regulations
   D. Other Health and Safety Laws and Regulations
   E. MSHA Regulations
   F. Contingency Plan Review

2. CONTINGENCY PLAN (PPC)
   A. Review chain of command
   B. Review evacuation routes
   C. Review first responder guides
   D. Review emergency signal notification
   E. Review emergency notifications

3. RIGHT TO KNOW
   A. Safety Data Sheet review
   B. Hazard communication standard
   C. Chemical labeling

4. PROTECTIVE EQUIPMENT
   A. Understand protective equipment uses and limitations
   B. Respirator use
   C. Eye wash stations
   D. Care of personal protective equipment

5. WASTE SAMPLING
   A. Review sampling methods
   B. Review chain of command
   C. Review procedures

6. WASTE OFF-LOADING
   A. Review proper hookup
   B. Review specific permit requirements
   C. Review safety requirements

7. TANK AND CONTAINER MANAGEMENT
    A. Review specific permit requirements
    B. Review regulation pertaining to tanks and containers
    C. Proper Handling

8. WASTE OFF-LOADING
    A. Review proper hookup
    B. Review specific permit requirements
    C. Review safety requirements

9. RECORDKEEPING
    A. Understand person's area of responsibility
    B. Understand what constitutes a deficiency

10. MANIFEST REVIEW
    A. Proper completion of manifests
    B. Ensure manifests meet permit conditions

11. INSTRUMENTATION
    A. Review standard operating procedures
    B. Review manufacturer's handbook
    C. Review regulatory requirements

12. TOXICOLOGY
    A. Dose/response relationships
    B. Routes of exposure
    C. Toxic effects

13. INTERLOCKS
    A. Proper operation
    B. Manufacturer's handbook
    C. Regulatory requirements

14. MISCELLANEOUS ITEMS (POTENTIALLY COVERED)
    A. Hot works Procedures
    B. Electrical
    C. Hazards
    D. First Aid/CPR
    E. Prevention of accidents
    F. Combustion
    G. CEMs

APPENDIX P.2
Example Facility Job Titles/Job Descriptions

JOB TASK SUMMARY SHEET

Job Titles:

Environmental, Health, and Safety Management (e.g., Safety Manager, Manager, Environmental Compliance, Environmental Compliance Coordinator)

Duties and Responsibilities:

- Responsible for maintaining a high standard of health and safety in plant and waste management operations
- Responsible for maintaining personnel protection and monitoring programs in accordance with MSHA and OSHA regulations
- Responsible for providing health, safety and RCRA training for plant personnel as required to perform their position safely and effectively
- Responsible for implementing the PPC Plan

Education or Other Qualifications:

- College degree in one of the sciences or suitable experience in health, safety, environmental compliance, and/or supervision
- KCC waste training
- Outside seminar and specialty training

JOB TASK SUMMARY SHEET

Job Title:

Plant Management (e.g. Plant Manager, Quality Manager, Maintenance Manager)

Duties and Responsibilities:

- The duties of plant management are to assure that all jobs are performed in a safe and responsible manner and in compliance with the pertinent laws and regulations
- Coordinate emergency procedures

Qualifications:

- College degree in one of the sciences or suitable experience in cement plant operations
- Plant management should be familiar with the job functions of all employees and with the appropriate safety features needed for maximum job safety
- Proficient in creating and implementing standard operating procedures
- Have working knowledge of applicable permits

JOB TASK SUMMARY SHEET

Job Title:

Fuels Manager

Duties and Responsibilities:

- Direct and assist in burning of solvents including oversight of the air pollution control and continuous emissions monitoring systems and automatic interlock systems
- Routinely check solvent pumps, tanks, and lines
- Ensure safety of employees who have direct contact with solvents
- Coordinate emergency procedure
- Instruct all persons involved in the burning of hazardous waste fuel
- Look for leaks at pumps, valves, pressure switches, hoses, etc. Terminate burning of solvents, if necessary
- Have personnel perform all tasks in a manner that will not directly or indirectly interfere with standard operating procedures or that contribute to an upset or malfunction of any safety or environmental compliance apparatus

Qualifications:

- College degree in one of the sciences or suitable experience in the management and handling of hazardous waste
- Know and understand burning process and all associated systems including waste fuel burning, storing and transfer, air pollution control and continuous emissions monitoring system
- Know and understand pertinent portions of the PA Air Permit, and RCRA Part B regulations that are relative to burning waste fuel.
- Know and understand the interlock system whereby waste fuel is cut off during malfunctions and parameters required by the PA Air Permit, BIF, and Part B regulations
- Know and understand all safety requirements including proper safety methods and equipment
- Know and understand PPC Plan and be able to implement plan under emergency situations

JOB TASK SUMMARY SHEET

Job Title:

Resource Recovery Laboratory Manager and Resource Recovery Lab Technician

Duties and Responsibilities:

- Ensure the proper preservation of collected sample
- Ensure proper calibration of all analytical instruments
- Perform laboratory analytical tests as written in the facility Waste Analysis Plan
- Provide timely results to Resource Recovery Personnel
- Immediately report any non-conformance to the Waste Analysis Plan to the Fuels Manager and/or Resource Recovery Personnel
- Properly handle and dispose of residual sample material in accordance with RCRA regulations

Qualifications:

- High school degree or equivalent and experience in a laboratory environment
- Know and understand the requirements for proper analyses test in accordance with all applicable guidelines and regulations
- Know and understand all safety requirements including proper safety methods and equipment
- Know and understand PPC Plan and be able to implement plan under emergency situations

JOB TASK SUMMARY SHEET

Job Title:

Shift Foreman

Duties and Responsibilities:

- Direct and assist in burning of solvents including oversight of the air pollution control and continuous emissions monitoring systems and automatic interlock systems
- Ensure safety of employees who have direct contact with solvents
- Coordinate emergency procedure
- Instruct all persons involved in the burning of hazardous waste fuel
- Look for leaks at pumps, valves, pressure switches, hoses, etc. Terminate burning of solvents, if necessary
- Have personnel perform all tasks in a manner that will not directly or indirectly interfere with standard operating procedures or that contribute to an upset or malfunction of any safety or environmental compliance apparatus

Qualifications:

- High school degree or equivalent
- Know and understand burning process and all associated systems including waste fuel burning, storing and transfer, air pollution control and continuous emissions monitoring system
- Know and understand pertinent portions of the PA Air Permit, and RCRA Part B regulations that are relative to burning waste fuel.
- Know and understand the interlock system whereby waste fuel is cut off during malfunctions and parameters required by the PA Air Permit, BIF, and Part B regulations
- Know and understand all safety requirements including proper safety methods and equipment
- Know and understand PPC Plan and be able to implement plan under emergency situations

JOB TASK SUMMARY SHEET

Job Title:

Repair – Maintenance - Utility

Duties and Responsibilities:

- Assist in maintaining all systems related to the operation of the kiln(s) including hazardous waste fuel systems
- Perform all tasks in a manner that will not directly or indirectly interfere with standard operating procedures or that contribute to an upset or malfunction of any safety or environmental apparatus
- Assist PPC Plan coordinator with procedures necessary to implement any portion of the PPC Plan or other emergency

Qualifications:

- High school degree or equivalent
- Know and understand all systems and mechanical equipment including pumps, mechanical drives, etc.
- Know and understand PPC Plan

JOB TASK SUMMARY SHEET

Job Title:

Environmental Technician

Duties and Responsibilities:

- Direct and assist in receiving of waste-derived fuel
- Perform routine inspections of pumps, tanks, containment areas, & piping
- Complete manifests and routine paperwork
- Unload waste materials
- Assist, if necessary, with emergency response activities
- Determine and utilize what safety and protective gear is necessary and required for duty at hand

Qualifications:

- High school degree or its equivalent
- Trained and familiar with the regulations and requirements applicable to the position
- Mechanically aware
- Capable of reading and understand written operating procedures
- Familiarity with cement plants
- Know and understand the storage facility operations
- Know and understand PPC Plan

JOB TASK SUMMARY SHEET

Job Title:

Control Room Operator (e.g., Resource Recovery Control Room Operator, Kiln Control Room Operator)

Duties and Responsibilities:

- Know and understand the proper operating parameters using standard operating procedures during start up, shut down, and abnormal or emergency operations
- Monitor all areas of the solvent system through closed circuit TV and notify proper person to correct any condition that needs attention such as leaking lines, tanks, valves, or fire or smoke
- Confirm with anyone working on equipment that their performance will not directly or indirectly interfere with standard operating procedures or that contribute to an upset or malfunction of any safety or environmental compliance apparatus
- Ensure that the computer systems are adequately monitoring and maintaining all appropriate operating data and parameters as required by regulations or permits
- Coordinate with Shift Foreman the procedures necessary to implement any portion of the PPC Plan or other emergency conditions.

Qualifications:

- High school degree or its equivalent
- Proficient in reading and understand standard operating procedures
- Know and understand PPC Plan
- Knowledgeable about plant operations and applicable regulations

JOB TASK SUMMARY SHEET

Job Title:

Control Room Relief Operator

Duties and Responsibilities:

- Assist Control Room Operator in any areas determined by him to maintain proper operating parameters in the operation of the kiln and related auxiliary equipment including the hazardous waste burning systems and its interlocks
- Perform all task in a manner that will not directly or indirectly interfere with standard operating procedures or that contribute to an upset or malfunction of any safety or environmental apparatus
- Inspects system for leaks at pumps, valves, pressure switches, hoses, feeders, etc, in the hazardous waste burning systems. Report problems to Shift Foreman
- Maintain good housekeeping in designated areas in order to perform duties safely. Clean up minor spills at hazardous waste burning systems
- Coordinate with Shift Foreman procedures necessary to implement any portion of the PPC Plan or other emergency conditions.

Qualifications:

- High school degree or its equivalent
- Proficient in reading and understand standard operating procedures
- Know and understand the PPC Plan
- Knowledgeable about plant operations and applicable regulation

JOB TASK SUMMARY SHEET

Job Title:

Electrical Manager and Electrical Technician

Duties and Responsibilities:

- Maintain all electrical and instrumentation equipment involved in the operation of the kilns including the hazardous waste fuel systems
- Perform all tasks in a manner that will not directly or indirectly interfere with standard operating procedures or that contribute to an upset or malfunction of any safety or environmental apparatus
- Know and understand the hazardous waste fuel interlock system whereby waste fuel feed is cut off

Qualifications:

- Know and understand manufacturers' recommendations for maintenance and calibration for all monitoring and control equipment
- Know and understand the operation and maintenance procedures for dust collectors
- Know and understand solvent unloading, transfer, and feed pump electrical drives
- Advanced electrical training

APPENDIX P.3

Example Hazardous Waste Training Course Content

Example Hazardous Waste Training Course Content

1. **Introduction and Overview**
    A. Pennsylvania Hazardous Waste Regulations
    B. Resource Conservation and Recovery Act Regulations
    C. Other PA Water and Air Quality Regulation
    D. Other Health and Safety Laws and Regulations
    E. MSHA Regulations

2. **Identification and Listing**
    A. Determination of Hazardous waste classification
    B. Exclusions
    C. Characteristics of hazardous waste
        I. Ignitibility
        II. Corrosivity
        III. Reactivity
        IV. Toxicity

3. **Recycling Exemptions**
4. **Generator Requirements**
    A. Hazardous waste determination
    B. Identification number
    C. Authorization
    D. Manifest
    E. Pretransport requirements (packaging, labeling, marking, and placarding)
    F. Recordkeeping
    G. Quarterly reports
    H. Exemption reports
    I. Additional reports
    J. Hazardous waste disposal plan

5. **Personnel Training Requirements**
6. **Hazardous Waste Discharges/Spills**
    A. Spill Reporting
    B. Contingency Plans (PPC Plans)
    C. Contingency Plan Responsibility

7. **Transporter Requirements**
    A. Scope
    B. Identification number
    C. Licensing
    D. Manifest
    E. Preparation of shipment
    F. Markings
    G. Labeling
    H. Recordkeeping
    I. Hazardous waste discharge or spill contingency plan
    J. Safety

8. **Hazardous Waste Treatment, Storage, & Disposal Facility (TSDF)**
    A. Applicability
    B. Identification numbers
    C. General requirements for hazardous waste management approvals and analysis
    D. Waste Analysis Plan
    E. Security
    F. Inspection requirements, logs, and completion of forms
    G. Personnel Training
    H. General requirements for ignitable, reactive, or incompatible wastes
    I. Preparedness and prevention
    J. Preparedness, Prevention and Contingency (PPC) Plan
    K. Manifest system and discrepancy reporting

L. Operating record

M. Retention and disposition of records

N. Quarterly facility report

O. Groundwater monitoring

P. Closure and post-closure

Q. Use and management of containers

R. Tanks

S. Surface impoundments

T. Waste piles

U. Land treatment

V. Landfills

W. Interim status/permits

9. First Aid

A. Burns and scalds

B. Control of bleeding

C. Fractures and dislocations

D. Shock

E. Open & closed wounds

F. Medical emergencies

10. CPR

11. Plant Safety

A. Fire Prevention - Knowing Is Not Enough

B. Mobile Equipment Safety

12. Hazardous Waste Handling

A. Right-To-Know

B. Reading the SDS

C. Chemicals Under Control

13. Personal Protective Equipment

A. SCBA

B. Clothing

C. Personal Respiratory Equipment

14. An Introduction to Toxicology

15. On-The-Job Training

A. Job Functions

APPENDIX P.4

Example Training Roster

EXAMPLE TRAINING ROSTER

KEYSTONE CEMENT COMPANY

_____

Employee's Name

Course/Topic	Date	Employee Signature
1. Introduction		
2. Identification and Listing of Wastes		
3. Recycling Exemption		
4. Generator Requirements		
5. Personnel Training Requirements		
6. Hazardous Waste Discharge		
7. Transporter Requirements		
8. TSD Facility Requirements		
9. First Aid		
10. CPR		
11. Plant Safety		
12. Hazardous Waste Handling		
13. Personnel Protection Equipment		
14. Toxicology		
15. On-the-Job Training		

APPENDIX P.5

Personnel Training Matrices

TABLE P-5.1
KEYSTONE CEMENT COMPANY
HAZARODUS WASTE TRAINING

	A	B	C	D	E	F	G	H	I
	Env Tech	R.R. Facility Mgr	Plant Mgmt	Shift Super	Envr Comp Mgr	Maint Tech	Elec Tech	Cntrl Room Opr	Lab Mgr, Lab Tech
Regulation overview[1]	X	X	X	X	X	X	X	X	X
PPC Plan[1]	X	X	X	X	X	X	X	X	X
Right-to-Know[1]	X	X	X	X	X	X	X	X	X
Protective Equipment[1]	X	X	X	X	X	X	X	X	X
Waste Sampling[1 2]	X				X				X
Waste Off-Loading[1 2]	X				X				X
Tank and Container Management[1 2]	X				X				X
Facility Inspections[1 2]	X	X	X	X	X	X	X	X	X
Recordkeeping[1 2]	X	X	X	X	X	X	X	X	X
Manifest Review[1 2]	X				X				X
Instrumentation[1 2]	X	X		X	X		X	X	X
Toxicology[1 2]	X	X	X	X	X	X	X	X	
Interlocks[1 2]	X	X	X	X	X		X	X	

Notes:
[1] Training component includes classroom instruction.
[2] Training topic includes on the job training.

The personnel identified in the above columns include each of the following job functions:

A| Env Tech	Environmental Technician	F| Maint Tech	Repair - Maintenance - Utility
B| R.R. Facility Mgr	Resource Recovery Facility Manager, Fuels Manager	G| Elec Tech	Electrical Manager and Electrical Technician
C | Plant Mgmt	Plant Management	H| Cntrl Room Opr	Control Room Operator (Kiln and R.R.), Control Room Relief Operator
D| Shift Super	Production Manager, Coordinator, Shift & Utility Foreman Supervisor	I| Lab Mgr, Lab Tech	Laboratory Manager, Laboratory Technician
E| Env Comp Mgr	Manager, Envr. Compliance & Coordinator, Safety Manager		

TABLE P-5.2
KEYSTONE CEMENT COMPANY
LISTS OF HAZARODUS WASTE SOPs and SUMMARY OF SOP TRAINING[1]

	A	B	C	D	E	F	G	H	I	J
DOCUMENT | STANDARD OPERATING PROCEDURE (SOP)	ENV TECH	R.R. FACILITY MGR	PLANT MGMT	SHIFT SUPER	ENV COMP MGR	MAINT TECH	ELEC TECH	CNTRL ROOM OPR	LAB MGR	LAB TECH
Waste Fuel Operation Plan	X	X	X	X	X				X	
PPC Plan	X	X	X	X	X	X	X	X	X	X
Lab SOPs		X	X		X				X	X
WF-00 Document Formatting	X[1]	X	X		X					
WF-01 Sampling of a Bulk Liquid Container	X	X	X		X					
WF-02 Waste Acceptance/Rejection Procedure	X	X	X		X				X	X
WF-03 Qualifying Waste Fuel Burn Tanks	Deleted									
WF-04 Storage Tank Sampling	X	X	X		X					
WF-05 Unloading Procedure	X	X	X		X					
WF-06 Process Change	X[1]	X	X	X	X	X	X	X	X	X
WF-07 Nitrogen System Inspection and Maintenance	X	X	X		X					
WF-08 Daily Waste Fuel Systems Inspection Procedure	X	X	X		X					
WF-09 Foam System Inspection and Maintenance	X	X	X		X					
WF-10 Carbon Canister Replacement Procedure	X	X	X		X					
WF-11 Liquid Level Alarm Inspection and Maintenance	X	X	X		X			X		
WF-12 Resource Recovery Facility Stormwater Management	X	X	X	X	X				X	
WF-13 Carbon Vent Line Condensate Draining	X	X	X		X					
WF-14 VOC Monitoring	X	X	X		X					
WF-15 Waste Fuel Feed Lines Purge Procedure	X	X	X	X	X			X		
WF-16 Left Blank										
WF-17 Left Blank										

TABLE P-5.2
KEYSTONE CEMENT COMPANY
LISTS OF HAZARODUS WASTE SOPs and SUMMARY OF SOP TRAINING[1]

	A	B	C	D	E	F	G	H	I	J
DOCUMENT | STANDARD OPERATING PROCEDURE (SOP)	ENV TECH	R.R. FACILITY MGR	PLANT MGMT	SHIFT SUPER	ENV COMP MGR	MAINT TECH	ELEC TECH	CNTRL ROOM OPR	LAB MGR	LAB TECH
WF-18 Carbon System Temperature Device Inspection and Maintenance	X	X	X		X		X			
WF-19 Carbon System Pressure Relief Device Inspection and Maintenance	X	X	X		X					
WF-20 Carbon System Flame Arrestor Inspection and Maintenance	X	X	X		X					
WF-21 Carbon System Carbon Canisters Inspection and Maintenance	X	X	X		X					
WF-22 Carbon System CO + O2 Monitoring System Inspection and Maintenance	X	X	X		X		X			
WF-23 Tank System Temperature Device Inspection and Maintenance	X	X	X		X		X			
WF-24 Tank System Pressure Sensors Inspection and Maintenance	X	X	X		X		X			
WF-25 Tank System Flame Detonator Inspection and Maintenance	X	X	X		X					
WF-26 Tank System Emergency Relief Vents Inspection and Maintenance	X	X	X		X					
WF-27 Tank System Agitators Inspection and Maintenance	X	X	X		X					
WF-28 Tank System Structural Integrity Inspection and Maintenance	X	X	X		X					
WF-29 Piping System Structural Integrity Inspection and Maintenance	X	X	X		X					
WF-30 Containment Area Structural Integrity Inspection and Maintenance	X	X	X		X					
WF-31 Tank System Incident Response	X	X	X	X	X	X	X	X	X	X

TABLE P-5.2
KEYSTONE CEMENT COMPANY
LISTS OF HAZARODUS WASTE SOPs and SUMMARY OF SOP TRAINING[1]

	A	B	C	D	E	F	G	H	I	J
DOCUMENT | STANDARD OPERATING PROCEDURE (SOP)	ENV TECH	R.R. FACILITY MGR	PLANT MGMT	SHIFT SUPER	ENV COMP MGR	MAINT TECH	ELEC TECH	CNTRL ROOM OPR	LAB MGR	LAB TECH
WF-32 CO Alarm Incident Response	X	X	X	X	X			X		
WF-33 Operations Exceedance Reporting	X	X	X	X	X		X	X		
WF-34 Tank System Liquid Level Alarm Response	X	X	X	X	X			X		
WF-35 Tank System High Temperature Response	X	X	X	X	X			X		
WF-36 Tank System High Pressure Level Incident Response	X	X	X	X	X			X		
WF-37 Emergency Response	X	X	X	X	X	X	X	X	X	X
WF-38 Waste Fuels Operations Plan Review and Update	X	X	X	X	X	X	X	X	X	X
WF-39 Open Flame and Hot Work	X	X	X	X	X	X	X	X	X	X
WF-40 Personal Hygiene Procedure	X	X	X	X	X	X	X	X	X	X
WF-41 Personal Protective Equipment Requirements	X	X	X	X	X	X		X	X	X
WF-42 Respirator Use	X	X	X	X	X	X		X	X	X
WF-43 Communication Device Procedure	X	X	X	X	X	X	X	X	X	X
WF-44 Contractor Safety and Health Program	X	X	X	X	X	X		X	X	X
WF-45 Emergency Siren	X	X	X	X	X	X	X	X	X	X
WF-46 Waste Fuel Operations Plan and SOP Training		X	X		X					
WF-47 Waste Fuel Flow meter Calibration and Verification	Deleted									
WF-48 Waste Fuel Flow meter Security			X	X	X		X	X		
WF-49 Waste Fuel Flow Systems Inspection Form			X	X	X		X	X		
WF-50 Documentation Requirements for the Waste Fuel Operations Plan	X[1]	X	X	X	X	X	X	X	X	X

TABLE P-5.2
KEYSTONE CEMENT COMPANY
LISTS OF HAZARODUS WASTE SOPs and SUMMARY OF SOP TRAINING[1]

	A	B	C	D	E	F	G	H	I	J
DOCUMENT | STANDARD OPERATING PROCEDURE (SOP)	ENV TECH	R.R. FACILITY MGR	PLANT MGMT	SHIFT SUPER	ENV COMP MGR	MAINT TECH	ELEC TECH	CNTRL ROOM OPR	LAB MGR	LAB TECH
WF-51 Plant Visitors Policy and Procedures	X	X	X	X	X	X	X	X	X	X
WF-52 Purge Storage Tanks with Nitrogen	X	X	X		X					
WF-53 Confined Space	X	X	X	X	X	X	X		X	
WF-54 Emergency Equipment	X	X	X		X					
WF-55 Containment Area Cleanup	X	X	X	X	X					
WF-56 Vapor Balance System-Conservation Vent Inspection and Maintenance	X	X	X		X					
WF-57 Vapor Balance System-Pressure Sensor Inspection and Maintenance	X	X	X		X		X			
WF-58 Vapor Balance System-Flame Arrestor Inspection and Maintenance	X	X	X		X					
WF-59 Vapor Recovery	X	X	X		X					
WF-60 Truck Staging and Parking Areas	X	X	X	X	X					
WF-62 Daily Inspection Procedure for Kiln Residue Management Equipment	X	X	X	X	X					
WF-63 Truck Staging Area: RMP Limits	X	X	X	X	X					

NOTES:

[1] This table will be updated as necessary, including the addition of new SOPs. It will be maintained by plant staff (main office) in agreement with the content of Waste Fuels SOP procedure WF-46 (same table is referenced there-in).

[2] The Documents Coordinator is also included with the Environmental Technicians for this standard operating procedure.

The personnel identified in the above columns include each of the following job functions:

A| Env Tech - Environmental Technician, Unloader, & Maintenance
B| R.R. Facility Mgr - Resource Recovery Facility Manager
C | Plant Mgmt - Plant Management
D| Shift Super - Production Manager, Coordinator, Shift & Utility Supervisor
E| Env Comp Mgr - Manager, Environmental Compliance & Coordinator
F| Maint Tech - Maintenance Manager & all maintenance personnel
G| Elec Tech - Electrical Manager and Electrical Technician
H| Cntrl Room Opr - Control Room Operator and Expeditor A & B
I| Lab Mgr - Laboratory Manager
J| Lab Tech - Laboratory Technician

APPENDIX Q
GEOLOGIC INVESTIGATION REPORT

KEYSTONE CEMENT COMPANY
RCRA PART B PERMIT RENEWAL APPLICATION

GOLDER

May 18, 2020 Project No. 20141145

Rachel L. Odzer
Keystone Cement Company
P.O. Box A
Routes 329 & 987
Bath, PA 18014-0058

RE: RESPONSE TO COMMENTS, KEYSTONE CEMENT COMPANY. APPLICATION# PAD002389559-A182, APS# 9742249, AUTH#1239125, EAST ALLEN TOWNSHIP, NORTHAMPTON COUNTY, PENNSYLVANIA

Dear Ms. Odzer:

This letter provides our responses to comments provided by the Pennsylvania Department of Environmental Protection (PaDEP) in their February 26, 2020 letter related to Appendix Q – Geologic Investigation Report. Appendix Q includes a *Geologic Investigation Data Report* by Golder Associates Inc. (Golder) dated January 25, 2006 (Golder letter) and *Geotechnical Investigation and Foundation Requirements* by URS dated August 15, 2005. The information presented in Appendix Q was included in the consolidated April 2008 Class 3 Permit Modification approved by PaDEP in the July 9, 2009 permit issued to the Keystone Cement Company (Keystone). During the permit application process, PaDEP provided comments on the Golder Report in a letter dated May 2, 2006 which were addressed by Keystone in a letter dated August 29, 2006. PaDEP has identified technical deficiencies based on applicable laws, regulations, and policies; and guidance provided in the letter sets forth PaDEP's preferred means of satisfying the applicable regulatory requirements. PaDEP's comments are listed in **bold**, followed by our responses.

Renewal Application Volume 4 of 4

2) Appendix Q – Geologic Investigative Report

a) **Please provide an historical narrative and / or data for the construction of the two areas under investigation.**

Response: The proposed locations of the Rail Unloading Area and the New Tank Farm are located within the RCRA Part B Permit Area. The Rail Unloading Area is within the footprint of the investigations documented in the Golder letter. The New Tank Farm is located within the active cement plant area adjacent to the existing tank farm. No evidence of potential sinkhole activity has been noted by Keystone at these locations. As noted on the drawings C-150 and C-160 presented in Appendix H of the application, investigative boreholes will be drilled during construction at these location for evidence of solution channels or sinkholes.

URS Report

b) **As part of the report, please provide a legend explanation of hatch marks shown on cross sections at ground surface in several locations along the transect.**

Response: The cross-hatching pattern placed at sporadic locations along the ground surface shown in Figures 5, 6, 7, 8 and 9 of URS's *Geotechnical Investigation and Foundation Requirements* dated August 15, 2005 is simply a graphical/visual method of distinguishing the line representing the ground surface from the lines representing geologic contacts between the subsurface soil and rock units.

Golder Report

a) **Very low N values in boring GA-2 after 45 feet below ground surface (ft bgs), low n-value means low density soils; please provide more information.**

Response: The N-values of the three Standard Penetration Test (SPT) samples taken at 45, 50, and 55 ft bgs were 4, 3, and 0 (i.e., weight-of-hammer, or WOH), respectively. The soil samples are described as brown, medium plasticity, soft clayey silt (45 – 47 and 50 – 52 ft bgs), and brown, wet, very loose sandy silt (55 – 57 ft bgs). From the field descriptions, the samples taken at 45 and 50 ft bgs were interpreted as being cohesive soils, i.e., plastic and having sedimentary particles >50% by mass finer than 0.075 mm. The sample taken at 55 ft bgs was interpreted as being non-cohesive, i.e. non-plastic and having sedimentary particles >50% by mass coarser than 0.075 mm. Note that according to the ASTM D1586 test, the predominant grain size determines the qualitative descriptions of consistency for non-cohesive and cohesive soils. For the SPT samples taken at 45 and 50 ft, the N-values ranged between 2 – 4, and coupled with the field descriptions, these samples are described as having a soft consistency. As the SPT sample taken at 55 ft was interpreted to be non-cohesive, and had an N-value of 0, the compactness is described as very loose. The unconfined compressive strengths estimated by the N-values of the cohesive samples collected at 45 and 50 ft bgs are 0.25 to 0.5 tons per square foot (or 25 to 50 kiloPascals). Note that for non-cohesive soils, there is no consistency description.

Review of the borehole log descriptions of the soil samples between 14 to 45 ft bgs also indicates they consist of brown, stiff to very stiff silty clays, also containing angular to subangular shale and quartz fragments. N-values within this interval range from 11 to 27. The shale and quartz fragments are interpreted to be remnants from less erodible components of the parent bedrock, i.e., shale beds and quartz veins. Review of regional geologic reports[1,2], coupled with the occurrence of angular to subangular shale and quartz fragments, indicates that the interval from 14 to 66.8 ft bgs can be interpreted as residuum, regolith or saprolite developed by in-situ weathering of the underlying carbonate bedrock.

It should be noted that the consistency of the clayey silt and silty clay residuum can vary widely at the Site as stated in the Golder letter, based on review of the borehole log for GA-01 as well as the URS report.[3] Site data indicate SPT values range from 0 to >100, but typically range between 15 and 40 (stiff to hard consistency). The variation in N-values can be due to gravel and rock fragments causing artificially high values, and groundwater softening and changes in in-situ stress due to drilling disturbance.

[1] Low, D.J., Hippe, D.J. and Yannacci, D., 2002. Geohydrology of Southeastern Pennsylvania. U.S. Geological Survey Water Resources Investigation Report 00-4166, 361 p.

[2] Kochanov, W.E., 2007. The Competing Needs of Development and Resources in the Karst Terrain of the Lehigh Valley, Eastern Pennsylvania. Proceedings: 58th Highway Geology Symposium, October 15-18, 2007, Pocono Manor, Pennsylvania

[3] URS, August 15, 2005. Geotechnical Investigation and Foundation Recommendations Report, Keystone Cement Expansion Project, Bath, PA, 198 p.

b) **A photoionization detector (PID) was used to screen soil cores but stopped using after 10 ft bgs at each of the boreholes. Please provide information / explanation why PID was not used for the entirety of both borings.**

Response: The PID was used to screen soil samples in the upper 10 ft of the drilled interval as the suspected source of potential hydrocarbon impacts would arise from the surface, based on activities consistent with an operating cement plant, such as leaks of fuels/lubricants from trucks and other equipment. These potential impacts were anticipated to decrease with depth, and the borings indicate the PID values decrease from 0.2 parts per million (ppm) at the surface to 0 ppm at 8 ft bgs in GA-01; and from 0.3 ppm at the surface to 0 ppm at 8 ft bgs in GA-02.

c) **For drummed soil cuttings, please provide additional information such as disposal manifests.**

Response: In accordance with 40 CFR §262.40, which is incorporated by reference as codified at 25 Pa Code § 262a.10, Keystone is a large quantity hazardous waste generator that is required to maintain a copy of each hazardous waste manifest signed in accordance with §262.23(a) for three years. Keystone has also reviewed its Biennial Hazardous Waste Report and Annual Residual Waste Report from the 2005/2006 time period, but was unable to identify if any off-site shipments included the drummed soil cuttings. Note that if the drummed soil cuttings were discarded then they were either properly disposed, as hazardous or residual waste depending on the analytical testing results, in accordance with applicable regulations more than 14 years ago (i.e., November 2005). Keystone is in compliance with all recordkeeping requirements, however, is unable to provide copies of documents showing the final disposition of the drummed soil cuttings.

d) **In the report, the author states that an extensive literature review was done related to the investigatory work but there are no citations or references indicating what literature was reviewed. Please provide this information.**

Response: As noted in the August 25, 2006 letter addressing PaDEP's May 2, 2006 comments on the Golder Report to prepare the report, as well as Phase II Siting Criteria submitted with the April 2008 Application, and our response to Comment e) below, Golder conducted a review of the following published geologic reports of the site area:

Berg, T.M. (chief compiler), 1980. Geologic Map of Pennsylvania. Pennsylvania Geological Survey Map, 2nd ed., scale 1:250,000.

Braun, D.D., 1996. Surficial Geology of the Catasauqua 7.5' Quadrangle, Lehigh and Northampton Counties, Pennsylvania. Pennsylvania Geological Survey, 4th Series, Open-File Report 96-36, 6 p., scale 1:24,000.

Geyer, A.R. and Wilshusen, J.P., 1982. Engineering Characteristics of the Rocks of Pennsylvania. Pennsylvania Geological Survey, Environmental Geology Report 1, 300 p.

Kochanov, W.E., 1987a. Sinkholes and Karst-Related Features of Lehigh County, Pennsylvania. Pennsylvania Geological Survey 4th Series, Open-File Report 87-01, 19 p., 6 sheets, scale 1:24,000.

Kochanov, W.E., 1987b. Sinkholes and Karst-Related Features of Northampton County, Pennsylvania. Pennsylvania Geological Survey 4th Series, Open-File Report 87-02, 24 p., 10 sheets, scale 1:24,000.

Kochanov, W.E., 1993a. Sinkholes and Karst-Related Features of Bucks County, Pennsylvania. Pennsylvania Geological Survey 4th Series, Open-File Report 93-03, 9 p., 4 sheets, scale 1:24,000.

Kochanov, W.E., 1993b. Sinkholes and Karst-Related Features of Montgomery County, Pennsylvania. Pennsylvania Geological Survey 4th Series, Open-File Report 93-02, 7 p., 5 sheets, scale 1:24,000.

Kochanov, W.E., 1999. Sinkholes in Pennsylvania, Educational Series, Pennsylvania Geological Survey, ES-11, 30 p.

Kochanov, W.W. and Reese, S.O., 2003. Density of Mapped Karst Features in South-Central and Southeastern Pennsylvania, Pennsylvania Geological Survey Map 68, scale 1:300,000.

Low, D.J., Hippe, D.J. and Yannacci, D., 2002. Geohydrology of Southeastern Pennsylvania. U.S. Geological Survey Water Resources Investigation Report 00-4166, 361 p.

MacLachlan, D.B., 1981. Preliminary Geologic Map of the Catasauqua Quadrangle, Pennsylvania. Sheet 105 in Berg, T.M. and Dodge, C.M., 1981, Atlas of Preliminary Geologic Quadrangle Maps of Pennsylvania, Pennsylvania Geological Survey Map 61, scale 1:24,000.

Miller, B.L., Fraser, D.M., and Miller, R.L., 1939. Northampton County Pennsylvania – Geology and Geography. Pennsylvania Geological Survey, 4th Series, Bulletin C48, 508 p.

Miller, B.L., Fraser, D.M., Behre, C.H., Wherry, E.T., Miller, R.L. and Myers, P.G., 1939. Geologic Map of Northampton County, Pennsylvania, Bulletin C48, Plate 1, scale 1:62,500.

Peak, J., 2005. A Comparison of Electrical Resistivity Techniques to Characterize Karst Geology, Easton, Pennsylvania. Master of Science Thesis, Temple University, Philadelphia, Pennsylvania.

Pennsylvania Geological Survey, 2000 (revised). Limestone and Dolomite Distribution in Pennsylvania, Map 15, scale 1:2,000,000.

Reese, S.O. and Kochanov, W.E., 2003. Digital Karst Density Layer and Compilation of Mapped Karst Features in Pennsylvania. In: Soller, D.R., ed., 2003. Digital Mapping Techniques '03 – Workshop Proceedings, June 1-4, 2003, Millersville, Pennsylvania, U.S. Geological Survey Open-File Report 03-471, p. 17-21.

e) **The report indicates the bedrock encountered was poorly karstic, yet karstic features are described in boring GA-1 (weathered rock surfaces on limestone, voids, little to no recovery of bedrock during rock coring, very low RQD values). These are contradictory statements versus evidence. Please provide and explanation and / or information.**

Response: We reviewed the Golder letter, the August 25, 2006 letter, and provide below a refinement of the bedrock geology, including further evaluation of karstic conditions:

The Site is located within the Ordovician-aged Beekmantown Group, however there is conflicting information in the above cited reports as to which formation within the group the Site lies. In Berg (1980) and MacLachlan (1981), the site is mapped as occurring within the Lower Ordovician Epler Formation, which consists of interbedded sequences of thick-bedded, medium- to medium-dark gray, finely crystalline limestone and dolomite, with limestone generally more abundant. The lowermost beds are light-colored, white to pinkish gray, with shale laminations common, and scattered lenses and stringers of chert. The formation is relatively resistant to weathering, with good subsurface drainage due to joint and solution-channel openings, and sinkholes and caves are characteristic (Low et al., 2002; Kochanov, 1987; Geyer and Wilshusen, 1982).

However, Kochanov (1987b – Catasauqua Quadrangle) maps the bedrock beneath the Site as the Middle Ordovician Ontelaunee Formation, described as massive to thinly laminated, medium-light gray to medium dark gray, cryptocrystalline to finely crystalline dolomite, with few scattered minor beds of dark gray limestone, and dark-gray chert at the base. This formation is moderately resistant to weathering, with an overlying mantle of variable thickness, with bedrock pinnacles (Low et al., 2002; Kochanov, 1987; Geyer and Wilshusen, 1982).

As stated in the Golder 2006 letter, the Beekmantown Group has been overturned into a recumbent fold, with the Upper Ordovician Jacksonburg Formation (i.e., the target ore body for cement) lying below. As such, the Beekmantown Group formations have suffered tectonic stress. Miller (1939) notes that the magnesia-rich

limestones (i.e., dolomites) are more massive, brittle and stronger, and have denser joint sets that developed from the deformation, in comparison with the thinner, more ductile low-magnesia limestones. The joints within the dolomites have been filled with quartz and calcite deposition.

Review of the corehole log descriptions indicates the bedrock beneath the site is gray to dark gray, hard, fine grained crystalline dolomite, highly fractured with conjugate joints, containing quartz and calcite veins. This lithology is more consistent with the Ontelaunee Formation.

The corehole log for GA-01 indicates voids filled with brown clay with fine sand were encountered at 77.8 – 81, 81-82.7 and 83.3 - 88.5 ft bgs, with core recovery ranging from 0.5 to 1.8 ft per 5 ft core run (10 to 36%), and RQD ranging from 10 to 17%. The corehole log for GA-02 indicates no voids were encountered, the core recovery was 100% for the four runs, and the RQD ranged from 70 to 100%. These observations are generally consistent with the geotechnical corehole descriptions from the Plant Side area in the URS[3] report, i.e., recoveries varying from 10 to 100%, and RQD ranging from 0 to 100%, with occasional clay- or silt-filled or open voids ranging from about 2 to 9 ft long. This indicates karst-type features exist in the bedrock, but are not apparently pervasive across the Site.

Additionally, Kochanov (1987b) maps one sinkhole feature approximately 1,100 ft southwest of the site, one sinkhole feature about 1,400 ft northeast of the site, and two surface depressions about 1,400 ft southwest of the site (see Catasauqua Quadrangle). In this publication, sinkholes are defined as features that arise from the dissolution of carbonate bedrock and downward movement of unconsolidated surficial material by water into voids within the regolith or bedrock, and by a break in the land surface. A surface depression shows no discernible land surface break. As stated by Kochanov (1987b), both features are indicators of areas where additional subsidence is considered to more likely occur. However, review of recent Google Earth™ images indicates these features apparently no longer exist, as they occurred within a current area of disturbance from land development.

As discussed in the Golder report, the Kochanov (1987b) mapping indicates that sinkholes and depressions are more prevalent in the more carbonate-rich formations located east, southeast south and southwest of the site area, i.e., Lower Ordovician Epler and Rickenbach Formations.

Review of the 2017, 2018 and 2019 Keystone Sinkhole Inspection Reports indicates that at the seven monitoring points, the cumulative difference in elevation is less than 0.01 ft, which is less than the measurable subsidence/settlement of 0.25 inch (0.02 ft) as defined by the Subsidence Monitoring Plan.[4] Additionally, no indications of potential sinkhole formation were observed in the immediate area of the kiln piers and pre-heater tower during these inspections.

Karst is defined as a landscape or topography developed by the dissolution of soluble rocks such as limestone[5,6]. Karstic features are directly or indirectly formed by solution, often used to describe caves, and other features having some probable relation to subsurface drainage or groundwater movement, and include sinkholes/dolines, enlarged fractures, soil pipes, voids and epikarst[5]. These features generally form within the vadose zone, which allows turbulent flow to remove soil and bedrock materials. The groundwater elevations provided in the boring logs of the Golder report indicate the groundwater level occurs above the overburden/bedrock contact. The core log of GA-01 indicates that the three voids encountered contained an infill of brown clay mixed with fine sand, and

[4] Keystone Cement Company, November 2009, Revised September 2010. Subsidence Monitoring Plan, Keystone Cement Company, East Allen Township, Northampton County, Pennsylvania, Facility ID No. 301319, 11 p.

[5] White, W.B., 1988. Geomorphology and Hydrology of Karst Terrains. Oxford University Press, New York, 464 p.

[6] American Geological Institute, 2005. Glossary of Geology, 5th ed., AGI, Alexandria, VA, 779 p.

the core had an RQD of 10 to 17%. The core log of GA-02 indicates no voids were encountered, and the RQD was 70 to 100%. The presence of voids and lower RQD values may indicate that karst features developed in some areas of the bedrock when the groundwater surface was lower than today (possibly during the last ice age), allowing the voids to fill with eroded material. But as the current groundwater surface is above the overburden/bedrock surface, turbulent flow which could lead to soil piping, cover collapse sinkholes, and other karst-related subsidence is likely not to occur, at least suddenly.

We conclude that karst can develop on the topographic surface developed from the Ontelaunee Formation mapped beneath the Site vicinity, and that the bedrock does exhibit karstic features, but these conditions are not considered pervasive. As discussed in the Golder letter, future investigations of the site area should include geotechnical evaluations of the conditions discussed in the report, using additional subsurface investigations, including additional bedrock coring and surface geophysics which can be used to target additional drilling/coring locations of possible or suspected areas containing karst features.

f) **On page 2, first paragraph it states PADEP suggested the evaluation be performed in accordance with PADEPs Phase II Siting Criteria (25 PA Code Chapter 269a). In this report there is no evidence or text suggesting ruling out of any of the siting criteria. For instance, there is no indication of any potable wells are within a half mile, if wetlands are nearby, the fact that the first geologic unit is dolomitic limestone, etc... (see siting criteria). Please provide this information.**

Response: The Phase II Siting Criteria are discussed in full in the complete Module 9 Documentation, submitted as part of the consolidated April 2008 permit application.

Please let us know if you need further clarification on these responses. We thank you for the opportunity to continue to provide our services to Keystone Cement Company.

Sincerely,

Golder Associates Inc.

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOHN RICHARD SMEREKANICZ
GEOLOGIST
No. 003708-E

John (Jay) R. Smerekanicz, PG
Senior Consultant and Associate
PA PG #003708E, expires 09/30/2021

Brian Eichlin, PE
Program Leader and Principal

JRS/BE/drb

CC: Stephen P. Holt, PE, Keystone

https://golderassociates.sharepoint.com/sites/18953482/deliverables/response to padep comments 200226/geologic letter/2020 4-30 comments from keystone/200518 golder response to padep 200226 comments on geologic report.docx

Golder Associates Inc.

1951 Old Cuthbert Road, Suite 301
Cherry Hill, NJ 08034
Tel: (856) 616-8166
Fax: (856) 616-1874

January 25, 2006

Project No.: 043-6335
via Electronic Mail & FedEx

Giant Cement Holding, Inc.
320-D Midland Parkway
Summerville, SC 29485

Attn: Mr. Stephen P. Holt, P.E.
Vice President

RE: GEOLOGIC INVESTIGATION DATA REPORT
PROPOSED HAZARDOUS WASTE UNLOADING AND STORAGE FACILITY
KEYSTONE CEMENT COMPANY, BATH, PENNSYLVANIA

Ladies and Gentlemen:

Golder Associates Inc. (Golder Associates) is pleased to submit this data report to Giant Cement Holding, Inc. (Giant) which summarizes the geologic investigation program and presents logs for the borings completed as part of the investigation associated with the Class 3 Permit Modification Application for the proposed Hazardous Waste Unloading and Storage Facility (Facility) for the Keystone Cement Company (Keystone) plant located in Bath, Northampton County, Pennsylvania (Plant). This work was performed by Golder Associates in general accordance with the scope of work outlined in Task 1 of our proposal dated October 3, 2005, which was authorized by Giant on October 5, 2005.

PROJECT BACKGROUND

The Plant is located about one mile south of the town of Bath, between Route 329 to the west and Route 512 to the east, in Northampton County, Pennsylvania (Figure 1). The Plant has been in operation since the late 1920's, and Golder Associates understands new construction associated with plant expansion and modernization is planned. The planned construction will include a new cement kiln and supporting structures, including the Facility which includes provisions for transporting hazardous fuel oils via rail tank cars to the main plant in an unloading area using existing and proposed rail sidings. In addition, the hazardous fuel would be stored adjacent to the rail car unloading area in new above-ground storage tanks.

The planned area for this new Facility consists of a portion of the Plant property that currently consists of paved and unpaved parking areas located south of the existing cement kilns and adjacent to the existing freight rail line along the east property line of the Plant and near Monocacy Creek. Golder Associates understands that the portion of the Plant expansion associated with the Hazardous Waste Unloading and Storage Facility will consist of the design and construction of a tank car loading-unloading area; and, four above-ground storage tanks having a combined capacity of 220,000 gallons to store fuel and waste oils. The storage tanks would be constructed within an area surrounded by secondary containment berms encompassing an area of about 1,600 square feet. Additional facilities adjacent to the tanks include pump

rooms, the tank car unloading areas and exterior areas for the vapor treatment and nitrogen purge systems.

At a meeting held on July 26, 2005, PADEP requested that Giant/Keystone evaluate the geology and potential for sink holes to form within the proposed footprint of the new/modified kiln and the proposed Facility. PADEP suggested that the evaluation be performed in accordance with the PADEP's Phase II siting criteria (25 PA Code Chapter 269a). Geotechnical analysis and recommendations for foundations were not specifically requested by PADEP at that time. The geologic investigations conducted at the Facility to address PADEP's request are presented below.

GEOLOGIC INVESTIGATION PROGRAM

Preliminary Investigations

As a preliminary step toward characterizing the subsurface geologic conditions in the area of the Facility, Golder Associates personnel performed the following activities to gather background data:

- a site (Facility) walkover, and reconnaissance at the adjacent quarry pits;
- a study of published geologic reports and geological maps of the area – these included reports prepared by the Pennsylvania Geological Survey and the U.S. Geological Survey, and scholarly works in refereed journals;
- a study of the current and historical topographic maps prepared by the U.S. Geological Survey;
- examination of available site investigation records or references to past events or works – this included a review of a Geotechnical Investigation and Foundation Recommendations prepared by URS (August , 2005) in support of the proposed improvements at the Keystone Plant;
- examination of selected, available aerial photographs; and,
- discussions with personnel at the Keystone Cement Plant.

Subsurface Investigations

Prior to mobilizing to the Plant, Golder Associates coordinated access with Mr. Joseph Linsenmann of Keystone. The subsurface investigation was conducted at the Facility area from October 31 through November 3, 2005. This geologic investigation program consisted of a preliminary desk top investigation, a site reconnaissance and the installation of two borings at the Facility with boring GA-1 located adjacent to the existing rail line within the proposed truck unloading portion of the Facility and boring GA-2 located at the approximate center of the four proposed storage tanks (Figure 2). The borings were located in the field by Golder Associates by taping off approximate horizontal offsets from existing Site features and approximate ground surface elevations were interpolated from topographic data provided by Giant/Keystone. Figure 2 depicts the approximate location and interpolated ground surface elevation for each of the borings.

Golder Associates subcontracted drilling of the borings with Eichelbergers, Inc. of Mechanicsburg, Pennsylvania (a Pennsylvania State registered drilling company). Both borings were drilled using a Central Mine Equipment (CME) 75 drill rig mounted on a truck chassis. The

borings were advanced through the overburden using 4.25-inch inside diameter hollow-stem augers. Representative soil samples were obtained, where possible, using the Standard Penetration Test (SPT) in general accordance with the American Society for Testing and Materials (ASTM) Standard Test Method D1586 using a 2-inch diameter split-spoon sampler. Continuous soil samples were taken from depths of 0 to 22 feet below ground surface (bgs) in each boring, and at 5-foot intervals thereafter until the sampler met refusal. Diamond core drilling in general accordance with ASTM Standard Practice D2113 was used to recover NQ-sized (2-1/8 in. O.D.) cores from the borings. Rock coring at both boreholes (GA-1 and GA-2) was performed using a five-foot long core barrel. Coring was commenced based on the drilling operations that suggested penetration of sound bedrock rather than a "float" boulder (e.g., excessive rig chatter, difficult penetration) and practical spoon refusal as indicated by excessive blow counts on the split spoon sampler. Core recoveries varied from 10% to 100% and RQD values ranged widely, from 10% to 100%. The table below shows the measured RQD's and core recoveries for the two boreholes.

	Run 1	Run 2	Run 3		
Run Length (feet)	5	5	5		
RQD%	17	10	14		
REC/ATT	1.8/5.0	0.6/5.0	0.5/5.0		

	Run 1	Run 2	Run 3	Run 4	
Run Length (feet)	4	5	5	4	
RQD%	100	95	90	70	
REC/ATT	4.0/4.0	5.0/5.0	5.0/5.0	5.0/5.0	

No piezometers or groundwater monitoring wells were installed to measure stabilized groundwater levels. Evidence of groundwater was detected during the drilling and during water level measurements within the open borehole after the drilling was completed. However, these measurements may not accurately indicate groundwater level within the borehole due to insufficient time for groundwater levels to equilibrate within the borehole. Stabilized groundwater measurements would require installation of a piezometer and measurement after sufficient time has elapsed to allow for water level equilibration. However, the potentiometric levels of groundwater measured in both boreholes prior to their backfilling corresponded with the groundwater level measurements that are routinely collected in monitoring wells that surround the adjacent CKD dust pile located on the plant side. Both boreholes were backfilled with cement-bentonite grout to the approximate pre-existing grade, and drill cuttings were containerized for future disposal by Giant in accordance with Golder Associates' authorized proposal.

A geologist from Golder Associates provided oversight of the drilling and sampling activities on a full-time basis, collected the soil and rock core samples, and logged the borings. Golder Associates' geologist also utilized a photoionization detector (PID) to screen ambient air in the work area at each borehole, and to screen soil cuttings and samples generated during drilling. PID monitoring was discontinued at depths below 10 feet bgs due to consistently low readings.

Recovered soil samples were visually classified in accordance with the Unified Soil Classification System (USCS) in accordance with ASTM Standard Practice D2487 following the visual-manual

procedure in general accordance with ASTM D2488. Boring logs are provided in Attachment 1. Photographs of recovered rock cores logged by Golder Associates' geologist are provided in Attachment 2.

The soils samples and rock cores were delivered to Golder Associates' geotechnical laboratory in Cherry Hill, New Jersey. Recovered samples and cores will be stored by Golder Associates for a period of thirty (30) days at which time the stored samples will be discarded or provided to Giant upon written request.

GENERALIZED SUBSURFACE GEOLOGY

The subsurface conditions interpreted by Golder Associates from the boring logs provided in Attachment 1 are described below. In general, the geologic conditions observed during the present investigations conform to the descriptions of the overburden and bedrock collected during the preliminary investigations stage of our investigations.

The following descriptions summarize the general characteristics of the soil strata and bedrock encountered in the borings. Subsurface conditions at locations other than the completed borings, such as depths to stratum boundaries, textural variations, and bedrock quality, may be different than interpreted below or as shown on the boring logs. However, the geologic units intercepted in both these boreholes are similar in lithology and stratification to those observed elsewhere at the Plant site.

Fill

An approximately 4-foot thick layer of brown to dark brown, silty sand with variable amounts of gravel and concrete fragments was encountered in each of the borings. Standard penetration test (SPT) N-values ranged from 17 blows per foot (bpf) to 54 bpf indicating a relative density of medium dense to very dense. However, it is Golder Associates' opinion that the N-values may be artificially high due to the intermixed gravel and concrete.

Clayey Silt / Silty Clay with Sandy Interbeds

Underlying the fill in both borings was a layer of light brown to brown and reddish brown, low to medium plasticity clayey silt and silty clay, with trace to some subangular to angular gravel and rock fragments. Interbeds of brown silty sand and sandy silt with trace to some gravel and rock fragments were encountered within this layer in borings GA-1 and GA-2 (see boring logs in Attachment 1). SPT N-values ranged from weight of hammer to 71 bpf indicating a wide variability in relative density and consistency within this layer. The measured N-values may be artificially high in some SPTs due to the presence of gravel and rock fragments within the borings and artificially low in others due to softening by groundwater and changes in in-situ stress in the hollow-stem augers.

Bedrock

The Plant and the Facility are located at the east side of the boundary of the Jacksonburg Formation and Beekmantown Formation of Ordovician limestone. The underlying bedrock beneath the Facility appears to be of the Beekmantown Formation and consists of interbedded

dolomitic limestone or dolostone. Photographs of the rock core stored in core boxes are presented in Attachment 2.

Core recovery and Rock Quality Designation (RQD) were relatively low in boring GA-1 and notably higher in boring GA-2. In boring GA-1, rock core recovery ranged from 10 to 36 percent for each 5-foot run of rock core, and RQDs ranged from 10 to 17 percent. Karstic features such as voids and eroded rock surface were observed in the cores retrieved from boring GA-1, and the voids were infilled with silty clay and clayey silt. In boring GA-2, rock core recovery was 100 percent for each run of rock core, and RQDs varied from 70 to 100 percent.

The bedrock consists of gray to dark gray, fine grained, crystalline, dolostone. Because of the large differences in rock mass quality as evidenced by the different core recoveries and corresponding RQD's, the weathering characteristics of the bedrock are somewhat difficult to describe. In general, the dolostone is hard and moderately to well weathered on the surface. Conjugated fractures cut through the bedrock cores with a relatively high angle of about 80 degrees. The bedrock cores exhibit both remobilized dolomite and quartz veins infilling fracture planes that occur at high angles with the vertical core axis (see Attachment 2). Hairline fissures are interspersed throughout the core and these hairline fractures largely consist of secondary, white to pale pink colored calcite infillings.

CLOSURE

The findings of this data report were developed in accordance with generally accepted professional geologic principles and practice. Golder Associates makes no other warranty express or implied. The findings and recommendations were based on results of the field investigation, combined with an interpolation of soil, groundwater, and bedrock conditions encountered.

Based on a review of the data gathered in the preliminary investigations the following interpretations can be made:

Bedrock

- The Facility is underlain by stratigraphically overturned, often cherty, massively bedded, dolomites and dolomitic limestones of the Lower Ordovician age Beekmantown Formation. The Beekmantown Formation is overturned, and dips gently to the northwest in this area of Northampton County, and comprises massively bedded units with very poorly defined bedding. Because of recumbent folding, the Beekmantown Formation overlies the Middle Ordovician age Jacksonburg Formation that is quarried in the northwest and west of the Facility (or State Route 329).

- In general the Beekmantown Formation is poorly karstic and surficial indications of karst are rarely observed. Our Site walkover and review of available published data supports this interpretation. Furthermore, a review of the current and historic topographic maps suggests that sinkholes have not been observed in the vicinity of the Facility and Plant area.

- The rock mass quality as measured by both the Rock Quality Designation (RQD) and Total Core Recovery (TCR) are highly variable over relatively short distances in the

Site area. This observation is supported by the findings of the subsurface investigations conducted. In general, poor rock quality appears to be common in the uppermost portion of the weathered bedrock.

Overburden

- The lack of readily apparent karstic features in the Site area is likely because of the generally thick mantle of unconsolidated overburden that overlies the bedrock. The overburden at the Site ranges in thickness from about 10 feet to as much as 80 feet. Indeed the thickest overburden was intercepted in borehole GA-1. Rock core collected during the present and previous site investigations shows that voids and sediment in-filled voids are also present in the bedrock.

- The overburden at the Site area includes in-situ residual soils directly overlying the bedrock, Quaternary and Pleistocene age glacial tills (of indeterminate age), laterally discontinuous lenses of Quaternary/Holocene alluvial sands and gravels overlain by a highly compacted, hard sandy, silty, clayey and gravelly man-made fill likely used for grading the Site area in the historic past.

The Keystone Cement Plant has been operating in this area since the late 1920's. Historically, foundations settlements have occasionally been observed at the Plant (URS, 2005). Surface subsidence expressed as sinkholes have not occurred. Given the large thickness of the overburden deposits (Fill, and Clayey, silty Interbeds) in excess of 50 feet at the Facility, expressions of subsidence related to karst activity in the subsurface are unlikely at the ground surface. However, a designed and engineered foundation scheme that incorporates the strength capabilities of the thick overburden would mitigate against settlements of foundations at the Hazardous Waste Unloading and Storage Facility (Facility). Based on our present understanding of the proposed construction and its location with respect to existing facilities at the Plant, underpinning of the storage tanks may not be necessary. This should be confirmed after final design, and appropriate provisions for any required underpinning work should be made in the construction documents.

If you have any questions or require addition information, please feel free to contact the undersigned at (856) 616-8166.

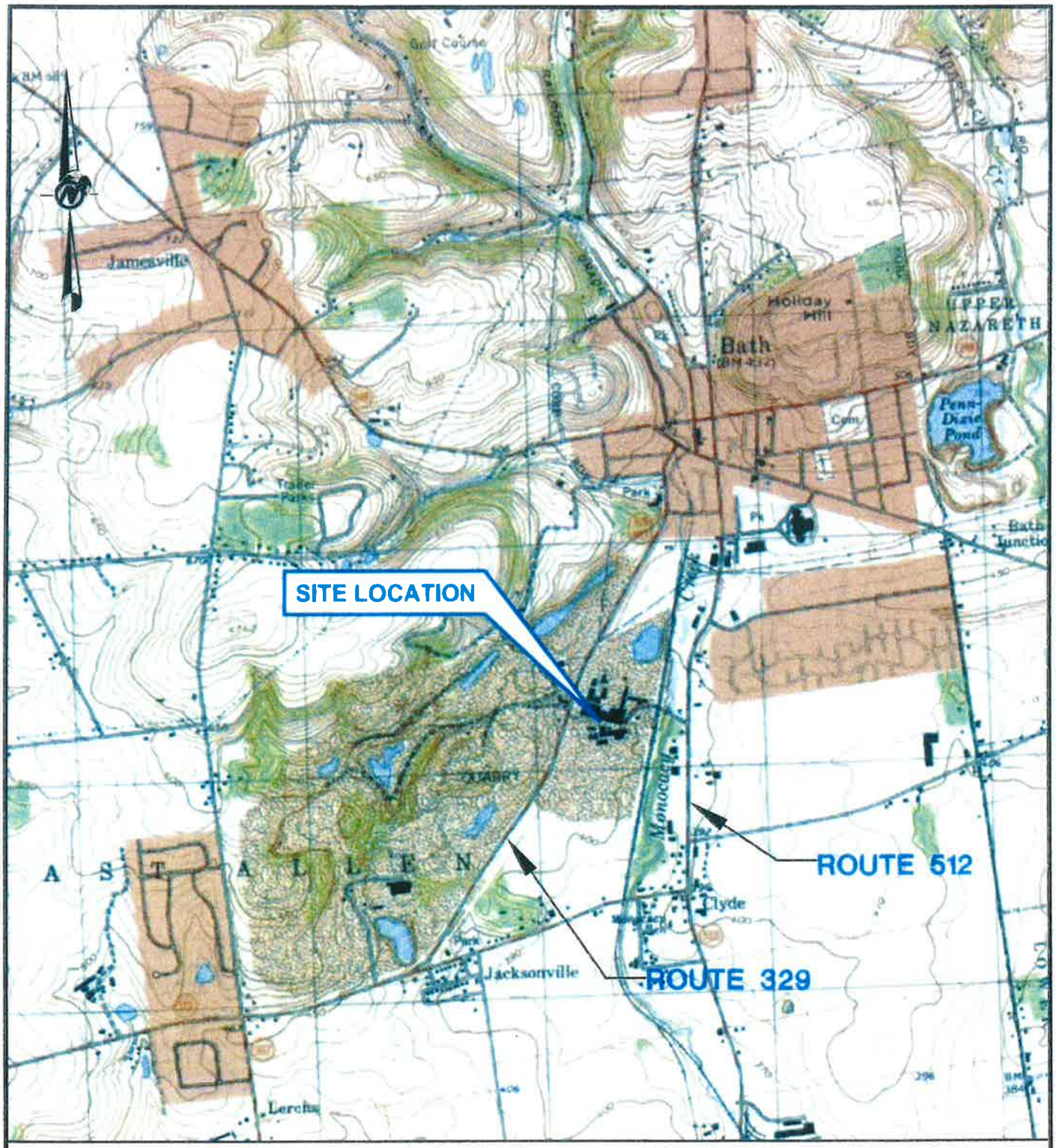
Very truly yours,

GOLDER ASSOCIATES INC.

Yong Wu, CPG
Project Hydrogeologist

Ramesh Venkatakrishnan, Ph.D., P.G.
Chief Geologists & Principal

cc: Michael Deyo, Giant Resource Recovery, Inc.
Rocco Marinaro, Keystone Cement Co.
J. Linsenmann, Keystone Cement Co.
B. Eichlin, P.E., Golder Associates Inc.



REFERENCE

1.) BASE MAP TAKEN FROM U.S.G.S. 7.5 MINUTE QUADRANGLE OF CATASAUQUA, PENNSYLVANIA, DATED 1992.

2000 0 2000
SCALE FEET

Golder Associates
Philadelphia USA

FILE No.	0436335B001	SCALE	AS SHOWN
PROJECT No.	043-6335	REV. 0	DATE 01/25/06
			DESIGN YW
			CADD YW
			CHECK YW
			REVIEW RV

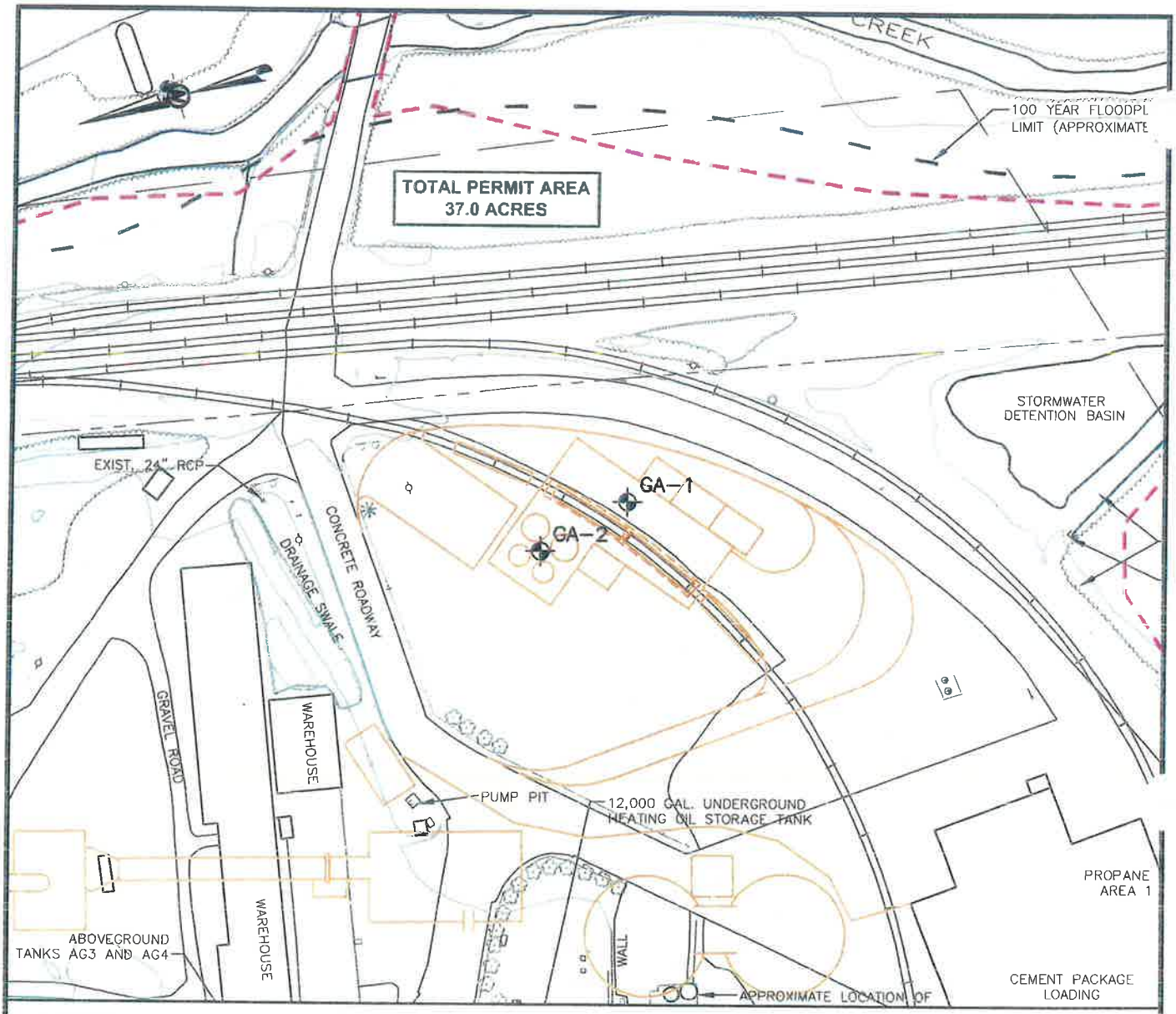
TITLE

SITE LOCATION MAP

KEYSTONE CEMENT COMPANY

FIGURE 1

Drawing file: 04[illegible]6335B001.dwg Jan 25, 2006 - 11:05am



LEGEND

- EXISTING STRUCTURE OR BUILDING
- RAILROAD TRACKS (EXISTING)
- RCRA PART B PERMIT AREA
- GA-1 BORING
- 100 YEAR FLOOD PLAIN LIMIT (APPROXIMATE)
- PLANNED FACILITY MODIFICATIONS (SEE REFERENCE 2)

REFERENCES

1.) BASE MAP TAKEN FROM DIGITAL FILE "overall drawing.dwg", COMPILED FROM AERIAL PHOTOGRAPHY TAKEN ON 05/19/03 USING PHOTOGRAMMETRIC METHODS. FILE CREATED BY BY LAND & MAPPING SERVICES, CLEARFIELD, PA.

2.) PROPOSED FACILITY MODIFICATIONS ARE TAKEN FROM DIGITAL FILE "JEL preheater 03-16-05-f.dwg" ENTITLED "plot plan-base option-3000 TPD plant modernization-keystone cement company - Bath, Pennsylvania", DATED DECEMBER 10, 2004, CREATED BY PENTA ENGINEERING CORP., ST LOUIS, MO.

NOTES

1.) BORINGS PERFORMED BY GOLDER ASSOCIATES INC. DURING THE GEOLOGIC INVESTIGATION PROGRAM PERFORMED FROM 10/31/05 THROUGH 11/03/05.

2.) BORING LOCATIONS BASED ON TAPED OFFSETS PERFORMED BY GOLDER ASSOCIATES INC. BORING LOCATIONS ARE APPROXIMATE ONLY.

Golder Associates
Philadelphia USA

FILE No.	0436335B002	SCALE	1"=100'
PROJECT No.	043-6335	REV. 0	DATE 01/25/06
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			CADD YW
			CHECK YW
			REVIEW RV

TITLE

BORING LOCATION PLAN

KEYSTONE CEMENT COMPANY

FIGURE 2

Drawing file: 0436335B002.dwg Jan 25, 2006 - 11:05am

RECORD OF BOREHOLE GA-1

PROJECT: Giant/Keystone Tank Facility
PROJECT NUMBER: 0436335
DRILLED DEPTH: 91.0 ft
AZIMUTH: N/A
LOCATION: Bath PA

DRILL METHOD: Hollow-stem auger
DRILL RIG: CME 75
DATE STARTED: 11/1/05
DATE COMPLETED: 11/2/05
WEATHER: Sunny

DATUM: Local
COORDS: not surveyed
GS ELEVATION: +/-397.0 ft
TOC ELEVATION:
TEMPERATURE: 65F

INCLINATION: -90
DEPTH W.L.: 45.1 ft
ELEVATION W.L.: 351.9 ft
DATE W.L.: 11/2/05
TIME W.L.: 12:20 pm

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: PID (ppm)	NUMBER	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N	REC / ATT	RQD	Sample Notes
0		0.0 - 3.8 FILL, Silty SAND, dark gray to black, very dense, mixed with concrete fragments.				0.2	1	SPT	9-21-33-17	54	1.2/2.0		PID readings are low, varying from 0 to 0.3 ppm. PID discontinued below 10'bgs.
	395					0.1	2	SPT	23-18-18-12	36	1.3/2.0		
					393.2 / 3.8								
		3.8 - 10.0 Clayey SILT, Light brown to brown, stiff to very stiff, low plasticity, some fine gravel and rock fragments of shale, quartz.											
5						0.1	3	SPT	2-2-6-8	8	1.4/2.0		
	390					0.1	4	SPT	2-5-14-10	19	1.3/2.0		
						0	5	SPT	10-16-15-11	31	1.2/2.0		
					387.0 / 10.0								
10		10.0 - 15.0 Clayey SILT, light brown to brown, very stiff, low plasticity, trace to some fine gravel, and subangular mudsone, shale, quartz fragments.				0	6	SPT	16-21-22-28	43	1.4/2.0		
	385						7	SPT	22-15-15-19	30	1.2/2.0		
					382.0 / 15.0								
15		15.0 - 20.0 same as 10' to 15' except hard					8	SPT	13-27-44-40	71	1.4/2.0		
	380						9	SPT	7-20-21-22	41	1.2/2.0		
							10	SPT	16-19-21-15	40	1.3/2.0		
					377.0 / 20.0								
20		20.0 - 25.0 Silty CLAY, redish brown, stiff, low to medium placticity, trace subangular mudstone, shale, and quartz fragments.					11	SPT	5-6-7-6	13	1.4/2.0		
	375												
					372.0 / 25.0								
25		25.0 - 30.0 Clayey SILT, redish brown, stiif, low plasticity, trace to some subangular mudstone, shale, quartz fragments.					12	SPT	5-8-8-8	16	1.2/2.0		
	370												
30					367.0								

Log continued on next page

LOG SCALE: 1 in = 4 ft
DRILLING COMPANY: Eichelbergers
DRILLER: Randy Neidlinger

GA INSPECTOR: YW
CHECKED BY: RSV
DATE: 11/11/05

Golder Associates

AA BOREHOLE RECORD NO WELL KAYSTONEPLANT.GPJ GOLDER NJ-PA.GDT 11/17/05

RECORD OF BOREHOLE GA-1

PROJECT: Giant/Keystone Tank Facility
PROJECT NUMBER: 0436335
DRILLED DEPTH: 91.0 ft
AZIMUTH: N/A
LOCATION: Bath PA

DRILL METHOD: Hollow-stem auger
DRILL RIG: CME 75
DATE STARTED: 11/1/05
DATE COMPLETED: 11/2/05
WEATHER: Sunny

DATUM: Local
COORDS: not surveyed
GS ELEVATION: +/-397.0 ft
TOC ELEVATION:
TEMPERATURE: 65F

INCLINATION: -90
DEPTH W.L.: 45.1 ft
ELEVATION W.L.: 351.9 ft
DATE W.L.: 11/2/05
TIME W.L.: 12:20 pm

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: PID (ppm)	NUMBER	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N	REC / ATT	RQD	Sample Notes
30		30.0 - 35.0 Silty CLAY, brown, stiff, low plasticity, trace to some gravel, subangular shale, and quartz fragments. Fine sand lens from 31' to 31.2'.			30.0		13	SPT	5-8-7-7	15	0.8 / 2.0		
	365												
35		35.0 - 40.0 Same as above, except sand lens.			362.0 35.0		14	SPT	4-6-7-7	13	1.4 / 2.0		
	360												
40		40.0 - 45.0 Silty CLAY, brown, stiff, medium plasticity, trace to some subangular mudstone, sandstone,and quartz fragments.			357.0 40.0		15	SPT	7-9-WOH-22	9	0.5 / 2.0		
	355												
45		45.0 - 50.0 Clayey SILT, brown, very stiff, medium plasticity, trace to some subangular mudstone, quartz fragments			352.0 45.0		16	SPT	7-11-10-7	21	1.3 / 2.0		
	350												
50		50.0 - 55.0 Clayey SILT, brown, stiff, medium plasticity, trace to some subangular mudstone, quartz fragments. Encounter goundwater at 53.9'			347.0 50.0		17	SPT	5-5-7-7	12	1.6 / 2.0		
	345												
55		55.0 - 60.0 Silty SAND, brown, loose, wet, trace sandstone fragments.			342.0 55.0		18	SPT	6-4-3-2	7	0.3 / 2.0		
	340												
60		Log continued on next page			337.0								

LOG SCALE: 1 in = 4 ft
DRILLING COMPANY: Eichelbergers
DRILLER: Randy Neidlinger

GA INSPECTOR: YW
CHECKED BY: RSV
DATE: 11/11/05

Golder Associates

RECORD OF BOREHOLE GA-1

PROJECT: Giant/Keystone Tank Facility
PROJECT NUMBER: 0436335
DRILLED DEPTH: 91.0 ft
AZIMUTH: N/A
LOCATION: Bath PA

DRILL METHOD: Hollow-stem auger
DRILL RIG: CME 75
DATE STARTED: 11/1/05
DATE COMPLETED: 11/2/05
WEATHER: Sunny

DATUM: Local
COORDS: not surveyed
GS ELEVATION: +/-397.0 ft
TOC ELEVATION:
TEMPERATURE: 65F

INCLINATION: -90
DEPTH W.L.: 45.1 ft
ELEVATION W.L.: 351.9 ft
DATE W.L.: 11/2/05
TIME W.L.: 12:20 pm

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: PID (ppm)	NUMBER	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N	REC / ATT	RQD	Sample Notes
60		60.0 - 65.0 Clayey SILT, brown, very stiff, low plasticity, trace to some subangular mudstone, shale, quartz fragments.			60.0		19	SPT	6-10-14-21	24	0.8 / 2.0		
	335				332.0								
65		65.0 - 70.0 Same as above, except hard.			65.0		20	SPT	10-15-18-20	33	0.4 / 2.0		
	330				327.0								
70		70.0 - 76.0 Same as above except stiff.			70.0		21	SPT	4-7-8-8	15	0.4 / 2.0		
	325				321.0								
75		76.0 - 91.0 DOLOSTONE, gray to dark gray, hard, fine grain, crystalline, powder reacted to HCL, highly fractured, conjugated fractures with high angle (85 deg) cut through the core axis, highly weathered on the fracture surface, with Karst features such as void, eroded fracture surface. Quartz vein deposited along the fracture surface. Hairy calite fissures observed. Brown CLAY mixed with fine sand infill the voids of the dolostone at the intervals of 77.8'~81', 81'~82.7', and 83.3'~88.5' of the three runs of coring.			76.0		22	CORE			1.8 / 5.0	17%	Start diamond core drilling from 76 ft bgs , NQ size , from 7:30 am to 9:00 am
80	320						23	CORE			0.6 / 5.0	10%	
85	315						24	CORE			0.5 / 5.0	14%	
90	310												

Log continued on next page

LOG SCALE: 1 in = 4 ft
DRILLING COMPANY: Eichelbergers
DRILLER: Randy Neidlinger

GA INSPECTOR: YW
CHECKED BY: RSV
DATE: 11/11/05

Golder Associates

AA BOREHOLE RECORD NO WELL KAYSTONEPLANT.GPJ GOLDER NJ-PA.GDT 11/17/05

RECORD OF BOREHOLE GA-1

PROJECT: Giant/Keystone Tank Facility
PROJECT NUMBER: 0436335
DRILLED DEPTH: 91.0 ft
AZIMUTH: N/A
LOCATION: Bath PA

DRILL METHOD: Hollow-stem auger
DRILL RIG: CME 75
DATE STARTED: 11/1/05
DATE COMPLETED: 11/2/05
WEATHER: Sunny

DATUM: Local
COORDS: not surveyed
GS ELEVATION: +/-397.0 ft
TOC ELEVATION:
TEMPERATURE: 65F

INCLINATION: -90
DEPTH W.L.: 45.1 ft
ELEVATION W.L.: 351.9 ft
DATE W.L.: 11/2/05
TIME W.L.: 12:20 pm

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: PID (ppm)	NUMBER	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N	REC / ATT	RQD	Sample Notes
90					306.0		24	CORE				14%	Borehole backfilled with cement-bentonite grout via tremie pipe.
		Boring completed at 91.0 ft											
	305												
95													
	300												
100													
	295												
105													
	290												
110													
	285												
115													
	280												
120													

LOG SCALE: 1 in = 4 ft
DRILLING COMPANY: Eichelbergers
DRILLER: Randy Neidlinger

GA INSPECTOR: YW
CHECKED BY: RSV
DATE: 11/11/05

Golder Associates

AA BOREHOLE RECORD NO WELL KAYSTONEPLANT.GPJ GOLDER NJ-PA.GDT 11/17/05

	Run 1	Run 2	Run 3		
Run Length (feet)	5	5	5		
RQD%	17	10	14		
REC/ATT	1.8/5.0	0.6/5.0	0.5/5.0		

KEYSTONE CEMENT PLANT
BORING GA-1

Golder Associates

RECORD OF BOREHOLE GA-2

PROJECT: Giant/Keystone Tank Facility
PROJECT NUMBER: 0436335
DRILLED DEPTH: 85.8 ft
AZIMUTH: N/A
LOCATION: Bath PA

DRILL METHOD: Hollow-stem auger
DRILL RIG: CME 75
DATE STARTED: 11/2/05
DATE COMPLETED: 11/3/05
WEATHER: Sunny

DATUM: Local
COORDS: not surveyed
GS ELEVATION: +/-397.0 ft
TOC ELEVATION:
TEMPERATURE: 68F

INCLINATION: -90
DEPTH W.L.: 52.6 ft
ELEVATION W.L.: 344.4 ft
DATE W.L.: 11/3/05
TIME W.L.: 2:30 pm

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: PID (ppm)	NUMBER	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N	REC / ATT	RQD	Sample Notes
0		0.0 - 4.0 FILL, Silty SAND, dark gray to black,medium dense mixed with grass roots, concrete fragments.				0.3		SPT	3-8-12-11	20	1.2/2.0		PID readings are low, varying from 0 to 0.3 ppm. PID discontinued below 10'bgs.
	395					0.1		SPT	12-8-9-9	17	1.4/2.0		
					393.0								
		4.0 - 6.0 Clayey SILT, light brown to brown, stiff, medium plasticity, some fine gravel and rock fragments of shale, quartz.			4.0	0.1		SPT	6-6-5-7	11	1.2/2.0		
5					391.0								
		6.0 - 8.0 Silty SAND, medium dense, low moist, with dark brown iron oxide ribbon, trace to some shale, quartz fragments, sub-angular to angular.			6.0	0.1		SPT	9-12-15-14	27	1.0/2.0		
	390				389.0								
		8.0 - 14.0 Silty SAND, brown, medium dense, low moist, some shale, quartz fragments, sub-angular, encounter size of 3" quartz fragments at 11'			8.0	0		SPT	12-11-11-14	22	1.1/2.0		
10						0		SPT	11-12-11-11	23	1.0/2.0		
	385							SPT	11-12-14-15	26	1.4/2.0		
					383.0								
		14.0 - 20.0 SILT, brown, low plasticity, stiff to very stiff, mixed with trace shale, quartz fragments, sub-angular to angular.			14.0			SPT	3-5-6-8	11	1.9/2.0		
15								SPT	8-9-9-10	18	1.6/2.0		
	380							SPT	10-10-11-11	21	1.8/2.0		
					377.0								
20		20.0 - 25.0 Silty CLAY, brown, medium plasticity, very stiff, mixed with trace shale, quartz fragments, sub-angular to angular.			20.0			SPT	4-17-10-7	27	1.0/2.0		
	375												
					372.0								
25		25.0 - 30.0 Silty CLAY, brown, medium plasticity, stiff, with iron stain or ribbon, mixed with trace to some shale, quartz fragments, sub-angular to angular.			25.0			SPT	7-5-6-12	11	1.2/2.0		
	370												
30					367.0								

Log continued on next page

LOG SCALE: 1 in = 4 ft
DRILLING COMPANY: Eichelbergers
DRILLER: Mike

GA INSPECTOR: YW
CHECKED BY: RSV
DATE: 11/11/05

Golder Associates

AA BOREHOLE RECORD NO WELL KAYSTONEPLANT.GPJ GOLDER NJ-PA GDT 11/17/05

RECORD OF BOREHOLE GA-2

PROJECT: Giant/Keystone Tank Facility
PROJECT NUMBER: 0436335
DRILLED DEPTH: 85.8 ft
AZIMUTH: N/A
LOCATION: Bath PA

DRILL METHOD: Hollow-stem auger
DRILL RIG: CME 75
DATE STARTED: 11/2/05
DATE COMPLETED: 11/3/05
WEATHER: Sunny

DATUM: Local
COORDS: not surveyed
GS ELEVATION: +/-397.0 ft
TOC ELEVATION:
TEMPERATURE: 68F

INCLINATION: -90
DEPTH W.L.: 52.6 ft
ELEVATION W.L.: 344.4 ft
DATE W.L.: 11/3/05
TIME W.L.: 2:30 pm

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: PID (ppm)	NUMBER	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N	REC / ATT	RQD	Sample Notes
30		30.0 - 35.0 Same as above except very stiff, encountered quartz fragment of 2" at 30'			30.0			SPT	10-12-14-14	26	0.5 / 2.0		
	365												
35		35.0 - 40.0 Silty CLAY, brown, medium plasticity, very stiff, with iron stain or ribbon, mixed with trace to some shale, quartz fragments, sub-angular to angular.			362.0 35.0			SPT	4-8-9-9	17	0.5 / 2.0		
	360												
40		40.0 - 45.0 Same as above.			357.0 40.0			SPT	6-8-10-11	18	0.8 / 2.0		
	355												
45		45.0 - 50.0 Clayey SILT , brown, medium plasticity, soft, mixed with some shale, quartz fragments, sub-angular to angular			352.0 45.0			SPT	3-1-3-11	4	0.6 / 2.0		
	350												
50		50.0 - 55.0 Clayey SILT, brown, medium plasticity, soft, some shale and quartz fragments, sub-angular. Wet from 51.5'			347.0 50.0			SPT	2-2-1-1	3	0.5 / 2.0		
	345												
55		55.0 - 66.8 Sandy SILT, brown, no plasticity, wet, very loose, some quartz fragments.			342.0 55.0			SPT	WOH-WOH WOH-WOH	0	0.2 / 2.0		
	340												
60													

Log continued on next page

LOG SCALE: 1 in = 4 ft
DRILLING COMPANY: Eichelbergers
DRILLER: Mike

GA INSPECTOR: YW
CHECKED BY: RSV
DATE: 11/11/05

Golder Associates

AA BOREHOLE RECORD NO WELL KAYSTONEPLANT.GPJ GOLDER NJ-PA.GDT 11/17/05

RECORD OF BOREHOLE GA-2

PROJECT: Giant/Keystone Tank Facility
PROJECT NUMBER: 0436335
DRILLED DEPTH: 85.8 ft
AZIMUTH: N/A
LOCATION: Beth PA

DRILL METHOD: Hollow-stem auger
DRILL RIG: CME 75
DATE STARTED: 11/2/05
DATE COMPLETED: 11/3/05
WEATHER: Sunny

DATUM: Local
COORDS: not surveyed
GS ELEVATION: +/-397.0 ft
TOC ELEVATION:
TEMPERATURE: 68F

INCLINATION: -90
DEPTH W.L.: 52.6 ft
ELEVATION W.L.: 344.4 ft
DATE W.L.: 11/3/05
TIME W.L.: 2:30 pm

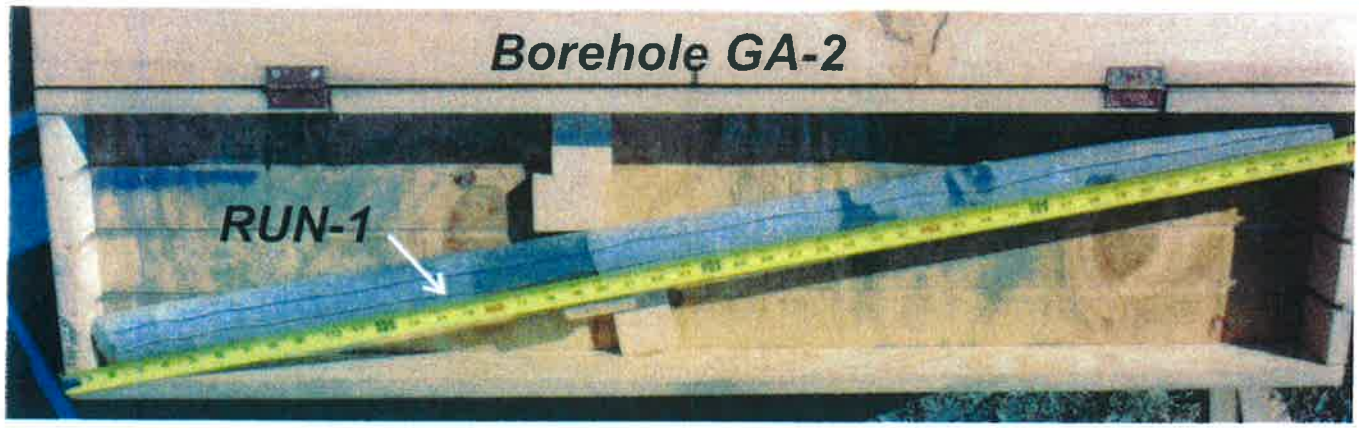
DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV / DEPTH (ft)	SAMPLES: PID (ppm)	NUMBER	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N	REC / ATT	RQD	Sample Notes
60		55.0 - 66.8 Sandy SILT, brown, no plasticity, wet, very loose, some quartz fragments. *(Continued)*											
	335												
65													
	330	66.8 - 85.8 DOLOSTONE, gray to dark gray, fine grain, crystalline, powder reacted to HCL, hard, massive, weathered at top surface, high angle (85 deg) conjugated factures cut through the core axis, quartz vein deposited and welded on the fracture surface. Calcite deposited in the hairy fissures.			330.2 66.8			CORE			4.0 / 4.0	100%	Start diamond core drilling from 66.8 ft bgs, NQ size , from 2:30 pm to 4:30 pm
70													
	325							CORE			5.0 / 5.0	95%	
75													
	320							CORE			5.0 / 5.0	90%	
80													
	315							CORE			5.0 / 5.0	70%	Borehole has been backfilled with cement-bentonite grout via tremie pipe. 18 bags of neat cement and 2 bags of benseal.
85					311.2								
		Boring completed at 85.8 ft											
	310												
90													

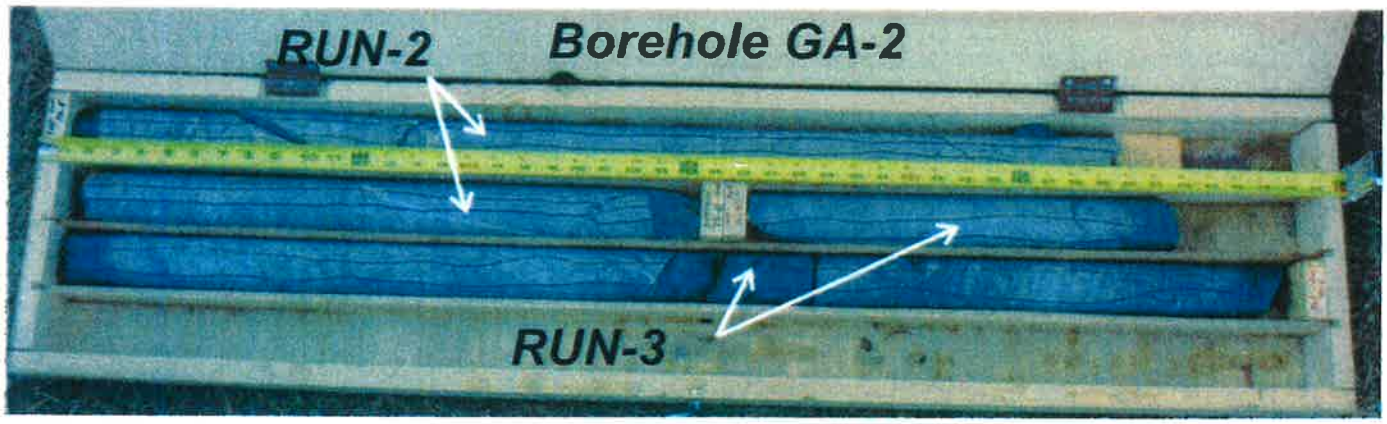
LOG SCALE: 1 in = 4 ft
DRILLING COMPANY: Eichelbergers
DRILLER: Mike

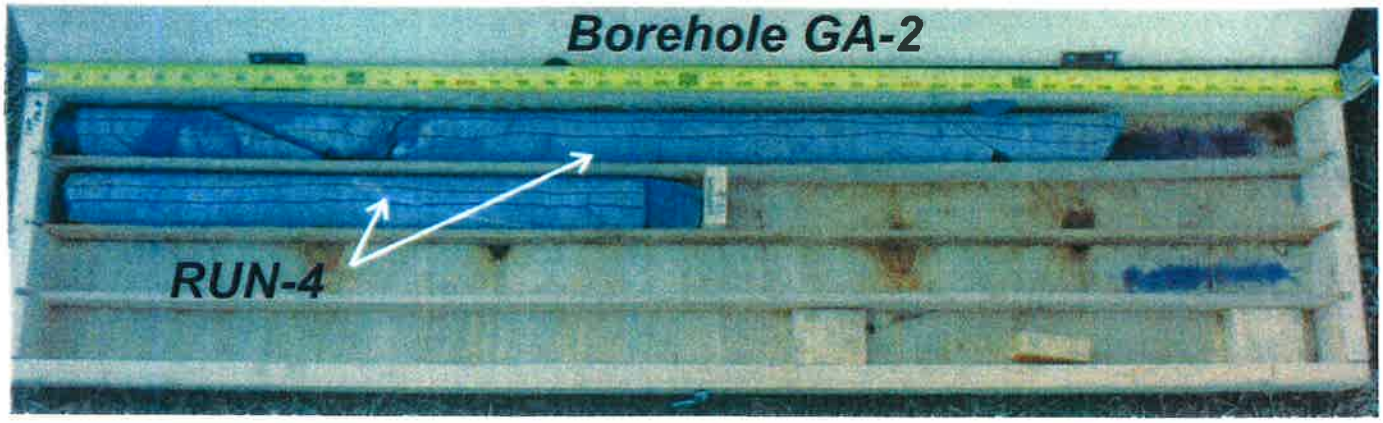
GA INSPECTOR: YW
CHECKED BY: RSV
DATE: 11/11/05

Golder Associates

AA BOREHOLE RECORD NO WELL KAYSTONEPLANT.GPJ GOLDER NJ-PA.GDT 11/17/05







	Run 1	Run 2	Run 3	Run 4	
Run Length (feet)	4	5	5	4	
RQD%	100	95	90	70	
REC/ATT	4.0/4.0	5.0/5.0	5.0/5.0	5.0/5.0	

KEYSTONE CEMENT PLANT
BORING GA-2

Golder Associates

REPORT

GEOTECHNICAL INVESTIGATION AND FOUNDATION RECOMMENDATIONS

KEYSTONE CEMENT EXPANSION PROJECT
BATH, PENNSYLVANIA

Prepared for:

Keystone Cement Plant
Route 329
Bath, Pennsylvania 18014

August 15, 2005

Prepared By:

URS
201 Willowbrook Blvd.
Wayne, New Jersey 07470

19684726.00004

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Appendix B Laboratory Test Results
Appendix C Photographs of Recovered Rock Core

1.1 GENERAL

This report presents the results of a geotechnical investigation performed by URS Corporation (URS) for the proposed expansion and modernization project for the Keystone Cement Plant (the Plant) in Northampton County, Bath, Pennsylvania. Our understanding of the requirements of the project is primarily based on discussions with Mr. Joseph Linsenmann, Manager of Project Engineering for the Plant. The Plant provided URS with relevant site drawings and the approximate locations of borings to be made for this investigation.

Authorization to proceed with this work was obtained in the form of an agreement between Keystone Cement and URS, dated April 11, 2005 and in conjunction with Purchase Order No. 216274, dated February 28, 2005.

1.2 PROJECT LOCATION AND DESCRIPTION

The project site is located near the town of Bath, Pennsylvania in Northampton County, and consists of a main plant area located between Routes 512 and 329 to the east and west, respectively. Also, included is the quarry facility, which is located on the west side of Route 329. A site location map is provided in Figure 1 appearing at the end of the text portion of this report.

The Plant has been in operation since 1928. Currently, quarried rock materials are transported to the main plant area by truck. We understand major proposed new construction will include provisions for transporting these materials to the main plant using a nearly one mile long conveyor system. Current proposed improvements include the following:

Plant Side

- Two (2) new 25,000 ton clinker silos
- A new high angle bucket conveyor
- A new heat exchanger
- A new cooler
- A new kiln
- A new preheater tower
- A new rolling mill building
- A new blending silo
- New clinker bins and transfer facilities

Quarry Side

- A new primary rock and dump hopper
- A new stockpile enclosure
- A crushed rock conveyor system to the Plant

1.3 OBJECTIVES AND SCOPE OF SERVICES

The objectives of this investigation were to evaluate the subsurface conditions within the areas of proposed construction, and to provide recommendations for design and construction of foundations for the new facilities. In order to achieve these objectives, the following scope of services was performed:

1. Examined the proposed areas of construction and located a total of 46 borings in the field.
2. Retained a drilling subcontractor to perform a total of 46 test borings
3. Provided full-time inspection and supervision of the test boring operations.
4. Performed a laboratory testing program on representative soil samples and bedrock cores obtained from the borings.
5. Met with the Mr. Linsenmann and the Plant's overall design consultant, Mr. Allan Kemenoff of Allen K Consulting, Ltd. to discuss preliminary investigation results and foundation design criteria.
6. Prepared this report that includes the following:
   a) A description of the test borings and laboratory testing procedures, and results of testing conducted;
   b) Plan drawings showing the locations of all test borings;
   c) Subsurface cross-sections indicating generalized soil and bedrock conditions encountered during the field program;
   d) An overview of general site and geologic conditions;
   e) The results of engineering evaluations and recommendations for foundation design including:
      - Recommendations for foundation type, allowable bearing capacity for shallow foundations, estimates of capacities of deep foundations, and estimated settlements associated with the foundations;
      - Recommendations for support of floor slabs;
      - Recommendations for geotechnical parameters for performing vibrating machine foundation analyses;
      - Discussion of construction related issues such as requirements for support of excavation, dewatering, and underpinning of adjacent structures;
      - Construction monitoring considerations including compaction control and inspection of foundation construction.
   f) Appendices that include test boring logs, the results of the laboratory testing, and photographs of bedrock cores.

1.4 REPORT ORGANIZATION

This report is divided into five sections. Following this introductory section, a description of the field investigation program and generalized subsurface conditions at the locations of the proposed construction are presented in Section Two. Our engineering evaluation and recommendations for foundation design are presented in Section Three, and construction considerations are presented in Section Four. Finally, the limitations of this study are described in Section Five.

Referenced figures and tables are included in separate sections at the end of the text. Boring logs, laboratory test results and photographs of rock core are included in the appendices.

2.1 GENERAL

The subsurface investigation consisted of a field investigation and a laboratory testing program. Details of the subsurface investigation program and the generalized subsurface conditions are described in the following sections.

2.2 FIELD INVESTIGATION PROGRAM

A total of forty-six (46) test borings were drilled in the areas of proposed construction within both the plant-side and quarry-side portions of the project. Thirty-four (34) of these borings were drilled within the plant-side at the approximate locations shown in Figures 2 and 3. The remaining twelve (12) borings were drilled within the quarry-side at the approximate locations shown in Figure 4. All boring locations were selected by the Plant and were located in the field prior to drilling by URS personnel by either taping from existing features (plant-side) or using a hand-held GPS unit (quarry-side) to establish initial approximate locations, which were subsequently adjusted as needed.

The borings were performed by our drilling subcontractor, CMI Subsurface Investigations, Inc. of Tappan, New York during the period from April 13, 2005 through May 13, 2005. All drilling, soil sampling, and rock coring operations were continuously inspected by our field geotechnical engineer, Dr. Jeaan Hwang.

The borings were advanced using rotary drilling techniques with 3-7/8 inch and 2-7/8 inch diameter tri-cone roller bits. The final depths of the borings varied from 22 ft to 98 ft, depending on the bedrock elevations and the quality of the rock encountered. Soil samples were obtained using techniques and equipment in general accordance with the American Society for Testing and Materials (ASTM) Standard Specification D1586-Standard Penetration Test (SPT). The SPT consists of driving a 2-inch O.D. split spoon sampler with repeated blows of a 140-lb hammer free falling a distance of 30-inches. The Standard Penetration Resistance, or N-value, is determined as the number of blows required to advance the sampler the last 12-inches of an 18-inch interval (or the middle 12-inches of a 24-inch interval). All borings were sampled using a conventional "donut" hammer system. The recovered split-spoon samples were placed in protective glass containers and labeled with the project name and number, boring number, sample, depth, SPT blow counts and the amount of recovery. All soil samples were subsequently transported to the URS Geo-Testing Laboratory in Totowa, New Jersey for classification, testing, and storage.

Rock coring was performed using a five-foot long NX (2-1/8 in. O.D.) core barrel. Coring was commenced based on the drilling operations (e.g., excessive rig chatter, difficult penetration) and practical spoon refusal as indicated by blow counts greater than 100 for a 12 inch interval on the split spoon sampler. This was done in order to verify the presence of bedrock (instead of intercepting a boulder), and to assess its relative quality as indicated by Core Recovery[1] and the

[1] The Core Recovery is defined as the ratio (expressed as a percent) of the total length of recovered core to the length cored.

Rock Quality Designation (RQD)[2]. Upon completion of coring, at the direction of the Plant, all boreholes in the rock (where voids were not encountered) were filled with a cement grout.

The recovered rock cores were placed in protective wooden boxes and photographed. Selected portions of recovered rock cores were subsequently transported to the URS Geo-Testing Laboratory for testing. The remaining core was left at the Plant in a designated area for future reference and use.

The final test boring logs are included in Appendix A. Photographs of the rock core are provided in Appendix C.

2.3 LABORATORY TESTING PROGRAM

Laboratory testing of a total of twenty-one (21) soil samples and eight (8) sections of rock core selected from the test borings was performed at our Geo-Testing Laboratory in Totowa, New Jersey. The purpose of the testing program was to verify the preliminary visual field classifications and to obtain information for subsequent engineering analyses. The types of tests performed on soil samples included grain-size distribution (sieve) tests (ASTM D422) on coarse-grained samples, and Atterberg liquid and plastic limits tests (ASTM D4318) on fine-grained samples. The tests on rock core included determination of wet and dry unit weights, and evaluation of unconfined compressive strength.

Tabular summaries of the laboratory tests performed on soil samples and rock core, including plots of grain-size distribution and stress-strain curves for the unconfined compression strength tests on rock are contained in Appendix B.

2.4 SITE GEOLOGY

The cement quarries and cement plants in the Lehigh Valley are aligned along the surface exposures of the Jacksonburg Formation of Ordovician age (505 to 438 million years old). The Jacksonburg is composed of limestone ($CaCO_3$). At the location of the Plant, high grade cement limestone has been found in the southern part, while a lower grade argillaceous limestone is found in the northern part. Clay pockets within the rock have been reported to be fairly abundant. The rock strata generally dip fairly steeply to the northwest. The Martinsburg shale lies only a short distance to the northwest. The contact between the two is sharply marked by a change of slope, which is much steeper in the shale than the Jacksonburg Limestone.

2.5 GENERALIZED SUBSURFACE CONDITIONS

The general descriptions of the subsurface soil and bedrock strata presented in this section are based primarily on our interpretations of the data collected from the test borings performed for this investigation. The subsurface conditions within the proposed areas of construction at the plant-side and quarry-side areas are described below.

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[2] The Rock Quality Designation (RQD) is defined as the ratio (expressed as a percentage) of the total length of recovered core samples having a length of at least twice the core diameter (e.g., about 4 in for NX-core) to the total length of core.

2.5.1 Plant-Side

Based on interpolation of available topographic drawings, the ground surface within the areas of the plant-side borings varied from about el. 397 to el. 411. Below grade, four generalized subsurface strata were identified as described below and graphically represented along Profiles A-A, B-B, C-C and D-D (see Figures 5 through 8, respectively).

Stratum 1 : Fill

This stratum typically consists of a brown to black, coarse to fine sand with trace to some amounts of coarse to fine gravel, silt, coal, and slag. The thickness of this stratum ranges from approximately 5 ft to 10 ft. The N-values from the SPT tests ranged from 15 blows per foot (bpf) to 100 bpf, indicative of a medium dense to very dense material. It is noted that about 5 ft of slag was encountered in boring numbers, B-19, B-22, and B-23.

Stratum 2: Sand

This stratum consists of a brown, coarse to fine sand with silt and fine gravel. This stratum was found below Stratum 1 and above Stratum 3 in many, but not all of the borings. Where encountered, the thickness of this stratum was approximately 10 ft to 25 ft. The N-values from the SPT tests ranged from 8 bpf to 52bpf, but were typically in the range of between 10 bpf and 30 bpf, indicative of a medium dense state of compactness.

Stratum 3 : Clayey Silt and Silty Clay

This stratum consists of a brown, low plasticity clayey silt and silty clay, with trace coarse to fine sand and fine gravel. This stratum was generally encountered below Stratum 2 or Stratum 1, and extended down to the top of bedrock. It was not encountered in the area of borings B-16, B-17 and B-21, where bedrock was encountered at a relatively shallow depth. The thickness of the stratum ranged from approximately 10 ft to 50 ft. The N-values from the SPT tests ranged from 7 bpf to over 100 bpf, but typically were in the range of 15 to 40, indicative of a stiff to hard state of consistency.

Stratum 4: Bedrock

The rock encountered was generally a light to dark gray, fine-grained, dolomitic limestone. It was generally hard and strong, and typically exhibited slight weathering. Fracturing was generally slight to moderate with some exceptions. Dark gray limestone, of the Jacksonburg Formation, was generally highly fractured and had the appearance of a slate. Most fractured surfaces at shallow depths had silt or clay coatings along with some iron staining. Rock also occasionally contained white variegations or seams of calcite or quartz. Core recoveries varied widely, from 10% to 100%. Similarly, RQD values ranged widely, from 0% to 100%.

As shown on the profiles and depicted on the contour plot given in Figure 10, the depth to top of rock varied significantly: ranging from about 5 ft (Boring B-17) to about 70 ft (Boring B-10). Corresponding elevations to top of rock ranged from about 340 ft to 398 ft.

Of particular significance, within the depths of coring for this investigation, occasional voids within the rock were encountered which were either soil-filled (typically with a clay or silt material) or open. Specifically, such occurrences were noted in the rock in borings B-2, B-2b, B-

3a, B-6, B-7, B-10, B-19, B-25, B-25, B-27, B-28a and B-29. The depth of voids ranged approximately from 2ft to 9ft.

2.5.2 Quarry-Side

Based on interpolation of available topographic drawings, the ground surface within the areas of the quarry-side borings varied from about el. 435 to el. 455. Below grade, five generalized subsurface strata were identified as described below and graphically represented along Profile E-E (see Figure 9).

Stratum 1 : Fill

This stratum likely consists of fill or disturbed natural surface materials. It typically consists of a brown to black, coarse to fine gravel with trace to some, coarse to fine sand, with varying amounts of silt. The thickness of this stratum ranges from approximately 5 ft to 20 ft. The N-values from the SPT tests ranged from 5 blows per foot (bpf) to over 100 bpf, indicative of a loose to very dense material. A boulder or large section of shock rock was encountered near the bottom of this layer at the location of Boring B-38.

Stratum 2: Sand

This stratum consists of a brown, coarse to fine SAND with trace to some clayey silt and fine gravel. This stratum was found below Stratum 1 and above Stratum 3 in many, but not all of the borings. Where encountered, the thickness of this stratum was approximately 10 ft to 35 ft. The N-values from the SPT tests ranged from 7 bpf to 52bpf, but were typically in the range of between 20 bpf and 30 bpf, indicative of a medium dense state of compactness.

Stratum 3 : Gravel

This stratum consists of a brown, coarse to fine gravel with trace to some sand and clayey silt. This stratum was generally encountered below Stratum 2 in the borings drilled within the western half of the site. Where encountered, the thickness of the stratum ranged from approximately 15 ft to 20 ft. The N-values from the SPT tests ranged from 14 bpf to over 100 bpf.

Stratum 4 : Clayey Silt and Silty Clay

This stratum consists of a brown, low to medium plasticity clayey silt and silty clay, with trace coarse to fine sand and fine gravel. This stratum was encountered in all borings except Boring B-40 below Stratum 3 or Stratum 2, and extended down to the top of bedrock. The thickness of the stratum ranged from approximately 5 ft to 50 ft. The N-values from the SPT tests ranged from 6 bpf to 70 bpf, but typically were in the range of 20 to 40, indicative of a very stiff to hard state of consistency.

Stratum 5: Bedrock

The rock encountered was generally a light to dark gray, fine-grained, dolomitic limestone. It was generally hard and strong, and typically exhibited slight weathering. Fracturing was generally slight to moderate with some exceptions. Dark gray limestone, of the Jacksonburg Formation, was generally highly fractured and had the appearance of a slate. Most fractured surfaces at shallow depths had silt or clay coatings along with some iron staining. Rock also

occasionally contained white variegations or seams of calcite or quartz. Core recoveries varied widely, from 30% to 100%. Similarly, RQD values ranged widely, from 13% to 93%.

As shown on Profile E-E and depicted on the contour plot given in Figure 11, the depth to top of rock varied significantly: ranging from about 18 ft (Boring B-33) to about 79 ft (Boring B-30). Corresponding elevations to top of rock ranged from about 360 ft to 418 ft.

As in the case of the plant-side borings, within the depths of coring for this investigation, occasional voids within the rock were encountered which were either soil-filled (typically with a clay or silt material) or open. Specifically, such an occurrence was noted in the rock in Boring B-34.

2.6 GROUNDWATER CONDITIONS

No groundwater observation wells were installed in any of the completed borings made for this investigation. However, the Plant reported that static groundwater are known to be deep in the area and are either perched on the relatively impervious silt/clay layer or bedrock where rock is relatively intact, or within bedrock where rock is fractures and contains solution cavities.

3.1 GENERAL

This section of the report presents the results of our engineering evaluation and provides recommendations for preliminary selection of the types and sizes of foundations for support of the proposed construction. Our evaluation and recommendations are based on the subsurface conditions encountered at the boring locations, and our present understanding of the proposed facilities to be constructed, including anticipated loadings (e.g., maximum column loads, maximum pressure exerted on footings or mats, etc.) and, where known, associated foundation performance criteria (e.g., maximum permissible differential settlement).

Specific information related to the construction proposed within the quarry-side of the project is not yet available. However, for the plant-side construction, based on information provided to us by the Plant, Table 1 has been prepared to provide a summary of the loads to be supported, estimated plan dimensions of footings or mats, required minimum bearing capacities for shallow foundations, foundation performance criteria. Also listed for reference are the nearest borings performed for each facility and the depth to rock determined from those borings

3.2 EVALUATION OF FOUNDATIONS

3.2.1 Plant-Side

3.2.1.1 Finish Mill Facility

As indicated in Table 1, preliminary estimates provide for column loads of up to about 300 tons to be supported on footings having plan dimensions of 9 ft by 16 ft and 10 ft by 14. Fan and stack loads of up to 200 tons are to be supported on approximately 15 ft by 15 ft footings. Finally, a 20 ft by 50 ft mill mat is planned. These configurations will require a basic bearing capacity for shallow foundations of 3.5 tons per square foot (tsf). A basic allowable settlement of up to one-inch has been established for preliminary design.

In this area of the site, the average depth to bedrock is about 50 ft. Bedrock is overlain by about a 35 ft thick layer of the medium dense/stiff silt/clay (Stratum 3) and a combined 15 ft thick layer of sandy fill and sand.

It is assumed that individual footings and the mill mat will bear at a depth of least four feet. For this condition, and for the given foundation sizes (i.e., average footing width of 10 ft), it is estimated that settlements, due to elastic compression of the underlying soils, will be less than one-inch for bearing pressures not exceeding 3.5 tsf. Therefore, if settlements are to be limited to a maximum of one-inch, it is recommended that the finish mill structures be supported on shallow foundations designed for a maximum base pressure of 3.5 tsf. Recommendations for preparation of bearing subgrade are provided in Section Four.

It is recommended that the mill mat be designed assuming a modulus of subgrade reaction (k) equal to 250 pounds per cubic inch (pci).

3.2.1.2 Finish Mill to Clinker Silo Conveyor

As indicated in Table 1, preliminary estimates provide for conveyor bent loads ranging from 100 tons to 250 tons to be carried on footings and or mats having plan dimensions of 10 ft by 15 ft and 12 ft by 25 ft, respectively. These configurations will require a basic bearing capacity for shallow foundations of 3 tons per square foot (tsf). The allowable settlement of for these foundations is not known, but has been assumed to be one-inch for the purposes of this evaluation.

In this area of the site, the average depth to bedrock is about 45 ft. Bedrock is overlain by about a 30 ft thick layer of medium dense/stiff silt/clay (Stratum 3) and a combined 15 ft thick layer of sandy fill and sand.

It is assumed that individual footings or mats will bear at a depth of at least four feet. For this condition, and for the given foundation sizes (i.e., footing width of 10 ft), it is estimated that settlements, due to elastic compression of the underlying soils, will be less than one-inch for bearing pressures not exceeding 3.5 tons per square foot (tsf). Therefore, if settlements are to be limited to a maximum of one-inch, it is recommended that the conveyor bents be supported on shallow foundations designed for a maximum base pressure of 3.5 tsf. Recommendations for preparation of bearing subgrade are provided in Section Four.

It is recommended that any mat structures be designed assuming a modulus of subgrade reaction (k) equal to 250 pounds per cubic inch (pci).

3.2.1.3 Clinker Silos

As indicated in Table 1, two clinker silos having a diameter of about 85 ft are to be constructed adjacent to each other. Initial estimates provide for single silo load of about 40,000 tons. This configuration will require a basic bearing capacity for shallow foundations of about 10 tsf. The maximum allowable settlement of the silo foundation will be governed by the allowable differential settlement between each silo and the connecting or adjoining facility (e.g., conveyor). The magnitude of this settlement has not yet been established.

In this area of the site, the depth to bedrock varies from about 30 ft to 70 ft. Bedrock is overlain by about a 15 ft to 45 ft thick layer of medium dense/stiff silt/clay (Stratum 3) and a combined 15 ft thick layer of sandy fill and sand.

It is assumed that each silo ring foundation will bear at a depth of at least four feet. Because of the heavy loads to be supported, and the large silo footprint area, it is not recommended to support the silos on shallow foundations as this would lead to overstressing of the underlying soils and likely result in unacceptable differential settlements between the silos and the adjoining structures. Rather, it is recommended to support the silos using drilled shaft foundations which are socketed into the underlying rock. Such shafts will have lengths above bedrock varying from about 25 ft to 65 ft.

To estimate the axial capacity and settlement (due to elastic compression) of a drilled shaft installed at this location, calculations were performed for various shaft diameters and rock socket depths using the methodology developed by the American Association of State Highway and Transportation Officials Association (AASHTO). Specifically, it was assumed

that capacity is only developed from side resistance along the portion of the shaft within the rock. No soil resistance or end bearing within the rock was assumed.

For purposes of this evaluation the following was assumed:

- A compressive strength of intact rock equal to 34,250 psi (average of plant-side tests)
- A elastic modulus of intact rock equal to 4,560,000 psi (average of plant-side tests)
- A average RQD equal to 50% (average from cores at clinker silo site)
- A concrete compressive strength of 4000 psi
- An elastic modulus of concrete equal to 3,640,000 psi.
- A minimum factor of safety of 2.5 on ultimate capacity

Based on the above assumptions, a maximum shaft length above rock of 65 ft, shaft capacities and settlements due to elastic compression are estimated as follows:

Shaft Diameter (ft)	Socket Depth (ft)	Allowable Compression Load (kips)	Allowable Uplift Load (kips)	Shaft Compression (inches)	Required No. of Shafts (for 40,000 ton load)
4.5	15				
6	15	2587	2141	0.18	31
	20	3501	2802	0.26	23
	25	4416	3463	0.35	18
8	15	3362	2941	0.14	24
	20	4577	3828	0.20	18
	25	5791	4715	0.26	14

The above estimates have provided for purposes of preliminary foundation selection. Other combinations of shaft diameter and socket depth can be evaluated for final design when the maximum allowable differential settlements are better defined. In any case, it is recommended to perform load testing of at least one shaft to verify that the design capacity can be achieved. Because of the nature of the bedrock at the Plant, which can contain soil-filled or empty voids, it is also recommended that during shaft installation, small diameter pilot bores be made below the design socket depth (say to a depth of about twice the shaft diameter). This will ensure that the shaft is not directly overlying any voids or weak rock which could result in shaft failure. If such voids are found, then the shaft should be installed deeper in order to provide the required embedment in competent rock.

3.2.1.4 Cooler Facility

As indicated in Table 1, preliminary estimates provide for cooler facility column loads in the range of about 250 tons to 300 tons to be supported on footings having plan dimensions of up to about 10 ft by 15 ft. In addition, a cooler mat is planned to support a load of about 2000 tons. These configurations will require a basic bearing capacity for shallow foundations of 3.5 tsf. The allowable settlement for these foundations is not known, but has been assumed to be one-inch for the purposes of this evaluation.

In this area of the site, the depth to bedrock ranges from about 20 ft to 30 ft. Bedrock is overlain by about a 15 ft to 25 ft thick layer of the medium dense/stiff silt/clay (Stratum 3) and about a 5 ft thick layer of sandy fill.

It is assumed that individual footings and the mill mat will bear at a depth of least four feet. For this condition, and for the given preliminary foundation sizes (i.e., footing width of up to about 10 ft), it is estimated that settlements, due to elastic compression of the underlying soils, will be less than one-inch for bearing pressures not exceeding 3.5 tons per square foot (tsf). Therefore, if settlements are to be limited to a maximum of one-inch, the cooler facility structures should be supported on shallow foundations designed for a maximum base pressure of 3.5 tsf. Recommendations for preparation of bearing subgrade are provided in Section Four.

The cooler mat be designed assuming a modulus of subgrade reaction (k) equal to 200 pounds per cubic inch (pci).

If potential settlements are to be reduced further, then consideration should be given to supporting the cooler facilities on drilled shafts. Shaft capacities and settlements were estimated following the methodology and assumptions described in Section 3.2.1.3 along with the following assumptions:

- A compressive strength of intact rock equal to 34,250 psi (average of plant-side tests)
- A elastic modulus of intact rock equal to 4,560,000 psi (average of plant-side tests)
- A average RQD equal to 70% (average from cores at cooler site)
- A concrete compressive strength of 4000 psi
- An elastic modulus of concrete equal to 3,640,000 psi.
- A minimum factor of safety of 2.5 on ultimate capacity

Based on the above assumptions, a maximum shaft length above rock of 25 ft, shaft capacities and settlements due to elastic compression are estimated as follows:

Shaft Diameter (ft)	Socket Depth (ft)	Allowable Compression Load (kips)	Allowable Uplift Load (kips)	Shaft Compression (inches)	Required No. of Shafts
2	5	301	224	0.07	1 (col.) 14 (mat)
	15	916	660	0.28	1 (col.) 5 (mat)
3	15	1366	998	0.19	1 (col.) 3 (mat)

The above is provided for purposes of preliminary foundation selection. Other combinations of shaft diameter and socket depth can be evaluated for final design when the maximum allowable differential settlements are better defined. In any case, it is recommended to perform load testing of at least one shaft to verify that the design capacity can be achieved. Because of the nature of the bedrock at the Plant, which can contain soil-filled or empty voids, it is also recommended that during shaft installation, small diameter pilot bores be made below the design socket depth (say to a depth of about twice the shaft diameter). This will ensure that the shaft is not directly overlying any voids or weak rock which could result in shaft failure. If such voids are found, then the shaft should be installed deeper in order to provide the required embedment in competent rock.

3.2.1.5 Kiln Pier No. 1

As indicated in Table 1, preliminary estimates provide for the new kiln to be supported on two piers. Pier No. 1 will carry a load of about 4700 tons. It has been assumed that the pier will be supported on a shallow foundation having plan dimensions of about 35 ft by 40 ft. This configuration will require a basic bearing capacity for shallow foundations of 5 tsf. The allowable settlement of for this foundation has been established as 3/8 of an inch.

In this area of the site, bedrock is relatively shallow and is within about 10 ft of the surface. It is overlain by a medium dense layer of sandy fill. Given the variable nature of the subsurface materials at this location and the small amount of settlement which can be tolerated, it is recommended to support the pier loading on rock using drilled shafts. Since there has historically been some evidence at the Plant that loss of bearing may have occurred as result of soil slowly washing down into solution-prone rock, this foundation scheme may provide better long-term performance where soil cover is relatively thin.

Shaft capacities and settlements were estimated following the methodology and assumptions described in Section 3.2.1.3 along with the following assumptions:

- A compressive strength of intact rock equal to 34,250 psi (average of plant-side tests)
- A elastic modulus of intact rock equal to 4,560,000 psi (average of plant-side tests)
- A average RQD equal to 43% (average from cores at kiln pier site)
- A concrete compressive strength of 4000 psi
- An elastic modulus of concrete equal to 3,640,000 psi.
- A minimum factor of safety of 2.5 on ultimate capacity

Based on the above assumptions, a maximum shaft length above rock of 10 ft, shaft capacities and settlements due to elastic compression are estimated as follows:

Shaft Diameter (ft)	Socket Depth (ft)	Allowable Compression Load (kips)	Allowable Uplift Load (kips)	Shaft Compression (inches)	Required No. of Shafts
2	15	920	656	0.18	11
3	10	915	661	0.07	11
	15	1375	989	0.13	7
4	15	1827	1325	0.10	6

The above is provided for purposes of preliminary foundation selection. Other combinations of shaft diameter and socket depth can be evaluated for final design when the maximum allowable differential settlements are better defined. In any case, it is recommended to perform load testing of at least one shaft to verify that the design capacity can be achieved. Because of the nature of the bedrock at the Plant, which can contain soil-filled or empty voids, it is also recommended that during shaft installation, small diameter pilot bores be made below the design socket depth (say to a depth of about twice the shaft diameter). This will ensure that the shaft is not directly overlying any voids or weak rock which could result in shaft failure. If such voids are found, then the shaft should be installed deeper in order to provide the required embedment in competent rock.

3.2.1.6 Kiln Pier No. 2

As indicated in Table 1, preliminary estimates provide for the new kiln to be supported on two piers. Pier No. 2 will carry a load of about 3800 tons. It has been assumed that the pier will be supported on a shallow foundation having plan dimensions of about 35 ft by 40 ft. This configuration will require a basic bearing capacity for shallow foundations of 5 tsf. The allowable settlement of for this foundation has been established as 3/8 of an inch.

In this area of the site, bedrock is relatively shallow and is within about 15 ft of the surface. It is overlain by about a 10 ft thick layer of medium dense/stiff silt/clay and approximately 5 ft of sandy fill. As in the case of Pier No. 1, given the nature of the subsurface materials at

this location and the small amount of settlement which can be tolerated, it is recommended to support the pier loading on rock using drilled shafts.

Shaft capacities and settlements were estimated following the methodology and assumptions described in Section 3.2.1.3 along with the following assumptions:

- A compressive strength of intact rock equal to 34,250 psi (average of plant-side tests)
- A elastic modulus of intact rock equal to 4,560,000 psi (average of plant-side tests)
- A average RQD equal to 70% (average from cores at kiln pier site)
- A concrete compressive strength of 4000 psi
- An elastic modulus of concrete equal to 3,640,000 psi.
- A minimum factor of safety of 2.5 on ultimate capacity

Based on the above assumptions, a maximum shaft length above rock of 10 ft, shaft capacities and settlements due to elastic compression are estimated as follows:

Shaft Diameter (ft)	Socket Depth (ft)	Allowable Compression Load (kips)	Allowable Uplift Load (kips)	Shaft Compression (inches)	Required No. of Shafts
2	15	920	656	0.18	9
3	10	915	661	0.06	9
	15	1375	989	0.12	6
4	15	1827	1325	0.09	4

The above is provided for purposes of preliminary foundation selection. Other combinations of shaft diameter and socket depth can be evaluated for final design when the maximum allowable differential settlements are better defined. In any case, it is recommended to perform load testing of at least one shaft to verify that the design capacity can be achieved. Because of the nature of the bedrock at the Plant, which can contain soil-filled or empty voids, it is also recommended that during shaft installation, small diameter pilot bores be made below the design socket depth (say to a depth of about twice the shaft diameter). This will ensure that the shaft is not directly overlying any voids or weak rock which could result in shaft failure. If such voids are found, then the shaft should be installed deeper in order to provide the required embedment in competent rock.

3.2.1.7 Preheat Tower

As indicated in Table 1, preliminary estimates provide for the preheat tower to be supported on a 65 ft by 70 ft mat. The mat is to carry a total load of about 10,000 tons. This

configuration will require a basic bearing capacity of about 7.5 tsf. The allowable settlement for this foundation and the adjoining kiln will be one-inch.

In this area of the site, the depth to bedrock dips from west to east, ranging from less than about 10 ft to a maximum of 45 ft, respectively. Overlying the rock is a variably thick layer of medium dense/stiff silt/clay and a surface layer of sandy fill up to about 10 ft thick. As a result, the mat may span over significantly varying conditions of soil thickness and compressibility. This may in turn lead to damaging differential settlements. Accordingly, it is recommended that the preheat tower be supported on drilled shafts socketed into the underlying bedrock. Such shafts may have a length above rock varying from less than 10 ft to 40 ft.

Shaft capacities and settlements were estimated following the methodology and assumptions described in Section 3.2.1.3 along with the following assumptions:

- A compressive strength of intact rock equal to 34,250 psi (average of plant-side tests)
- A elastic modulus of intact rock equal to 4,560,000 psi (average of plant-side tests)
- A average RQD equal to 47% (average from cores at preheater tower site)
- A concrete compressive strength of 4000 psi
- An elastic modulus of concrete equal to 3,640,000 psi.
- A minimum factor of safety of 2.5 on ultimate capacity

Based on the above assumptions, along with a maximum shaft length above rock of 40 ft, shaft capacities and settlements due to elastic compression are estimated as follows:

Shaft Diameter (ft)	Socket Depth (ft)	Allowable Compression Load (kips)	Allowable Uplift Load (kips)	Shaft Compression (inches)	Required No. of Shafts
3	5	436	352	0.07	46
	15	1357	1007	0.26	15
4	5	569	481	0.05	35
	15	1795	1357	0.20	12
6	5	818	758	0.03	25
	15	2647	2080	0.13	8

The above is provided for purposes of preliminary foundation selection. Other combinations of shaft diameter and socket depth can be evaluated for final design when the maximum allowable differential settlements are better defined. In any case, it is recommended to perform load testing of at least one shaft to verify that the design capacity can be achieved. Because of the nature of the bedrock at the Plant, which can contain soil-filled or empty

voids, it is also recommended that during shaft installation, small diameter pilot bores be made below the design socket depth (say to a depth of about twice the shaft diameter). This will ensure that the shaft is not directly overlying any voids or weak rock which could result in shaft failure. If such voids are found, then the shaft should be installed deeper in order to provide the required embedment in competent rock.

3.2.1.8 Blending Silo

As indicated in Table 1, preliminary estimates provide for the blending silo to be supported on a 50 ft diameter mat or ring foundation. The mat is to carry a total load of about 9,500 tons. This configuration will require a basic bearing capacity of about 7.5 tsf. The allowable settlement for this foundation is limited by that permitted between the silo and the adjoining conveyor.

The site for the blending silo is similar to that of the preheat tower insofar as the depth to bedrock increase below the silo from less than about 10 ft to 30 ft. Overlying the rock is a variably thick layer of medium dense/stiff silt/clay and a surface layer of sandy fill up to about 10 ft thick. As a result, the foundation for the silo may span over significantly varying conditions of soil thickness and compressibility. This may in turn lead to damaging differential settlements. Accordingly, it is recommended that the blending silo be supported on drilled shafts socketed into the underlying bedrock. Such shafts may have a length above rock varying from less than 10 ft to 25 ft.

Shaft capacities and settlements were estimated following the methodology and assumptions described in Section 3.2.1.3 along with the following assumptions:

- A compressive strength of intact rock equal to 34,250 psi (average of plant-side tests)
- A elastic modulus of intact rock equal to 4,560,000 psi (average of plant-side tests)
- A average RQD equal to 54% (average from cores at blending silo)
- A concrete compressive strength of 4000 psi
- An elastic modulus of concrete equal to 3,640,000 psi.
- A minimum factor of safety of 2.5 on ultimate capacity

Based on the above assumptions, along with a maximum shaft length above rock of 25 ft, shaft capacities and settlements due to elastic compression are estimated as follows:

Shaft Diameter (ft)	Socket Depth (ft)	Allowable Compression Load (kips)	Allowable Uplift Load (kips)	Shaft Compression (inches)	Required No. of Shafts
3	5	445	343	0.05	43
	15	1366	998	0.19	14
4	5	586	465	0.04	33
	15	1811	1341	0.15	11

Shaft Diameter (ft)	Socket Depth (ft)	Allowable Compression Load (kips)	Allowable Uplift Load (kips)	Shaft Compression (inches)	Required No. of Shafts
6	5	854	722	0.03	23
	15	2684	2044	0.10	8
8	5	1106	995	0.02	18
	15	3535	2769	0.08	6

The above is provided for purposes of preliminary foundation selection. Other combinations of shaft diameter and socket depth can be evaluated for final design when the maximum allowable differential settlements are better defined. In any case, it is recommended to perform load testing of at least one shaft to verify that the design capacity can be achieved. Because of the nature of the bedrock at the Plant, which can contain soil-filled or empty voids, it is also recommended that during shaft installation, small diameter pilot bores be made below the design socket depth (say to a depth of about twice the shaft diameter). This will ensure that the shaft is not directly overlying any voids or weak rock which could result in shaft failure. If such voids are found, then the shaft should be installed deeper in order to provide the required embedment in competent rock.

3.2.1.9 Roller Mill

As indicated in Table 1, preliminary estimates provide for column loads of up to about 300 tons to be supported on footings having plan dimensions of 10 ft by 14. In addition a 40 ft by 45 ft mill mat is planned to support a total loading of 5,000 tons. These configurations will require a basic bearing capacity for shallow foundations of 3.5 tons per square foot (tsf). A basic allowable settlement of up to one-inch has been established for preliminary design.

In this area of the site, the average depth to bedrock ranges from about 20 ft to 45 ft along the south end of the site, and from about 45 ft to 55 ft along the north side of the site. Bedrock is overlain by medium dense/stiff silt/clay (Stratum 3) and gravelly sands below about a 5 ft thick layer of sandy fill.

It is assumed that individual footings and the mat will bear at a depth of least four feet. For this condition, and for the given foundation sizes (i.e., average footing width of 10 ft), it is estimated that settlements, due to elastic compression of the underlying soils, will be less than one-inch for bearing pressures not exceeding 3.5 tsf. Therefore, if settlements are to be limited to a maximum of one-inch, it is recommended that the roller mill structures be supported on shallow foundations designed for a maximum base pressure of 3.5 tsf. Recommendations for preparation of bearing subgrade are provided in Section Four.

It is recommended that the roller mill mat be designed assuming a modulus of subgrade reaction (k) equal to 350 pounds per cubic inch (pci).

3.2.1.10 Fan

As indicated in Table 1, preliminary estimates provide for support of about a 150 ton fan load on a 20 ft by 26 ft mat. This configuration will require a basic bearing capacity for shallow foundations of 3 tons per square foot (tsf). A basic allowable settlement of up to one-inch has been assumed for preliminary design.

In this area of the site, the depth to bedrock is about 25 ft. Bedrock is overlain by medium dense/stiff silt/clay (Stratum 3) and about a 5 ft to 7 ft thick layer of gravelly, sandy fill.

It is assumed that the mat will bear at a depth of least four feet. For this condition, the subsurface soils should provide sufficient capacity for support of the mat. It is recommended that the mat be designed assuming a modulus of subgrade reaction (k) equal to 225 pounds per cubic inch (pci).

3.2.2 Quarry-Side

We understand that new construction within the quarry-side of the project will include a new dump hopper and primary crusher facility, a conveyor system from the quarry to the plant-side, and a stock-pile enclosure. Details of these facilities, including anticipated loads are not yet known. Specific recommendations for design of foundations in this area will be provided in an addendum to this report when this information becomes available.

3.3 SOIL PARAMETERS

3.3.1 Coefficients of Lateral Earth Pressure and Sliding Resistance

Assuming the shallow foundations and any underground structures will bear either in existing fill (Stratum 1), the medium dense sand (Stratum 2), or the medium dense/stiff silt/clay comprising Stratum 3, the following values for soil at-rest, active and passive pressure coefficients and the coefficient of sliding resistance between concrete and soil are recommended for these materials:

Stratum	Coefficient of At-Rest Earth Pressure, Ko	Coefficient of Active Earth Pressure, K_a	Coefficient of Passive Earth Pressure, K_p	Coefficient of Sliding Resistance
Fill (Stratum 1)	0.50	0.33	3.00	0.35
Sand (Stratum 2)	0.47	0.31	3.25	0.40
Silt/Clay (Stratum 3)	0.47	0.31	3.25	0.30

3.3.2 Static and Dynamic Soil Parameters for Vibrating Machine Foundation Design

Table 2 presents a summary of the recommended static and dynamic soil properties for use in the design of the foundations at the proposed project site. It should be noted that the values of the internal damping ratio given in Table 3 would need to be added to the corresponding values of geometric or radiation damping to determine the total damping ratio for a given machine/foundation system. The dynamic coefficients of subgrade reaction are not provided as they are typically evaluated for given foundation geometries and sizes using values of the shear modulus and Poisson's ratio for the underlying foundation soils.

3.4 PERMANENT GROUNDWATER CONTROL

Based on information provided by the Plant during previous construction, static ground water is not likely to be encountered within the anticipated depths of below grade construction. Accordingly, provisions for permanent groundwater control are not anticipated to be required.

4.1 GENERAL

The following sections provide recommendations regarding preparation of the subgrade for footings, slabs or mats, temporary support of excavation controls, excavation considerations, underpinning, backfill and compaction control, and the need for construction monitoring.

4.2 SUBGRADE PREPARATION

In order to limit differential settlements and provide a good bearing surface, we recommend that the soil subgrade be proof-rolled with a minimum of 6 passes of a smooth drum vibrating roller with a minimum 10 ton static weight, or approved equipment having similar energy. It is recommended that the subgrade be compacted to a minimum of 95% of the maximum dry density. Any unstable areas encountered which cannot be stabilized by additional compaction should be excavated to competent material and the area backfilled with compacted structural fill. The proof-rolling should not be performed when the subgrade is wet, muddy, or frozen. Upon completion of the subgrade preparation, it is recommended that a minimum of four inches of coarse aggregate be placed and compacted in accordance with Section 4.5 of this report.

If construction is performed in the winter, the subgrade should be protected from frost action to limit possible subgrade deterioration resulting from freezing and thawing cycles. Such deterioration could lead to increased settlement. Concrete should not be poured if the subgrade is wet, muddy, or frozen.

4.3 TEMPORARY SUPPORT OF EXCAVATION WALLS

Where excavations are required and where there is sufficient room to slope excavation sides, the slopes should not be greater than 1.5 Horizontal (H) to 1 Vertical (V) above groundwater, and 2H to 1V below the water table. Otherwise, soil faces along the excavation perimeter will have to be temporarily retained until the new permanent walls are constructed and the area is properly backfilled. A feasible support system may consist of steel sheeting or soldier piles and wood lagging.

The design of any temporary excavation support system should be the responsibility of a licensed professional engineer retained by the foundation contractor. All excavations of temporary support systems should conform to pertinent OSHA and local safety regulations. The soil parameters used in the design of the temporary support system should be reviewed by the owner's geotechnical engineer prior to construction of the temporary support structures.

4.4 TEMPORARY GROUNDWATER CONTROL

As groundwater should be well below the lowest excavation level, relatively modest dewatering by pumping from sumps will likely be required to handle any inflows from perched water or surface runoff.

4.5 BACKFILL AND COMPACTION REQUIREMENTS

Select backfill or structural backfill should be granular soils free of cinder, brick, asphalt, ash, and other unsuitable materials. We recommend that structural backfill or select backfill beneath slabs-on-grade be compacted to a minimum of 95% of the maximum dry density, as determined by ASTM D1557-88, Method C. All backfill should be placed in lifts not exceeding 8 in. in loose thickness. The subgrade underneath the backfill should be satisfactorily proof rolled prior to placement of backfill and should also meet the same density requirements as the backfill to be placed above the subgrade.

4.6 UNDERPINNING

Based on our present understanding of he proposed construction and its location with respect to existing facilities and buildings at the Plant, underpinning of adjacent structures may not be necessary. This should be confirmed after final design, and appropriate provisions for any required underpinning work should be made in the construction documents.

4.7 VERIFICATION AND TESTING OF DRILLED SHAFT CONSTRUCTION

As indicated in Section Three, it is recommended that during construction of drilled shafts socketed into bedrock, confirmatory "pilot holes" be drilled below the design socket bottoms (typically to a depth of 1.5 to 2 socket diameters) to verify that the rock below the base is relatively intact and does not contain empty or soil-filled voids. If such features are found, then, provisions should be made in the construction documents to extend the socket below these potential weak zones.

Prior to installing production shafts, it is also recommended to conduct a test program on a minimum of one test shaft to assess the proposed shaft installation procedures and to confirm shaft capacity. Typically, such high capacity shafts are load tested using Osterberg Cells (O-Cells©).

4.8 CONSTRUCTION INSPECTION

Our recommendations are contingent upon review and observation during excavation and foundation construction operations by a geotechnical engineer familiar with the subsurface conditions and foundation design criteria. The geotechnical engineer's role should include the following:

- Review and approval of contractor submittals related to foundation construction;
- Observation and documentation of all phases of excavation and foundation construction;
- Inspection of subgrade preparation and drilled shaft installation;
- Monitoring of subgrade preparation and structural fill placement and compaction.

Professional judgments were necessary in relation to determining stratigraphy and soil properties from the subsurface investigations. Such judgments were based partly on the evaluation of the technical information gathered, and partly on our experience with similar projects. If further investigation reveals differences in the subsurface conditions and/or groundwater level, or if the proposed building design is different from indicated herein, or is changed, it is recommended that we be given the opportunity to review the new information and modify our recommendations, if deemed appropriate.

The results presented in this report are applicable only to the present study, and should not be used for any other purpose without our review and consent. This study has been conducted in accordance with the standard of care commonly used as state-of-the-practice in the profession. No other warranties are either expressed or implied.

TABLES

TABLE 1 – SUMMARY OF ESTIMATED STRUCTURAL LOADS AND FOUNDATION DESIGN CRITERIA

Facility	Estimated Foundation Size	Typical Load	Required Bearing Capacity	Allowable Settlements	Nearest Borings	Depth to Bedrock
Fan Mat	20 ft x 26 ft	150 tons	3 tsf		B-24	25 ft
Roller Mill Mat	40 ft x 45 ft	5,000 tons	3.5 tsf	1-in. (max. No tilting allowed.	B-19	40 ft
Roller Mill Column Ftgs	10 ft x 14 ft	250 to 300 tons	3.5 tsf	1-in. (max. No tilting allowed.	B-19, B-25, B-26, B-27, B-28	21 to 57 ft
Blending Silo	50 ft (dia.)	9,500 tons	7.5 tsf	Governed by allowable differential settlement between silo and connecting conveyor.	B-20, B-21, B-25	7 to 21 ft
Preheat Tower Mat	65 ft x 70 ft	10,000 tons	7.5 tsf	1-in. max. settlement between preheater and kiln.	B-17, B-18, B-21, B-22	6 to 42 ft
Kiln Pier No. 1	35 ft x 45 ft	4,700 tons	5 tsf	Uniform settlement (3/8-in. max.). No tilting acceptable.	B-16	11 ft
Kiln Pier No. 2	35 ft x 40 ft	3,800 tons	5 tsf	Uniform settlement (3/8-in. max.). No tilting acceptable.	B-14	16 ft
Cooler Mat	15 ft x 75 ft	2,000 tons	3.5 tsf	Uniform settlement (1/4-in. max.). 1-in. max. settlement between kiln and cooler. No tilting acceptable.	B-11 through B-15	14 to 30 ft
Cooler Column Ftgs	12 ft x 15 ft	250 to 350 tons	3.5 tsf	Uniform settlement (1/4-in. max.). 1-in.	B-11 through B-15	14 to 30 ft

TABLE 1 – SUMMARY OF ESTIMATED STRUCTURAL LOADS AND FOUNDATION DESIGN CRITERIA

Facility	Estimated Foundation Size	Typical Load	Required Bearing Capacity	Allowable Settlements	Nearest Borings	Depth to Bedrock
				max. settlement between kiln and cooler. No tilting acceptable.		
Finish Mill Bldg. Column, Fan, Stack Ftgs.	9 ft x 16 ft to 10 ft x 14 ft	250 to 300 tons	3.5 tsf	1-in. (max. No tilting allowed.	B-1, B-1A, B-1B,B-2, B-2, B-2B,B-3, B-3A, B-3B	47 to 62 ft
Finish Mill Bldg. Mat	25 ft x 50 ft	unknown	3.5 tsf	1-in. (max. No tilting allowed.	B-1, B-1A, B-1B,B-2, B-2, B-2B,B-3, B-3A, B-3B	47 to 62 ft
Mill Conveyor Bents	10 ft x 15 ft to 12 ft x 25 ft	100 to 250 tons	3 tsf	unknown	B-4, B-5, B-6	46 to 64 ft
Clinker Silos Ring Ftg.	85 ft (dia.); 15 ft wide	40,000 tons	10 tsf	Governed by allowable differential settlement between silo and connecting conveyor.	B-6, B-7, B-8, B-9, B-10	34 to 72 ft

TABLE 2: RECOMMENDED DYNAMIC AND STATIC SOIL PARAMETERS

Keystone Cement Plant
Bath, Pennsylvania

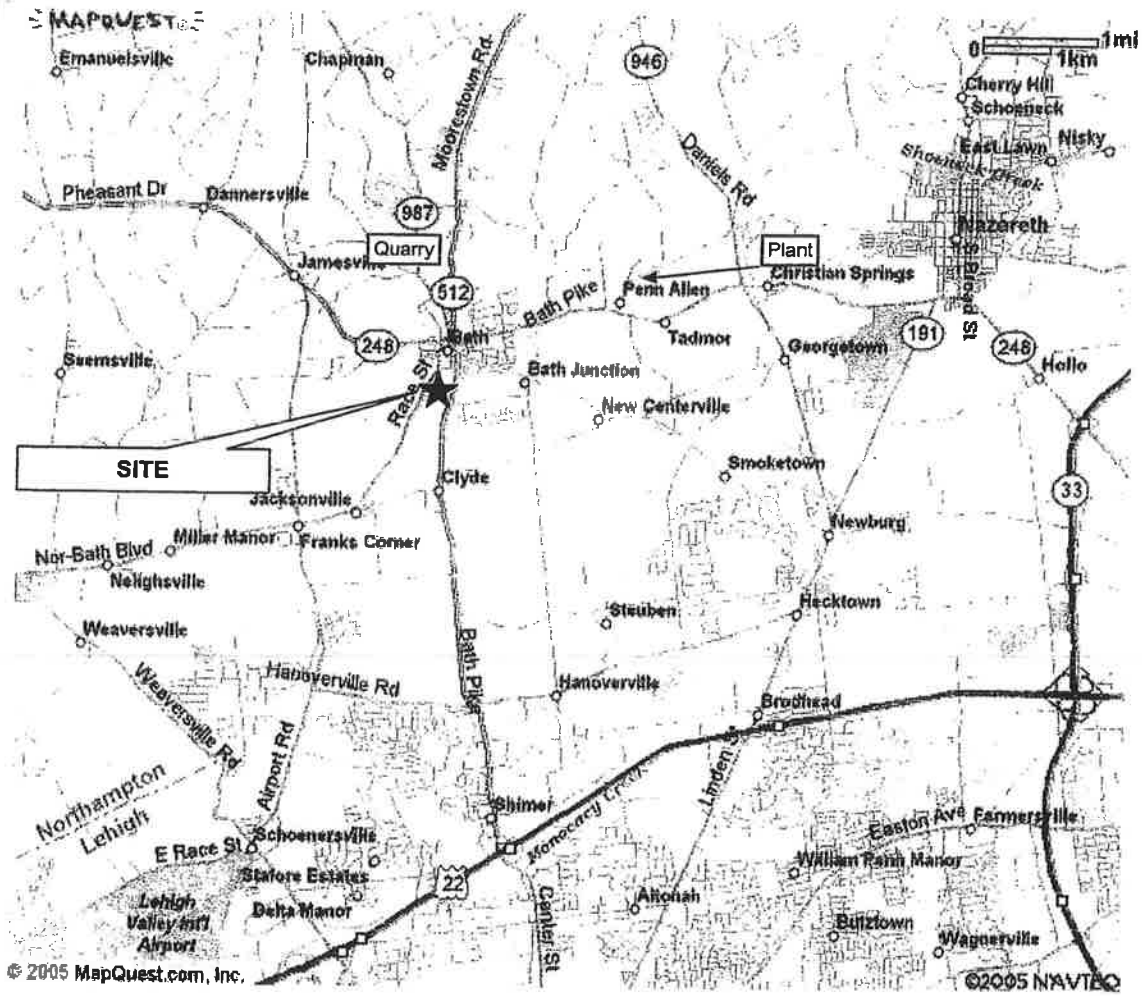
STRATUM	Type of Soil	Unit weight of soil, γ (pcf)	Poisson's Ratio, υ	Low Strain Dynamic Shear Modulus, G(psi)	Internal Damping Ratio	Static Coefficient of Vertical Subgrade Reaction, K_{v1} (pci)	Static Coefficient of Horizontal Subgrade Reaction, K_h (pci)	Static Modulus of Elasicity, E (psi)
1	Fill	120	0.35	10,000	0.03	200	75	3,000
2	Sand	125	0.40	12,000	0.03	225	90	4,200
3	Silt/Clay	120	0.35	10,000	0.03	200	125	2,500
	Structural Fill (if placed)	125	0.40	15,000	0.03	300	150	5,000

NOTE

1. Generalized soil descriptions of each stratum are presented in Figures 5 to 9.

2. The dynamic soil parameters are applicable for low strain amplitude (typical range strain % = 1×10^{3} to 4×10^{-3})

FIGURES



SITE LOCATION PLAN
KEYSTONE CEMENT PLANT
BATH, PENNSYLVANIA

URS
WAYNE, NEW JERSEY

DR. BY: MS	SCALE: NONE	PROJ NO: 19684726
CHK'D BY: JR	DATE: JULY, 2005	FIG NO: 1

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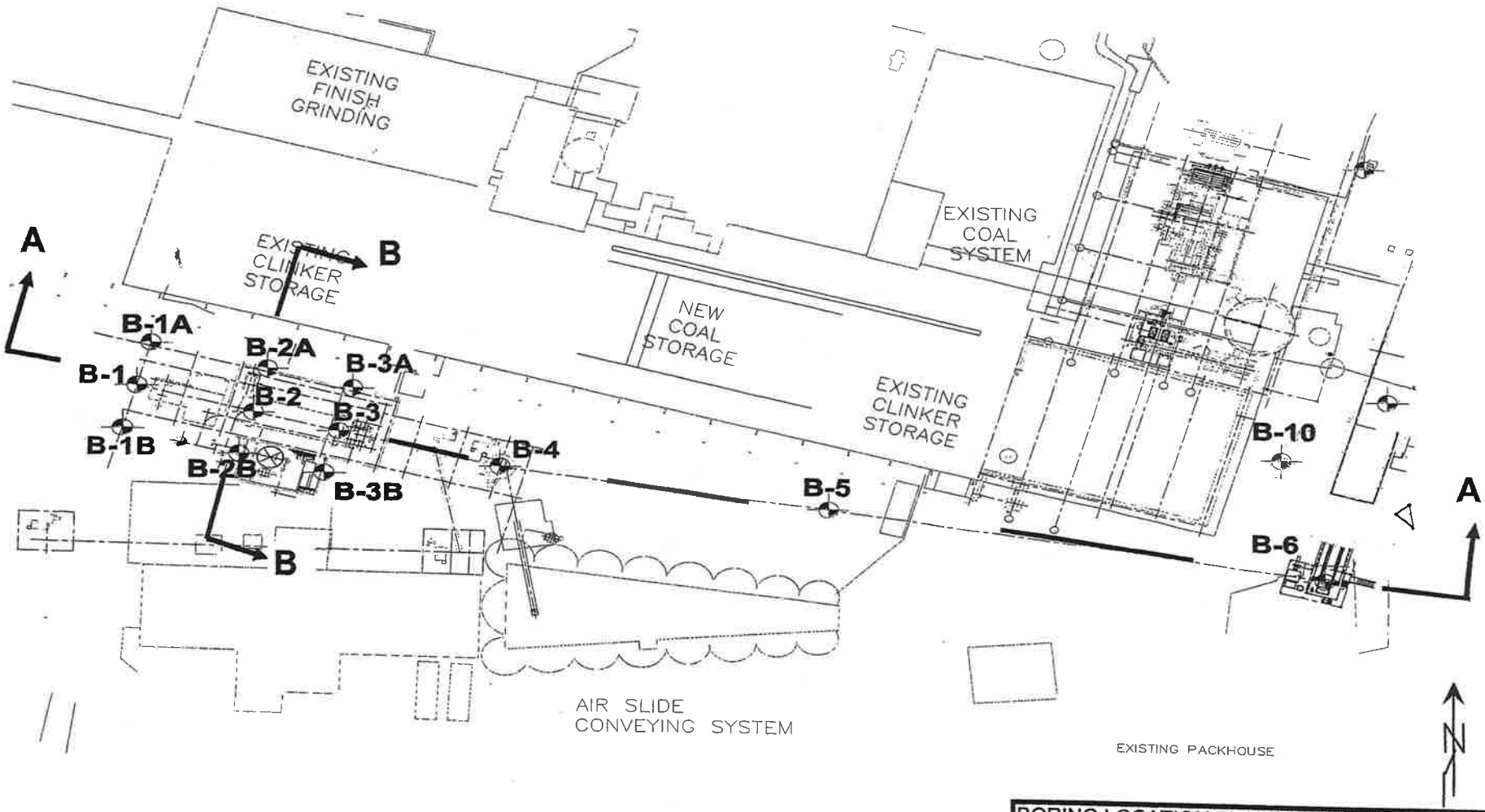


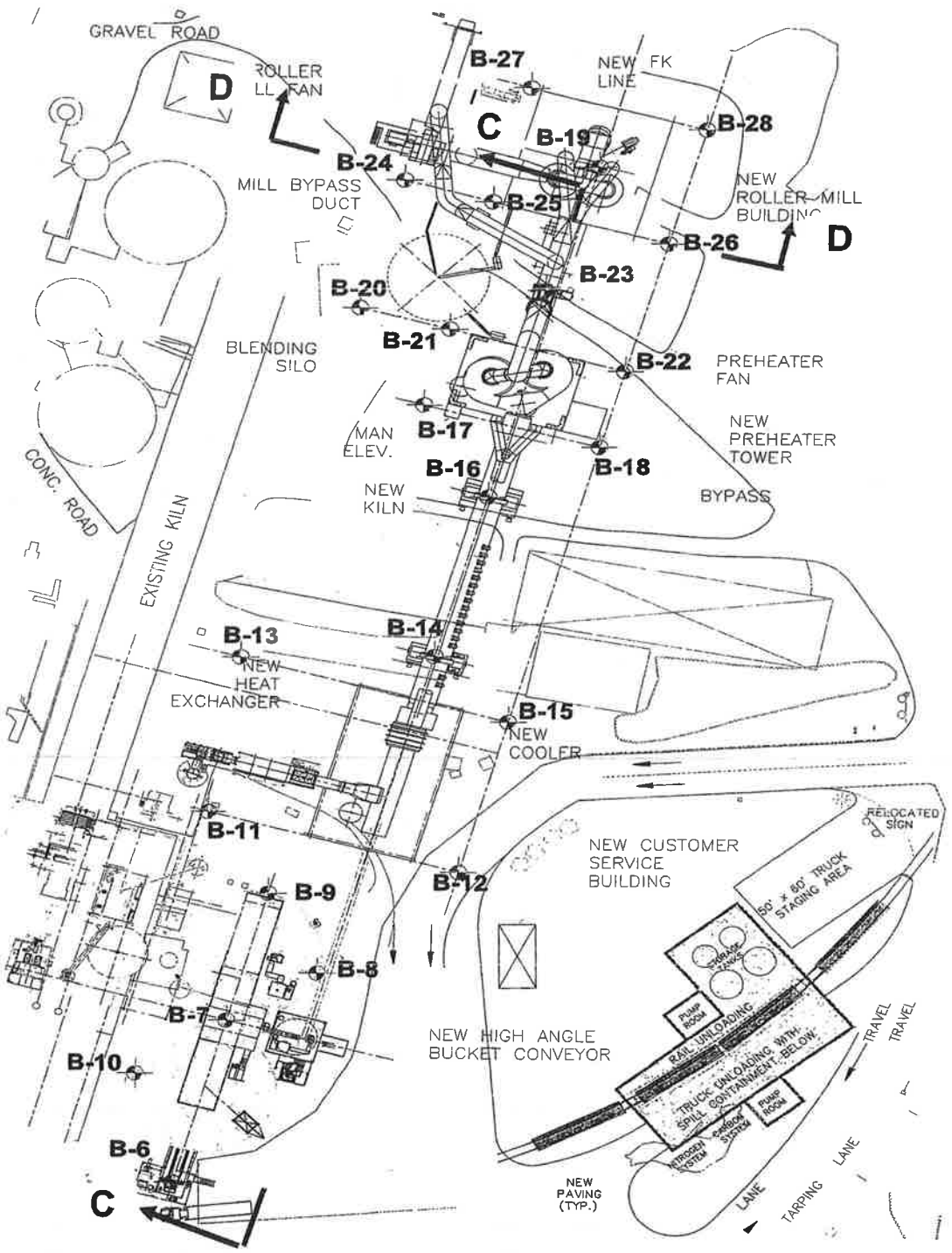
LEGEND:

Note: Base map provided by Keystone Cement Co.

B-2 NUMBER AND APPROXIMATE LOCATION OF BORING

A A SUBSURFACE PROFILE

BORING LOCATION PLAN (PLANT-SIDE SOUTH) KEYSTONE CEMENT PLANT BATH, PENNSYLV ANIA		
URS		
WAYNE, NEW JERSEY		
DR. BY: JH	SCALE: NTS	PROJ. NO:19684726
CK'D. BY:JR	DATE: 6/14/05	FIG NO: 2



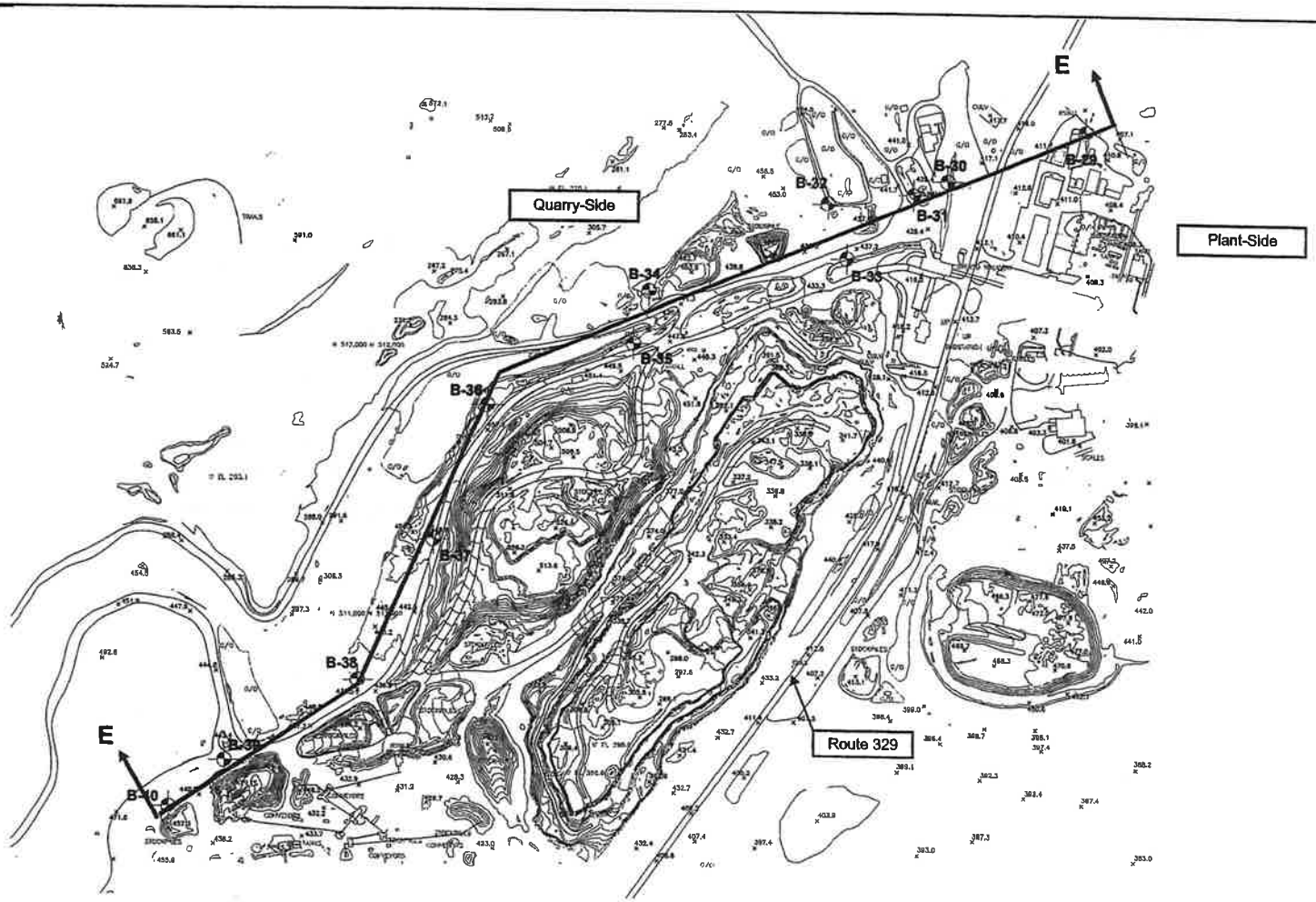
Note: Base map provided by Keystone Cement Co.

LEGEND:

B-6 NUMBER AND APPROXIMATE LOCATION OF BORING

C C SUBSURFACE PROFILE

BORING LOCATION PLAN (PLANT-SIDE) KEYSTONE CEMENT PLANT BATH, PENNSYLVANIA		
URS		
WAYNE, NEW JERSEY		
DR. BY: JH	SCALE: NTS	PROJ. NO: 19684726
CK'D. BY:JR	DATE: 6/14/05	FIG NO: 3



LEGEND:

B-10 NUMBER AND APPROXIMATE LOCATION OF BORING

E E SUBSURFACE PROFILE

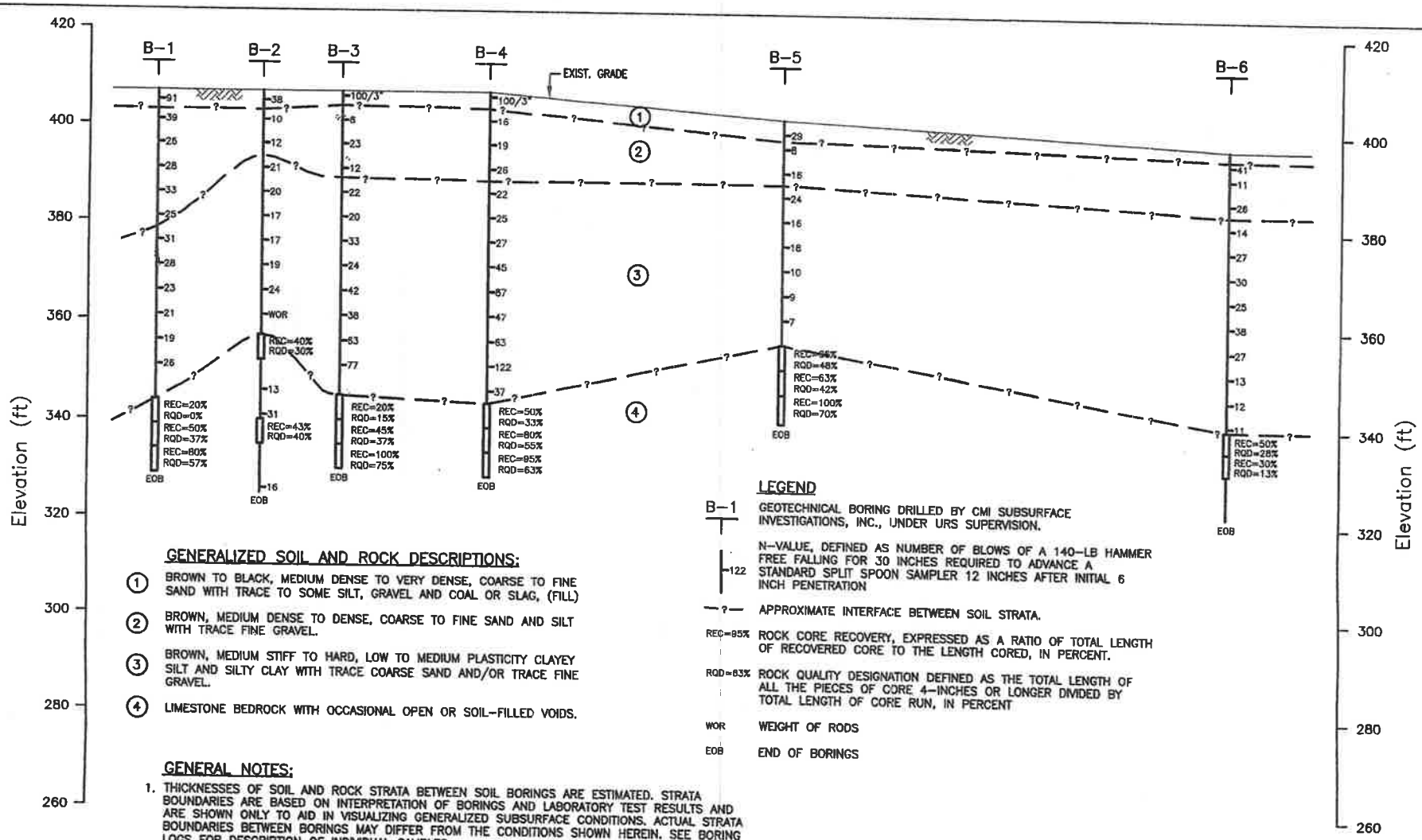
Note: Base map provided by Keystone Cement Co.

BORING LOCATION PLAN (QUARRY-SIDE)
KEYSTONE CEMENT PLANT
BATH, PENNSYLVANIA

URS

WAYNE, NEW JERSEY

DR BY:	JH	SCALE:	NTS	PROJ NO:	19684726
CK'D BY:	JR	DATE:	JUNE 14, 2005	FIG NO:	4



GENERALIZED SOIL AND ROCK DESCRIPTIONS:

1. BROWN TO BLACK, MEDIUM DENSE TO VERY DENSE, COARSE TO FINE SAND WITH TRACE TO SOME SILT, GRAVEL AND COAL OR SLAG, (FILL)
2. BROWN, MEDIUM DENSE TO DENSE, COARSE TO FINE SAND AND SILT WITH TRACE FINE GRAVEL.
3. BROWN, MEDIUM STIFF TO HARD, LOW TO MEDIUM PLASTICITY CLAYEY SILT AND SILTY CLAY WITH TRACE COARSE SAND AND/OR TRACE FINE GRAVEL.
4. LIMESTONE BEDROCK WITH OCCASIONAL OPEN OR SOIL-FILLED VOIDS.

GENERAL NOTES:

1. THICKNESSES OF SOIL AND ROCK STRATA BETWEEN SOIL BORINGS ARE ESTIMATED. STRATA BOUNDARIES ARE BASED ON INTERPRETATION OF BORINGS AND LABORATORY TEST RESULTS AND ARE SHOWN ONLY TO AID IN VISUALIZING GENERALIZED SUBSURFACE CONDITIONS. ACTUAL STRATA BOUNDARIES BETWEEN BORINGS MAY DIFFER FROM THE CONDITIONS SHOWN HEREIN. SEE BORING LOGS FOR DESCRIPTION OF INDIVIDUAL SAMPLES.
2. ELEVATIONS OF THE BORING LOCATIONS ARE APPROXIMATE AND WERE INTERPOLATED USING TOPOGRAPHICAL DRAWINGS PROVIDED BY KEYSTONE CEMENT PLANT.
3. FOR LOCATION OF PROFILE SEE FIGURE 2.

LEGEND

B-1	GEOTECHNICAL BORING DRILLED BY CMI SUBSURFACE INVESTIGATIONS, INC., UNDER URS SUPERVISION.
122	N-VALUE, DEFINED AS NUMBER OF BLOWS OF A 140-LB HAMMER FREE FALLING FOR 30 INCHES REQUIRED TO ADVANCE A STANDARD SPLIT SPOON SAMPLER 12 INCHES AFTER INITIAL 6 INCH PENETRATION
?	APPROXIMATE INTERFACE BETWEEN SOIL STRATA.
REC=95%	ROCK CORE RECOVERY, EXPRESSED AS A RATIO OF TOTAL LENGTH OF RECOVERED CORE TO THE LENGTH CORED, IN PERCENT.
RQD=63%	ROCK QUALITY DESIGNATION DEFINED AS THE TOTAL LENGTH OF ALL THE PIECES OF CORE 4-INCHES OR LONGER DIVIDED BY TOTAL LENGTH OF CORE RUN, IN PERCENT
WOR	WEIGHT OF RODS
EOB	END OF BORINGS

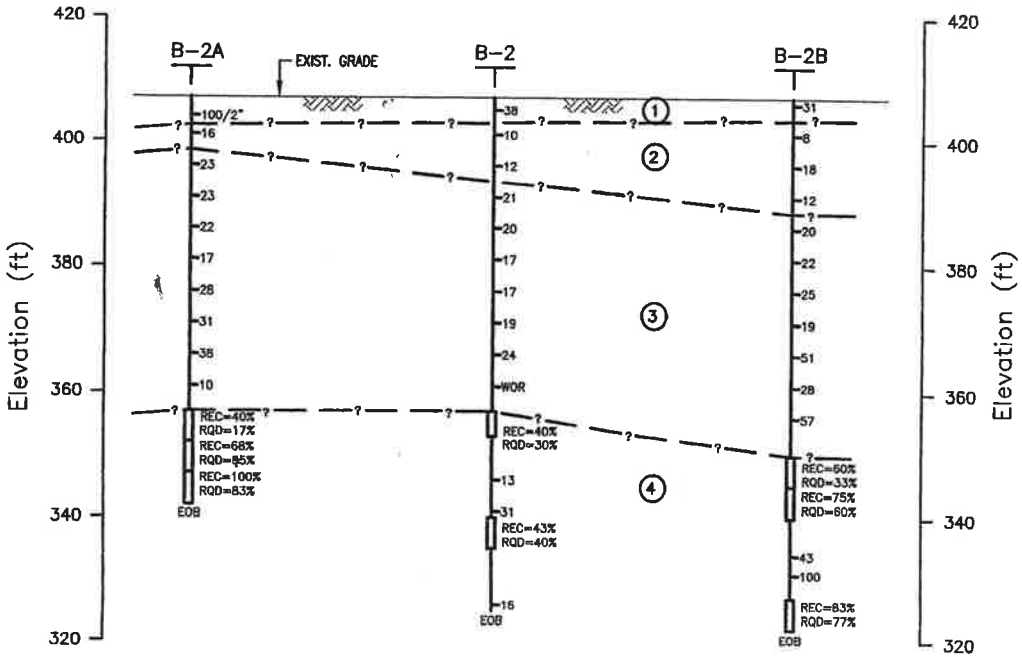
0 10 20 40
VERTICAL SCALE (FEET)

0 25 50 100
HORIZONTAL SCALE (FEET)

GENERALIZED SUBSURFACE PROFILE A-A
KEYSTONE CEMENT PLANT
BATH, PENNSYLVANIA

URS
WAYNE, NEW JERSEY

DR. BY	KM	SCALE	AS SHOWN	DWG. NO. 84726001	PROJ. NO. 19864726
CK'D. BY	JH	DATE	JUNE 14, 2005	FIG. NO.	5



GENERALIZED SOIL AND ROCK DESCRIPTIONS:

1. BROWN TO BLACK, MEDIUM DENSE TO VERY DENSE, COARSE TO FINE SAND WITH TRACE TO SOME SILT, GRAVEL AND COAL OR SLAG, (FILL)
2. BROWN, MEDIUM DENSE TO DENSE, COARSE TO FINE SAND AND SILT WITH TRACE FINE GRAVEL.
3. BROWN, MEDIUM STIFF TO HARD, LOW TO MEDIUM PLASTICITY CLAYEY SILT AND SILTY CLAY WITH TRACE COARSE SAND AND/OR TRACE FINE GRAVEL.
4. LIMESTONE BEDROCK WITH OCCASIONAL OPEN OR SOIL-FILLED VOIDS.

GENERAL NOTES:

1. THICKNESSES OF SOIL AND ROCK STRATA BETWEEN SOIL BORINGS ARE ESTIMATED. STRATA BOUNDARIES ARE BASED ON INTERPRETATION OF BORINGS AND LABORATORY TEST RESULTS AND ARE SHOWN ONLY TO AID IN VISUALIZING GENERALIZED SUBSURFACE CONDITIONS. ACTUAL STRATA BOUNDARIES BETWEEN BORINGS MAY DIFFER FROM THE CONDITIONS SHOWN HEREIN. SEE BORING LOGS FOR DESCRIPTION OF INDIVIDUAL SAMPLES.
2. ELEVATIONS OF THE BORING LOCATIONS ARE APPROXIMATE AND WERE INTERPOLATED USING TOPOGRAPHICAL DRAWINGS PROVIDED BY KEYSTONE CEMENT PLANT.
3. FOR LOCATION OF PROFILE SEE FIGURE 2.

LEGEND

B-2A	GEOTECHNICAL BORING DRILLED BY CMI SUBSURFACE INVESTIGATIONS, INC., UNDER URS SUPERVISION.
122	N-VALUE, DEFINED AS NUMBER OF BLOWS OF A 140-LB HAMMER FREE FALLING FOR 30 INCHES REQUIRED TO ADVANCE A STANDARD SPLIT SPOON SAMPLER 12 INCHES AFTER INITIAL 6 INCH PENETRATION
— ? —	APPROXIMATE INTERFACE BETWEEN SOIL STRATA.
REC=95%	ROCK CORE RECOVERY, EXPRESSED AS A RATIO OF TOTAL LENGTH OF RECOVERED CORE TO THE LENGTH CORED, IN PERCENT.
RQD=63%	ROCK QUALITY DESIGNATION DEFINED AS THE TOTAL LENGTH OF ALL THE PIECES OF CORE 4-INCHES OR LONGER DIVIDED BY TOTAL LENGTH OF CORE RUN, IN PERCENT
WOR	WEIGHT OF RODS
EOB	END OF BORINGS

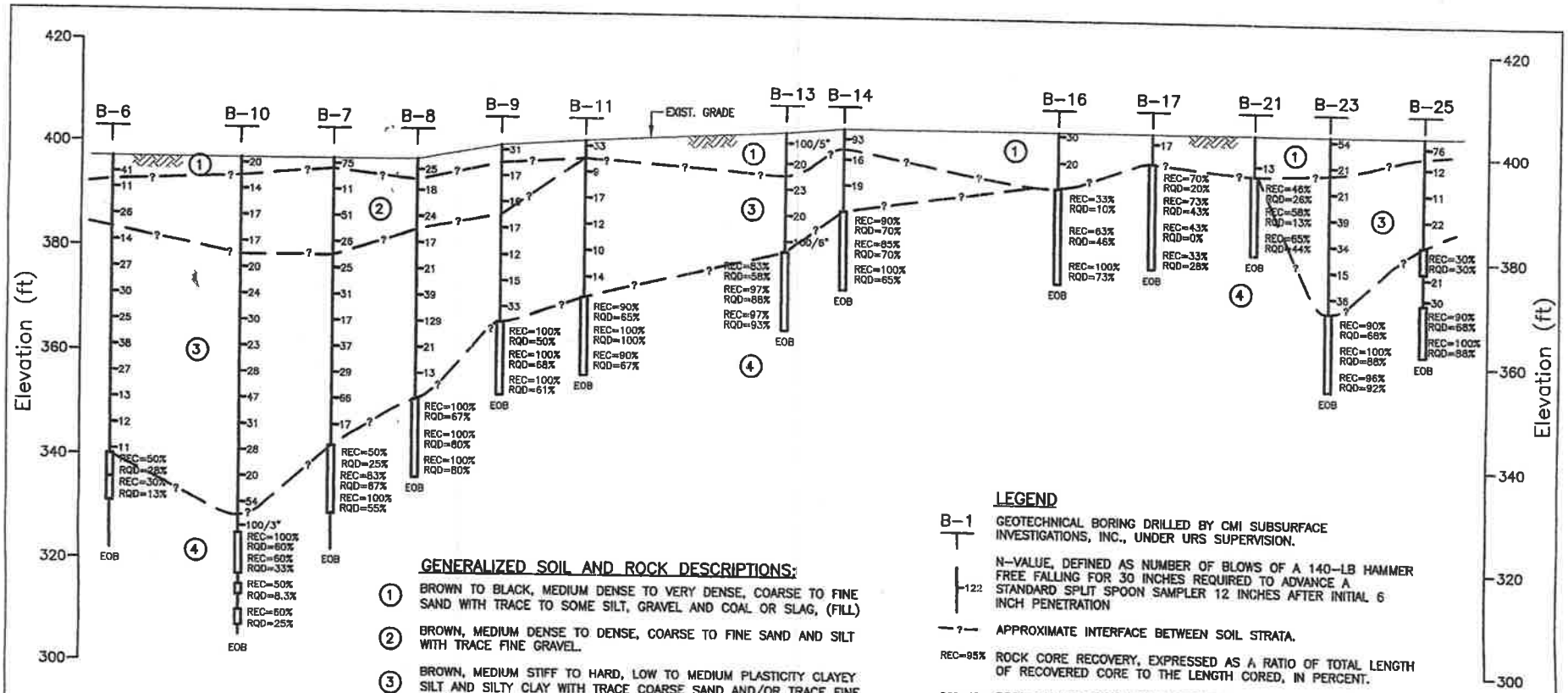
0 10 20 40
VERTICAL SCALE (FEET)

0 5 10 20
HORIZONTAL SCALE (FEET)

GENERALIZED SUBSURFACE PROFILE B-B
KEYSTONE CEMENT PLANT
BATH, PENNSYLVANIA

URS
WAYNE, NEW JERSEY

DR. BY	KM	SCALE	AS SHOWN	DWG. NO. 84728002	PROJ. NO. 18664728
CK'D. BY	JH	DATE	JUNE 14, 2005	FIG. NO.	6



GENERALIZED SOIL AND ROCK DESCRIPTIONS:

1. BROWN TO BLACK, MEDIUM DENSE TO VERY DENSE, COARSE TO FINE SAND WITH TRACE TO SOME SILT, GRAVEL AND COAL OR SLAG, (FILL)
2. BROWN, MEDIUM DENSE TO DENSE, COARSE TO FINE SAND AND SILT WITH TRACE FINE GRAVEL.
3. BROWN, MEDIUM STIFF TO HARD, LOW TO MEDIUM PLASTICITY CLAYEY SILT AND SILTY CLAY WITH TRACE COARSE SAND AND/OR TRACE FINE GRAVEL.
4. LIMESTONE BEDROCK WITH OCCASIONAL OPEN OR SOIL-FILLED VOIDS.

LEGEND

B-1	GEOTECHNICAL BORING DRILLED BY CMI SUBSURFACE INVESTIGATIONS, INC., UNDER URS SUPERVISION.
12	N-VALUE, DEFINED AS NUMBER OF BLOWS OF A 140-LB HAMMER FREE FALLING FOR 30 INCHES REQUIRED TO ADVANCE A STANDARD SPLIT SPOON SAMPLER 12 INCHES AFTER INITIAL 6 INCH PENETRATION
—?—	APPROXIMATE INTERFACE BETWEEN SOIL STRATA.
REC=95%	ROCK CORE RECOVERY, EXPRESSED AS A RATIO OF TOTAL LENGTH OF RECOVERED CORE TO THE LENGTH CORED, IN PERCENT.
RQD=83%	ROCK QUALITY DESIGNATION DEFINED AS THE TOTAL LENGTH OF ALL THE PIECES OF CORE 4-INCHES OR LONGER DIVIDED BY TOTAL LENGTH OF CORE RUN, IN PERCENT
WOR	WEIGHT OF RODS
EOB	END OF BORINGS

GENERAL NOTES:

1. THICKNESSES OF SOIL AND ROCK STRATA BETWEEN SOIL BORINGS ARE ESTIMATED. STRATA BOUNDARIES ARE BASED ON INTERPRETATION OF BORINGS AND LABORATORY TEST RESULTS AND ARE SHOWN ONLY TO AID IN VISUALIZING GENERALIZED SUBSURFACE CONDITIONS. ACTUAL STRATA BOUNDARIES BETWEEN BORINGS MAY DIFFER FROM THE CONDITIONS SHOWN HEREIN. SEE BORING LOGS FOR DESCRIPTION OF INDIVIDUAL SAMPLES.
2. ELEVATIONS OF THE BORING LOCATIONS ARE APPROXIMATE AND WERE INTERPOLATED USING TOPOGRAPHICAL DRAWINGS PROVIDED BY KEYSTONE CEMENT PLANT.
3. FOR LOCATION OF PROFILE SEE FIGURE 3.

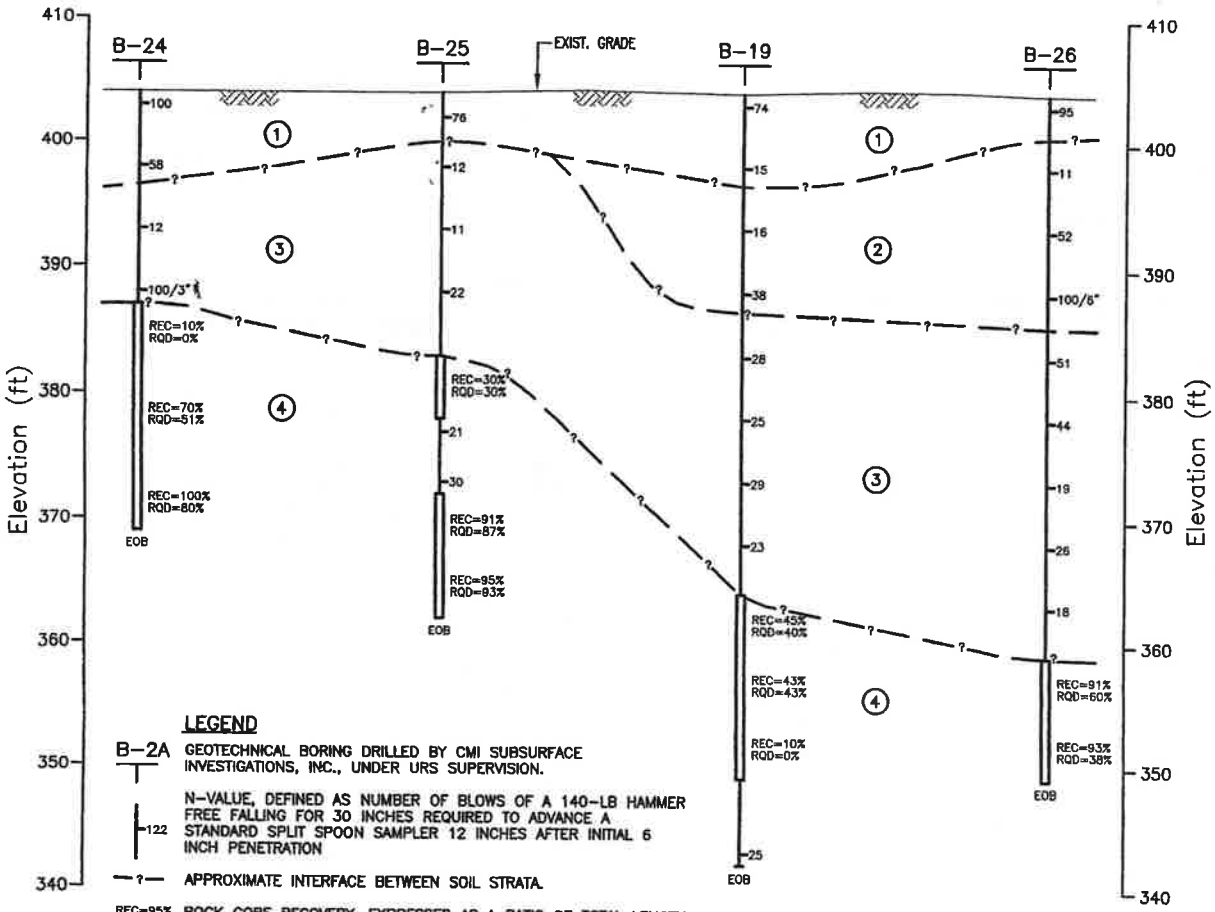
0 10 20 40
VERTICAL SCALE (FEET)

0 25 50 100
HORIZONTAL SCALE (FEET)

GENERALIZED SUBSURFACE PROFILE C-C
KEYSTONE CEMENT PLANT
BATH, PENNSYLVANIA

URS
WAYNE, NEW JERSEY

DR. BY	KM	SCALE	AS SHOWN	DWG. NO. 64726003	PROJ. NO. 19664726
CK'D. BY	JH		DATE JUNE 14, 2005	FIG. NO.	7



LEGEND

B-2A — GEOTECHNICAL BORING DRILLED BY CMI SUBSURFACE INVESTIGATIONS, INC., UNDER URS SUPERVISION.

122 — N-VALUE, DEFINED AS NUMBER OF BLOWS OF A 140-LB HAMMER FREE FALLING FOR 30 INCHES REQUIRED TO ADVANCE A STANDARD SPLIT SPOON SAMPLER 12 INCHES AFTER INITIAL 6 INCH PENETRATION

—?— APPROXIMATE INTERFACE BETWEEN SOIL STRATA

REC=95% ROCK CORE RECOVERY, EXPRESSED AS A RATIO OF TOTAL LENGTH OF RECOVERED CORE TO THE LENGTH CORED, IN PERCENT.

RQD=63% ROCK QUALITY DESIGNATION DEFINED AS THE TOTAL LENGTH OF ALL THE PIECES OF CORE 4-INCHES OR LONGER DIVIDED BY TOTAL LENGTH OF CORE RUN, IN PERCENT

WOR WEIGHT OF RODS

EOB END OF BORINGS

GENERALIZED SOIL AND ROCK DESCRIPTIONS:

1. BROWN TO BLACK, MEDIUM DENSE TO VERY DENSE, COARSE TO FINE SAND WITH TRACE TO SOME SILT, GRAVEL AND COAL OR SLAG, (FILL)
2. BROWN, MEDIUM DENSE TO DENSE, COARSE TO FINE SAND AND SILT WITH TRACE FINE GRAVEL.
3. BROWN, MEDIUM STIFF TO HARD, LOW TO MEDIUM PLASTICITY CLAYEY SILT AND SILTY CLAY WITH TRACE COARSE SAND AND/OR TRACE FINE GRAVEL.
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GENERAL NOTES:

1. THICKNESSES OF SOIL AND ROCK STRATA BETWEEN SOIL BORINGS ARE ESTIMATED. STRATA BOUNDARIES ARE BASED ON INTERPRETATION OF BORINGS AND LABORATORY TEST RESULTS AND ARE SHOWN ONLY TO AID IN VISUALIZING GENERALIZED SUBSURFACE CONDITIONS. ACTUAL STRATA BOUNDARIES BETWEEN BORINGS MAY DIFFER FROM THE CONDITIONS SHOWN HEREIN. SEE BORING LOGS FOR DESCRIPTION OF INDIVIDUAL SAMPLES.
2. ELEVATIONS OF THE BORING LOCATIONS ARE APPROXIMATE AND WERE INTERPOLATED USING TOPOGRAPHICAL DRAWINGS PROVIDED BY KEYSTONE CEMENT PLANT.
3. FOR LOCATION OF PROFILE SEE FIGURE 3.

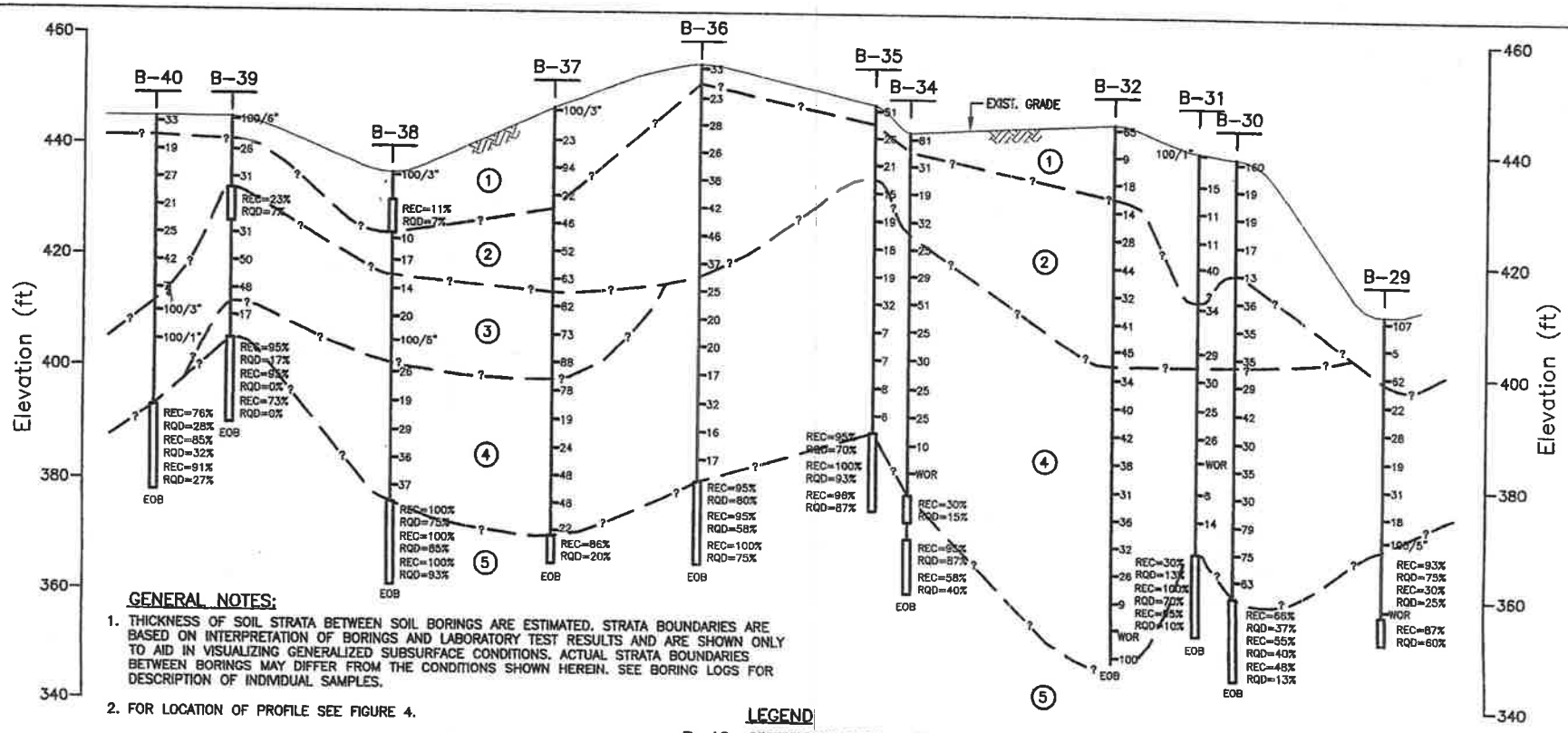
0 5 10 20
VERTICAL SCALE (FEET)

0 10 20 40
HORIZONTAL SCALE (FEET)

GENERALIZED SUBSURFACE PROFILE D-D
KEYSTONE CEMENT PLANT
BATH, PENNSYLVANIA

URS
WAYNE, NEW JERSEY

DR. BY	KM	SCALE	AS SHOWN	DWG. NO. 84728004	PROJ. NO. 19864726
CK'D. BY	JH		DATE JUNE 15, 2005	FIG. NO.	8



GENERAL NOTES:

1. THICKNESS OF SOIL STRATA BETWEEN SOIL BORINGS ARE ESTIMATED. STRATA BOUNDARIES ARE BASED ON INTERPRETATION OF BORINGS AND LABORATORY TEST RESULTS AND ARE SHOWN ONLY TO AID IN VISUALIZING GENERALIZED SUBSURFACE CONDITIONS. ACTUAL STRATA BOUNDARIES BETWEEN BORINGS MAY DIFFER FROM THE CONDITIONS SHOWN HEREIN. SEE BORING LOGS FOR DESCRIPTION OF INDIVIDUAL SAMPLES.
2. FOR LOCATION OF PROFILE SEE FIGURE 4.

GENERALIZED SOIL AND ROCK DESCRIPTIONS:

(1) BROWN TO BLACK, MEDIUM DENSE TO VERY DENSE, COARSE TO FINE GRAVEL WITH TRACE TO SOME, COARSE TO FINE SAND AND CLAYEY SILT, AND COARSE TO FINE SAND WITH TRACE TO SOME SILT OR OCCASIONAL INTERMITTENT SILT LAYERS.

(2) BROWN, MEDIUM DENSE TO VERY DENSE, COARSE TO FINE SAND WITH TRACE TO SOME CLAYEY SILT AND TRACE FINE GRAVEL.

(3) BROWN, MEDIUM DENSE TO VERY DENSE, COARSE TO FINE GRAVEL WITH TRACE TO SOME SAND AND CLAYEY SILT.

(4) BROWN, MEDIUM STIFF TO HARD, LOW TO MEDIUM PLASTICITY CLAYEY SILT AND SILTY CLAY WITH TRACE TO SOME SAND AND FINE GRAVEL.

(5) LIMESTONE BEDROCK WITH OCCASIONAL OPEN OR SOIL FILLED VOIDS.

LEGEND

B-40	GEOTECHNICAL BORING DRILLED BY CMI SUBSURFACE INVESTIGATIONS, INC., UNDER URS SUPERVISION.
122	N-VALUE, DEFINED AS NUMBER OF BLOWS OF A 140-LB HAMMER FREE FALLING FOR 30 INCHES REQUIRED TO ADVANCE A STANDARD SPLIT SPOON SAMPLER 12 INCHES AFTER INITIAL 6 INCH PENETRATION
—?—	APPROXIMATE INTERFACE BETWEEN SOIL STRATA.
REC=95%	ROCK CORE RECOVERY, EXPRESSED AS A RATIO OF TOTAL LENGTH OF RECOVERED CORE TO THE LENGTH CORED, IN PERCENT.
RQD=83%	ROCK QUALITY DESIGNATION DEFINED AS THE TOTAL LENGTH OF ALL THE PIECES OF CORE 4-INCHES OR LONGER DIVIDED BY TOTAL LENGTH OF CORE RUN, IN PERCENT
WOR	WEIGHT OF RODS
EOB	END OF BORINGS

0 10 20 40
VERTICAL SCALE (FEET)

0 200 400 800
HORIZONTAL SCALE (FEET)

GENERALIZED SUBSURFACE PROFILE E-E
KEYSTONE CEMENT PLANT
BATH, PENNSYLVANIA

URS
WAYNE, NEW JERSEY

DR. BY	KM	SCALE	AS SHOWN	DWG. NO. 64728005	PROJ. NO. 19664726
CK'D. BY	JH	DATE	JUNE 14, 2005	FIG. NO.	9

APPENDICES

APPENDIX A

BORING LOGS

Project: Keystone cement plant **Project Location:** Bath, PA **Project Number:** 19684726	**Log of Boring B-1** Sheet 1 of 3

Date(s) Drilled	4/21/05 - 4/22/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	407.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2619873 East: 512091
Casing Size/Type	4" Dia. steel	Drill Rig Operator	Freddy Navarro	Total Depth Drilled (feet) 78.0	Rock Depth (feet) 63.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples Dist.: 12 Undist.:	Core (ft): 15

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	1.0	35 31 60 32					(SP) Dense, black, c-f SAND coals, trace silt.					
													Color changes form dark to brown.
5	S-2	0.8	7 17 22 24					(SC) Dense, brown, c-f SAND, some f. gravel, silty clay			15	26	
10	S-3	1.0	10 12 14 15					(SM) Medium dense, brown, silty c-f SAND, trace f. gravel					
15	S-4	0.5	17 12 16 23					(ML) Very stiff, brown, low plasticity clayey SILT, trace c. sand.					
20	S-5	0.7	15 14 19 17					(SM) Dense, brown, silty c-f SAND, trace f. gravel.					
25	S-6	1.0	8 12 13 16					Same as above.					
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-1

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30	S-7	1.0	12 14 17 21					(ML) Hard, brown, low plasticity clayey SILT, trace c. sand & f. gravel..					
35	S-8	1.6	8 12 16 15					(ML) Very stiff, brown, low plasticity clayey SILT, trace c. sand.					
40	S-9	1.9	12 11 12 17					(ML) Very stiff, brown, low plasticity clayey SILT.					
45	S-10	NR	9 10 11 11					No Recovery.					
50	S-11	1.8	6 9 10 14					(MH) Very stiff, brown, medium plasticity clayey SILT.					
55	S-12	1.9	13 11 15 17					Same as above.					
60													Spoon refusal (100/0")
65								LIMESTONE: light gray, fine grained, highly fractured, moderately to highly weathered, coated with silt in fractures.					Coring time: 1.5', 0.5', 7.5', 7',7 min.

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-1

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
65				R-1	20	0							
70				R-2	50	37		LIMESTONE: light gray, fine grained, highly fractured, moderately to highly weathered, coated with silt in fractures, fractures dip in near horizontal to 20 degrees, hard.					
75				R-3	80	57		LIMESTONE: light gray, fine grained, highly fractured, moderately weathered, coated with silt in fractures, fractures dip in near horizontal to 20 degrees, hard.					Coring time: 5', 5', 4.5', 4.5',5.5 min.; Total unit wt. = 170 pcf; Unconfined comp. str. = 26,810 psi
								END OF HOLE AT 78 FT					
80													
85													
90													
95													
100													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-1a

Date(s) Drilled	4/22/05 - 4/25/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	407.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2619879 East: 512115
Casing Size/Type	4" Dia. steel	Drill Rig Operator	Freddy Navarro	Total Depth Drilled (feet) 82.0	Rock Depth (feet) 67.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples Dist.: 13 Undist.: Core (ft): 15	

Depth, feet	Soil Samples Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0								Asphalt concrete					
	S-1	0.5	100/6"					(SP) Black, c-f SAND, trace f. gravel, coals.					Rig Chatters from 1' to 4'.
5	S-2	1.0	6 8 12 9					(SP-SM) Brown, c-f SAND and f. gravel, trace to some silt.					
10	S-3	1.0	8 7 7 10					Same as above.					
15	S-4	1.1	7 7 13 13					Same as above.					
20	S-5	1.0	6 10 11 17					(ML) Very stiff, brown, low plasticity clayey SILT, trace c. sand.					
25	S-6	1.2	7 11 16 17					(ML) Very stiff, brown, low plasticity clayey SILT, trace to some c. sand and gravel.					
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-1a

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30	S-7	2.0	6 10 14 16					(ML) Very stiff, brown, low plasticity clayey SILT, trace c. sand.					
35	S-8	1.6	13 14 10 12					(ML) Very stiff, brown, low plasticity clayey SILT.					
40	S-9	1.4	4 7 10 13					(ML) Very stiff, brown, low plasticity clayey SILT, trace c. sand and f. gravel.					
45	S-10	1.6	10 17 20 20					(ML) Hard, brown, low plasticity clayey SILT.					
50	S-11	2.0	8 10 13 14					(ML) Very stiff, brown, low plasticity clayey SILT.					
55	S-12	1.7	8 9 9 20					(ML) Very stiff, brown, low plasticity clayey SILT, trace c. sand.					
60	S-13	0.5	9 100/5"					Same as above.					
													Rig chatters from 62' to 65'.
65													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-1a

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
65													
				R-1	66	37		LIMESTONE: light gray, fine grained, moderately fractured, slightly to moderately weathered, coated with silt and iron, fractures dip in near horizontal, hard.					Coring time: 3', 2', 5', 10, 6 min.
70													
				R-2	70	35		Same as above.					
75													
				R-3	100	50		Same as above.					
80													
								End of Boring @ 82' BGS.					
85													
90													
95													
100													

Project: Keystone cement plant **Project Location: Bath, PA** **Project Number: 19684726**	**Log of Boring B-1b** Sheet 1 of 3

Date(s) Drilled	4/25/05 - 4/26/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	407.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2619866 East: 512067
Casing Size/Type	4" & 3" Dia. steel	Drill Rig Operator	Freddy Navarro	Total Depth Drilled (feet) 67.0	Rock Depth (feet) 47.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" & 2 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples Dist.: 9	Undist.: Core (ft): 15

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0								Coals					
	S-1	1.3	40 62 31 24					(SM) Medium dense, brown c-f SAND and low plasticity SILT.					
5	S-2	0.7	6 10 13 11					(SM) Medium dense, brown c-f SAND, trace f. gravel, some silt.					
10	S-3	1.0	5 8 9 12					(SP) Medeium dense, brown c-f SAND, trace f. gravel, trace silt.					4" Dia. casing depth, 10ft
15	S-4	1.0	5 8 13 14					(ML) Very stiff, brown low plasticity clayey SILT, trace c. sand and f. gravel.					
20	S-5	1.2	7 9 14 21					Same.					
25	S-6	1.6	6 10 16 21					(ML) Very stiff, brown low plasticity clayey SILT, trace c. sand.					
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-1b

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30	S-7	1.5	11 10 12 14					(ML) Very stiff, brown low plasticity clayey SILT.					
35	S-8	1.2	12 14 15 14					Same					
40	S-9	2.0	12 15 19 21					Same					
45													3" Dia. casing depth, 47ft
50				R-1	75	62		Limestone: Light gray, fine grained, slightly to moderately fractured, slightly weathered, fractures dip in near horizontal to 30 degrees, coated with silt & iron, hard.					Coring time: 8',8',11',11.5',5.5'
55								(ML) Brown, clayey Silt.					
60				R-2	70	67		Limestone: Light gray, fine grained, slightly to moderately fractured, slightly weathered, fractures dip in near horizontal to 30 degrees, coated with silt & iron, hard.					Coring time: 8',9',2',9',9'
65				R-3	34	22		Same.					Total coring time: 17.5'. Core barrel moved fast from 63' to 64' and from 65' to 66.5'

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-1b

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
65													
								END OF HOLE at 67 FT					
70													
75													
80													
85													
90													
95													
100													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-2

Date(s) Drilled	4/21/05 - 4/21/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	407.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2619926 East: 512077
Casing Size/Type	4" Dia. steel	Drill Rig Operator	Carlos Maldonado	Total Depth Drilled (feet) 82.0	Rock Depth (feet) 50.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples	Dist.: 12 Undist.: Core (ft): 9

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	0.6	27 38 100/2'					(SP) Dark gray, c-f SAND, coals, trace f. gravel.					
													Color changes from gray to brown at tip.
5	S-2	0.7	4 5 5 6					(SM) Medium dense, brown, c-f SAND, trace f. gravel, some silt.					
10	S-3	0.2	WOH 5 7 6					(SP) Medium dense, brown, c-f SAND, trace silt.					
15	S-4	0.5	9 10 11 8					(ML) Very stiff, brown, medium plasticity clayey SILT.					
20	S-5	1.3	9 10 10 7					(ML) Very stiff, brown, low plasticity clayey SILT, trace c. sand & f. gravel.					
25	S-6	1.4	4 9 8 15					(ML) Very stiff, brown, low plasticity clayey SILT, trace c. sand.					
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-2

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30	S-7	1.6	5 7 10 11					Same as above.					
35	S-8	1.5	6 8 11 16					(ML) Very stiff, brown, low plasticity clayey SILT.					
40	S-9	1.2	6 9 15 14					Same as above.					
45	S-10	0.6	WOR WOR WOR WOR					(ML) Very loose, brown, low plasticity clayey SILT.					Driller may overexcavate the hole.
													Bedrock.
50				R-1	40	30		LIMESTONE: light gray, fine grained, slightly fractured, slightly weathered, coated with silt and iron in fractures, fractures dip in near horizontal to 30 degrees, hard.					Coring time: 4', 3', 0.5',1',1 min.
55													Coring time: < 1 min for 4.5 ft.
60	S-11	1.0	3 5 8 9					(ML) Stiff, brown, low plasticity clayey SILT, trace c. sand and f. gravel.	27	23	28		
65													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-2

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
65	S-12	0.6	44 16 15 23					(ML) Hard, brown, low plasticity clayey SILT, trace c. sand and f. gravel.					
70				R-2	43	40		LIMESTONE: light gray with white variegations, fine grained, slightly fractured, slightly weathered, coated with silt and iron in fractures, fractures dip in near horizontal to 20 degrees, hard.					Coring time: 8.5', 6', 2 min for 3'.
75													
80	S-13	1.4	15 16 100/5"					(ML) Hard, brown, low plasticity clayey SILT.					
								BEDROCK End of Hole @ 82' BGS.					
85													
90													
95													
100													

Project: Keystone cement plant **Project Location: Bath, PA** **Project Number: 19684726**	**Log of Boring B-2a** Sheet 1 of 3

Date(s) Drilled	4/22/05 - 4/22/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	407.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2619933 East: 512101
Casing Size/Type	4" & 3" Dia. steel	Drill Rig Operator	Carlos Maldonado	Total Depth Drilled (feet) 65.0	Rock Depth (feet) 50.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" & 2 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples Dist.: 10 Undist.:	Core (ft): 15

Depth, feet	Soil Samples Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0								Asphalt Cement.					
								(SP) Black c-f SAND, trace f. gravel, coals					
	S-1	0.1	100/2"										Spoon sitting on boulder
5													
	S-2	0.7	4 6 10 12					(SM) Medium dense, brown c-f SAND, some silt, trace f. gravel.					
10													
	S-3	0.8	6 10 13 15					(ML) Very stiff, brown low plasticity clayey SILT, trace c-f sand.					
15													
	S-4	1.2	6 10 13 16					(ML) Very stiff, brown low plasticity clayey SILT, trace c. sand.					
20													
	S-5	1.2	7 8 14 15					Same.					4" D. casing depth, 20ft
25													
	S-6	1.5	6 6 11 16					Same.					
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-2a

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30	S-7	1.1	17 17 11 15					Same.					
35	S-8	1.3	9 12 19 14					(ML) Hard, Brown low plasticity clayey SILT.					
40	S-9	1.6	13 15 23 24					(ML) Hard, Brown low plasticity clayey SILT, trace c. sand.					
45	S-10	0.7	2 4 6 3					(ML) Stiff, Brown low plasticity clayey SILT.					
													Rig chattering from 48' to 50'
50				R-1	40	17		Limestone: Light gray, fine grained, slightly weathered, moderately fractured, fractures dip in near horizontal to 30 degrees, hard, coated with iron in fractures, about 2' of silt seam recovered in the middle of rock cores.					3" D. casing depth, 50ft Coring time: 6',5',4',1.5',6'
55				R-2	68	55		Limestone: Light gray, fine grained, slightly weathered, moderately fractured, fractures dip in near horizontal to 30 degrees, coated with iron in fractures, hard.					Coring time: 5',4.5',3',2',1.5'
60				R-3	100	83		Same.					Coring time: 5',6',6',7.5',7.5'
65													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-2a

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
65								END OF HOLE AT 65 FT.					
70													
75													
80													
85													
90													
95													
100													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-2b

Date(s) Drilled	4/26/05 - 4/27/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	407.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2619920 East: 512053
Casing Size/Type	4" & 3" Dia. steel	Drill Rig Operator	Freddy Navarro	Total Depth Drilled (feet)	85.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" & 2 7/8" tricone	Rock Depth (feet)	57.0
Groundwater Level and Date Measured		Hammer Wt/Drop	140lb/30" Donut	Sampler Type(s)	2" O.D. Split Spoon
Boring Location and Comments		Casing Hammer Wt/Drop	300lb/30" Donut	Core Barrel Size/Type	NX
				No. of Samples	Dist.: 13 Undist.: Core (ft): 15

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	1.2	10 15 16 13					(GP) Dense, m-f GRAVEL, trace black c-f sand.					Work stopped due to ground obstruction from 9:30 to 10:30
5	S-2	0.7	4 4 4 7					(SM) Loose, brown c-f SAND and SILT, trace f. gravel.					
10	S-3	0.7	3 9 9 12					(SM) Medium dense, brown c-f SAND, some silt, trace f. gravel.					
15	S-4	1.0	6 5 7 7					Same.					4" D. casing depth, 15'
20	S-5	0.4	4 7 13 16					(ML) Very stiff, brown low plasticity clayey SILT. trace c. sand.					
25	S-6	1.7	7 10 12 14					(ML) Stiff, brown low plasticity clayey SILT.					
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-2b

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30	S-7	1.2	6 12 13 13					(ML) Very stiff, brown low plasticity clayey SILT. trace c-f sand, trace f. gravel.					
35	S-8	1.5	5 8 11 15					Same.					
40	S-9	0.6	12 26 25 32					(ML) Hard, brown low plasticity clayey SILT. trace c. sand.					
45	S-10	1.0	19 16 12 12					(ML) Very stiff, brown low plasticity clayey SILT, trace c. sand & f. gravel.					
50	S-11	1.4	28 22 35 44					(ML) Hard, brown low plasticity clayey SILT, trace c-f sand & f. gravel.					
55													
60				R-1	60	33		Limestone: Light gray to light brown, fine grained, slightly to moderately weathered, moderately fractutred, fractures dip in near horizontal to 45 degrees, coated with silt & iron, hard.					3" D. casing depth, 57'
65				R-2	75	60		Limestone: Light gray, the same as above.					

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-2b

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
65													
								6" long silt core recovered from the barrel.					total coring time: <1'
70													
	S-12	0.2	10 22 21 26					(ML) Hard, brown low plasticity clayey silt, trace c. sand.					
75	S-13	0.4	100					(SM) Very dense, brown c-f SAND and f. Gravel, some silt.					
80				R-3	83	77		Limestone: Light gray, fine grained, slightly weathered, slightly to moderately fractutred, fractures dip in near horizontal to 20 degrees, coated with silt & iron, hard.					
85								END OF HOLE AT 85 FT.					
90													
95													
100													

Project: Keystone cement plant **Project Location:** Bath, PA **Project Number:** 19684726	**Log of Boring B-3** Sheet 1 of 3

Date(s) Drilled	4/20/05 - 4/21/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	407.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2619966 East: 512067
Casing Size/Type	4" Dia. steel	Drill Rig Operator	Freddy Navarro	Total Depth Drilled (feet) 77.0	Rock Depth (feet) 62.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples Dist.: 12 Undist.: Core (ft): 15	

Depth, feet	Soil Samples Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	0.1	100/3'					(GP) f. GRAVELS, dark gray c-f sand.					Rig chatters from 0.5 to 3'.
5	S-2	0.8	3 4 4 4					(SM) Loose, brown c-f SAND and low plasticity silt, trace f. gravel.					
10	S-3	1.4	9 12 11 10					(SM) Medium dense, brown c-f SAND and low plasticity silt, trace f. gravel.					
15	S-4	1.3	5 5 7 8					Same as above.					
20	S-5	1.4	5 9 13 13					(ML) Very stiff, brown, low plasticity clayey SILT, trace c. sand and f. gravel.					
25	S-6	1.5	9 9 11 16					(CL) Very stiff, brown, medium plasticity CLAY, some c-f sand, trace f. gravel			22	73	
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-3

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS/ OTHER TESTS
30	S-7	1.7	10 16 17 19					(ML) Hard, brown, low plasticity clayey SILT.					
35	S-8	1.4	6 10 14 15					(ML) Very stiff, brown, low plasticity clayey SILT.					
40	S-9	1.3	20 22 20 33					(ML) Hard, brown, low plasticity clayey SILT, trace to some c. sand and f. gravel.					
45	S-10	1.2	10 17 21 29					Same as above.					
50	S-11	1.2	15 27 36 37					(ML) Hard, brown, low plasticity clayey SILT, trace c. sand.					
55	S-12	1.4	33 37 40 42					(SM) Very dense, brown, silty c-f SAND, trace to some c-f gravel.					
60													Casing depth 62'. Bed rock encountered at 60'. Coring started at 62'.
65				R-1	20	15		LIMESTONE: light gray, fine to moderately grained, moderately fractured, moderately weathered, coated with silt and iron in fractures.					

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-3

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
65													
				R-2	45	37		LIMESTONE: light gray, fine to moderately grained, slightly to moderately fractured, slightly to moderately weathered, coated with silt and iron, fractures dip in near horizontal to 30 degrees.					
70													
				R-3	100	75		LIMESTONE: light gray, fine grained, slightly to moderately fractured, slightly weathered, coated with iron in fractures, fractures dip in near horizontal to 20 degrees, hard.					Coring time: 5', 7.5', 8.5', 9' and 8 min.
75													
								END OF HOLE AT 77 FT					Upon completion of drilling, hole grouted with 100lb cement.
80													
85													
90													
95													
100													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-3a

Date(s) Drilled	4/25/05 - 4/26/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	407.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2619972 East: 512091
Casing Size/Type	4" & 3" Dia. steel	Drill Rig Operator	Carlos Maldonado	Total Depth Drilled (feet)	85.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" & 2 7/8" tricone	Rock Depth (feet)	54.0
Groundwater Level and Date Measured		Hammer Wt/Drop	140lb/30" Donut	Sampler Type(s)	2" O.D. Split Spoon
Boring Location and Comments		Casing Hammer Wt/Drop	300lb/30" Donut	Core Barrel Size/Type	NX
				No. of Samples	Dist.: 13 Undist.: Core (ft): 14

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	0.3	12 20 19 34					(ML) Hard, brown low plasticity clayey SILT, trace c. sand.					
5	S-2	0.7	4 5 10 10					(ML) Stiff, brown low plasticity clayey SILT, trace c. sand.					
10	S-3	0.7	10 11 11 16					(SM) Medium dense, brown c-f SAND and f. GRAVEL, some silt.					
15	S-4	0.5	5 5 7 9					(ML) Stiff, brown low plasticity clayey SILT, trace c. sand.	38	25	24		
20	S-5	0.8	10 6 14 16					(ML) Very stiff, brown low plasticity clayey SILT, trace c. sand and f. gravel.					4" D. casing depth, 20'
25	S-6	1.3	10 10 15 15					(ML) Very stiff, brown low plasticity clayey SILT, trace c. sand.					
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-3a

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30	S-7	1.4	11 9 12 19					Same.					
35	S-8	1.5	10 8 8 10					(ML) Very stiff, brown low plasticity clayey SILT.					
40	S-9	1.0	10 15 16 11					(ML) Hard, brown low plasticity clayey SILT, trace c. sand and f. gravel.					
45	S-10	1.5	2 6 21 24					Same.					
50	S-11	1.0	10 15 10 7					(ML) Very stiff, brown low plasticity clayey SILT, trace c. sand and f. gravel.					
55				R-1	50	32		Limestone: light gray, fine grained, slightly weathered, moderately fractured, fractures dip in near horizontal, coated with silt, hard. (1ft of silt core recovered below rock pieces)					3" D. casing depth, 54'
60								(ML) Brown, low plasticity clayey SILT					
65				R-2	10	10		Limestone: light gray, fine grained, slightly weathered, hard.					total coring time: 10.5'

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-3a

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
65													
70	S-12	1.5	9 44 74 67					(CL) Hard, brown low plasticity silty CLAY, some c-f sand, trace f. gravel.			23	75	
75	S-13	1.5	25 25 49 29					(ML) Hard, brown low plasticity clayey SILT, trace c. sand and f. gravel.					
80				R-3	53	25		Limestone: light gray, fine grained, slightly weathered, moderately fractured, fractures dip in near horizontal to 20 degrees, coated with silt, hard.					coring time: 10',12',14',0.5',0.5'. Barrel moved fast from 83' to 85'
85								END OF HOLE AT 85 FT.					Upon completion of drilling, hole grouted with 100lb cement.
90													
95													
100													

Project: Keystone cement plant **Project Location:** Bath, PA **Project Number:** 19684726	**Log of Boring B-3b** Sheet 1 of 3

Date(s) Drilled	4/26/05 - 4/27/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	407.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2619959 East: 512043
Casing Size/Type	4" & 3" Dia. steel	Drill Rig Operator	Carlos Maldonado	Total Depth Drilled (feet) 72.0	Rock Depth (feet) 57.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" & 2 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples	Dist.: 12 Undist.: Core (ft): 15

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	0.5	37 100/3"					(SP-GP) Very dense, black c-f SAND and GRAVEL, coals.					
5	S-2	0.5	4 8 14 10					(SP-GP) Medium dense, black c. SAND and f. GRAVEL.					
10	S-3	1.0	5 6 12 11					(SM) Medium dense, brown c-f SAND and SILT.					
15	S-4	0.3	15 11 19 15					(SM) Medium dense, brown c-f SAND and clayey SILT, one c. gravel.					
20	S-5	0.0	11 10 17 18					No recovery.					4" D. casing depth 20'
25	S-6	1.0	5 10 11 13					(ML) Stiff, brown low plasticity clayey SILT, some c. sand, trace f. gravel.					
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-3b

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30	S-7	1.2	7 8 10 14					(ML) Very stiff, brown low plasticity clayey SILT, trace f. gravel.					
35	S-8	2.0	6 7 10 11					(ML) Very stiff, brown low plasticity clayey SILT, trace c. sand & f. gravel.					
40	S-9	1.2	6 7 23 24					(ML) Very stiff, brown low plasticity clayey SILT, trace c-f sand.					
45	S-10	1.0	19 27 50 67					(ML) Hard, brown low plasticity clayey SILT, trace m-f sand & f. gravel.					
50	S-11	0.8	12 5 5 5					(ML) Stiff, brown low plasticity clayey SILT, trace m-c sand.					
55	S-12	0.3	8 13 100/4"					(ML) Hard, brown low plasticity clayey SILT, rock piece in the tip.					
60				R-1	71	53		Limestone: Light gray, fine grained, slightly weathered, moderately fractured, fractures dip in near horizontal, coated with silt & iron, hard.					3" D. casing depth 57' Coring time:7',5',5',7',7.5'
65				R-2	50	30		The same as above (6" silt core recovered at the bottom)					Coring time:3',8',7',13',5'

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-3b

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
65													
								The same as above.					
70				R-3	33	18							
								END OF HOLE AT 72 FT.					
75													
													Upon completion of drilling, hole grouted with 100lb cement.
80													
85													
90													
95													
100													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-4

Date(s) Drilled	4/19/05 - 4/20/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	407.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2620041 East: 512047
Casing Size/Type	4" Dia. steel	Drill Rig Operator	Carlos Maldonado	Total Depth Drilled (feet) 78.5	Rock Depth (feet) 63.5
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples	Dist.: 13 Undist.: Core (ft): 15

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	0.5	21 100/3"					(SP) Dark, c-f SAND, c-f gravel.					Spoon sitting on a boulder.
5	S-2	0.8	7 8 8 12					(SM) Medium dense, brown, c-f SAND and silt, trace f. gravel.					
10	S-3	1.0	5 7 12 13					(SM) Medium dense, brown, c-f SAND and silt, trace f. gravel.					
15	S-4	0.5	9 10 16 16					Same as above.					
20	S-5	1.0	6 6 16 16					(ML) Very stiff, brown, low plasticity clayey SILT, trace c-f. sand.					
25	S-6	1.8	11 10 15 14					(ML) Very stiff, brown, low plasticity clayey SILT.					
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-4

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30	S-7	1.3	13 14 13 13					(ML) Very stiff, brown, low plasticity clayey SILT, trace c. sand.					
35	S-8	0.6	15 23 22 21					(ML) Hard, brown, low plasticity clayey SILT.					
40	S-9	1.1	18 27 60 67					(CL) Hard, brown, low plasticity CLAY, some c-f sand, trace f. gravel.			21	73	
45	S-10	1.2	7 12 35 26					(ML) Hard, brown, low plasticity clayey SILT.					
50	S-11	1.5	23 26 37 29					(ML) Hard, brown, low plasticity clayey SILT, trace c. sand and f. gravel, trace brown clay.					
55	S-12	1.0	60 62 60 40					(ML) Hard, brown, low plasticity clayey SILT, trace c. sand and f. gravel.					
60	S-13	1.3	10 14 23 12					(ML) Hard, brown, low plasticity clayey SILT, trace c-m. sand and f. gravel.					
65								LIMESTONE: light gray with white variegations, fine grained, slightly to moderately fractured, slightly weathered, coated with silt in fractures, fractures dip in					Casing depth 63'. Coring time: 12', 15', 5', 6' and 4 min.

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-4

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
65				R-1	50	33		near horizontal to 30 degrees, hard.					Barrel moved down faster from 65.5' to 68.5', possibly penetrating silt seam, core bit lost two teeth.
70				R-2	80	55		LIMESTONE: light gray with white variegations, fine grained, slightly to moderately fractured, slightly weathered, coated with silt and iron in fractures, fractures dip in near horizontal to 30 degrees, hard.					Coring time: 7.5', 8', 7', 6.5' and 8.5 min.
75				R-3	95	63		Same as above.					Coring time: 6', 6', 6.5', 7.5' and 3 min.
80								END OF HOLE AT 78.5 FT					Upon completion of drilling, hole grouted with 100lb cement.
85													
90													
95													
100													

Project: Keystone cement plant **Project Location: Bath, PA** **Project Number: 19684726**	**Log of Boring B-5** Sheet 1 of 2

Date(s) Drilled	4/18/05 - 4/19/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	402.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2620193 East: 512024
Casing Size/Type	4" Dia. steel	Drill Rig Operator	Mike Mcdrlean	Total Depth Drilled (feet) 62.0	Rock Depth (feet) 46.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples Dist.: 9 Undist.: Core (ft): 16	

Depth, feet	Soil Samples Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0													
	S-1	0.9	10 12 17 11					(SP) Medium dense, brown, m-f SAND and silt, trace c. sand and f. gravel.					
5	S-2	1.3	3 4 4 7					(ML) Medium stiff, brown, low to medium plasticity clayey SILT, trace brown clay, trace c. sand.					
10	S-3	1.2	5 7 9 10					(SC) Medium dense, brown, clayey, c-f SAND, some f. gravel.			19	32	
15	S-4	0.5	6 11 13 18					(ML) Very stiff, brown, low plasticity clayey SILT, trace c. sand and f. gravel.					
20	S-5	1.5	5 7 9 7					(ML) Very stiff, brown, low plasticity clayey SILT, trace c. sand.					
25	S-6	0.2	10 10 8 9					(SM) Medium dense, brown, c-f SAND, trace to some silt, trace f. gravel.					
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-5

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30	S-7	1.7	3 4 6 8					(ML) Stiff, brown, low plasticity clayey SILT.	31	25	31		
35	S-8	1.8	3 4 5 11					(ML) Stiff, brown, low plasticity clayey SILT, trace c. sand.					
40	S-9	1.6	1 3 4 4					(ML) Medium stiff, brown, low plasticity clayey SILT, trace c. sand & f. gravel.					Casing depth 46'.
45													
50				R-1	66	48		LIMESTONE: light gray, fine grained, moderately fractured, slightly weathered, fractures dip in near horizontal to 45 degrees, coated with silt and iron in fractures, hard.					Coring time: 2', 2.5', 2.5', 2', 3', 2.5 min.
55				R-2	63	42		Same as above.					Coring time: 3', 0', 3', 2.5', 3 min.; Total unit wt. = 169 pcf; Unconfined comp. str. = 28,480 psi
60				R-3	100	70		LIMESTONE: light gray with white variegations, fractures dip in near horizontal to vertical (90 degrees), coated with iron in fractures, hard.					Coring time: 2.5', 4.5', 5', 5', 5 min.
65								END OF HOLE AT 62 FT					Upon completion of drilling, hole grouted with 100lb cement.

Project: Keystone cement plant **Project Location: Bath, PA** **Project Number: 19684726**	**Log of Boring B-6** Sheet 1 of 3

Date(s) Drilled	4/18/05 - 4/19/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	397.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2620425 East: 511988
Casing Size/Type	4" Dia. steel	Drill Rig Operator	Carlos Maldonado	Total Depth Drilled (feet) 75.0	Rock Depth (feet) 57.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples Dist.: 12	Undist.: Core (ft): 9

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0								Ashphalt concrete (2" thick).					
	S-1	1.2	21 22 19 15					(SM) Dense, brown, c-f SAND, some silt, trace f. gravel.					
5	S-2	0.8	6 5 6 5					(SP-SM) Medium dense, brown, c-f SAND, trace silt, trace f. gravel.					
10	S-3	1.0	10 9 17 23					(SP) Medium dense, brown, c-f SAND, trace silt, trace to some f. gravel.					
15	S-4	0.5	6 6 8 11					(ML) Stiff, brown, low plasticity clayey SILT, trace c. sand..					
20	S-5	0.3	10 10 17 13					(MH) Very stiff, brown, medium plasticity clayey SILT.					
25	S-6	1.4	8 8 22 17					(ML) Very stiff, brown, low plasticity clayey SILT.					
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-6

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30	S-7	0.3	11 13 12 11					(MH) Very stiff, brown, medium to high plasticity clayey silt.					
35	S-8	1.2	12 18 20 12					(ML) Hard, brown, low plasticity clayey SILT.					
40	S-9	1.2	11 12 15 16					(ML) Very stiff, brown, low plasticity clayey SILT.					
45	S-10	1.2	5 5 8 12					(ML) Stiff, brown, clayey clayey SILT.					
50	S-11	2.0	4 4 8 12					(ML) Stiff, brown, low to medium plasticity clayey SILT, trace f. gravel.					
55	S-12	1.2	12 11 100/3'					(ML) Very stiff, brown, low plasticity clayey SILT, trace c. sand.					
60				R-1	50	28		LIMESTONE: light gray with variegatious, fine grained, moderately fractured, fractures dip in near horizontal, coated with silt and iron in fractures, hard.					Barrel moved down from 58.5' to 60'. Possibly void.
65				R-2	30	13		Same as above					Barrel moved down from 62.5' to 64'. Possibly void.

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-6

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
65													
								VOID					Barrel moved down from 66' to 75'. Possibly void. Rock condition is not uniform.
70													
75													Driller lost the bit, no more coring.
								BEDROCK					
								END OF HOLE AT 75 FT					
80													
85													
90													
95													
100													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-7

Date(s) Drilled	4/14/05 - 4/18/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	397.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2620453 East: 512092
Casing Size/Type	4" Dia. steel	Drill Rig Operator	Carlos Maldonado	Total Depth Drilled (feet)	80.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" tricone	Rock Depth (feet)	55.0
Groundwater Level and Date Measured		Hammer Wt/Drop	140lb/30" Donut	Sampler Type(s)	2" O.D. Split Spoon
		Casing Hammer Wt/Drop	300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples	Dist.: 11 Undist.: Core (ft): 18

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	1.0	39 75 100/2"					COALS					
5	S-2	0.4	5 5 6 7					(MH) Stiff, brown medium plasticity clayey SILT.					
10	S-3	1.0	13 20 31 32					(SP) Medium dense, brown c-f SAND, trace silt, trace c-f gravel.					
15	S-4	0.4	9 12 14 14					(SM) Medium dense, brown c-f SAND, some silt, trace f. gravel.					
20	S-5	1.4	8 10 15 12					(ML) Very stiff, brown low plasticity clayey SILT, trace f. sand, trace f. gravel.					
25	S-6	1.6	12 16 15 15					(ML) Hard, brown low plasticity clayey SILT.					
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-7

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30	S-7	1.5	5 6 11 12					(ML) Very stiff, brown low plasticity clayey SILT.					
35	S-8	1.4	15 14 23 40					(ML) Hard, brown low plasticity clayey SILT.					
40	S-9	1.5	10 14 15 25					(ML) Very stiff, brown low plasticity clayey SILT.					
45	S-10	1.5	17 39 27 24					(ML) Hard, brown low plasticity clayey SILT, little f. gravel.					
50	S-11	1.9	7 7 10 31					(ML) Very stiff, brown low plasticity clayey SILT.					
55				R-1	50	25		LIMESTONE: Light gray with white variegations, fine grained, moderately fractured, slightly weathered, fractures dip in near horizontal to 45 degrees, coated with iron & silt in fractures, hard.					
60				R-2	83	67		LIMESTONE: Light gray with white variegations, fine grained, moderately fractured, slightly weathered, fractures dip in near horizontal to 45 degrees, coated with iron in fractures, hard.					coring time: 12', 11', 11', 11', 16'; Total unit wt. = 174 pcf; Unconfined comp. str. = 43,650 psi
65													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-7

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
65				R-3	100	55		LIMESTONE: Light gray with white variegations, fine grained, moderately fractured, slightly weathered, fractures dip in near horizontal to 45 degrees, no coatings on fractured surface, hard.					coring time: 12', 12', 4'
70								VOID					Core barrel dropped down about 7 ft after 3' rock coring from 65ft. About 7ft deep void observed.
75				R-4	100	75		LIMESTONE: Light gray with white variegations, fine grained, moderately fractured, slightly weathered, fractures dip in near horizontal to 25 degrees, iron staining on fractures noted, hard.					
80								END OF HOLE AT 80 FT					
85													
90													
95													
100													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-8

Sheet 1 of 2

Date(s) Drilled	4/13/05 - 4/14/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	397.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2620501 East: 512122
Casing Size/Type	4" Dia. steel	Drill Rig Operator	Mike Mcdrlean	Total Depth Drilled (feet) 61.0	Rock Depth (feet) 46.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples Dist.: 9 Undist.: Core (ft): 15	

Depth, feet	Soil Samples Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0								ASPHALT CONCRETE					
	S-1	0.3	17 14 11 7					(SP/COAL) Medium dense, black c-f SAND and COAL					
5	S-2	1.0	6 10 8 6					(ML) Very stiff, brown low plasticity clayey SILT, trace f. sand.					
10	S-3	0.5	9 13 11 16					(SC) Medium dense, brown c-f SAND, some c-f gravel, clay.			15	23	
15	S-4	0.3	8 8 9 10					(MH) Very stiff, brown medium plasticity clayey SILT, trace c. sand.					
20	S-5	1.0	4 9 12 10					(ML) Very stiff, brown low plasticity clayey SILT, trace c. sand & f. gravel..					
25	S-6	1.5	12 14 25 11					(ML) Hard, brown low plasticity clayey SILT, trace c-f sand & f. gravel.					
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-8

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30	S-7	1.0	10 39 90 16					same as above.					Spoon sitting on a boulder
35	S-8	0.5	13 16 5 6					(ML) Very stiff, brown low plasticity clayey SILT, trace c-f sand.					
40	S-9	1.1	7 6 7 8					(ML) Stiff, brown low plasticity clayey SILT, trace f. sand.					
45				R-1	100	67		LIMESTONE: Light gray with white variegations, fine grained, moderately fractured, slightly weathered, fractures dip in near horizontal to 45 degrees, coated with iron in fractures, hard.					Spoon refusal at 46'. bedrock encountered. Coring time: 4', 3', 3', 3', 3'
50				R-2	100	80		LIMESTONE: Light gray with white variegations, fine grained, moderately fractured, slightly weathered, fractures dip in near horizontal to 30 degrees, coated with iron in fractures, hard.					Coring time: 2.5', 2.5', 3', 3', 3'
55				R-3	100	80		LIMESTONE: Light gray with white variegations, fine grained, moderately fractured, slightly weathered, fractures dip in near horizontal to 20 degrees, coated with iron in fractures, hard.					Coring time: 3', 2.5', 2.5', 2.5', 2.5'
60								END OF HOLE AT 61 FT					Upon completion of drilling, hole grouted with 100lb cement.
65													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-9

Date(s) Drilled	4/13/05 - 4/13/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	400.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2620474 East: 512172
Casing Size/Type	4" Dia. steel	Drill Rig Operator	Carlos Maldonado	Total Depth Drilled (feet) 48.0	Rock Depth (feet) 34.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples	Dist.: 7 Undist.: Core (ft): 14

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	1.8	1 6 25 30					(SM) Dense, brown m-f SAND, some silt, trace bricks, trace white m-f sand. [FILL]					
5	S-2	0.8	2 3 4 3					(ML) Medium stiff, brown low plasticity clayey SILT, trace to some f. sand.					
10	S-3	0.4	10 10 6 9					(SM) Medium dense, brown c-f SAND, some silt.					
15	S-4	0.3	7 8 9 13					(MH) Very stiff, brown medium plasticity clayey SILT, trace c-f sand.					Casing depth 15ft
20	S-5	1.4	10 4 8 13					(ML) Stiff, brown low plasticity clayey SILT, trace c. sand.					
25	S-6	1.9	6 7 8 10					(ML) Very stiff, brown low plasticity clayey SILT, trace f. sand.					
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-9

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30	S-7	1.6	10 13 20 18					same as above.					
35				R-1	100	50		LIMESTONE: Light gray with white variegations, fine grained, moderately fractured, slightly weathered, fractures dip in near horizontal to 45 degrees, coated with silt & iron in fractures, hard.					Rig chattering at 34ft. Driller reports bedrock is suspcious of being encountered. Coring time: 9', 12', 12',10',12'
40				R-2	100	68		LIMESTONE: Light gray with white variegations, fine grained, moderately fractured, slightly weathered, fractures dip in near horizontal to 15 degrees, coated with iron in fractures, hard.					Coring time: 11', 8', 9',8',9'
45				R-3	100	61		LIMESTONE: Light gray with white variegations, fine grained, moderately fractured, slightly weathered, fractures dip in near horizontal to 20 degrees, no coatings on fractures.					Coring time: 12', 12', 16', 17'
50								END OF HOLE AT 48 FT					Upon completion of drilling, hole grouted with 100lb cement.
55													
60													
65													

Project: Keystone cement plant **Project Location:** Bath, PA **Project Number:** 19684726	**Log of Boring B-10** Sheet 1 of 3

Date(s) Drilled	4/14/05 - 4/17/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	397.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2620403 East: 512058
Casing Size/Type	4" Dia. steel	Drill Rig Operator	Mike Mcdrlean	Total Depth Drilled (feet) 92.0	Rock Depth (feet) 72.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments	19ft from the wall			No. of Samples	Dist.: 15 Undist.: Core (ft): 13

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	1.0	1 8 12 10					COAL					
								(SP) Medium dense, brown c-f SAND and SILT, trace f. gravel.					
5	S-2	1.5	4 6 8 9					(ML) Medium dense, brown low plasticity clayey SILT.					
10	S-3	1.5	4 6 11 10					(SM) Medium dense, brown c-f SAND, some silt, trace f. gravel.					
15	S-4	1.4	7 7 10 11					same as above.					
20	S-5	1.2	6 9 11 13					(ML) Very stiff, brown low plasticity clayey SILT, trace c. sand.					
25	S-6	1.4	9 14 10 9					(ML) Very stiff, brown low plasticity clayey SILT, trace c. sand.					
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-10

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30	S-7	1.6	10 13 17 17					(ML) Very stiff, brown low plasticity clayey SILT.					
35	S-8	1.9	10 9 14 15					Same as above.					
40	S-9	2.0	7 13 15 21					the same as above					
45	S-10	1.2	12 23 24 29					(ML) Hard, brown low plasticity clayey SILT.					
50	S-11	1.0	6 14 17 18					Same as above.					
55	S-12	1.5	9 10 18 13					(ML) Very stiff, brown low plasticity clayey SILT, little c. sand.					
60	S-13	1.0	4 2 18 100/3"					same as above.					rock piece in the tip of spoon
65													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-10

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
65	S-14	1.2	15 30 24 26					(ML) Hard, brown low plasticity clayey SILT, a f. gravel.					
70	S-15	0.3	100/3"					(GP) m-c GRAVEL and brown low plasticity clayey silt.					
													Casing depth, 72ft
				R-1	100	60		Limestone: light gray with white variegations, fine grained, moderately fractured, slightly weathered, fractures dip in near horizontal to 90 degrees, coated with silt & iron, hard.					Coring time: 3.5', 3.5', 3', 4', 4'
75													Core barrel dropped down about 2' after coring 4ft from 76ft
				R-2	60	33		Limestone: light gray with white variegations, fine grained, moderately fractured, slightly weathered, fractures dip in near horizontal, coated with silt & iron, hard.					
80								VOID					
				R-3	50	8.3		same as above.					
85								VOID					Core barrel dropped down from 84ft to 87ft
				R-4	60	25		same as above.					
90								VOID					Core barrel dropped down from 90ft to 92ft
								END OF HOLE AT 92 FT					
95													
100													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-11

Date(s) Drilled	5/12/05 - 5/12/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	401.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2620441 East: 512223
Casing Size/Type	4"&3" Dia. steel	Drill Rig Operator	Carlos Maldonado	Total Depth Drilled (feet) 45.0	Rock Depth (feet) 30.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" & 2 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples Dist.: 6 Undist.:	Core (ft): 15

Depth, feet	Soil Samples Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	1.5	5 22 11 14					(SP) Dense, brown to dark c-f SAND, trace of silt, trace of f. gravel and coals					
5	S-2	0.9	3 4 5 10					(ML) Stiff, brown, low plasticity, clayey SILT, trace of c sand					
10	S-3	1.1	5 7 10 11					(ML) Very stiff, brown, low plasticity clayey SILT, some c. sand and f. gravel					4" casing depth 10'
15	S-4	1.4	4 4 8 9					same as above					
20	S-5	1.5	4 4 6 8					(ML) stiff, brown, low plasticity clayey SILT					
25	S-6	1.0	4 7 7 4					same as above					
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-11

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30				R-1	90	65		LIMESTONE: light gray, fine grained, fresh to slightly weathered, slightly to highly fractured, fractures dip in near horizontal to 90 degrees, coated with silt, hard.					3" casing depth 30' Coring time: 13'41", 16'18", 15'3", 13'21", 13'18"
35				R-2	100	100		LIMESTONE: light gray, fine grained, slightly weathered, slightly fractured, fractures dip in near horizontal , coated with iron, hard.					Core bit exchanged, coring time: 6'41", 9'46", 8'50", 9'43", 9'51"
40				R-3	90	67		LIMESTONE: light gray, fine grained, slightly weathered, slightly fractured, fractures dip in near horizontal , coated with iron, hard.					Coring time: 9'33", 6'16", 7'43", 7'2", 9'24"
45								END OF HOLE AT 45 FT					Upon completion of drilling, hole grouted with 100lb cement.
50													
55													
60													
65													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-12

Date(s) Drilled	4/27/05 - 4/28/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	397.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2620576 East: 512187
Casing Size/Type	4" Dia. steel	Drill Rig Operator	Carlos Maldonado	Total Depth Drilled (feet) 43.0	Rock Depth (feet) 28.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples	Dist.: 6 Undist.: Core (ft): 15

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0								Concrete pavement					
	S-1	0.6	17 99 6 6					(GP) Black c-f SAND and m-f GRAVEL, some brown silt.					rig chattering 2' to 5'
5	S-2	0.6	4 8 14 12					(SM) Medium dense, brown c-f SAND, some silt, trace f. gravel.					
10	S-3	0.5	7 7 11 12					(SM) Medium dense, brown silty c-f SAND, trace f. gravel.					
15	S-4	1.1	8 8 16 16					(ML) Very stiff, brown low plasticity clayey SILT, trace c-f sand, trace f. gravel.					
20	S-5	1.6	6 8 10 10					(ML) Very stiff, brown low plasticity clayey SILT, trace c. sand.					
25	S-6	1.5	8 7 12 9					(ML) Very stiff, brown low plasticity clayey SILT, trace c. sand & f. gravel.					
30								Limestone: light gray, fine grained, slightly weathered, slightly fractured, fractures dip in near horizontal to 45 degrees, no coating, hard.					casing depth 28' Coring time: 9',13',12',10',12'

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-12

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30				R-1	100	100							
								Limestone: light gray, fine grained, slightly weathered, slightly fractured, fractures dip in near horizontal , coated with iron, hard.					Coring time: 9',10',9',9',10'(Work was halted by safety manager (David) of the plant since the morning of 4/28/05. He raised a couple of safety concerning issues. work resumed at 10:46AM.
35				R-2	100	100							
								Limestone: light gray, fine grained, slightly weathered, slightly fractured, fractures dip in near horizontal , no coating, hard.					Total coring time:47'
40				R-3	90	78							
								END OF HOLE AT 43 FT					upon completion of drilling, hole grouted with 100lb cement.
45													
50													
55													
60													
65													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-13

Date(s) Drilled	4/27/05 - 4/28/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	403.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2620457 East: 512321
Casing Size/Type	4" Dia. steel	Drill Rig Operator	Freddy Navarro	Total Depth Drilled (feet) 38.0	Rock Depth (feet) 23.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples Dist.: 5	Undist.: Core (ft): 15

Depth, feet	Soil Samples Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	0.4	100/5"					(GP) f. GRAVEL and black c-f sand, coals.					Rig chattering from 2' to 5'
5	S-2	1.0	10 8 12 12					(CL) Very stiff, brown low plasticity silty CLAY, some c-f sand, trace f. gravel.			23	84	
10	S-3	1.4	6 11 12 12					(ML) Very stiff, brown low plasticity clayey SILT, trace c-m sand and f. gravel.					
15	S-4	1.2	9 10 10 13					(ML) Very stiff, brown low plasticity clayey SILT, trace c. sand.					
20	S-5	0.3	100/6"					(ML) Hard, brown to gray low plasticity clayey SILT, trace c-f sand, trace f. gravel.					Rig chattering from 21' to 23'
													Casing depth, 23ft
25				R-1	83	58		LIMESTONE: light gray, fine grained, slightly to moderately fractured, fresh to slightly weathered, coated with iron, fractures dip in near horizontal to 45 degrees, hard.					Coring time: 4', 8', 7', 10', 10' Work halted by safety director (David) of the plant since the morning of 4/28/05. work resumed at 10:46.
30								Same as above.					Coring time: 7', 8', 8', 9', 11'

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-13

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30				R-2	97	88							
								LIMESTONE: light to dark gray, fine grained, slightly to moderately fractured, fresh to slightly weathered, coated with iron, fractures dip in near horizontal to 45 degrees, hard.					Coring time: 8', 9', 7', 6.5', 4.5'
35				R-3	97	93							
								END OF HOLE AT 38 FT					Upon completion of drilling, hole grouted with 100 lb cement.
40													
45													
50													
55													
60													
65													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-14

Date(s) Drilled	4/28/05 - 4/29/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	404.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2620561 East: 512323
Casing Size/Type	4" Dia. steel	Drill Rig Operator	Freddy Navarro	Total Depth Drilled (feet) 31.0	Rock Depth (feet) 16.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples	Dist.: 3 Undist.: Core (ft): 15

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS/ OTHER TESTS
0								Concrete pavement					
	S-1	0.8	17 46 47 27					(GP) c-f GRAVEL, with brown c-f sand.					
5	S-2	0.5	5 6 10 10					(CL) Very stiff, low plasticity silty CLAY, trace c-f sand	39	22	25		
10	S-3	1.2	4 7 12 17					(ML) Very stiff, low plasticity clayey SILT, trace c-f sand, trace f. gravel.					4" D. casing depth 16'
15													Rig chattering from 13'
				R-1	90	70		LIMESTONE: light gray, fine grained, slightly weathered, slightly to moderately fractured, fractures dip in near horizontal to 45 degrees, coated with iron, hard.					Coring time: 7', 5', 7', 7', 7'
20				R-2	85	70		LIMESTONE: light gray, fine grained, slightly weathered, slightly to moderately fractured, fractures (45 degrees), coated with silt and iron, hard.					Coring time: 6', 7', 1', 6', 7'; Total unit wt. = 176 pcf; Unconfined comp. str. = 42,420 psi
25				R-3	100	65		LIMESTONE: light gray, fine grained, slightly weathered, moderately fractured, fractures dip in near horizontal to 45 degrees, coated with iron, hard.					Coring time: 7.5', 7.5', 8', 7', 7'.
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-14

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30													
								END OF HOLE AT 31 FT					Upon completion of drilling, hole grouted with a 100 lb cement
35													
40													
45													
50													
55													
60													
65													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-15

Date(s) Drilled	5/12/05 - 5/13/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	403.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2620602 East: 512282
Casing Size/Type	4"Dia. steel	Drill Rig Operator	Carlos Maldonado	Total Depth Drilled (feet) 34.0	Rock Depth (feet) 14.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples Dist.: 3 Undist.:	Core (ft): 20

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	1.1	6 9 7 9					(SM) Brown, medium dense, c-f SAND, some silt					
5	S-2	1.4	2 3 6 7					(ML) Stiff, brown low plasticity, clayey SILT, some c-f sand					
10	S-3	1.0	3 5 5 6					(ML) Stiff, brown, low plasticity clayey SILT, some c-f sand and f. gravel					Rig chattering from 12' to 14'
15				R-1	80	58		LIMESTONE: light gray, fine grained, slightly to moderately weathered , slightly fractured, fractures dip in near horizontal, coated with iron, hard.					4" D. casing depth 14 ft Coring time 13'45", 2'9", 9'23", 5'6", 10"
20				R-2	48	48		LIMESTONE: light gray, fine grained, fresh to slightly weathered , slightly fractured, fractures dip in near horizontal, coated with iron, hard.					Barrel moved fast from 20.3' to 21', and from 22.5' to 24'
25				R-3	20	8		LIMESTONE: light gray, fine grained, fresh to moderately weathered ,moderately fractured, fractures dip in near horizontal to 45 degrees, coated with iron, hard.					Possibly void, barrel moved fast from 24.5' to 28.5' Total coring time: 4'41"
30								LIMESTONE: light gray, fine grained, slightly to					Coring time 4', 3'14",

Project: Keystone cement plant
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Log of Boring B-15

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30				R-4	65	38		moderately weathered , moderately to highly fractured, fractures dip in near horizontal to vertical, coated with iron, hard.					11'37", 9'24", 0'59"
35								END OF HOLE AT 34 FT					Upon completion of drilling, hole grouted with a 100 lb cement
40													
45													
50													
55													
60													
65													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-16

Date(s) Drilled	4/28/05 - 4/29/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	404.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2620588 East: 512425
Casing Size/Type	4"&3" Dia. steel	Drill Rig Operator	Carlos Maldonado	Total Depth Drilled (feet) 29.0	Rock Depth (feet) 11.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples Dist.: 2 Undist.:	Core (ft): 15

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	0.6	16 30 100/3"					(SP-GP) BLACK C-F sand, and f. gravel, coals			12	39	
5	S-2	0.2	9 11 9 13					(SP) brown medium dense, c-f SAND, trace of silt					
10													Rig chattering from 9' 4" D. casing depth 10' Coring time 40'
				R-1	33	10		LIMESTONE: light gray, fine grained, slightly to moderately fractured, fresh to slightly weathered, coated with iron, fractures (45 degrees), hard.					
15													Soft material, drilled to 19 ft. without coring and sampling
20				R-2	63	46		LIMESTONE: light gray, fine grained, slightly to moderately fractured,moderately weathered, coated with iron, fractures (45 degrees), hard.					3' D. case depth 19' coring time 8', 7', 1', 7.5', 10.5'
25				R-3	100	73		LIMESTONE: light gray, fine grained, moderately fractured,moderately weathered, coated with iron, fractures (45 degrees), hard.					Coring time 9.5', 8', 8', 7', 6.5'
30								END OF HOLE AT 29 FT					Upon completion of

Project: Keystone cement plant
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Log of Boring B-16

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30													drilling, hole grouted with 100 lb cement.
35													
40													
45													
50													
55													
60													
65													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-17

Sheet 1 of 1

Date(s) Drilled	4/29/05 - 5/2/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	404.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2620552 East: 512483
Casing Size/Type	3" Dia. steel	Drill Rig Operator	Freddy Navarro	Total Depth Drilled (feet) 26.0	Rock Depth (feet) 6.0
Drill Rig Type	B-56	Drill Bit Size/Type	2 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples	Dist.: 1 Undist.: Core (ft): 20

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	0.0	7 9 8 7					(SM) gray, medium dense, c-f SAND, trace of silt, trace f. gravel.					Rig chattering from 2' to 4.5 ft. Driller reput bedrock being encountered at 4.5 ft.
5													
				R-1	70	20		LIMESTONE: light gray, fine grained, slightly weathered, moderately to highly fractured, coated with silt & iron, fractures (0 to 90 degrees), hard.					Coring time 5.5', 7', 6.5' 6', 7'.
10													
				R-2	73	43		LIMESTONE: light gray, fine grained, slightly weathered, moderately to highly fractured, coated with silt & iron, fractures (0 to 45 degrees), hard.					Coring time 6', 8', 6', 2', 5'
15													
				R-3	43	0		LIMESTONE: light gray, fine grained, slightly weathered, moderately to highly fractured, coated with silt , fractures dip in near horizontal. hard.					Total coring time 22' Barrel moved fast from 17' to 19'
20													
				R-4	33	28		LIMESTONE: light gray, fine grained, slightly weathered, moderately fractured, coated with silt , fractures dip in near horizontal, hard.					
25													
								END OF HOLE AT 26 FT					Upon completion of drilling, hole grouted with 100 lb cement.
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-18

Sheet 1 of 2

Date(s) Drilled	5/10/05 - 5/10/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	404.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2620649 East: 512457
Casing Size/Type	3"& 4" Dia. steel	Drill Rig Operator	Carlos Maldonado	Total Depth Drilled (feet) 57.0	Rock Depth (feet) 42.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" & 2 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples Dist.: 9 Undist.:	Core (ft): 15

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	1.0	21 15 11 10					(SM) Black to brown, c-f SAND, sopme silt, trace c-f gravel, slogs					
													Rig chattering from 2' to 5'
5	S-2	0.7	7 8 11 10					(SM) Medium dense, brown c-f SAND, some silt, trace c-f gravel					
10	S-3	1.2	3 4 5 5					(ML) Stiff, brown, low plasticity clayey SILT, trace c. sand, and f. gravel					4" casing depth 10'
15	S-4	0.0	100/0"					No recovery					Spoon sitting on boulder
20	S-5	0.7	13 13 10 16					(ML) Very stiff, brown, low plasticity clayey SILT, some c. sand, and c-f gravel					
													Rig chattering from 23.5' to 25'
25	S-6	0.0	100/3"					No Recovery					Coring time 2'6", 50", 1'47", 1'17", 40", cored 4" boulder
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-18

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30	S-7	0.0	14 14 17 17					No Recovery					
35	S-8	1.0	WOR WOR 2 3					(MH) Soft, grayish brown, medium plasticity clayey SILT, trace c. sand					Overexcavate
40	S-9	0.3	7 3 2 5					(MH) Soft. grayish brown medium plasticity clayey SILT					
								LIMESTONE: Light gray, fine grained, fresh to moderately weathered, slightly fractured, fractures dip in near horizontal to 20 degrees, coated with iron, hard					Coring time 5'29", 4'49", 3'39", 12'53", 13'20"
45				R-1	86	65							
								LIMESTONE: Light gray, fine grained, fresh to slightly weathered, slightly fractured, fractures dip in near horizontal to 20 degrees, coated with iron, hard					Coring time: 12'38", 11'12", 11"49", 10'7", 7'23"
50				R-2	85	63							
								same as above					Coring time: 1h5m36s
55				R-3	100	78							
								END OF HOLE AT 57 FT					Upon completion of drilling, hole grouted with 100 lb cement
60													
65													

Project: Keystone cement plant **Project Location:** Bath, PA **Project Number:** 19684726	**Log of Boring B-19** Sheet 1 of 2

Date(s) Drilled	5/4/05 - 5/5/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	404.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2620645 East: 512636
Casing Size/Type	3"& 4" Dia. steel	Drill Rig Operator	Carlos Maldonado	Total Depth Drilled (feet) 62.0	Rock Depth (feet) 40.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" & 2 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples	Dist.: 9 Undist.: Core (ft): 15

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	1.0	21 35 39 32					(SP-GP) Very dense, black c-f SAND, and f. gravel, trace of silt					
5	S-2	0.4	4 5 10 11					Medium dense slag					
10	S-3	0.4	17 16 100/3"					(GP) Very dense c-f GRAVEL, some c-f sand, trace silt					
15	S-4	0.7	27 38 100/3"					same as above					4" casing depth 15'
20	S-5	1.0	10 10 18 27					(ML) Very stiff, brown low plasticity clayey SILT, trace c. sand and f. gravel					
25	S-6	1.2	11 14 11 16					(ML) Very stiff, brown low plasticity clayey SILT, trace of c. sand					
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-19

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30	S-7	0.4	13 12 17 14					(SP) Medium dense, brown c-f SAND, trace of f. gravel, trace of silt					
35	S-8	1.3	5 7 16 27					(GP) Medium dense, brown low plasticity SILT, and f. gravel, trace of c-f sand					3" casing depth 40'
40				R-1	45	40		LIMESTONE: Light gray, fine grained, slightly weathered, fractures dip in near horizontal, moderately fractured, coated with silt, hard					Coring time 8'10", 12'4", 4'56", 11", 3'38"
45				R-2	43	43		LIMESTONE: Light gray, fine grained, slightly weathered, fractures dip in near horizontal to 45 degrees, moderately fractured, coated with silt and iron, hard					Coring time: 9'35", 10", 16", 6'10", 7'17"
50				R-3	10	0		4" limestone and gravel					Coring time: 2'17", 1'09", 27", 11", 25"
55													
60	S-9	0.5	6 4 21 11					(SM) Medium dense, brown c-f SAND, trace of f. gravel, some brown silt					
65								END OF HOLE AT 62 FT					Upon completion of drilling, hole grouted with one 100lb cemer bag

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-20

Sheet 1 of 1

Date(s) Drilled	5/2/05 - 5/2/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	404.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2620517 East: 512545
Casing Size/Type	3" Dia. steel	Drill Rig Operator	Freddy Navaro	Total Depth Drilled (feet) 22.0	Rock Depth (feet) 7.0
Drill Rig Type	B-56	Drill Bit Size/Type	2 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples	Dist.: 2 Undist.: Core (ft): 15

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	0.5	29 21 12 13					(SP) Dark black c-f SAND, with f. gravel, trace of silt					
								(GP) Very dense, f. GRAVEL, trace c-f sand.					
5	S-2	0.1	100/2"										
				R-1	88	55		LIMESTONE: Light grey, slightly weathered, slightly to moderately fractured, fractures dip in near horizontal to 45 degrees, coated with iron, hard					Casing depth 7' Coring time 8.5', 8', 13', 13.5', 10'
10													
				R-2	97	70		same as above					Coring time 10', 9', 10', 9', 11'
15													
				R-3	83	73		LIMESTONE: Light grey, slightly weathered, slightly fractured, fractures dip in near horizontal to 30 degrees, coated with silt and iron, hard					Total coring time 35'
20													
								END OF HOLE AT 22 FT					Upon completion of drilling, hole grouted with a 100 lb cement
25													
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-21

Sheet 1 of 1

Date(s) Drilled	4/29/05 - 5/2/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	404.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2620565 East: 512532
Casing Size/Type	3" Dia. steel	Drill Rig Operator	Carlos Maldonado	Total Depth Drilled (feet) 23.0	Rock Depth (feet) 8.0
Drill Rig Type	B-56	Drill Bit Size/Type	2 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples Dist.: 1 Undist.: Core (ft): 15	

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0													Rig chattering from 1.5 ft
5	S-1	0.3	6 6 7 100/5"					(SP) Brown c-f SAND, trace of silt, trace of c-f gravel					
10				R-1	46	26		LIMESTONE: light gray, fine grained, slightly weathered, moderately fractured, fractures dip in near horizontal to 30 degrees, coated with silt, hard.					Driller report bedrock being encountered. Casing depth 8'. Coring time: 7', 5', 10', 6', 3'
15				R-2	58	13		LIMESTONE: light gray, fine grained, slightly weathered, moderately to highly fractured, fractures dip in near horizontal to 30 degrees, coated with iron and silt, hard.					
20				R-3	65	44		LIMESTONE: light gray, fine grained, slightly weathered, slightly to moderately fractured, fractures dip in near horizontal to degrees, coated with iron, hard.					Coring time: 10.5', 9.5', 6', 1', 3'.
25								END OF HOLE AT 23 FT					Upon completion of drilling, hole was filled with one 100 lb. cement bag.
30													

Project: Keystone cement plant **Project Location: Bath, PA** **Project Number: 19684726**	**Log of Boring B-22** Sheet 1 of 2

Date(s) Drilled	5/10/05 - 5/10/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	404.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2620662 East: 512506
Casing Size/Type	3"& 4" Dia. steel	Drill Rig Operator	Carlos Maldonado	Total Depth Drilled (feet) 52.0	Rock Depth (feet) 37.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" & 2 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples	Dist.: 8 Undist.: Core (ft): 15

Depth, feet	Soil Samples Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	0.5	27 100/3"					(SM/GP) Dense, black, c-f SAND, and c-f gravel, some silt					Spoon on a stone
5	S-2	0.3	5 4 4 6					Black, loose, slag, some gray low plasticity silt					
10	S-3	1.2	2 3 5 12					(ML) Medium stiff, brown, low plasticity clayey SILT, trace c sand and f. gravel					4" casing depth 10 ft Color changes from black to gray Rig chattering from 12 to 13.5
15	S-4	1.0	19 36 33 45					(GP) Very dense, brown, c-f GRAVEL, some c-f sand, trace of silt					Rig chattering from 15' to 20'
20	S-5	0.5	17 13 16 17					(ML) Very stiff, brown, low plasticity clayey SILT, trace of sand					
25	S-6	1.3	7 11 14 18					(ML) Very stiff, brown, low plasticity clayey SILT					
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-22

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30	S-7	1.9	11 7 9 13					(ML) Very stiff, brown, low plasticity clayey SILT, trace of c-f sand					
35	S-8	0.5	100/3"					(MH) Very stiff, brown, medium plasticity clayey SILT					
40				R-1	70	65		LIMESTONE: Light gray with white variations,fine grained, fresh to slightly weathered, slightly fractured, fractures dip in near horizontal to 45 degrees, moderately fractured, coated with iron, hard					3" casing depth 37 ft coring time: 8'29", 10'22", 9'31", 1'23", 4'32" Barrel moved fast from 40' to 40.7'
45				R-2	90	70		LIMESTONE: Light gray to dark gray, fine grained, slightly weathered, fractures dip in near horizontal to 45 degrees, moderately fractured, coated with silt and iron, hard					Coring time: 9'26", 8'40", 5'3", 9'29", 11'33" Barrel moved fast from 44.3' to 44.7'
50				R-3	95	92		LIMESTONE: Light gray to dark gray, fine grained, slightly weathered, fractures dip in near horizontal to 45 degrees, moderately fractured, hard					Coring time: 8'31", 7'5", 9'11", 8'25", 7'39"
55								END OF HOLE AT 52 FT					Hole grouted with 100lb cement
60													
65													

Project: Keystone cement plant **Project Location: Bath, PA** **Project Number: 19684726**	**Log of Boring B-23** Sheet 1 of 2

Date(s) Drilled	5/6/05 - 5/6/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	404.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2620617 East: 512557
Casing Size/Type	3"& 4" Dia. steel	Drill Rig Operator	Carlos Maldonado	Total Depth Drilled (feet) 49.0	Rock Depth (feet) 34.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" & 2 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples Dist.: 7	Undist.: Core (ft): 15

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	1.3	36 28 26 34					(SM) Very dense, black c-f SAND and silt, trace of c-f gravel, slag					
5	S-2	2.0	3 5 16 19					Black medium dense slag					
10	S-3	1.0	9 15 6 7					(ML) Very stiff, gray low plasticity clayey SILT					4" casing depth 10'
15	S-4	1.1	8 13 26 18					(ML) Hard, brown low plasticity clayey SILT, trace c. sand					
20	S-5	1.0	10 15 19 17					(ML) Hard, brown, low plasticity clayey SILT, trace c. sand and f. gravel					
25	S-6	1.5	6 7 8 11					(ML) Stiff, brown, low plasticity clayey SILT, trace of c. sand	40	32	34		
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-23

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30	S-7	1.3	6 13 23 100/3"					(ML) Hard, brown, low plasticity clayey SILT, trace to some c. sand, and c-f gravel					3" casing depth 32'
35				R-1	90	68		LIMESTONE: Light gray, fine grained, slightly to none weathered, moderately fractured, fractures dipin near horizontal to 45 degrees, coated with iron, hard					Coring time: 9'23", 9'11", 8'55", 9'52", 4'30"; Total unit wt. = 174 pcf; Unconfined comp. str. = 36,530 psi Barrel dropped down from 38.5' to 39'
40				R-2	100	88		LIMESTONE: Light gray to dark, fine grained, slightly to none weathered, slightly fractured, fractures dipin near horizontal to 45 degrees, coated with iron, hard					Coring time: 5'50", 5'58", 5'54", 6'56", 6'40"
45				R-3	96	92		LIMESTONE: Light gray to dark, fine grained, slightly to none weathered, slightly fractured, fractures dipin near horizontal to 45 degrees, hard					Coring time: 7'39", 8'45", 7'34", 7'48", 9'10"
50								END OF HOLE AT 49 FT					Upon completion of drilling, hole grouted with one 100 lb. cement bag
55													
60													
65													

Project: Keystone cement plant **Project Location: Bath, PA** **Project Number: 19684726**	**Log of Boring B-24** Sheet 1 of 2

Date(s) Drilled	5/2/05 - 5/3/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	404.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2620539 East: 512626
Casing Size/Type	3"& 4" Dia. steel	Drill Rig Operator	Carlos Maldonado	Total Depth Drilled (feet) 35.0	Rock Depth (feet) 25.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" & 2 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples	Dist.: 4 Undist.: Core (ft): 15

Depth, feet	Soil Samples Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	1.0	22 56 44 41					(SP) Very dense, black c-f SAND, trace to some c-f gravel, trace silt					
5	S-2	1.3	35 34 24 52					(SP) Very dense, black c-f SAND, and f. gravel, trace of silt.					
10	S-3	0.7	8 7 5 9					(ML) Stiff, brown low plasticity clayey SILT and c-f sand, trace f. gravel.					4" casing depth 10'
													3" casing depth 17'
15	S-4	0.3	7 100/3"					(ML) Hard, brown low plasticity clayey silt, trace m-f sand					A rock piece in the tip
													Total coring time 13'
								LIMESTONE: Light grey, fine grained, slightly weathered, coated with silt					Barrel dropped from 18' to 21'. Possible soft materials (soil)
20				R-1	10	0		soil					
25				R-2	70	51		LIMESTONE: Light grey, fine grained, slightly weathered, slightly to moderately fractured, fractures dip in near horizontal to 45 degrees, coated with silt and iron, hard					Total coring time 45 mins
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-24

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30				R-3	100	80		Same as above.					Total coring time 50 mins
35								END OF BORING AT 35 FT					Upon completion of drilling, hole grouted with one 100 lb. cement bag
40													
45													
50													
55													
60													
65													

Project: Keystone cement plant **Project Location: Bath, PA** **Project Number: 19684726**	**Log of Boring B-25** Sheet 1 of 2

Date(s) Drilled	5/2/05 - 5/3/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	404.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2620587 East: 512613
Casing Size/Type	4" Dia. steel	Drill Rig Operator	Freddy Navaro	Total Depth Drilled (feet) 42.0	Rock Depth (feet) 21.0
Drill Rig Type	B-56	Drill Bit Size/Type	2 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples Dist.: 5	Undist.: Core (ft): 15

Depth, feet	Soil Samples Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	1.0	10 29 47 29					(SM) Dark, very dense, c-f SAND, some silt, trace of f. gravel					
													Rig chattering from 3' to 5'
5	S-2	0.7	3 4 8 14					(ML) Dark, Stiff, low plasticity clayey SILT, trace of c-f sand, trace of f. gravel					Color changes from dark to brown
10	S-3	0.5	7 5 6 6					(ML) Brown, Stiff, low plasticity clayey SILT, trace of c-f sand					4" diameter casing depth 10'
15	S-4	0.6	5 7 15 17					(ML) Brown, Very stiff, low clayey plasticity SILT, trace of c-f sand					
20													3" diameter casing 21'
								LIMESTONE: fine grained, slightly weathered, coated with iron, hard					Coring time: 21'
				R-1	30	30							Barrel dropped down from 22.5' to 26'
25	S-5	0.0	12 11 10 9					No recovery					
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-25

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30	S-6	0.6	8 16 14 12					(ML) Very stiff, brown, low plasticity clayey SILT, some c-f sand, trace f. gravel and decomposed rock			38	81	
35				R-2	91	87		LIMESTONE: light grey, fine grained, slightly to fresh weathered, slightly fractured, fractures dip in nearly horizontal to 20 degrees, coated with silt and iron, hard					Coring time: 11'40", 9'25", 10'30", 6'20", 7'
40				R-3	95	93		same as above					Coring time: 9'30", 6'40", 6'10", 7'40", 7'50"
45								END OF HOLE AT 42 FT					Upon completion of drilling, hole grouted with one 100lb ceme bag
50													
55													
60													
65													

Project: Keystone cement plant **Project Location: Bath, PA** **Project Number: 19684726**	**Log of Boring B-26** Sheet 1 of 2

Date(s) Drilled	5/5/05 - 5/5/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	404.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2620684 East: 512587
Casing Size/Type	4" & 3" Dia. steel	Drill Rig Operator	Carlos Maldonado	Total Depth Drilled (feet) 55.0	Rock Depth (feet) 45.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" & 2 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples Dist.: 9 Undist.: Core (ft): 10	

Depth, feet	Soil Samples Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	1.2	38 37 58 49					(SM) Very dense, black c-f SAND, trace c-f gravel, some silt, coals					
5	S-2	0.4	7 5 6 7					(GP) Medium dense, f. GRAVEL, trace to some c. sand					
10	S-3	0.7	20 30 22 24					(GC) Very dense, brown c-f sandy GRAVEL, some silty clay			11	15	Rig chattering from 12' to 15'
15	S-4	0.4	30 100/6"					same as above					4" coring depth 15' Rig chattering from 17' to 20'
20	S-5	0.5	33 24 27 27					(SM) Very dense, brown c-f SAND and silt, trace of f. gravel					
25	S-6	0.8	20 19 25 45					(SM) Dense, brown c-f SAND, and brown silt, trace of f. gravel					
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-26

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30	S-7	1.5	5 6 13 14					(ML) Very stiff, brown, low plasticity clayey SILT					
35	S-8	1.2	8 12 14 17					Same as above.					
40	S-9	2.0	7 9 9 33					Same as above.					
45				R-1	91	60		LIMESTONE: light gray to black, fine grained, slightly weathered, moderately fractured, fractures dip in near horizontal, coated with silt, hard					2" coring depth 45' Coring time: 12', 13', 9.5', 7.5', 8' Barrel dropped down from 47' to 47.5'
50				R-2	93	38		LIMESTONE: Black, fine grained, slightly weathered, moderately fractured, fractures dip in near horizontal to 45 degrees, coated with silt and iron, hard					Coring time: 5', 7', 11.5', 5', 5'
55								END OF HOLE AT 55 FT					Upon completion of drilling, hole grouted with half 100 lb cement
60													
65													

Project: Keystone cement plant **Project Location: Bath, PA** **Project Number: 19684726**	**Log of Boring B-27** Sheet 1 of 3

Date(s) Drilled	5/3/05 - 5/4/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	404.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2620607 East: 512685
Casing Size/Type	4" & 3" Dia. steel	Drill Rig Operator	Carlos Maldonado	Total Depth Drilled (feet) 67.0	Rock Depth (feet) 57.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" & 2 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples Dist.: 9	Undist.: Core (ft): 20

Depth, feet	Soil Samples Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	1.3	45 65 55 51					(SP- GP) Very dense, black c-f SAND, and c-f gravel, trace of silt					
5	S-2	0.6	5 3 4 4					black slag, (coal)					
10	S-3	0.5	31 30 100/3"					(GP) c-f GRAVEL, trace of c-f sand, trace silt					
15				R-1	20	0		QUARTZ & LIMESTONE: white and brownish gray, slightly broken, coated with iron					Total coring time 7' 10"
20	S-4	1.5	9 7 10 18					(ML) Very stiff, brown, low plasticity clayey SILT					4" casing depth 20'
25	S-5	1.8	7 9 10 12					(ML) Very stiff, brown low plasticity clayey SILT, trace c. sand					
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-27

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30	S-6	1.3	16 12 11 10					(ML) Very stiff, brown low plasticity clayey SILT, trace c. sand and f. gravel.					
35	S-7	1.2	9 14 20 19					(ML) Hard, brown low plasticity clayey SILT, trace c. sand and f. gravel.					
40	S-8	1.5	9 8 9 13					(ML) Very stiff, brown low plasticity clayey SILT, trace c. sand and f. gravel.					
45	S-9	0.5	WOR					(GP) c-f GRAVEL and medium plasticity silt					Driller may overexcavate. 3" casing depth 45'
50				R-2	5	0		LIMESTONE: Light gray, fine grained, slightly weathered. (3" piece)					Total coring time 9' Barrel dropped down from 48.5' to 51'
55								Brown clayey SILT					Barrel dropped down from 52' to 53'
60				R-3	50	32		LIMESTONE: Light gray, fine grained, slightly weathered, moderately fractured, fractures dip in nearly horizontal to 45 degrees, coated with iron & silt, hard					Coring time 5', 4', 3', 15', 6'
65				R-4	58	40		LIMESTONE: Light gray, fine grained, slightly weathered, moderately fractured, fractures dip in nearly horizontal to 45 degrees					

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-27

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
65													
								END OF HOLE AT 67 FT					Upon completion of drilling, hole grouted with 100lb cement bag
70													
75													
80													
85													
90													
95													
100													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-28

Date(s) Drilled	5/3/05 - 5/4/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	404.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2620703 East: 512659
Casing Size/Type	4" & 3" Dia. steel	Drill Rig Operator	Freddy Navaro	Total Depth Drilled (feet) 57.0	Rock Depth (feet) 52.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" & 2 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples Dist.: 11	Undist.: Core (ft): 5

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	0.5	6 9 8 10					(SP) Medium dense, black c-f SAND, trace f. gravel, slag					
5	S-2	1.0	6 5 5 12					(SP) Medium dense, brown c-f SAND, trace f. gravel, slag					
10	S-3	0.2	6 5 5 12					(GP) Dense c-f GRAVEL, trace c-f sand and silt					Rig chattering from 12' to 15'
15	S-4	1.0	55 50 60 42					same as above					
20	S-5	0.6	13 23 44 25					(GP) Very dense, brown low plasticity SILT and c-f gravel, trace c-f sand					4" casing depth 20'
25	S-6	0.8	15 11 20 25					(SM) Dense, brown c-f SAND, some silt, trace c-f gravel					
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-28

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30	S-7	0.7	14 13 16 16					(GP) Medium dense, c-f GRAVEL, trace c-f sand, trace silt					
35	S-8	1.0	11 12 11 12					(ML) Very stiff, brown low plasticity clayey SILT, and c. sand and f. gravel					
40	S-9	1.0	95 21 12 13					(ML) Hard, brown low plasticity clayey silt & c-f sand, trace f. gravel					
45	S-10	1.0	7 10 10 15					(SM) Medium dense, brown c-f SAND, some low plasticity silt, trace c-f gravel					
50	S-11	0.5	10 20 60 25					(SM) Very dense, brown c-f SAND, trace f. gravel, some silt					3" casing depth
55				R-1	11	8		LIMESTONE: Brown, fine grained, coated with silt, hard					Coring time: 4'52", 26", 17", 1'30", 2'02" Altering layers of rock and soil
60								END OF HOLE AT 57 FT					Coring time: 2'30", 5'20", 7'20" Barrel broken in the middle of coring second run. Hole abandoned and new boring (B-28a) located 5 ft away Hole grouted with 100lb cement
65													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-28a

Date(s) Drilled	5/5/05 - 5/5/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	404.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: East:
Casing Size/Type	3" Dia. steel	Drill Rig Operator	Freddy Navaro	Total Depth Drilled (feet) 86.0	Rock Depth (feet) 62.0
Drill Rig Type	B-56	Drill Bit Size/Type	2 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples Dist.: 3 Undist.: Core (ft): 10	

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0													Boring drilled down to depth of 55 ft without sampling
5													
10													
15													
20													
25													
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-28a

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30													
35													
40													
45													
50													
55	S-1	1.2	11 7 12 11					(ML) Very stiff, brown, low plasticity clayey SILT, trace of c. sand					
60	S-2	0.0	9 100					No Recovery					
				R-1	28	28		LIMESTONE: light gray, fine grained, slightly to none weathered, no coating on fractures, hard					Casing depth 62 ft Bedrock
65													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-28a

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
65													Coring time: 21'45", 5'19", 31" for 3ft Barrel dropped down from 63.5 to 67
	S-3	0.6	4 32 62 53					(MH) Hard, brown medium plasticity clayey SILT					
70													
75								same					Coring time: 8'17" for 2ft, 1'29" for 3 ft
80													
				R-2	20	0		LIMESTONE: Light gray, highly fractured, decomposed to slightly weathered, coated with iron and silt, decomposed to hard					
85													
								END OF HOLE AT 86 FT					Upon completion of drilling, hole grouted with one 100lb cement bag
90													
95													
100													

Project: Keystone cement plant **Project Location: Bath, PA** **Project Number: 19684726**	**Log of Boring B-29** Sheet 1 of 2

Date(s) Drilled	5/16/05 - 5/16/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	411.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2620113 East: 512830
Casing Size/Type	4" & 3" Dia. steel	Drill Rig Operator	Carlos Maldonado	Total Depth Drilled (feet) 59.0	Rock Depth (feet) 42.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" & 2 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples Dist.: 10 Undist.:	Core (ft): 15

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	0.7	48 50 57 51					(GP) Very dense, black c-f GRAVEL and c-f sand, trace silt					
5	S-2	0.6	2 2 3 4					(ML) Medium stiff, gray, low plasticity clayey SILT, trace c sand					
10	S-3	0.8	7 19 43 35					(GP) Very dense, brown, low plasticity SILT, c-f gravel, trace c-f sand					4" casing depth 10'
15	S-4	1.5	8 10 12 14					(ML) Very stiff, brown, low plasticity clayey SILT, trace c sand					
20	S-5	1.1	6 12 16 14					(ML) Very stiff, brown,, low plasticity clayey SILT, some c. sand and f. gravel					
25	S-6	1.7	7 7 12 11					(ML) Very stiff, brown, low plasticity clayey SILT, trace m-c sand					
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-29

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30	S-7	1.4	13 13 18 20					(ML) Hard, brown, low plasticity clayey SILT					
35	S-8	0.8	13 11 7 4					(ML) Medium dense, brown c-f SAND and SILT, trace of f. gravel					
40	S-9	0.4	100/5"					(MH) Brown, medium plasticity clayey SILT, some m-f sand					
				R-1	93	75		LIMESTONE: Light gray, fine grained, fresh to slightly weathered, slightly to moderately fractured, fractures dip in near horizontal to 20 degrees, coated with iron in fractures, hard					Spoon on bedrock. 3" casing depth 42' Coring time: 9'24", 10'1", 8'43", 7'26", 6'57"
45													
				R-2	30	25		LIMESTONE: Light gray, fine grained, fresh to slightly weathered, slightly to moderately fractured, fractures dip in near horizontal to 45 degrees, coated with iron in fractures, hard					Coring time: 8'5", 4", <2', for 3 ft Barrel moved fast from 48.5' to 52', possibly 50:1
50													
	S-10	1.5	WOR WOR WOR WOR					(MH) Very loose, brown clayey SILT, some m-f sand					
55				R-3	87	60		LIMESTONE: Light gray, fine grained, slightly weathered, moderately fractured, fractures dip in near horizontal to 30 degrees, coated with iron in fractures, hard					Coring time 5'19", 7'13", 7'56", 5'52", 6'58"; Total unit wt. = 167 pcf; Unconfined comp. str. = 27,560 psi
60								END OF HOLE AT 59 FT					Upon completion of drilling, hole grouted with 100lb cement bag
65													

Project: Keystone cement plant **Project Location: Bath, PA** **Project Number: 19684726**	**Log of Boring B-30** Sheet 1 of 3

Date(s) Drilled	5/16/05 - 5/18/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	439.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2619594 East: 512642
Casing Size/Type	4" & 3" Dia. steel	Drill Rig Operator	Carlos Maldonado	Total Depth Drilled (feet) 94.0	Rock Depth (feet) 79.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" & 2 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples Dist.: 16 Undist.:	Core (ft): 15

Depth, feet	Soil Samples Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	1.0	49 78 82 89					(GP) Very dense, gray, f. GRAVEL, some silt, trace c-f sand					
5	S-2	0.7	9 7 12 14					(GP) Medium dense, gray to brown, c-f GRAVEL, trace c-f sand, trace of silt					
10	S-3	0.3	4 9 10 10					(GP) Medium dense, brown, c-f GRAVEL, some c-f sand and silt					
15	S-4	0.4	21 9 8 75					(GP) Medium dense, brown, c-f GRAVEL, some m-c sand, trace of silt					
20	S-5	0.0	4 5 8 11					No recovery					4" casing depth 20'
25	S-6	1.4	11 15 21 29					(ML) Hard, brown, low plasticity, clayey SILT, some m-c sand					
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-30

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30	S-7	1.4	11 14 21 30					(ML) Hard, brown,, low plasticity clayey SILT, some c. sand and f. gravel					
35	S-8	1.1	10 25 10 20					(ML) Hard, brown, low plasticity clayey SILT, trace of c. sand and f. gravel					
40	S-9	1.3	10 14 15 19					(ML) Very stiff, brown, low plasticity clayey SILT					
45	S-10	1.3	11 17 25 29					(ML) Hard, brown, low plasticity clayey SILT, some m-f sand					
50	S-11	1.2	16 15 15 29					(SM) Medium dense, brown, c-f SAND, some silt, trace c-f gravel					
55	S-12	1.3	16 19 16 21					(SM) Dense, brown. c-f SAND, some silt, trace c-f gravel					
60	S-13	1.7	12 14 16 22					(ML) Hard, brown, low plasticity clayey SILT, trace c. sand					
65													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-30

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
65	S-14	1.3	27 39 40 55					(SM) Very dense, brown, c-f SAND and SILT, trace of f. gravel					
70	S-15	1.1	22 28 47 42					(SM) same as above					
75	S-16	1.3	29 28 35 39					(ML) Hard, brown, low plasticity clayey SILT, trace of c. sand and f. gravel					
80				R-1	66	37		LIMESTONE: Light gray, fine grained, moderately fractured, slightly to moderately weathered, fractures, dip in near horizontal to 45 degrees, one of the pieces eroded, coated with silt and iron, hard					3" casing depth 79' Coring time: 5'24", 5'21", 4'44", 2'25", 5'10"
85				R-2	55	40		same as above					Coring time: 7'23", 5'16", 39", 6'32", 6' Water supply is not enough, coring bit lost entire teeth (5/17/05), work progress is slow
90				R-3	48	13		LIMESTONE & SILTSTONE: Light gray to brown, fine grained, fresh to moderately weathered, moderately fractured, one piece got erosion, fractures dip in near horizontal to 45 degrees, coated with silt, hard (several limestone pieces include partings of siltstone)					
95								END OF HOLE AT 94 FT					Upon completion of drilling, hole grouted with 100lb cement
100													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-31

Date(s) Drilled	5/18/05 - 5/20/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	440.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2619465 East: 512588
Casing Size/Type	4" & 3" Dia. steel	Drill Rig Operator	Carlos Maldonado	Total Depth Drilled (feet) 87.0	Rock Depth (feet) 72.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" & 2 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples Dist.: 13 Undist.: Core (ft): 20	

Depth, feet	Soil Samples Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	0.3	100/1"					(GP) Very dense, gray, c-f GRAVEL with gray c-f sand, trace of silt					Work is slow, delay time is about 1 hr. 30 mins over two days
5	S-2	0.7	6 6 9 11					(ML) Stiff, brown, low plasticity clayey SILT, trace c. sand and f. gravel					
10	S-3	0.2	4 5 6 3					(GP) Medium dense, c-f GRAVEL, some c-f sand, trace silt					Rig chattering from 12' to 15'
15	S-4	0.4	5 5 6 11					(ML) Medium dense, brown, low plasticity clayey SILT, some f. gravel and c-m sand					Rig chattering from 17' to 20'
20	S-5	0.1	9 6 34 100/3"					(GP) Dense, brown, c-f GRAVEL, trace of clayey silt, trace of sand					4" steel casing 20' spoon on boulder
25				R-1	15	15		Granite (Boulder or large cobble)					Coring time 5'17", 37", <2" for 3 ft Barrel moved fast from 23' to 27', the material is soil
30	S-6	1.4	9 16 18 22					(SC) Dense, brown, low plasticity silty clayey c-f SAND, some f. gravel			17	49	

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-31

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30													
35	S-7	1.0	14 13 16 26					same as above					
40	S-8	1.1	7 11 19 20					(ML) Very stiff, low plasticity clayey SILT, trace c. sand					
45	S-9	1.5	7 10 15 17					(ML) Very stiff, brown, low plasticity clayey SILT, trace c. sand and gravel					
50	S-10	1.7	10 10 16 19					(ML) Very stiff, brown, low plasticity clayey SILT, trace c. sand and f. gravel					
55	S-11	0.3	WOR WOR WOR WOR					(MH) Very soft, brown, medium plasticity, clayey SILT, trace of c. sand					
60	S-12	0.8	3 3 5 8					(ML) Medium stiff, brown, medium plasticity, clayey SILT, trace of c. sand and f. gravel					
65													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-31

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
65	S-13	0.6	4 6 8 9					same as above					
70													Bedrock at 70'
				R-2	30	13		LIMESTONE: Light gray, fine grained, slightly weathered, moderately fractured, fractures dip in near horizontal to 45 degrees, coated with silt, hard sound rock					3" casing depth 72'
75													
				R-3	100	70		LIMESTONE: Light gray with white variations, fine grained, fresh to slightly weathered, slightly to moderately fractured, fractures dip in near horizontal to 20 degrees, no coating					Total coring time 35'
80													
				R-4	95	10		LIMESTONE: Light gray with white variations, fine grained, fresh to slightly weathered, highly fractured, fractures dip in near horizontal, no coating					
85													
								END OF HOLE AT 87 FT					Upon completion of drilling, hole grouted with 100lb cement
90													
95													
100													

Project: Keystone cement plant **Project Location: Bath, PA** **Project Number: 19684726**	**Log of Boring B-32** Sheet 1 of 3

Date(s) Drilled	6/6/05 - 6/7/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	445.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2619139 East: 512553
Casing Size/Type	4" & 3" Dia. steel	Drill Rig Operator	Carlos Maldonado	Total Depth Drilled (feet) 97.0	Rock Depth (feet)
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" & 2 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples Dist.: 20 Undist.:	Core (ft): 0

Depth, feet	Soil Samples Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	1.5	12 44 21 19					(GP) Very dense, gray, c-f GRAVEL and c-f sand. trace silt.					
5	S-2	0.4	3 4 5 7					(GP) Loose, grayish brown, c-f GRAVEL. some c-f sand, trace silt.					
10	S-3	0.4	7 9 9 8					(GP) Medium dense, grayish brown, c-f GRAVEL. trace c-f sand.					
15	S-4	1.1	7 5 9 16					(ML) Stiff, brown, Low plasticity clayey silt, trace c-f sand & f. gravel.					
20	S-5	1.0	11 14 14 15					(SM) Medium dense, brown c-f SAND, some silt.					4" casing depth 20'
25	S-6	0.8	23 23 21 18					(SP) Dense, brown c-f SAND, some c-f gravel, trace silt.					
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-32

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30	S-7	0.9	13 15 17 16					Same as above.					
35	S-8	0.3	17 19 22 26					Same as above.					
40	S-9	0.5	21 25 20 28					Same as above.					
45	S-10	0.7	9 14 20 21					(SM) Dense, brown c-f SAND, some silt, trace f. gravel.					
50	S-11	0.6	12 18 22 27					Same as above.					
55	S-12	0.7	16 19 23 23					Same as above.					
60	S-13	1.0	16 18 20 20					Same as above.					
65													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-32

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
65	S-14	0.9	13 16 15 15					(SM) Dense, brown c-f SAND and clayey silt, trace f. gravel.					
70	S-15	1.1	9 14 22 18					(SM) Dense, brown c-f SAND and clayey silt, trace c-f gravel.					
75	S-16	0.8	11 15 17 12					(SM) Dense, brown c-f SAND, some clayey silt, trace c-f gravel.					
80	S-17	1.0	11 10 16 15					(SM) Medium dense, brown c-f SAND, some silt, trace f. gravel.					
85	S-18	1.2	7 4 5 4					(SP-SM) Loose, brown c-f SAND, trace silt, trace f. gravel.					
90	S-19	0.2	WOR WOR WOR WOR					(ML) Very soft, brown low plasticity clayey SILT.	37	30	36		A rock fragment in the tip of spoon
95	S-20	1.0	100					(GP) Very dense, brown c-f GRAVEL and c-f sand.					3" casing depth 95'
								END OF HOLE AT 97 FT					
100													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-33

Date(s) Drilled	5/23/05 - 5/23/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	436.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2619211 East: 512347
Casing Size/Type	4" Dia. steel	Drill Rig Operator	Carlos Maldonado	Total Depth Drilled (feet) 33.0	Rock Depth (feet) 18.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples Dist.: 4	Undist.: Core (ft): 15

Depth, feet	Soil Samples Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	0.3	100/4"					(GP) Very dense, c- f. GRAVEL and c-f sand, trace silt					
5	S-2	0.4	25 100/1"					(SP) Very dense, black c-f SAND, trace silt					
10	S-3	0.8	8 10 13 15					(ML) Very stiff, brown, low plasticity clayey SILT, trace c. sand					
15	S-4	0.5	5 7 20 16					same as above					
20				R-1	46	27		LIMESTONE: Light gray, fine grained, fresh to slightly weathered, moderately fractured, fractures, dip in near horizontal, coated with silt and iron, hard					Total coring time 57'
25				R-2	60	0		LIMESTONE: Light gray with white variations, fine grained, frsh to slightly weathered, highly fractured, fractures dip in near horizontal to 45 degrees, coated with silt, hard					Coring time 8', 3', 3', 4', 6'
30								LIMESTONE: Light gray, fine grained, fresh to slightly weathered, slightly to moderately fractured, fractures dip in near 45 degrees, coated with silt, hard					Coring time: 9', 13', 12', 15', 12'

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-33

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30				R-3	90	68							
								END OF HOLE AT 33 FT					Upon completion of drilling, hole grouted with 100lb cement
35													
40													
45													
50													
55													
60													
65													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-34

Date(s) Drilled	6/3/05 - 6/6/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	443.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2618463 East: 512220
Casing Size/Type	4" & 3" Dia. steel	Drill Rig Operator	Carlos Maldonado	Total Depth Drilled (feet) 83.0	Rock Depth (feet) 65.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" & 2 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples	Dist.: 13 Undist.: Core (ft): 15

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	1.0	19 32 49 36					(GP) Very dense, brown to gray, c- f. GRAVEL, some c-f sand, trace silt					
5	S-2	0.5	14 18 13 19					(SM) Dense, brown, c-f SAND, some silt, some c-f gravel					
10	S-3	1.2	7 8 11 17					(ML) Very stiff, brown, low plasticity clayey SILT, trace c-f sand, trace f. gravel					
15	S-4	1.1	10 14 18 27					(SC) Dense, brown, clayey c-f SAND, some f gravel			22	44	
20	S-5	1.0	9 11 14 11					(ML) Stiff, brown, low plasticity clayey SILT, some c-f sand					4" casing depth 20'
25	S-6	0.8	10 14 15 15					(ML) Very stiff, brown, low plasticity clayey SILT, some c-f sand, trace c-f gravel					
30													Rig chattering from 27 to 28'

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-34

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30	S-7	1.5	11 25 26 27					(SM) Very dense, brown, c-f SAND, some silt					
35	S-8	1.0	6 10 15 17					(ML) Very stiff, brown, low plasticity clayey SILT, some c-f sand					
40	S-9	0.8	10 12 18 17					(ML) Very stiff, brown, low plasticity clayey SILT					
45	S-10	1.5	9 10 15 16					(ML) Same as above					
50	S-11	1.5	8 12 13 10					(ML) Same as above					
55	S-12	0.9	6 10 100/3"					(SM) Very dense, brown, c-f SAND, some silt, trace f. gravel					Rock fragments at the tip, water disappearing
60	S-13	1.0	WOR WOR WOR WOR					(MH) Very soft, grayish brown, medium plasticity, clayey SILT					Rig chattering from 62' to 65'
65													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-34

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
65				R-1	30	15		LIMESTONE: Light gray, fine grained, fresh to moderately weathered, moderately fractured, fractures dip in near horizontal to 30 degrees, coated with silt in the fractures, hard.					3" casing depth 65' Coring time: 6', 3' for 2ft, 2', 2'
70								(ML) Brown clayey SILT.					
75				R-2	95	87		LIMESTONE: Light gray, fine grained, fresh to moderately weathered, slightly fractured, fractures dip in near horizontal to 45 degrees, no coating, hard.					Coring time: 9', 8', 9', 7', 8'
80				R-3	58	40		LIMESTONE: Light gray, fine grained, fresh to moderately weathered, moderately fractured, fractures dip in near horizontal to 30 degrees, no coating, hard.					Coring time: 3', 1', 4', 3', 5'
85								END OF HOLE AT 83 FT					Upon completion of drilling, hole grouted with 100 lb cement.
90													
95													
100													

Project: Keystone cement plant **Project Location: Bath, PA** **Project Number: 19684726**	**Log of Boring B-35** Sheet 1 of 3

Date(s) Drilled	6/2/05 - 6/3/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	448.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2618405 East: 512023
Casing Size/Type	4" & 3" Dia. steel	Drill Rig Operator	Carlos Maldonado	Total Depth Drilled (feet) 73.0	Rock Depth (feet) 59.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" & 2 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples Dist.: 12 Undist.:	Core (ft): 14

Depth, feet	Soil Samples Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	1.5	15 51 100/3"					(GP) Very dense, dark gray, c- f. GRAVEL and fragments of coal, trace c-f sand, trace silt					
5	S-2	0.7	11 12 14 16					(SM) Medium dense, brown c-f SAND, some silt, trace c-f gravel					
10	S-3	1.0	6 9 12 11					same as above					
15	S-4	1.4	5 6 9 11					(ML) Stiff, brown, low plasticity clayey SILT, trace c-f sand					
20	S-5	1.3	7 8 11 14					(ML) Very stiff, brown, low plasticity clayey SILT					4" casing depth 20 ft
25	S-6	1.3	5 7 11 13					same as above					
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-35

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30	S-7	1.4	5 7 12 11					(ML) Stiff, brown, low plasticity clayey SILT, trace c. sand and f. gravel					
35	S-8	1.3	5 10 22 17					(ML) Hard, brown, low plasticity clayey SILT, some c-f sand, trace of c-f gravel					
40	S-9	1.3	4 3 4 5					(ML) Stiff, brown, low plasticity clayey SILT, trace of c. sand and f. gravel					
45	S-10	1.3	4 3 4 5					(ML) Medium stiff, brown, low plasticity clayey SILT, trace c-f sand, trace c-f gravel					
50	S-11	0.5	3 4 4 5					(ML) Medium stiff, brown, low plasticity clayey SILT, come c-f sand					
55	S-12	0.8	4 4 2 1					(SM) Loose, gray to brown c-f SAND, some clayey silt, trace f. gravel					
60				R-1	95	70		LIMESTONE: Light gray, fine grained, fresh to slightly weathered, slightly fractured, fractures dip in near horizontal, no coating on fracture, hard					3" casing depth 59 ft
65								LIMESTONE: Light gray, fine grained, fresh to slightly					Coring time: 9', 12', 9',

Project: Keystone cement plant
Project Location: Bath, PA
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Log of Boring B-35

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
65				R-2	100	93		weathered, slightly fractured, fractures dip in near horizontal to 45 degrees, no coating on fracture, hard					6', 5'
70				R-3	96	87		LIMESTONE: Light gray, fine grained, fresh to slightly weathered, slightly fractured, fractures dip in near horizontal to 45 degrees, no coating on fracture, hard					Total coring time 1hr 2 min for 4 ft. Barrel blocked up after 4 ft coring
								END OF HOLE AT 73 FT					After completion of drilling hole grouted with 100 lb cement
75													
80													
85													
90													
95													
100													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-36

Date(s) Drilled	6/1/05 - 6/2/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	455.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2617852 East: 511792
Casing Size/Type	4" & 3" Dia. steel	Drill Rig Operator	Carlos Maldonado	Total Depth Drilled (feet) 90.0	Rock Depth (feet) 75.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" & 4 7/8 tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples Dist.: 15 Undist.:	Core (ft): 15

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	0.4	13 33 100/3"					(GP) Very dense, black, c-f GRAVEL, some c-f sand, trace silt					Spoon on a stone
5	S-2	1.2	6 9 14 17					(ML) Very stiff, brown, low plasticity, clayey SILT, trace c. sand, and f. gravel					
10	S-3	1.9	8 11 17 19					(SM) Medium dense, brown, c-f SAND, and low plasticity silt, trace f. gravel					Rig chattering from 12' to 15'
15	S-4	1.3	14 14 12 18					(SM) same as above					
20	S-5	1.0	19 17 21 24					(SM) Dense, brown, c-f SAND, and low plasticity silt, some c-f gravel					4" casing depth 20 ft
25	S-6	1.0	12 16 26 11					(SM) same as above					
30													Silt in the tip of the spoon

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-36

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30	S-7	0.8	18 21 25 25					(SM) same as above					
35	S-8	1.1	13 16 21 22					(SM) Dense, brown, c-f SAND, and low plasticity silt, some c-f gravel					
40	S-9	1.3	9 11 14 13					(ML) Very stiff, brown, low plasticity clayey SILT					
45	S-10	1.3	7 8 12 13					(ML) same as above					
50	S-11	0.3	6 8 12 14					(MH) Very stiff, brown, medium plasticity clayey SILT, trace c. sand					
55	S-12	1.3	7 7 10 12					(ML) Very stiff, brown, low plasticity clayey SILT, trace c. sand					
60	S-13	1.5	12 13 19 17					(ML) Hard, brown, low plasticity clayey SILT					
65													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-36

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
65	S-14	1.2	WOR 5 11 13					(ML) Very stiff, brown, low plasticity clayey SILT, trace c. sand and f. gravel					
70	S-15	0.2	8 7 10 10					(MH) Very stiff, brown, medium plasticity, clayey SILT					
75				R-1	95	80		LIMESTONE: Light gray, fine grained, fresh to slightly weathered, slightly fractured, fractures dip in near horizontal, no coatings on fractures, hard					3" casing depth 75 ft; Total unit wt. = 169 pcf; Unconfined comp. str. = 27,350 psi
80				R-2	95	58		LIMESTONE: Light gray, fine grained, fresh to slightly weathered, slightly to moderately fractured, fractures dip in near horizontal, no coating on fractures, hard					
85				R-3	100	75		LIMESTONE: Light gray, fine grained, fresh to slightly weathered, slightly to moderately fractured, fractures dip in near horizontal, no coating on fractures, hard					Coring time 11', 13', 13', 10', 8'
90								END OF HOLE AT 90 FT					Upon completion of drilling, hole grouted with 100lb cement
95													
100													

Project: Keystone cement plant **Project Location: Bath, PA** **Project Number: 19684726**	**Log of Boring B-37** Sheet 1 of 3

Date(s) Drilled	5/27/05 - 5/31/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	447.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2617651 East: 511293
Casing Size/Type	4" Dia. steel	Drill Rig Operator	Carlos Maldonado	Total Depth Drilled (feet) 82.0	Rock Depth (feet) 77.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" & 2 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples Dist.: 16 Undist.:	Core (ft): 5

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	0.4	30 100/3"					(SM) Dense, gray, c-f SAND, some silt, trace c-f gravel					Spoon on a stone Rig chattering from 2' to 5'
5	S-2	0.5	9 10 13 7					(GP-GM) Medium dense, gray, c-f sandy GRAVEL, trace silt			10	11	
10	S-3	0.4	9 33 61 19					(GP) Very dense, brown to gray, c-f GRAVEL, and low plasticity silt, trace c. sand					Spoon on stone Rig chattering from 12' to 13'
15	S-4	0.5	12 12 10 27					(GP) Dense, brown, c-f GRAVEL, and low plasticity silt, trace c-f sand					
20	S-5	0.9	23 20 26 31					(SM) Dense, brown, c-f SAND, and low plasticity clayey silt, trace of c-f gravel					
25	S-6	1.4	17 20 32 26					(SM) Very dense, brown, c-f SAND, and low plasticity silt, trace of f. gravel					
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-37

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30	S-7	1.1	26 24 39 29					(SM) same as above					
35	S-8	0.6	35 39 43 38					(GP) Very dense, brown, c-f GRAVEL, and low plasticity silt, trace c-f sand					
40	S-9	0.5	45 40 33 51					(GP) Very dense, brown, c-f GRAVEL, and low plasticity silt, trace of c-f sand					
45	S-10	0.7	34 37 51 40					(GP) Very dense, brown, c-f GRAVEL, and low plasticity silt, some c-f sand					
50	S-11	0.4	35 42 36 31					(SM) Very dense, brown, c-f SAND, and low plasticity silt, some c-f gravel					
55	S-12	0.8	8 9 10 12					(ML) Very stiff, brown, low plasticity clayey SILT					
60	S-13	0.8	10 15 9 6					(ML) same as above					
65													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-37

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
65	S-14	1.7	5 17 31 41					(ML) Hard, brown, low plasticity clayey SILT					
70	S-15	1.0	10 17 31 35					(ML) same as above					
75	S-16	1.2	11 22 100/3"					(ML) same as above					
80				R-1	86	20		LIMESTONE: Light gray, fine grained, fresh to slightly weathered, highly fractured, fractures dip in near horizontal, no coatings on fractures					Coring time 5', 9', 9', 11', 8'
85								END OF HOLE AT 82 FT					Driller lost rock barrel
90													
95													
100													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-38

Date(s) Drilled	5/25/05 - 5/27/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	435.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2617363 East: 510762
Casing Size/Type	4" & 3" Dia. steel	Drill Rig Operator	Carlos Maldonado	Total Depth Drilled (feet) 74.0	Rock Depth (feet) 59.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" & 2 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples	Dist.: 11 Undist.: Core (ft): 20

Depth, feet	Soil Samples Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	0.5	20 100/3"					(GP) Dense, black, c-f GRAVEL, and low plasticity silt, trace of c-m sand, wood fragments, slag					Spoon on a stone
5				R-0	11	7		LIMESTONE: (Boulder)					
10	S-2	0.5	1 3 7 11					(SP) Medium dense, black c-f SAND, trace of gravel, trace silt					
15	S-3	0.2	4 7 10 100/3"					(SM) Medium dense, gray to brown, c-f SAND, some silt, trace f. gravel					
20	S-4	0.4	11 7 7 10					(GP) Medium dense, gray, c-f GRAVEL, some c-f sand, trace f. silt					4" casing depth 20 ft
25	S-5	0.6	12 10 10 12					(GP) Medium dense, gray, c-f GRAVEL, some c-f sand, trace silt					
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-38

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30	S-6	0.1	100/5"					(GP) Dense, gray, c-f GRAVEL, trace c-f sand, trace silt					
35	S-7	0.8	34 14 12 11					(SM) Medium dense, grayish brown, c-f SAND, trace c-f gravel, some silt					
40	S-8	0.8	15 9 10 17					(SM) same as above					
45	S-9	1.7	10 12 17 21					(CL) Very stiff, brown, low plasticity CLAY, trace m-f sand					
50	S-10	1.4	7 14 22 30					(CL) Hard, same as above			33	92	
55	S-11	0.2	11 14 23 12					(CL) same as above					
60				R-1	100	75		LIMESTONE: Light gray, fine grained, fresh to slightly weathered, slightly fractured, fractures dip in near horizontal, no coatings on fractures, hard					3" casing depth 59 ft. Coring time: 3', 4', 4', 5', 6'
65								LIMESTONE: Light gray, fine grained, fresh to slightly					

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-38

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
65				R-2	100	85		weathered, slightly fractured, fractures dip in near horizontal, no coatings on fractures, hard					
70				R-3	100	93		LIMESTONE: Light gray, fine grained, fresh to slightly weathered, slightly fractured, fractures dip in near horizontal, no coatings on fractures, hard					
75								END OF HOLE AT 74 FT					Upon completion of drilling, hole grouted with 100lb cement
80													
85													
90													
95													
100													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-39

Date(s) Drilled	5/25/05 - 5/25/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	445.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2616857 East: 510450
Casing Size/Type	4" Dia. steel	Drill Rig Operator	Carlos Maldonado	Total Depth Drilled (feet) 55.0	Rock Depth (feet) 40.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples Dist.: 7 Undist.:	Core (ft): 20

Depth, feet	Soil Samples Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	0.6	61 100/6"					(SM) Very dense, black, c-f SAND, some silt, trace c-f gravel, fragments of coal					
5	S-2	0.8	11 9 17 17					(SM) Medium dense, brown c-f SAND, some silt, trace f gravel					
10	S-3	1.0	7 14 17 16					(ML) Hard, brown, low plasticity clayey SILT, some c-f sand, trace f. gravel					
15				R-0	23	7		GRANITE (Boulder)					Coring time 5', 1', 1', 4", 2"
20	S-4	1.0	6 16 15 14					(GP) Dense, brown, c-f GRAVEL and low plasticity silt, trace c-f sand					Casing depth 20'
25	S-5	0.8	22 20 30 37					(GP) same as above					Rig chattering from 27' to 30'
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-39

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30	S-6	1.1	15 26 22 42					(GP) same as above					
35	S-7	1.3	5 6 11 100/4"					(ML) Very stiff, brown, low plasticity clayey SILT					
40				R-1	95	17		LIMESTONE: Light gray to black, fine grained, fresh to moderately weathered, moderately to highly fractured, fractures dip in near horizontal, moderately hard to hard rock, no coating					Coring time: 5', 5', 7', 12', 11'
45				R-2	95	0		LIMESTONE: Light gray to black, fine grained, fresh to moderately weathered, highly fractured, fractures dip in near horizontal, moderately hard to hard rock, no coating					Coring time 6',6', 5', 5', 6'
50				R-3	73	0		LIMESTONE: Light gray to black, fine grained, fresh to moderately weathered, highly fractured, fractures dip in near horizontal, moderately hard to hard rock, no coating					Coring time 6', 9', 8', 6', 8'
55								END OF HOLE AT 55 FT					Upon completion of drilling, hole grouted with 100lb cement
60													
65													

Project: Keystone cement plant **Project Location: Bath, PA** **Project Number: 19684726**	**Log of Boring B-40** Sheet 1 of 3

Date(s) Drilled	5/24/05 - 5/24/05	Logged By	J. Hwang	Approximate Surface Elevation (feet)	445.0
Drilling Method	Rotary Mud	Drilling Contractor	CMI	Coordinates	North: 2616644 East: 510272
Casing Size/Type	4" & 3" Dia. steel	Drill Rig Operator	Carlos Maldonado	Total Depth Drilled (feet) 67.0	Rock Depth (feet) 52.0
Drill Rig Type	B-56	Drill Bit Size/Type	3 7/8" & 2 7/8" tricone	Sampler Type(s)	2" O.D. Split Spoon
Groundwater Level and Date Measured		Hammer Wt/Drop 140lb/30" Donut	Casing Hammer Wt/Drop 300lb/30" Donut	Core Barrel Size/Type	NX
Boring Location and Comments				No. of Samples Dist.: 9	Undist.: Core (ft): 15

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
0	S-1	1.0	14 15 18 21					(GP) Dense, black, f. GRAVEL and c-f sand, trace of coals, trace of silt					
5	S-2	0.7	9 9 10 13					(ML) Very stiff, brown, low plasticity clayey SILT, some c. sand, and f. gravel					
10	S-3	1.2	4 10 17 12					(ML) Very stiff, brown, low plasticity clayey SILT, some c. sand, and f. gravel					
15	S-4	1.5	6 6 15 14					(ML) same as above					
20	S-5	1.4	6 11 14 20					(ML) Very stiff, brown, low plasticity clayey SILT					4" casing depth 20 ft
25	S-6	1.1	10 18 24 33					(ML) same as above					
30													

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-40

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS/ OTHER TESTS
30	S-7	0.5	WOR 3 4 3					(ML) Medium stiff, brown, low plasticity clayey SILT, trace of c. sand					Rig chattering from 30' to 35'
35	S-8	0.2	100/3"					(GP) Very dense, brown, f. GRAVEL, some silt, trace c-f sand					Rig chattering from 37' to 40'
40	S-9	0.3	100/1"					(GP) Very dense, light brown, c. SAND and f. gravel, some silt					
45													
50													
55				R-1	76	28		LIMESTONE: Light gray to black, fine grained, moderately to highly fractured, fresh to moderately weathered, fractures dip in near horizontal, coated with iron, moderately hard rock					3" casing depth 52' Coring time: 3', 5', 5', 6', 4'
60				R-2	85	32		LIMESTONE: Dark gray, fine grained, moderately to highly fractured, fresh to moderately weathered, fractures dip in near horizontal, coated with iron, moderately hard rock					Coring time: 4', 4', 4', 4', 6'; Total unit wt. = 162 pcf; Unconfined comp. str. = 8,220 psi
65				R-3	91	27		LIMESTONE: Dark gray, fine grained, moderately to highly fractured, fresh to moderately weathered, fractures dip in near horizontal to 45 degrees, coated with iron, moderately hard rock					Coring time: 5', 6', 7', 5', 8'

Project: Keystone cement plant
Project Location: Bath, PA
Project Number: 19684726

Log of Boring B-40

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	MATERIAL DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS/ OTHER TESTS
65													
								END OF HOLE AT 67 FT					Hole grouted with 100 lb cement
70													
75													
80													
85													
90													
95													
100													

APPENDIX B

LABORATORY TEST RESULTS

Project No.: 19684726 File: Indx1.xls

Keystone Cement Plant

LABORATORY TESTING DATA SUMMARY

BORING NO.	SAMPLE NO.	DEPTH (ft)	IDENTIFICATION TESTS						REMARKS
			WATER CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PLAS. IND.	USCS SYMB. (1)	SIEVE MINUS NO. 200 (%)	
B-1	S-2	5-7	15.2				SC	26.1	
B-2	S-11	60-62	28.0	27	23	4	ML		
B-3	S-6	25-27	21.8				CL	73.4	
B-3A	S-4	15-17	24.0	38	25	13	ML		
B-3A	S-12	70-72	23.3				CL	75.0	
B-4	S-9	40-42	21.0				CL	73.4	
B-5	S-3	10-12	18.5				SC	31.7	
B-5	S-7	30-32	31.2	31	25	6	ML		
B-8	S-3	10-12	15.0				SC	23.4	
B-13	S-2	5-7	22.7				CL	83.5	
B-14	S-2	5-7	25.3	39	22	17	CL		
B-16	S-1	0-2	11.7				SM	39.4	
B-23	S-6	25-27	34.4	40	32	8	ML		
B-25	S-6	30-32	37.5				ML	80.6	
B-26	S-3	10-12	10.9				GC	14.8	
B-31	S-6	27-29	17.3				SC	49.3	
B-32	S-19	90-92	35.5	37	30	7	ML		
B-34	S-4	15-17	21.8				SC	43.7	
B-37	S-2	5-7	9.5				GP-GM	11.4	
B-38	S-10	50-52	32.9				CL	91.7	
B-40	S-7	30-32	30.2	39	30	9	ML		

Note: (1) USCS symbol based on visual observation unless Sieve and Atterberg limits reported.

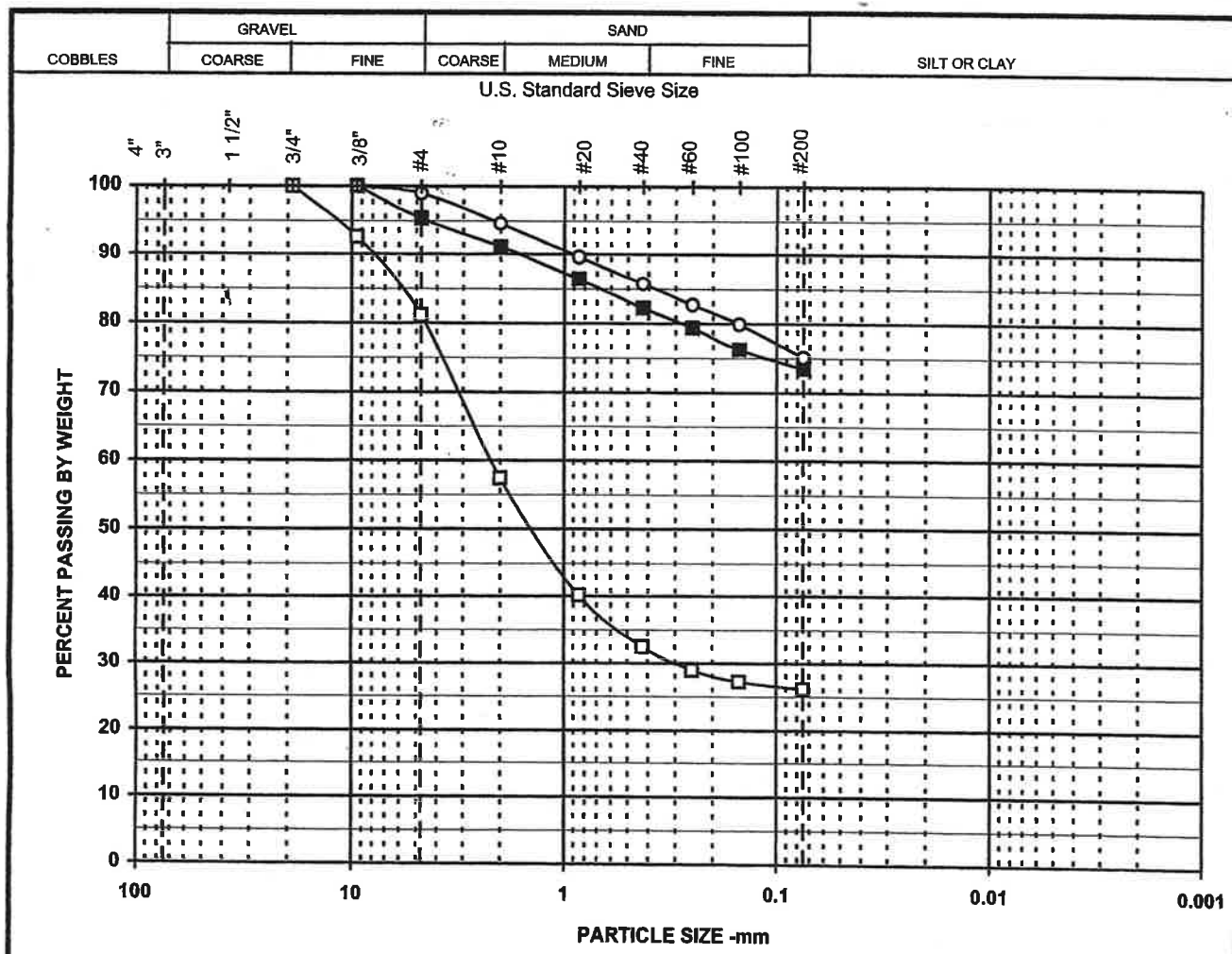
Prepared by: RV Reviewed by: CMJ Date: 6/21/2005

19684726
Keystone Cement Plant

SUMMARY OF ROCK TESTING

BORING NO.	RUN NO.	DEPTH (ft)	WATER CONTENT (%)	TOTAL UNIT WGT. (pcf)	DRY UNIT WGT. (pcf)	UNCONFINED COMPRESSIVE STRENGTH (psi)	AXIAL STRAIN @ FAILURE (%)
B-1	3	73-78	0.05	170	170	26810	1.3
B-5	2	52-57	0.11	169	169	28480	0.6
B-7	2	60-65	0.02	174	174	43650	0.8
B-14	2	21-26	0.00	176	176	42420	0.8
B-23	1	34-39	0.02	174	174	36530	0.7
B-29	3	54-59	0.05	167	167	27560	0.6
B-36	1	75-80	0.10	169	169	27350	0.6
B-40	2	57-62	0.68	162	161	8220	1.1

Prepared by: RV Reviewed by: CMJ Date: 6/29/2005



SYMBOL	DESCRIPTION AND REMARKS
□	brown c-f SAND, some f. gravel, silty clay.
■	brown CLAY, some c-f sand, trace f. gravel.
○	brown silty CLAY, some c-f sand, trace f. gravel.

Symbol	□	■	○
Boring	B-1	B-3	B-3A
Sample	S-2	S-6	S-12
Spec			
Depth	5-7	25-27	70-72
% +3"			
% Gravel	18.9	4.7	1.1
% SAND	55.0	21.9	23.9
% FINES	26.1	73.4	75.0
% -2μ			
Cc			
Cu			
LL			
PL			
PI			
USCS	SC	CL	CL
w (%)	15.2	21.8	23.3

Particle Size	PERCENT FINER		
(Sieve #)	□	■	○
4"			
3"			
1 1/2"			
3/4"	100.0		
3/8"	92.6	100.0	100.0
4	81.1	95.3	98.9
10	57.4	91.1	94.6
20	40.2	86.3	89.6
40	32.4	82.2	85.7
60	29.0	79.4	82.7
100	27.3	76.2	79.9
200	26.1	73.4	75.0

PARTICLE SIZE DISTRIBUTION

Keystone Cement Plant

Project No.		Figure
19684726	June 2005	

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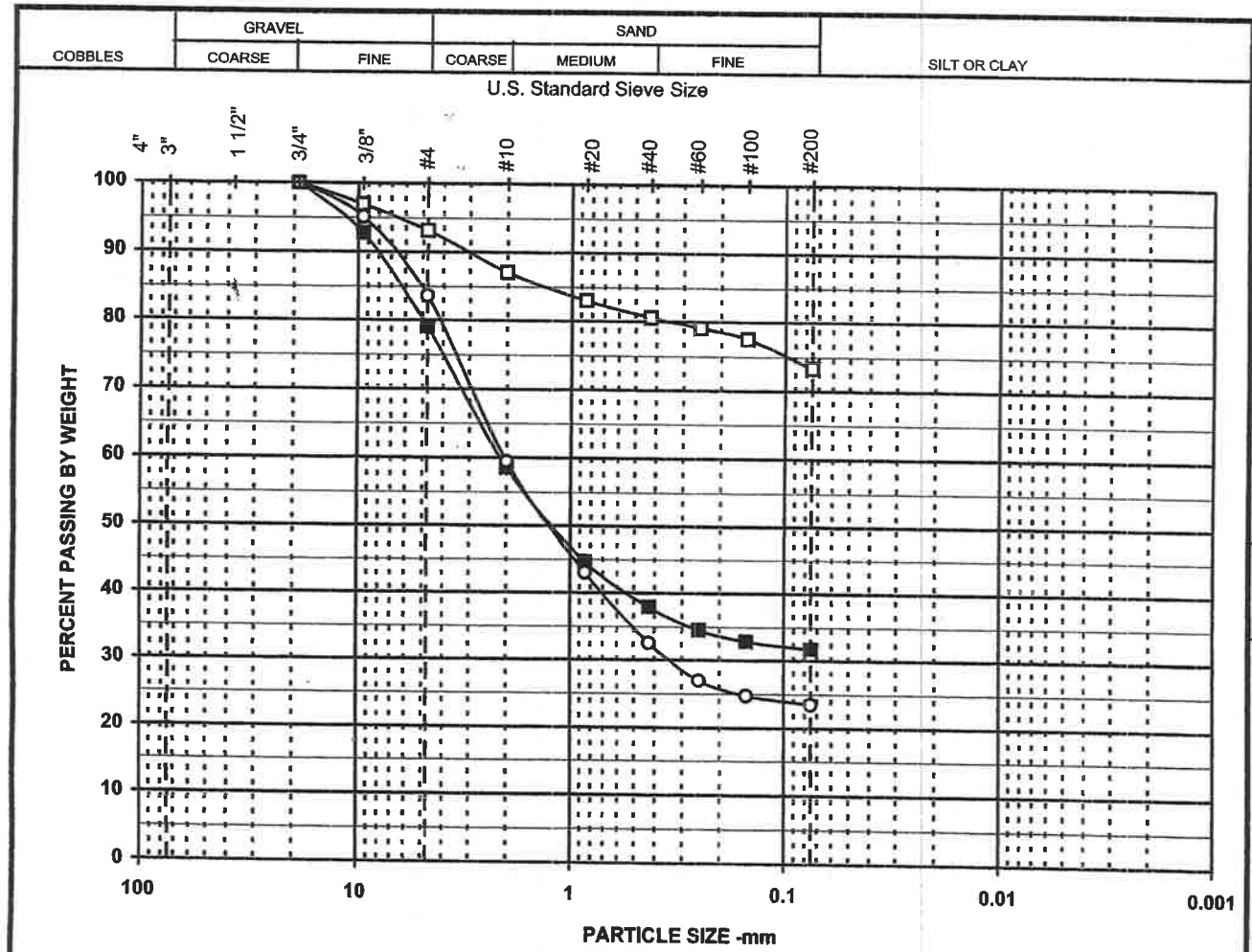
sieve1a.xls 6/21/2005



SYMBOL	DESCRIPTION AND REMARKS
□	light brown CLAY, some c-f sand, trace f. gravel.
■	brown clayey c-f SAND, some f. gravel.
○	light brown c-f SAND, some f. gravel, clay.

Symbol	□	■	○
Boring	B-4	B-5	B-8
Sample	S-9	S-3	S-3
Spec			
Depth	40-42	10-12	10-12
% +3"			
% Gravel	6.8	21.0	16.4
% SAND	19.8	47.3	60.2
% FINES	73.4	31.7	23.4
% -2μ			
Cc			
Cu			
LL			
PL			
PI			
USCS	CL	SC	SC
w (%)	21.0	18.5	15.0

Particle Size	PERCENT FINER		
(Sieve #)	□	■	○
4"			
3"			
1 1/2"			
3/4"	100.0	100.0	100.0
3/8"	96.9	92.7	95.1
4	93.2	79.0	83.6
10	87.0	58.5	59.4
20	83.0	44.6	43.0
40	80.5	37.9	32.6
60	79.1	34.5	27.0
100	77.5	32.8	24.7
200	73.4	31.7	23.4

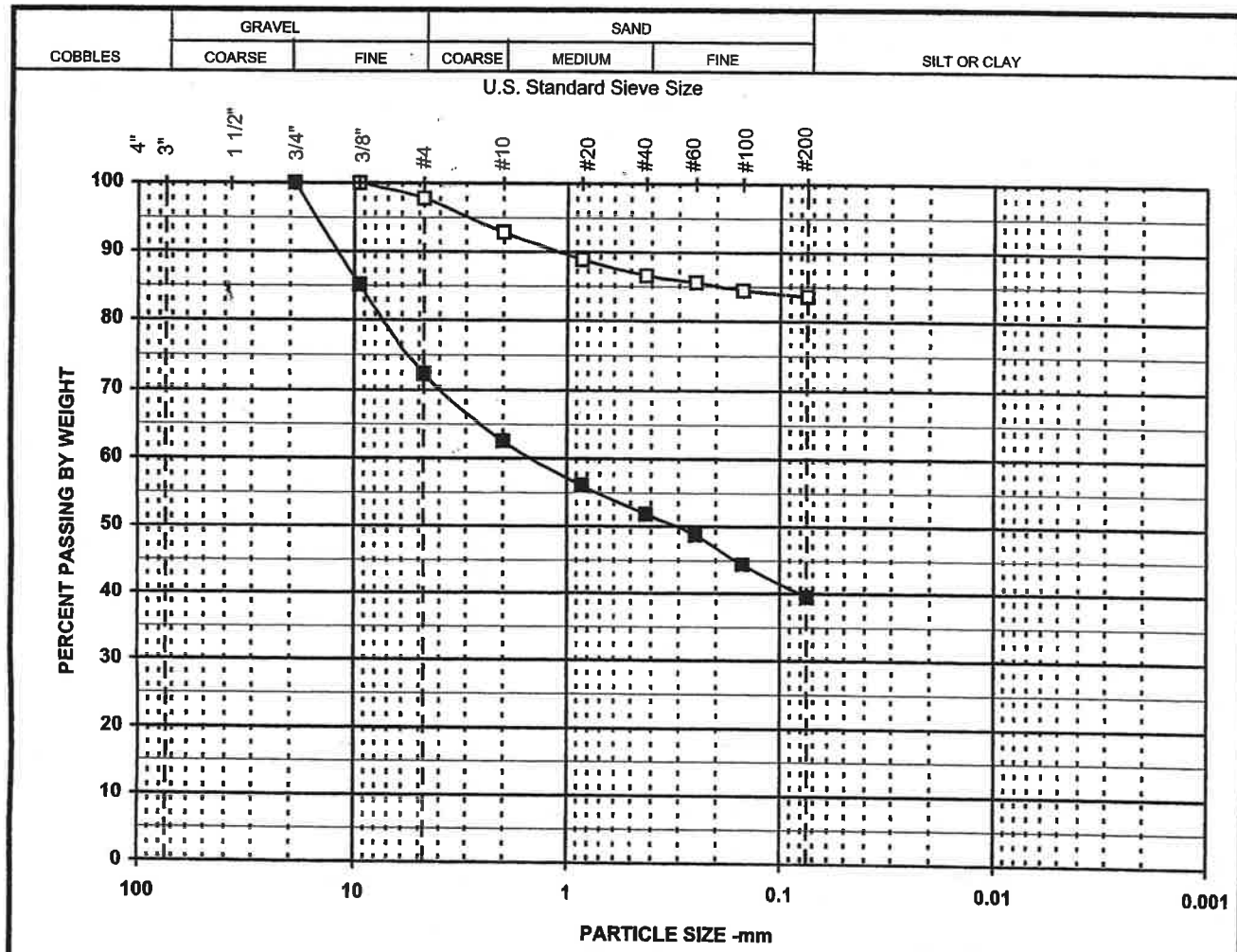
PARTICLE SIZE DISTRIBUTION

Keystone Cement Plant

Project No.		Figure
19684726	June 2005	

URS Corporation

siev1L 8/21/2005



SYMBOL	DESCRIPTION AND REMARKS
□	brown silty CLAY, some c-f sand, trace f. gravel.
■	black silty c-f SAND, some f. gravel.
○	

Symbol	□	■	○
Boring	B-13	B-16	
Sample	S-2	S-1	
Spec			
Depth	5-7	0-2	
% +3"			
% Gravel	2.3	27.8	
% SAND	14.2	32.8	
% FINES	83.5	39.4	
% -2μ			
Cc			
Cu			
LL			
PL			
PI			
USCS	CL	SM	
w (%)	22.7	11.7	

Particle Size	PERCENT FINER		
(Sieve #)	□	■	○
4"			
3"			
1 1/2"			
3/4"		100.0	
3/8"	100.0	85.1	
4	97.7	72.2	
10	92.7	62.5	
20	88.9	56.0	
40	86.6	51.8	
60	85.5	48.7	
100	84.4	44.4	
200	83.5	39.4	

PARTICLE SIZE DISTRIBUTION

Keystone Cement Plant

Project No.		Figure
19684726	June 2005	

URS Corporation

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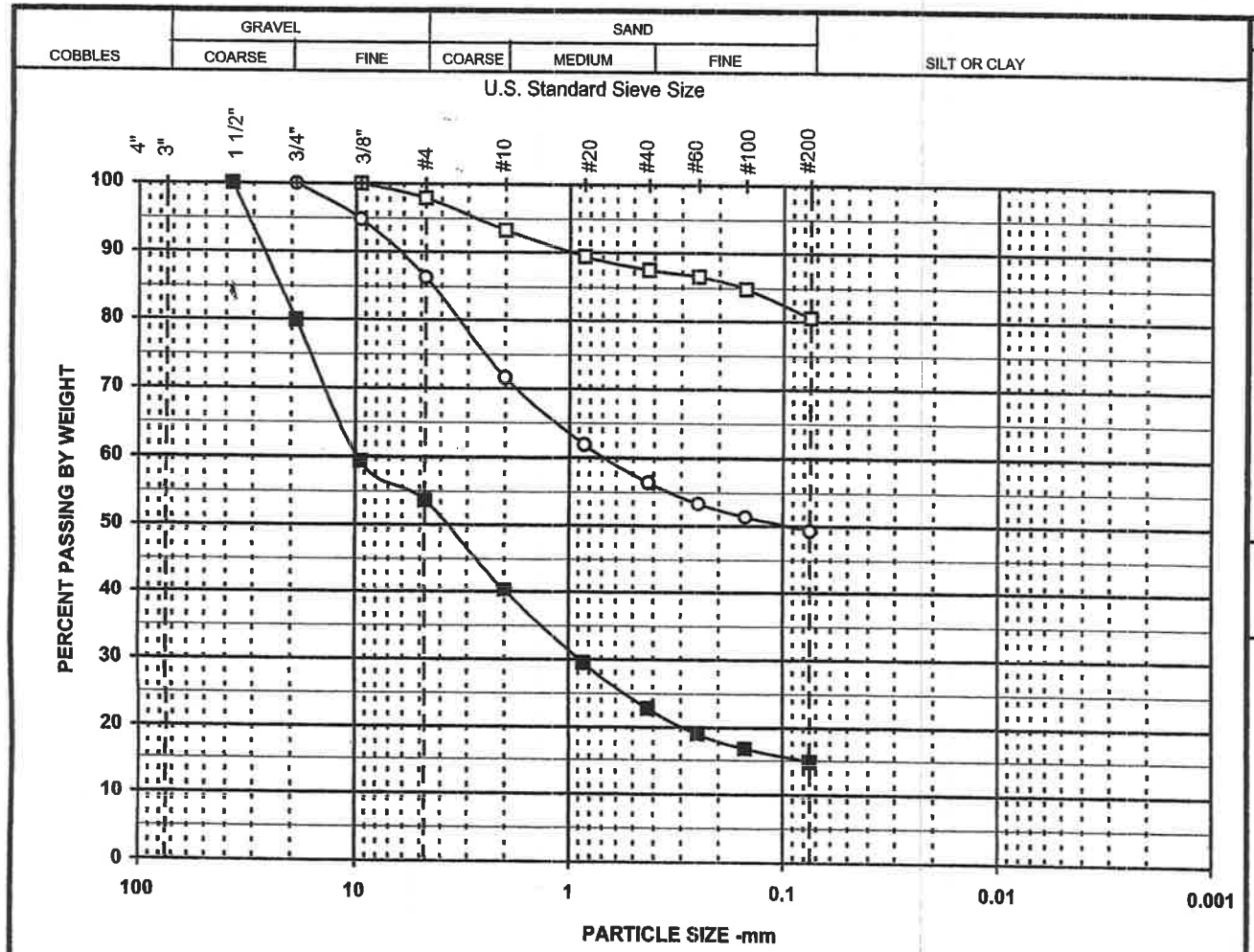

SYMBOL	DESCRIPTION AND REMARKS
□	brown SILT, some c-f sand, trace f. gravel.
■	brown c-f sandy GRAVEL, some silty clay.
○	light brown silty clayey c-f SAND, some f. gravel.

Symbol	□	■	○
Boring	B-25	B-26	B-31
Sample	S-6	S-3	S-6
Spec			
Depth	30-32	10-12	27-29
% +3"			
% Gravel	2.1	46.4	13.7
% SAND	17.3	38.8	37.0
% FINES	80.6	14.8	49.3
% -2μ			
Cc			
Cu			
LL			
PL			
PI			
USCS	ML	GC	SC
w (%)	37.5	10.9	17.3

Particle Size	PERCENT FINER		
(Sieve #)	□	■	○
4"			
3"			
1 1/2"		100.0	
3/4"		79.9	100.0
3/8"	100.0	59.3	94.8
4	97.9	53.6	86.3
10	93.2	40.3	71.6
20	89.4	29.5	61.9
40	87.5	22.7	56.4
60	86.6	18.9	53.3
100	84.8	16.7	51.3
200	80.6	14.8	49.3

PARTICLE SIZE DISTRIBUTION

Keystone Cement Plant

Project No.		Figure
19684726	June 2005	

URS Corporation

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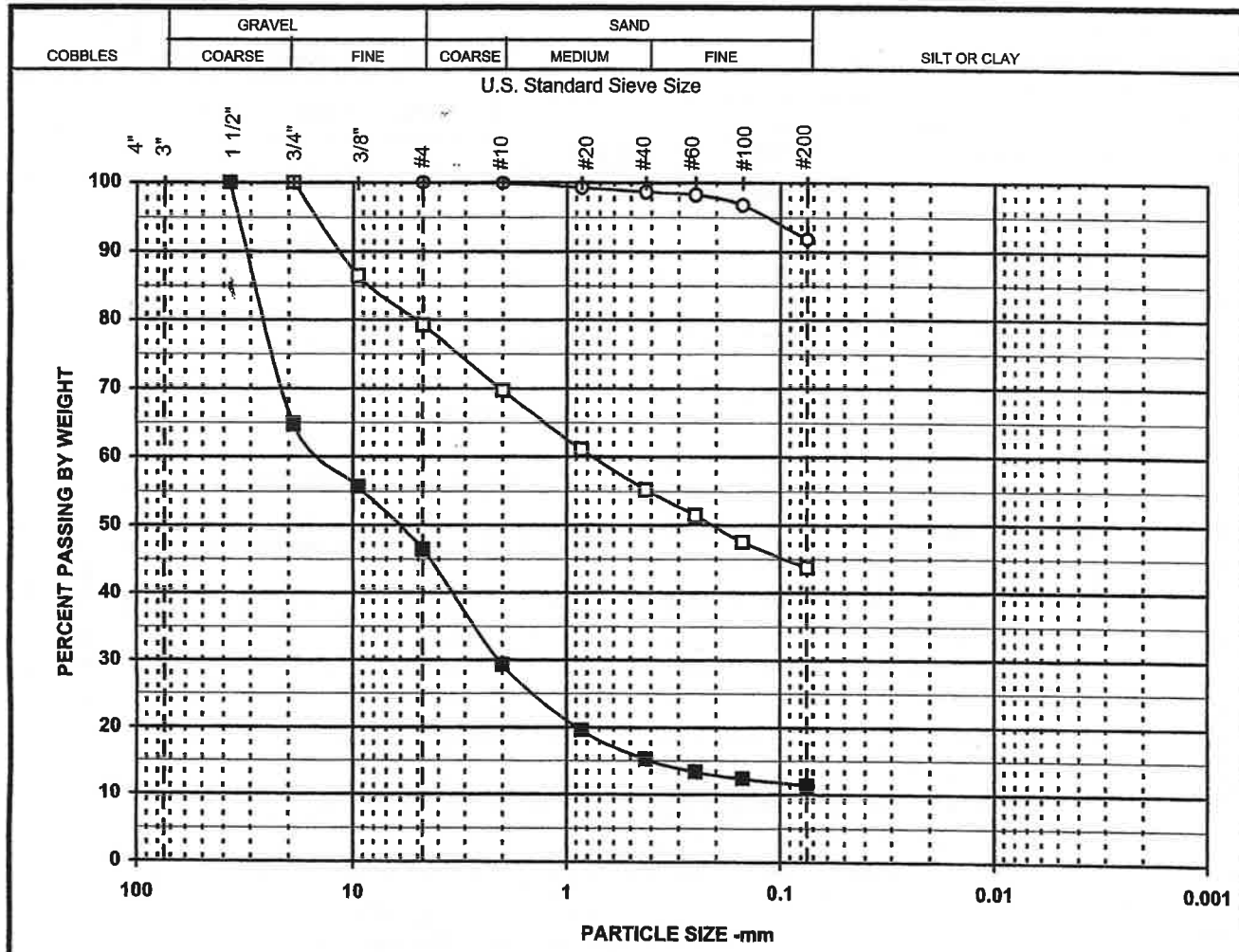

SYMBOL	DESCRIPTION AND REMARKS
□	light brown clayey c-f SAND, some f. gravel.
■	light gray c-f sandy GRAVEL, trace silt.
○	light brown CLAY, trace m-f sand.

Symbol	□	■	○
Boring	B-34	B-37	B-38
Sample	S-4	S-2	S-10
Spec			
Depth	15-17	5-7	50-52
% +3"			
% Gravel	20.8	53.6	
% SAND	35.5	35.0	8.3
% FINES	43.7	11.4	91.7
% -2μ			
Cc			
Cu			
LL			
PL			
PI			
USCS	SC	GP-GM	CL
w (%)	21.8	9.5	32.9

Particle Size	PERCENT FINER		
(Sieve #)	□	■	○
4"			
3"			
1 1/2"		100.0	
3/4"	100.0	64.7	
3/8"	86.4	55.6	
4	79.2	46.4	100.0
10	69.7	29.3	99.9
20	61.1	19.5	99.2
40	55.2	15.1	98.6
60	51.4	13.3	98.2
100	47.5	12.4	96.8
200	43.7	11.4	91.7

PARTICLE SIZE DISTRIBUTION

Keystone Cement Plant

Project No.		Figure
19684726	June 2005	

URS Corporation

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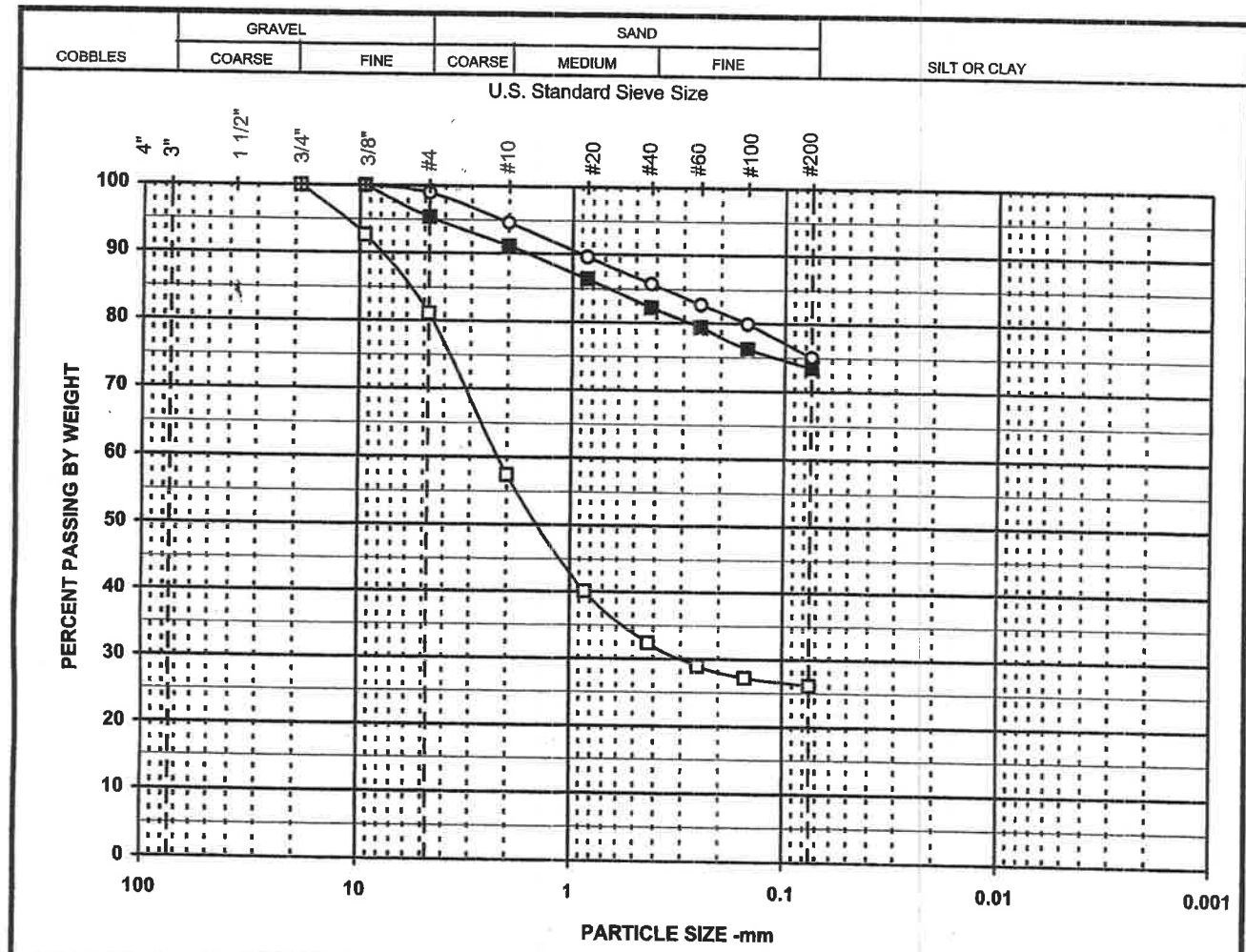

SYMBOL	DESCRIPTION AND REMARKS
□	brown c-f SAND, some f. gravel, silty clay.
■	brown CLAY, some c-f sand, trace f. gravel.
○	brown silty CLAY, some c-f sand, trace f. gravel.

Symbol	□	■	○
Boring	B-1	B-3	B-3A
Sample	S-2	S-6	S-12
Spec			
Depth	5-7	25-27	70-72
% +3"			
% Gravel	18.9	4.7	1.1
% SAND	55.0	21.9	23.9
% FINES	26.1	73.4	75.0
% -2μ			
Cc			
Cu			
LL			
PL			
PI			
USCS	SC	CL	CL
w (%)	15.2	21.8	23.3

Particle Size (Sieve #)	PERCENT FINER □	■	○
4"			
3"			
1 1/2"			
3/4"	100.0		
3/8"	92.6	100.0	100.0
4	81.1	95.3	98.9
10	57.4	91.1	94.6
20	40.2	86.3	89.6
40	32.4	82.2	85.7
60	29.0	79.4	82.7
100	27.3	76.2	79.9
200	26.1	73.4	75.0

PARTICLE SIZE DISTRIBUTION

Keystone Cement Plant

Project No.		Figure
19684726	June 2005	

URS Corporation

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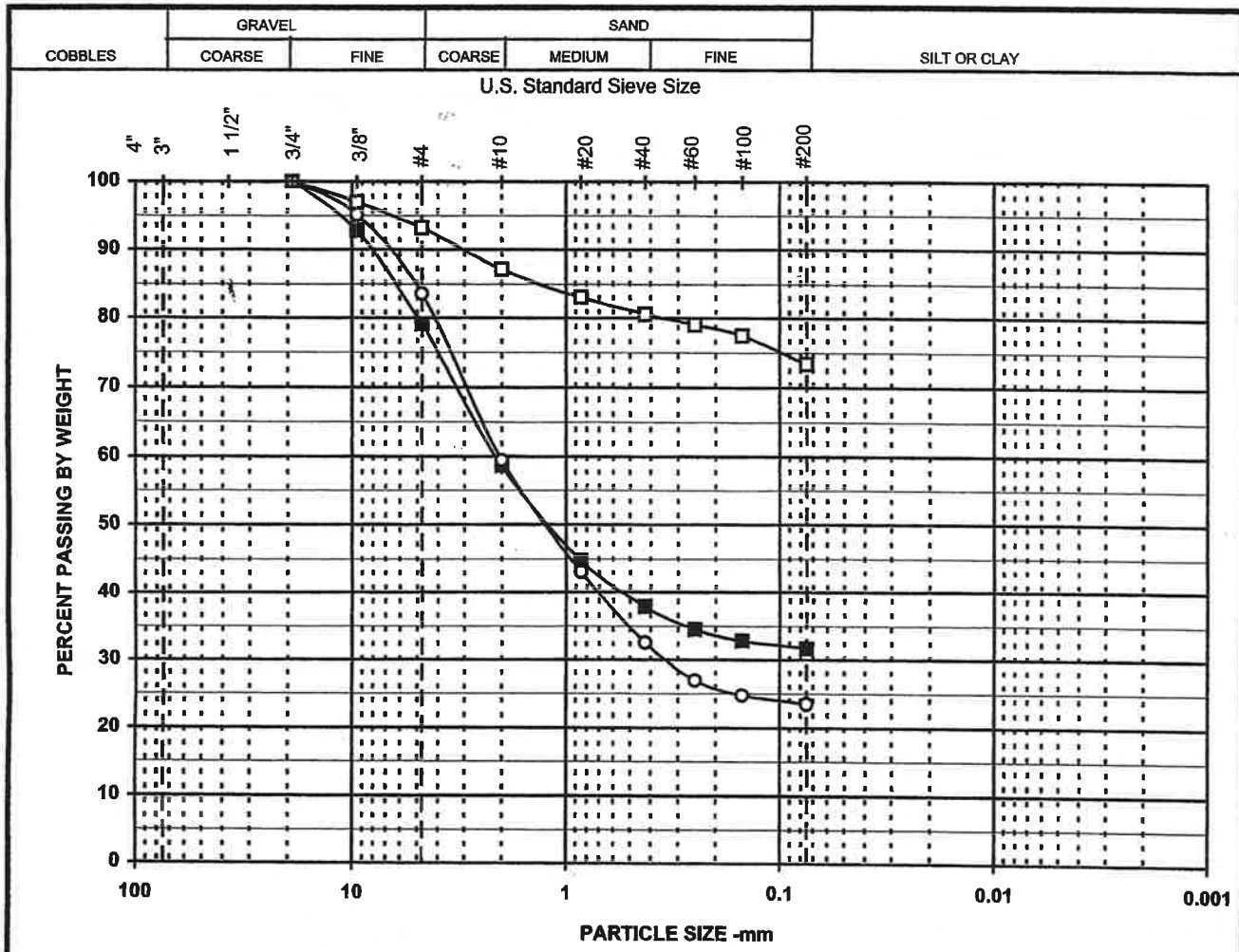

SYMBOL	DESCRIPTION AND REMARKS
□	light brown CLAY, some c-f sand, trace f. gravel.
■	brown clayey c-f SAND, some f. gravel.
○	light brown c-f SAND, some f. gravel, clay.

Symbol	□	■	○
Boring	B-4	B-5	B-8
Sample	S-9	S-3	S-3
Spec			
Depth	40-42	10-12	10-12
% +3"			
% Gravel	6.8	21.0	16.4
% SAND	19.8	47.3	60.2
% FINES	73.4	31.7	23.4
% -2μ			
Cc			
Cu			
LL			
PL			
PI			
USCS	CL	SC	SC
w (%)	21.0	18.5	15.0

Particle Size	PERCENT FINER		
(Sieve #)	□	■	○
4"			
3"			
1 1/2"			
3/4"	100.0	100.0	100.0
3/8"	96.9	92.7	95.1
4	93.2	79.0	83.6
10	87.0	58.5	59.4
20	83.0	44.6	43.0
40	80.5	37.9	32.6
60	79.1	34.5	27.0
100	77.5	32.8	24.7
200	73.4	31.7	23.4

PARTICLE SIZE DISTRIBUTION

Keystone Cement Plant

Project No.		Figure
19684726	June 2005	

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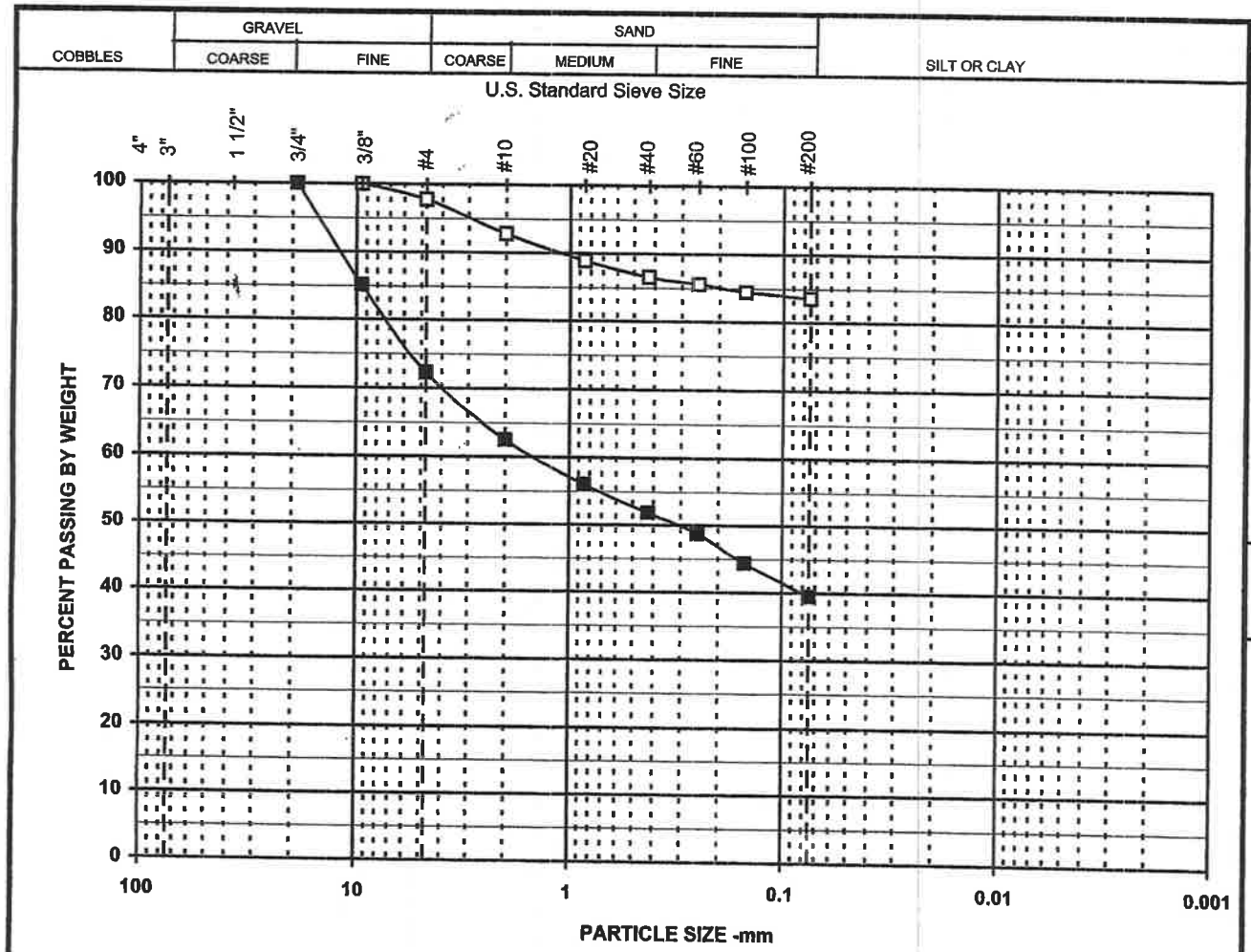

SYMBOL	DESCRIPTION AND REMARKS
□	brown silty CLAY, some c-f sand, trace f. gravel.
■	black silty c-f SAND, some f. gravel.
○	

Symbol	□	■	○
Boring	B-13	B-16	
Sample	S-2	S-1	
Spec			
Depth	5-7	0-2	
% +3"			
% Gravel	2.3	27.8	
% SAND	14.2	32.8	
% FINES	83.5	39.4	
% -2μ			
Cc			
Cu			
LL			
PL			
PI			
USCS	CL	SM	
w (%)	22.7	11.7	

Particle Size (Sieve #)	PERCENT FINER □	■	○
4"			
3"			
1 1/2"			
3/4"		100.0	
3/8"	100.0	85.1	
4	97.7	72.2	
10	92.7	62.5	
20	88.9	56.0	
40	86.6	51.8	
60	85.5	48.7	
100	84.4	44.4	
200	83.5	39.4	

PARTICLE SIZE DISTRIBUTION

Keystone Cement Plant

Project No.		Figure
19684726	June 2005	

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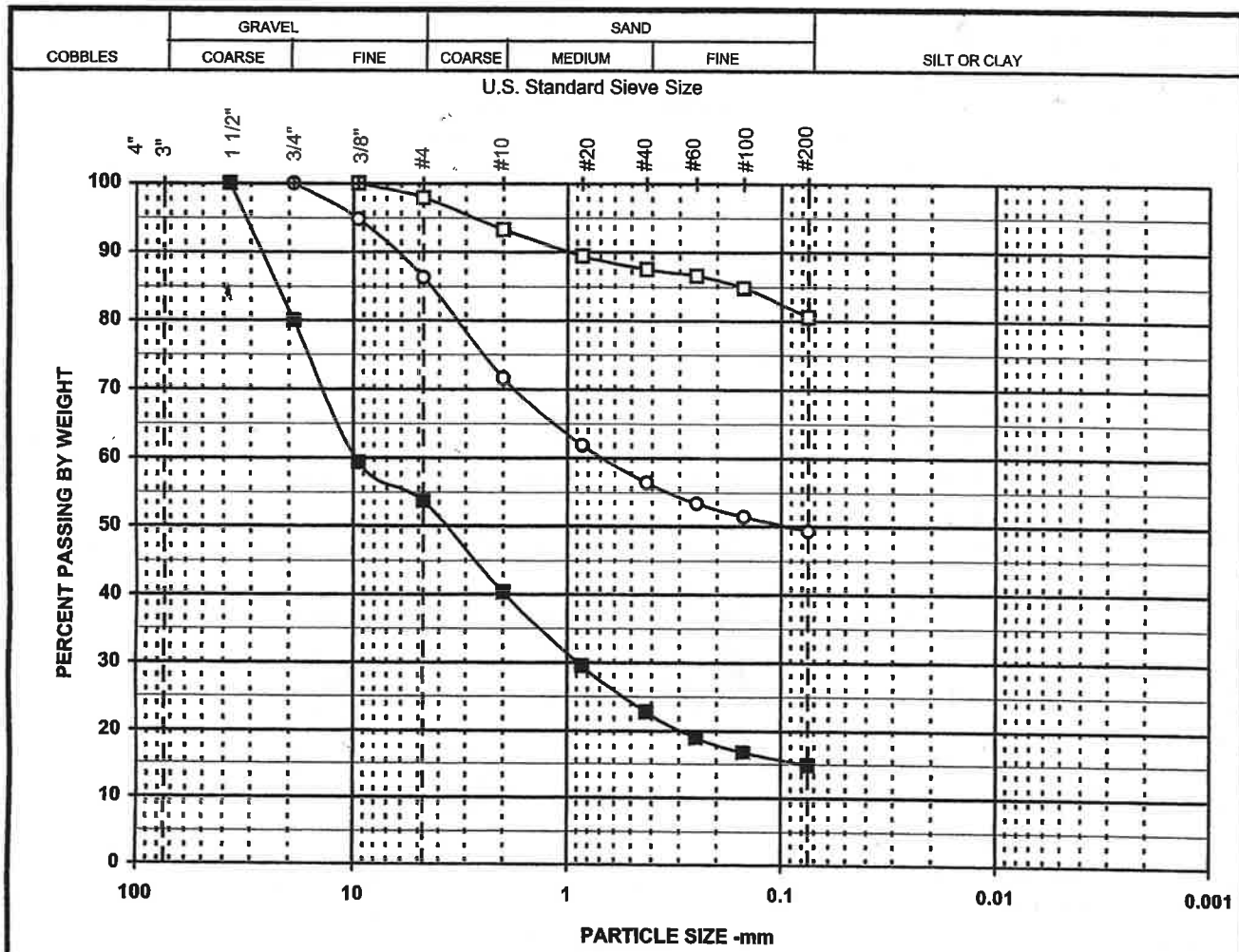

SYMBOL	DESCRIPTION AND REMARKS
□	brown SILT, some c-f sand, trace f. gravel.
■	brown c-f sandy GRAVEL, some silty clay.
○	light brown silty clayey c-f SAND, some f. gravel.

Symbol	□	■	○
Boring	B-25	B-26	B-31
Sample	S-6	S-3	S-6
Spec			
Depth	30-32	10-12	27-29
% +3"			
% Gravel	2.1	46.4	13.7
% SAND	17.3	38.8	37.0
% FINES	80.6	14.8	49.3
% -2μ			
Cc			
Cu			
LL			
PL			
PI			
USCS	ML	GC	SC
w (%)	37.5	10.9	17.3

Particle Size	PERCENT FINER		
(Sieve #)	□	■	○
4"			
3"			
1 1/2"		100.0	
3/4"		79.9	100.0
3/8"	100.0	59.3	94.8
4	97.9	53.6	86.3
10	93.2	40.3	71.6
20	89.4	29.5	61.9
40	87.5	22.7	56.4
60	86.6	18.9	53.3
100	84.8	16.7	51.3
200	80.6	14.8	49.3

PARTICLE SIZE DISTRIBUTION

Keystone Cement Plant

Project No. 19684726	June 2005	Figure

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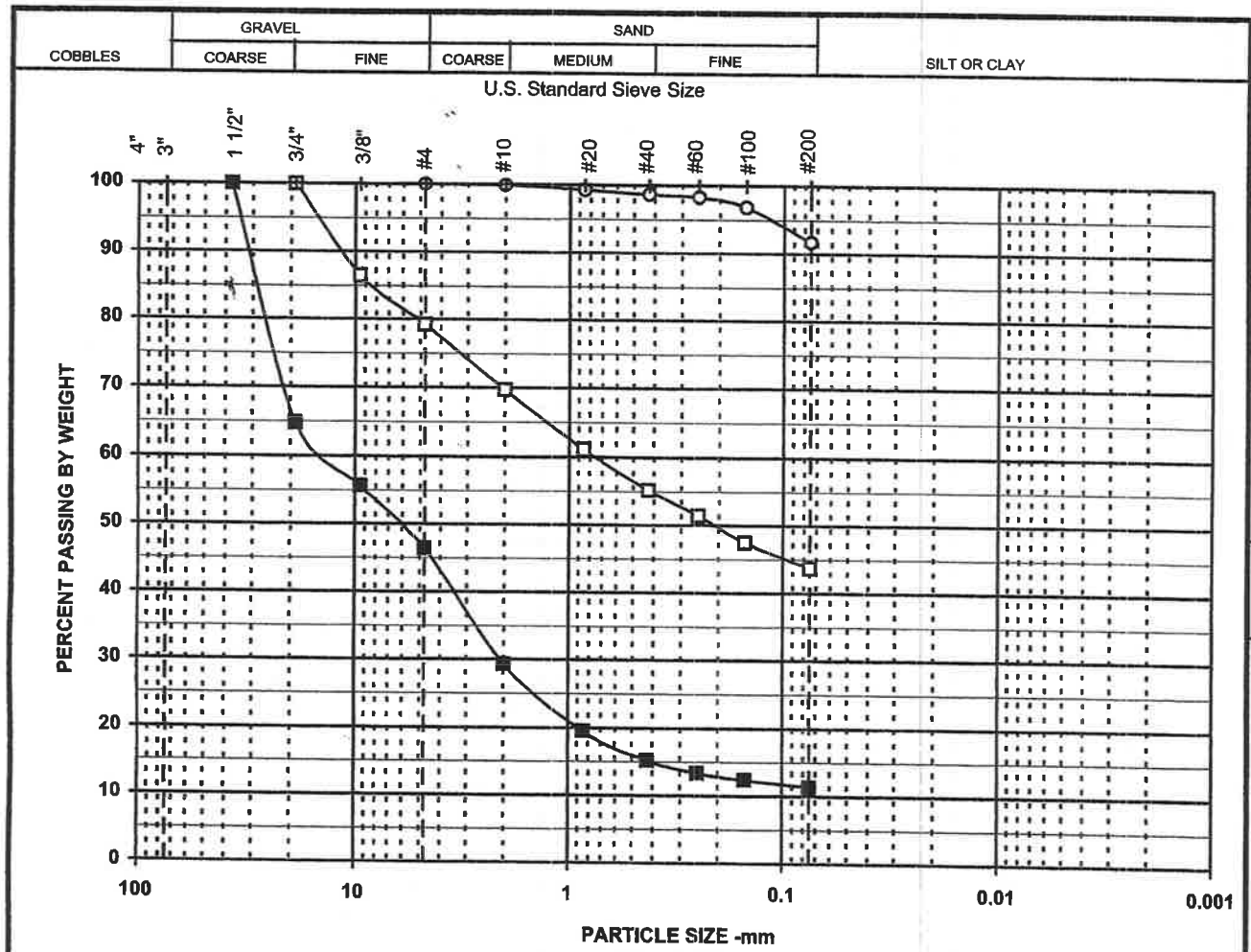

SYMBOL	DESCRIPTION AND REMARKS
□	light brown clayey c-f SAND, some f. gravel.
■	light gray c-f sandy GRAVEL, trace silt.
○	light brown CLAY, trace m-f sand.

Symbol	□	■	○
Boring	B-34	B-37	B-38
Sample	S-4	S-2	S-10
Spec			
Depth	15-17	5-7	50-52
% +3"			
% Gravel	20.8	53.6	
% SAND	35.5	35.0	8.3
% FINES	43.7	11.4	91.7
% -2μ			
Cc			
Cu			
LL			
PL			
PI			
USCS	SC	GP-GM	CL
w (%)	21.8	9.5	32.9

Particle Size (Sieve #)	PERCENT FINER □	■	○
4"			
3"			
1 1/2"		100.0	
3/4"	100.0	64.7	
3/8"	86.4	55.6	
4	79.2	46.4	100.0
10	69.7	29.3	99.9
20	61.1	19.5	99.2
40	55.2	15.1	98.6
60	51.4	13.3	98.2
100	47.5	12.4	96.8
200	43.7	11.4	91.7

PARTICLE SIZE DISTRIBUTION

Keystone Cement Plant

Project No.		Figure
19684726	June 2005	

URS Corporation

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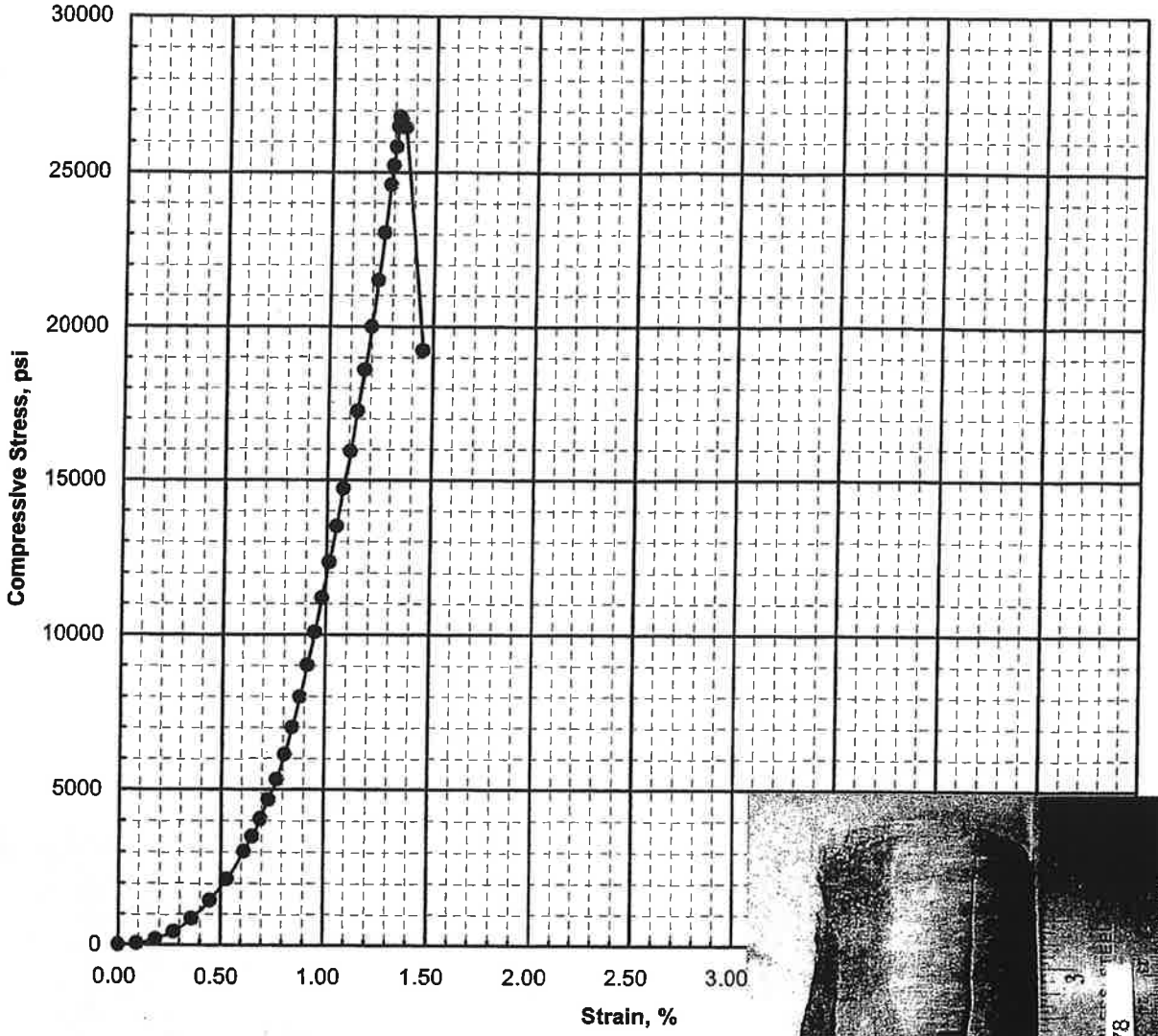
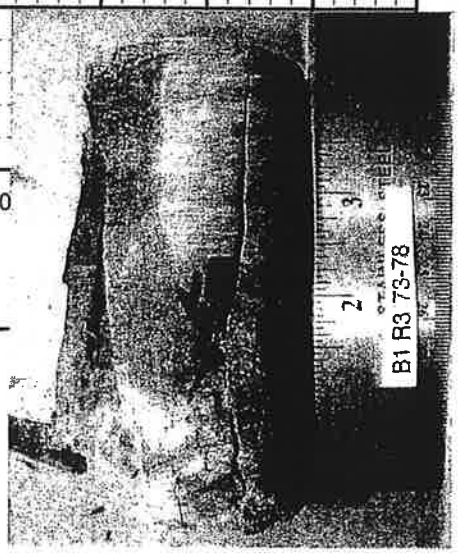




FAILURE PHOTO

Specimen Information

Water Content (%)	Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Length (inch)	Diameter (inch)
0.05	170	170	4.301	1.989

Specimen meets ASTM D4543 shape tolerances

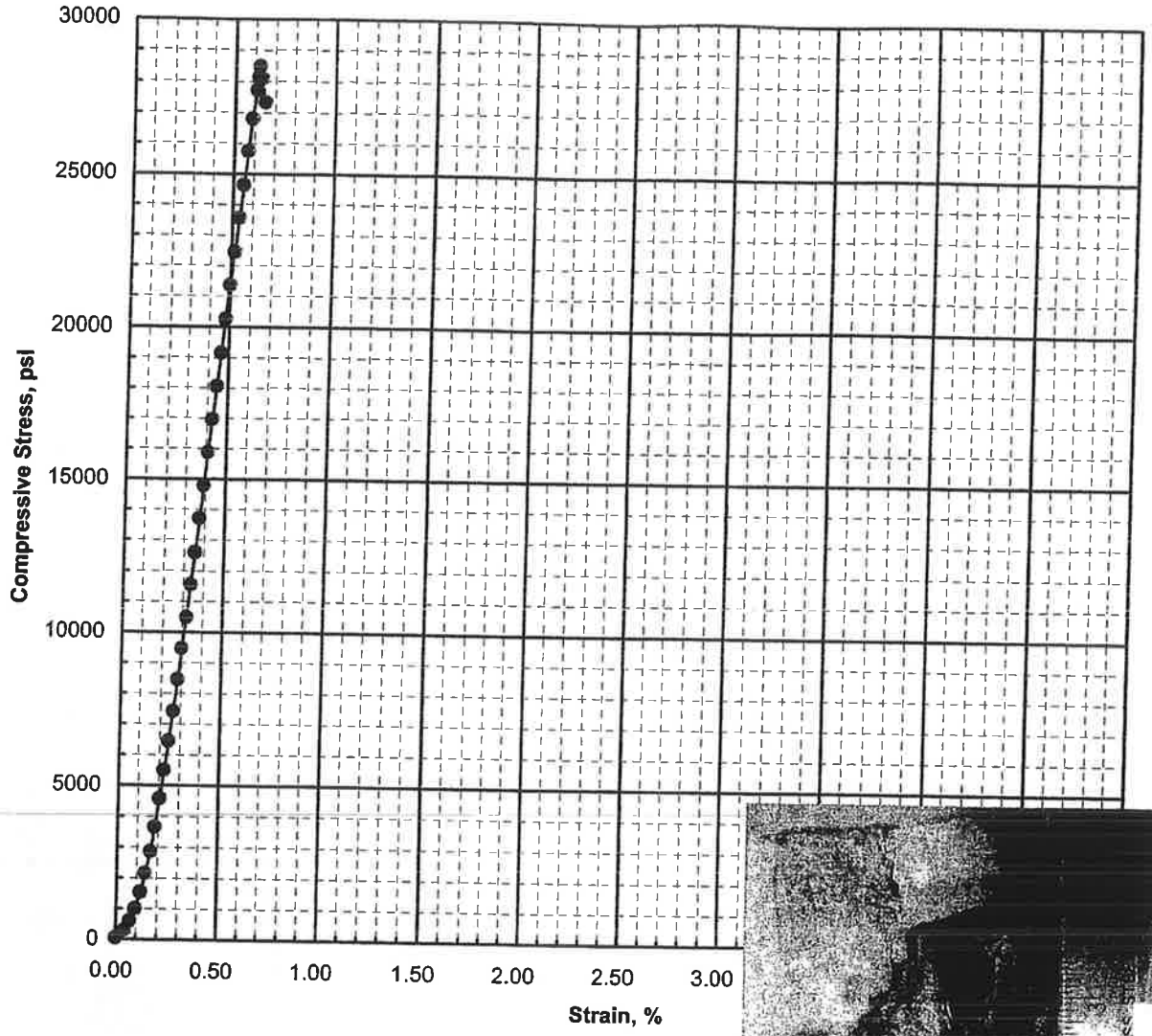
Test Summary

Strain Rate (%/min)	Strain to Peak (%)	q_u (psi)
0.16	1.33	26810

Tested by: GET

Test Date: Jun-22-05

Project No. 19684726	Keystone Cement Plant	**COMPRESSIVE STRESS VS STRAIN UNCONFINED COMPRESSIVE STRENGTH TEST** Boring: B-1 Run: 3 Depth 73-78 ft.
URS Corporation		



FAILURE PHOTO

Specimen Information

Water Content (%)	Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Length (inch)	Diameter (inch)
0.11	169	169	4.383	1.971

Specimen meets ASTM D4543 shape tolerances

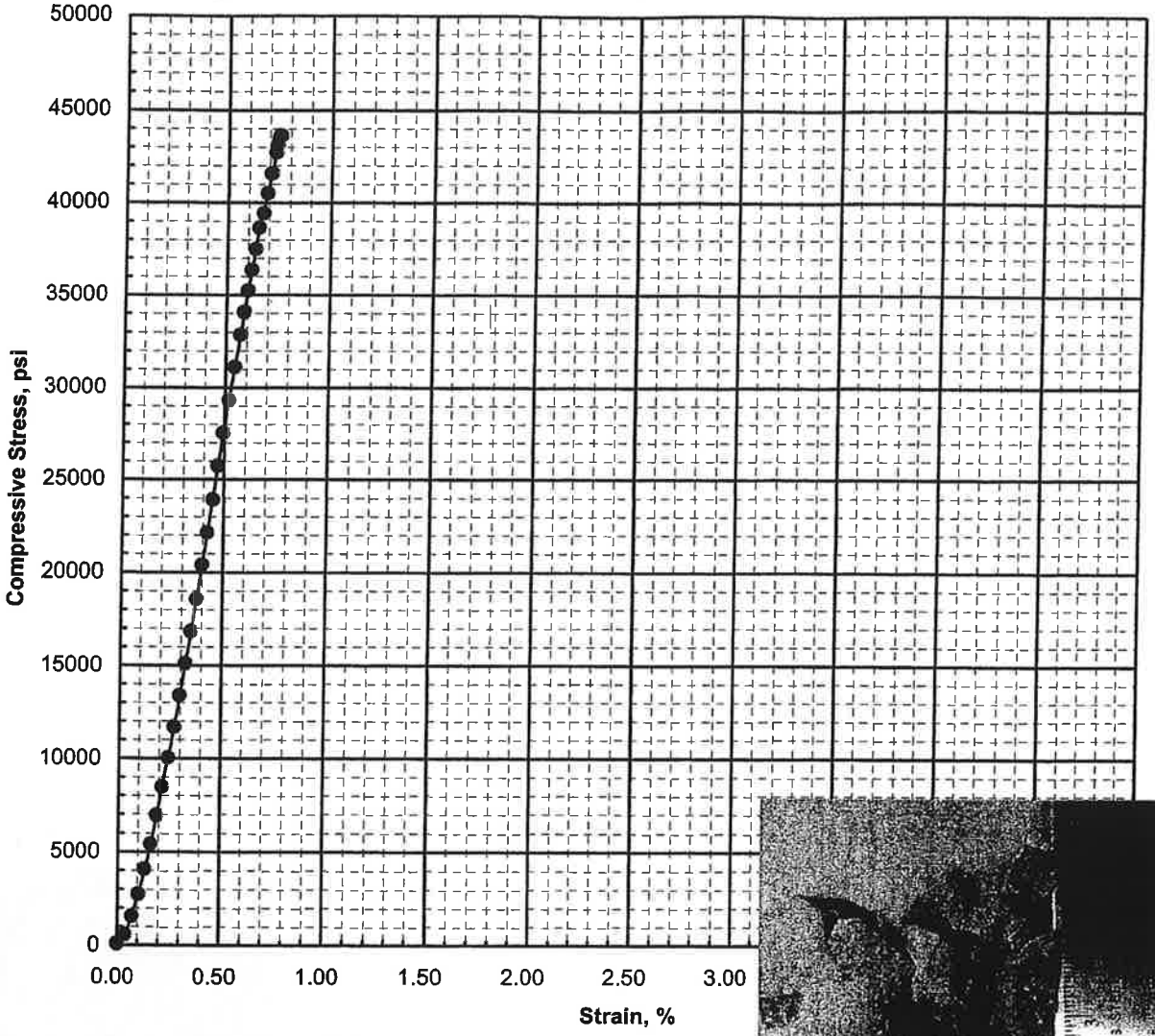
Test Summary

Strain Rate (%/min)	Strain to Peak (%)	q_u (psi)
0.12	0.62	28480

Tested by: GET

Test Date: Jun-22-05

Project No. 19684726	Keystone Cement Plant	COMPRESSIVE STRESS VS STRAIN UNCONFINED COMPRESSIVE STRENGTH TEST Boring: B-5 Run: 2 Depth 52-57 ft.
URS Corporation		



FAILURE PHOTO

Specimen Information

Water Content (%)	Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Length (inch)	Diameter (inch)
0.02	174	174	4.452	1.968

Specimen meets ASTM D4543 shape tolerances

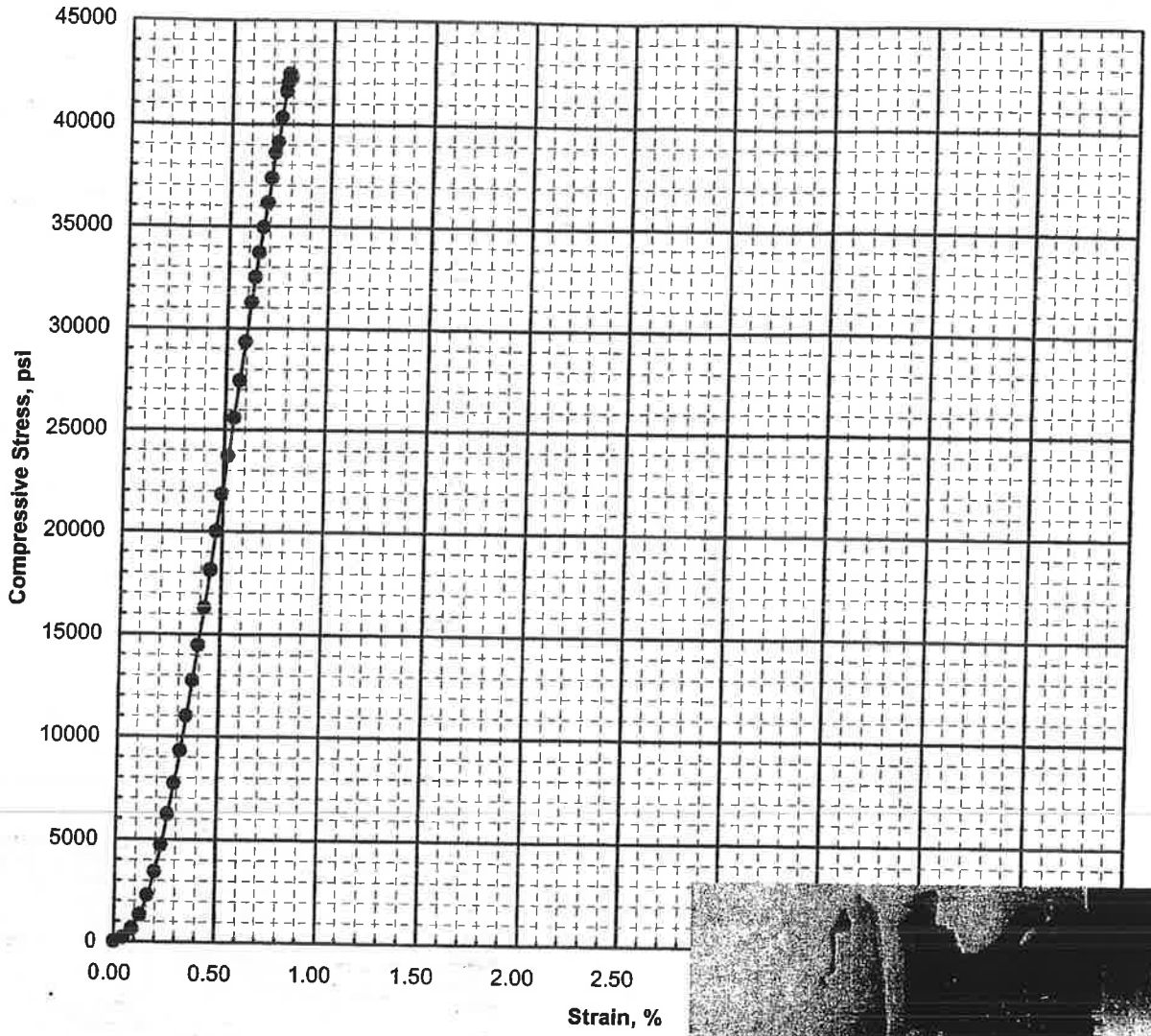
Test Summary

Strain Rate (%/min)	Strain to Peak (%)	q_u (psi)
0.11	0.75	43650

Tested by: GET

Test Date: Jun-22-05

Project No. 19684726	Keystone Cement Plant	**COMPRESSIVE STRESS VS STRAIN UNCONFINED COMPRESSIVE STRENGTH TEST**
URS Corporation		**Boring: B-7 Run: 2** **Depth 60-65 ft.**



FAILURE PHOTO

Specimen Information

Water Content (%)	Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Length (inch)	Diameter (inch)
0.00	176	176	4.179	1.988

Specimen meets ASTM D4543 shape tolerances

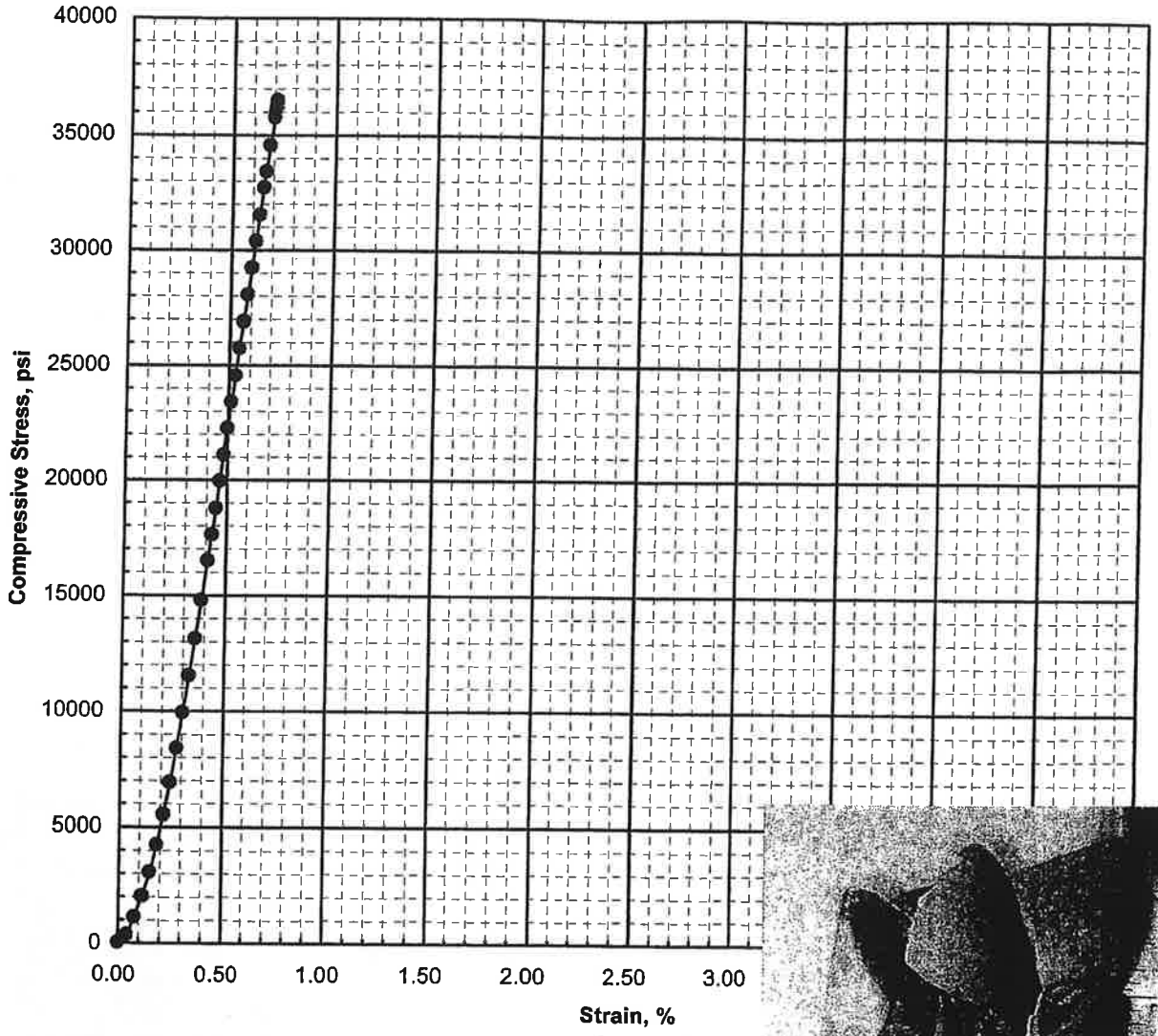
Test Summary

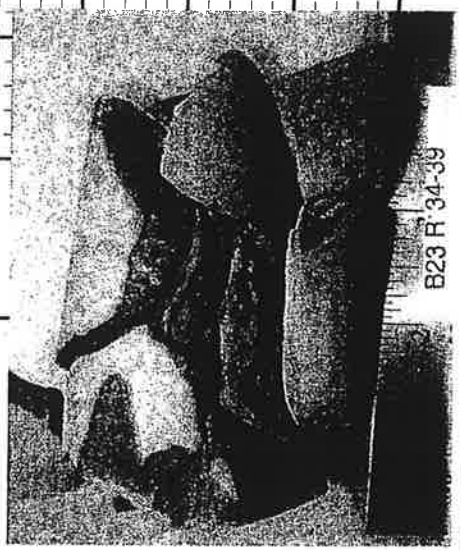
Strain Rate (%/min)	Strain to Peak (%)	q_u (psi)
0.12	0.78	42420

Tested by: GET

Test Date: Jun-22-05

Project No. 19684726	Keystone Cement Plant	**COMPRESSIVE STRESS VS STRAIN UNCONFINED COMPRESSIVE STRENGTH TEST**
URS Corporation		**Boring: B-14 Run: 2** **Depth 21-26 ft.**





FAILURE PHOTO

Specimen Information

Water Content (%)	Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Length (inch)	Diameter (inch)
0.02	174	174	4.254	1.988

Specimen meets ASTM D4543 shape tolerances

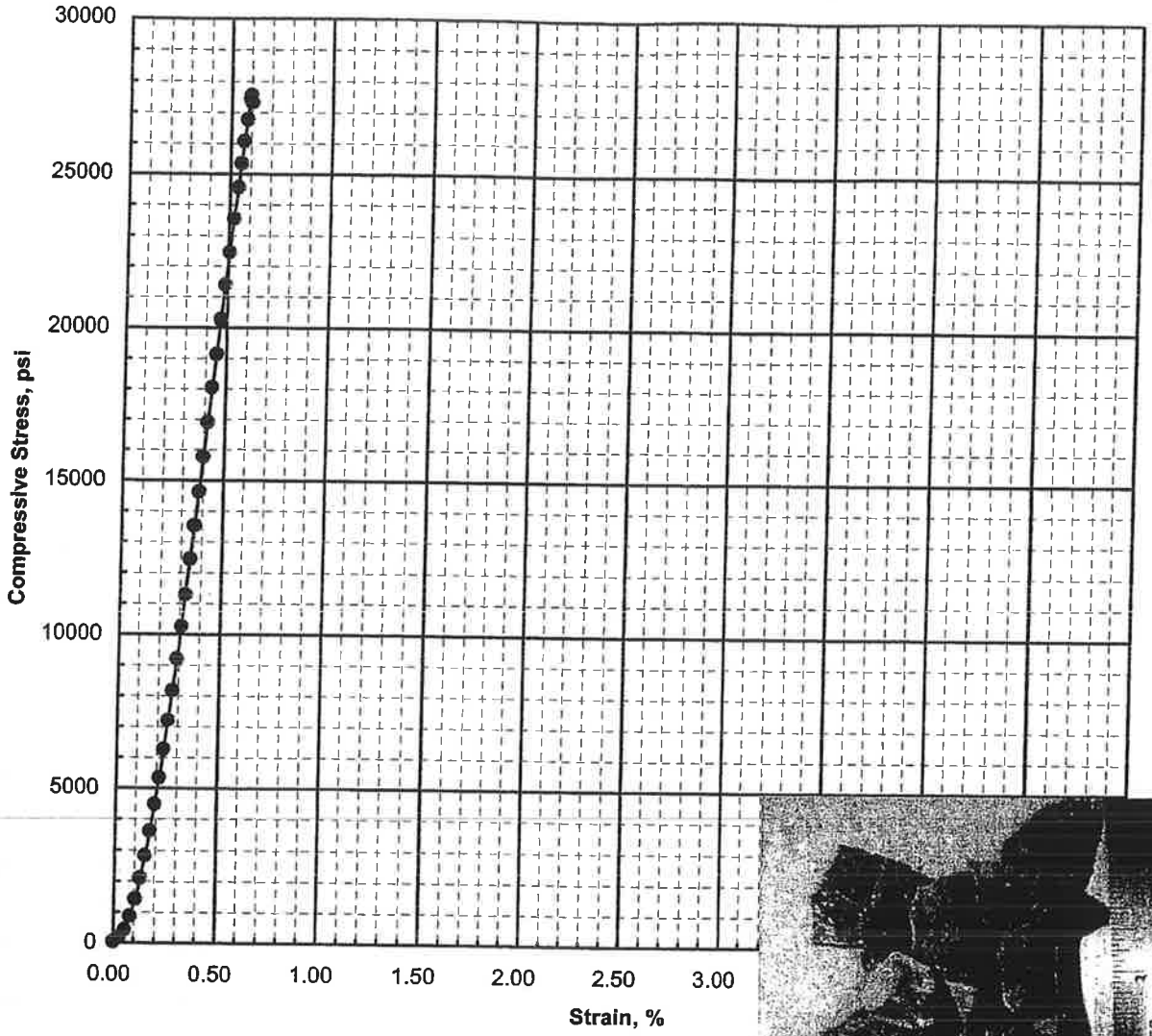
Test Summary

Strain Rate (%/min)	Strain to Peak (%)	q_u (psi)
0.12	0.71	36530

Tested by: GET

Test Date: Jun-22-05

Project No. 19684726	Keystone Cement Plant	**COMPRESSIVE STRESS VS STRAIN UNCONFINED COMPRESSIVE STRENGTH TEST**
URS Corporation		**Boring: B-23 Run: 1** **Depth 34-39 ft.**



FAILURE PHOTO

Specimen Information

Water Content (%)	Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Length (inch)	Diameter (inch)
0.05	167	167	4.335	1.972

Specimen meets ASTM D4543 shape tolerances

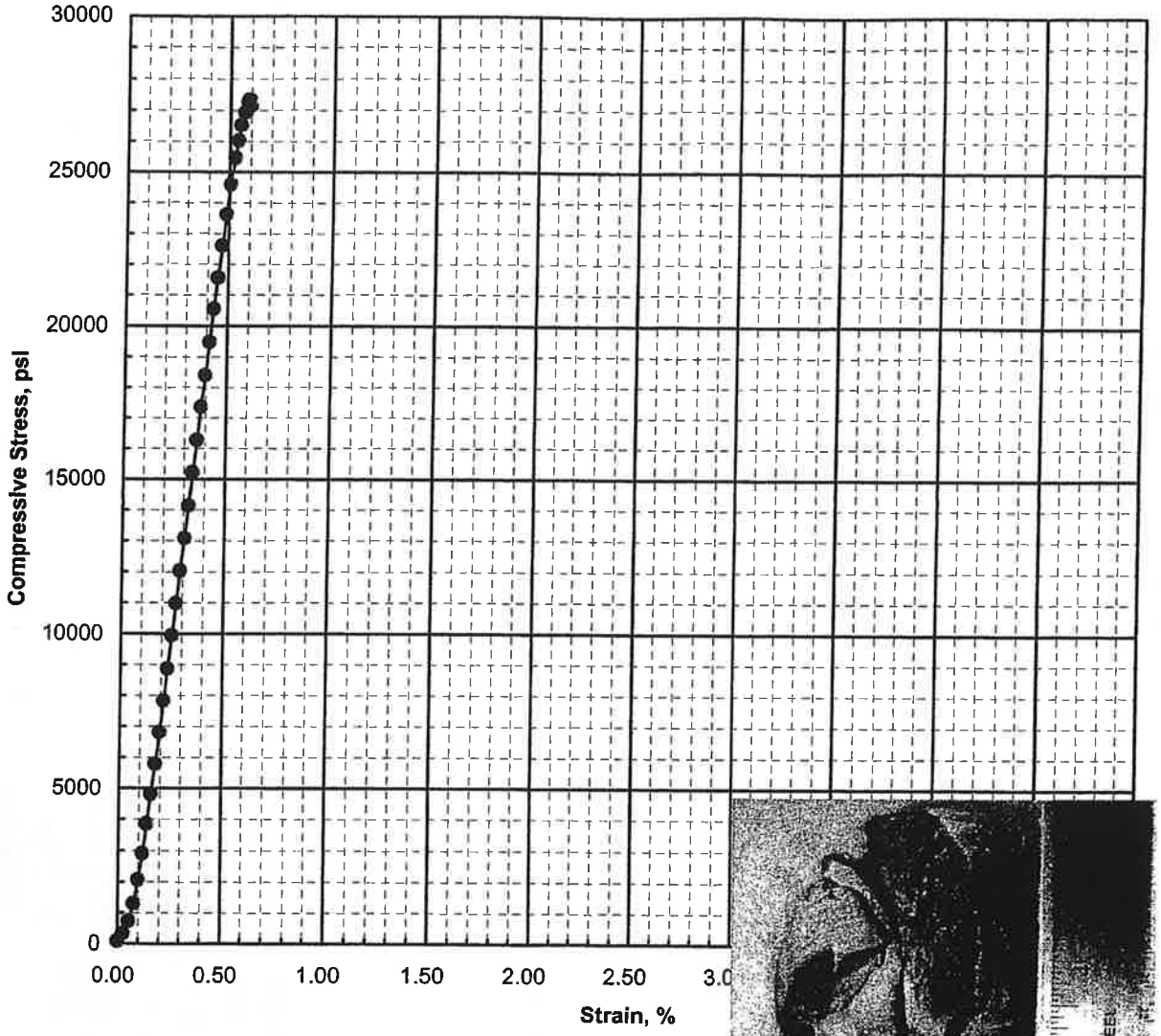
Test Summary

Strain Rate (%/min)	Strain to Peak (%)	q_u (psi)
0.12	0.60	27560

Tested by: GET

Test Date: Jun-22-05

Project No. 19684726	Keystone Cement Plant	COMPRESSIVE STRESS VS STRAIN UNCONFINED COMPRESSIVE STRENGTH TEST Boring: B-29 Run: 3 Depth 54-59 ft.
URS Corporation		



FAILURE PHOTO

Specimen Information

Water Content (%)	Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Length (inch)	Diameter (inch)
0.10	169	169	4.325	1.991

Specimen meets ASTM D4543 shape tolerances

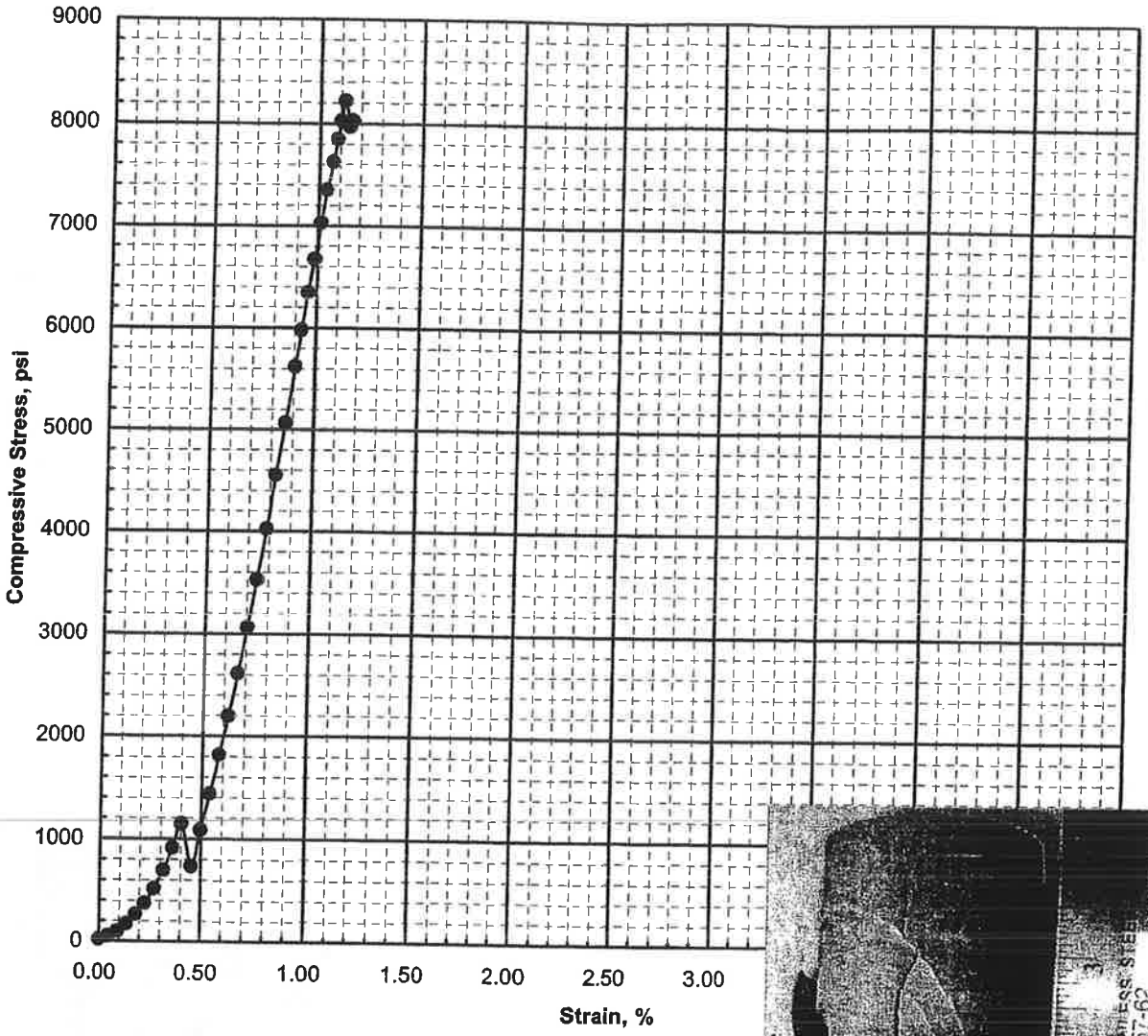
Test Summary

Strain Rate (%/min)	Strain to Peak (%)	q_u (psi)
0.12	0.59	27350

Tested by: GET

Test Date: Jun-22-05

Project No. 19684726	Keystone Cement Plant	COMPRESSIVE STRESS VS STRAIN UNCONFINED COMPRESSIVE STRENGTH TEST Boring: B-36 Run: 1 Depth 75-80 ft.
URS Corporation		



FAILURE PHOTO

Specimen Information

Water Content (%)	Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Length (inch)	Diameter (inch)
0.68	162	161	4.314	1.976

Specimen meets ASTM D4543 shape tolerances

Test Summary

Strain Rate (%/min)	Strain to Peak (%)	q_u (psi)
0.17	1.12	8220

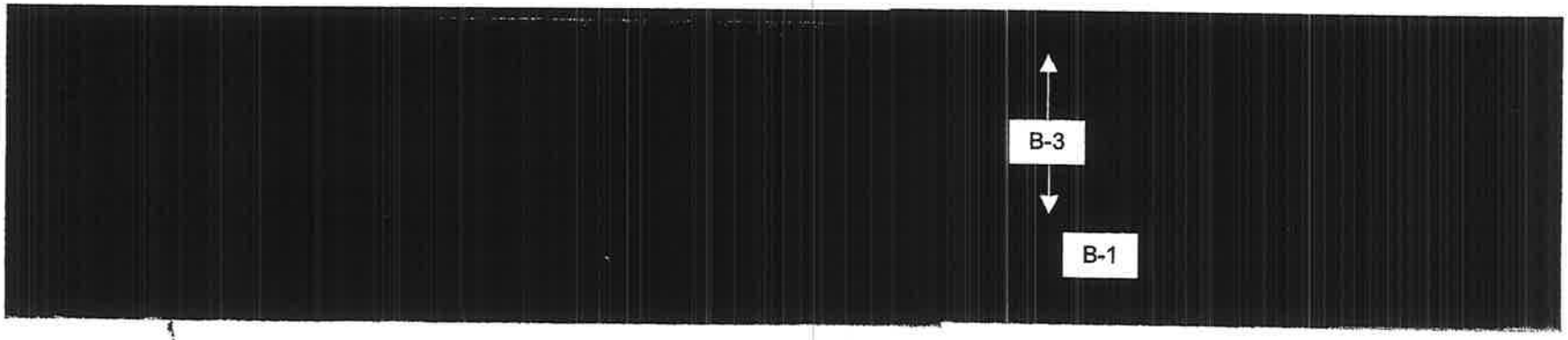
Tested by: GET

Test Date: Jun-22-05

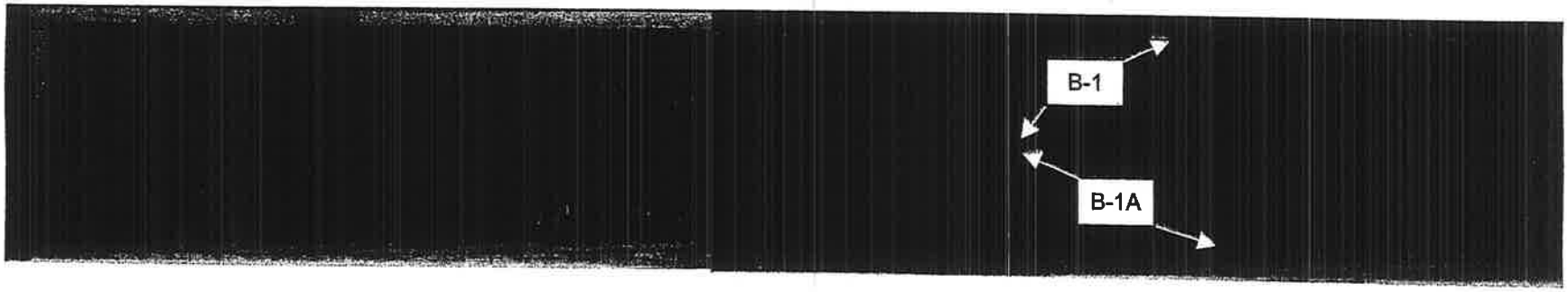
Project No. 19684726	Keystone Cement Plant	COMPRESSIVE STRESS VS STRAIN UNCONFINED COMPRESSIVE STRENGTH TEST Boring: B-40 Run: 2 Depth 57-62 ft.
URS Corporation		

APPENDIX C

PHOTOGRAPHS OF RECOVERED ROCK CORE

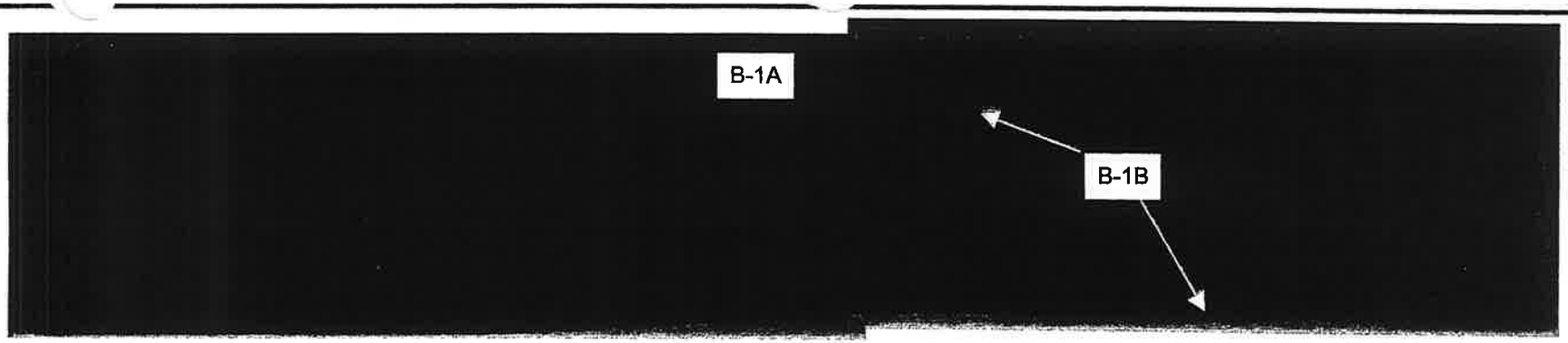


Keystone Cement Plant, Bath, Pa.			
Boring B-3			Boring B-1
R-1	R-2	R-3	R-1
Rec.=20%/ RQD=15%	Rec.=45%/RQD=37%	Rec.=100%/RQD=75%	Rec.=20%/RQD=0%

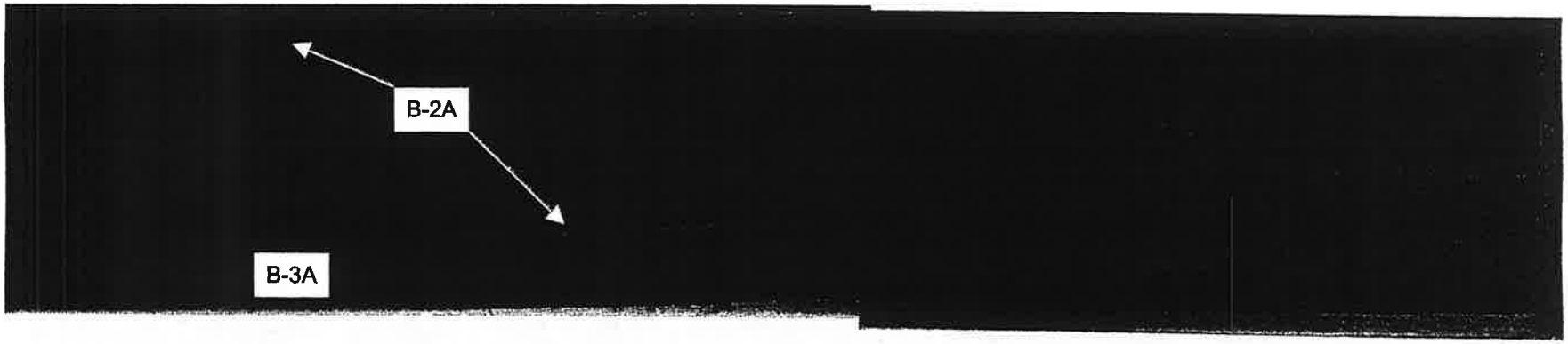


Keystone Cement Plant, Bath, Pa.			
Boring B-1 (continued)		Boring B-1A	
R-2	R-3	R-1	R-2
Rec.=50%/RQD=37%	Rec.=80%/RQD=57%	Rec.=66%/RQD=37%	Rec.=70%/RQD=35%

URS

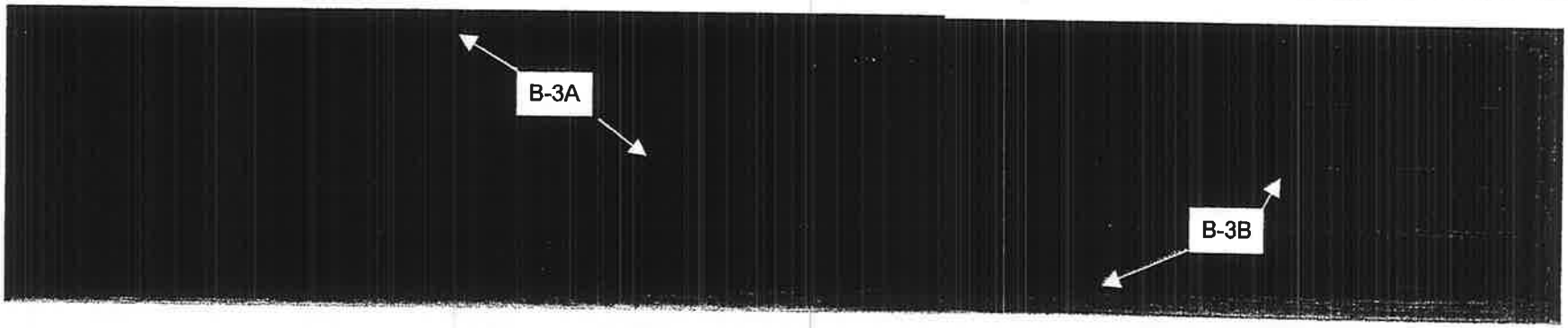


Keystone Cement Plant, Bath, Pa.			
Boring B-1A	Boring B-1B		
R-1	R-1	R-2	R-3
Rec.=100%/ RQD=50%	Rec.=75%/RQD=62%	Rec.=70%/RQD=67%	Rec.=34%/RQD=22%

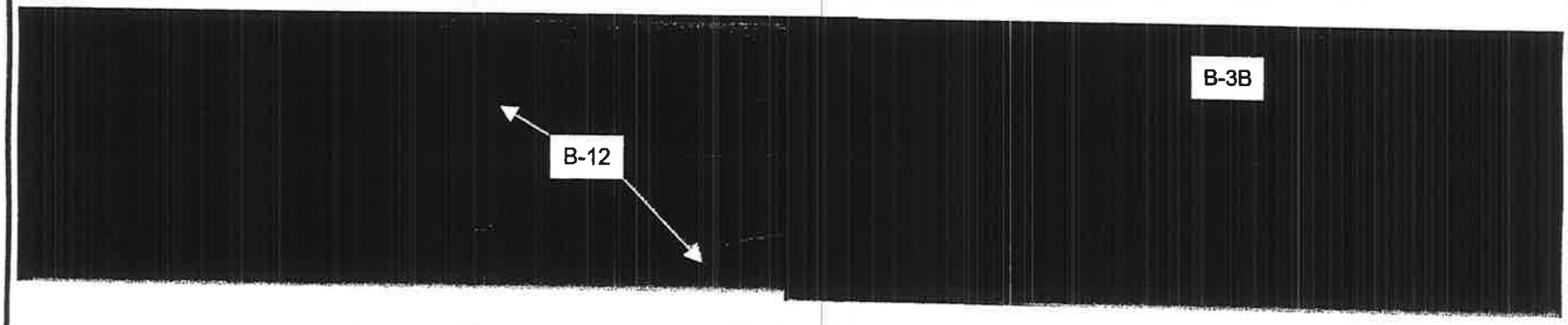


Keystone Cement Plant, Bath, Pa.			
Boring B-2A			Boring B-3A
R-1	R-2	R-3	R-1
Rec.=40%/RQD=17%	Rec.=68%/RQD=55%	Rec.=100%/RQD=83%	Rec.=50%/RQD=32%

URS

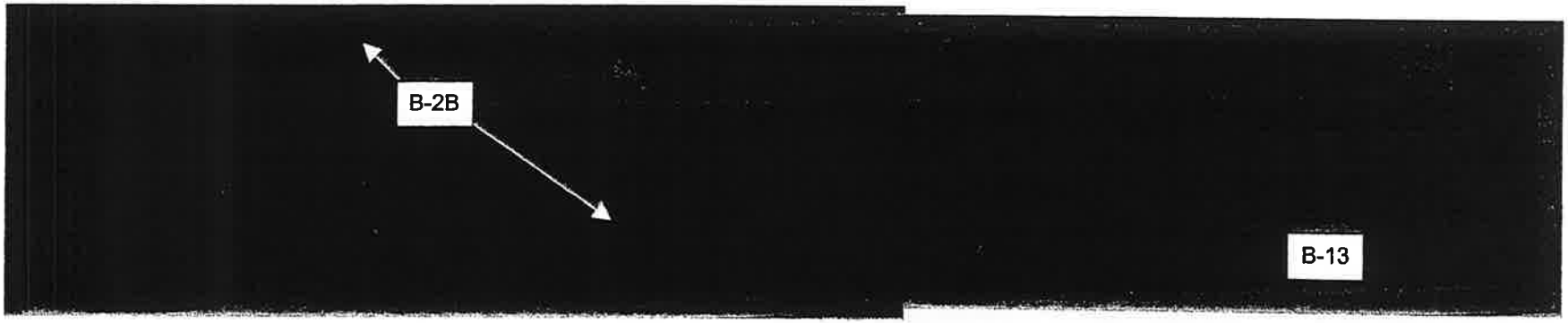


Keystone Cement Plant, Bath, Pa.			
Boring B-3A		Boring B-3B	
R-2	R-3	R-1	R-2
Rec.=10%/ RQD=10%	Rec.=53%/RQD=25%	Rec.=71%/RQD=53%	Rec.=50%/RQD=30%

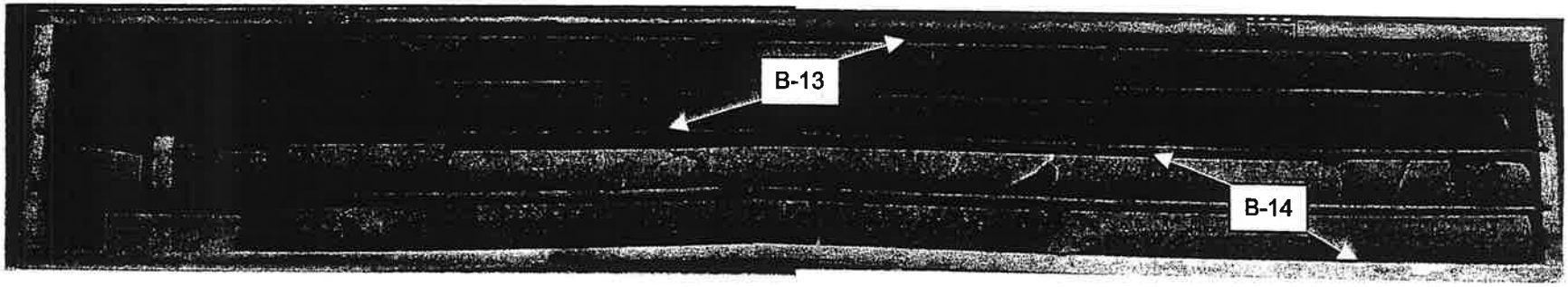


Keystone Cement Plant, Bath, Pa.			
Boring B-3B (cont'd)	Boring B-12		
R-3	R-1	R-2	R-3
Rec.=33%/RQD=18%	Rec.=100%/RQD=100%	Rec.=100%/RQD=100%	Rec.=90%/RQD=78%

URS

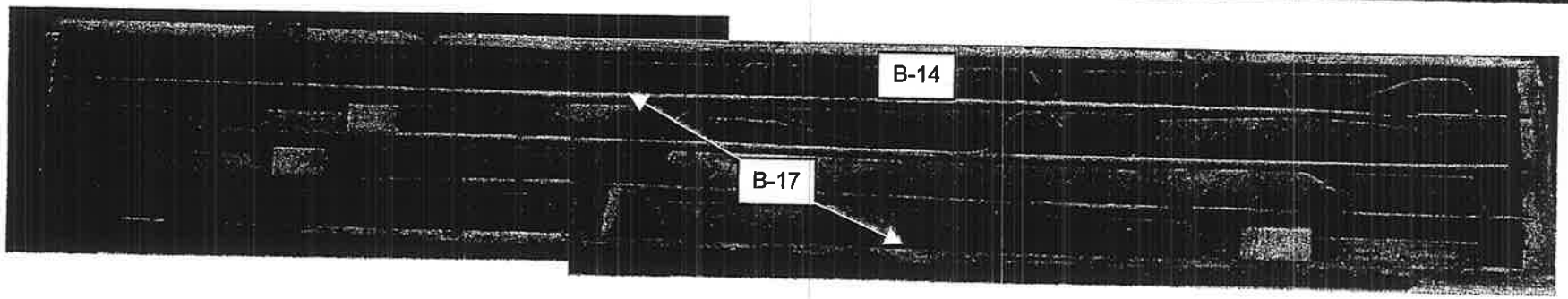


Keystone Cement Plant, Bath, Pa.			
Boring B-2B			Boring B-13
R-1	R-2	R-3	R-1
Rec.=60%/ RQD=33%	Rec.=75%/RQD=60%	Rec.=83%/RQD=77%	Rec.=83%/RQD=58%

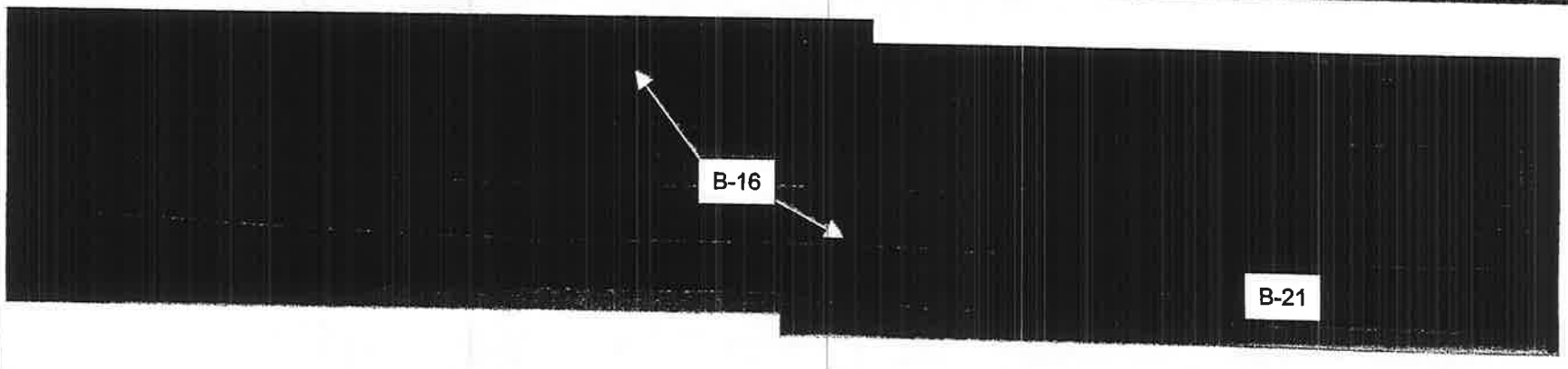


Keystone Cement Plant, Bath, Pa.			
Boring B-13 (cont'd)		Boring B-14	
R-2	R-3	R-1	R-2
Rec.=97%/RQD=88%	Rec.=97%/RQD=93%	Rec.=90%/RQD=70%	Rec.=85%/RQD=70%

URS

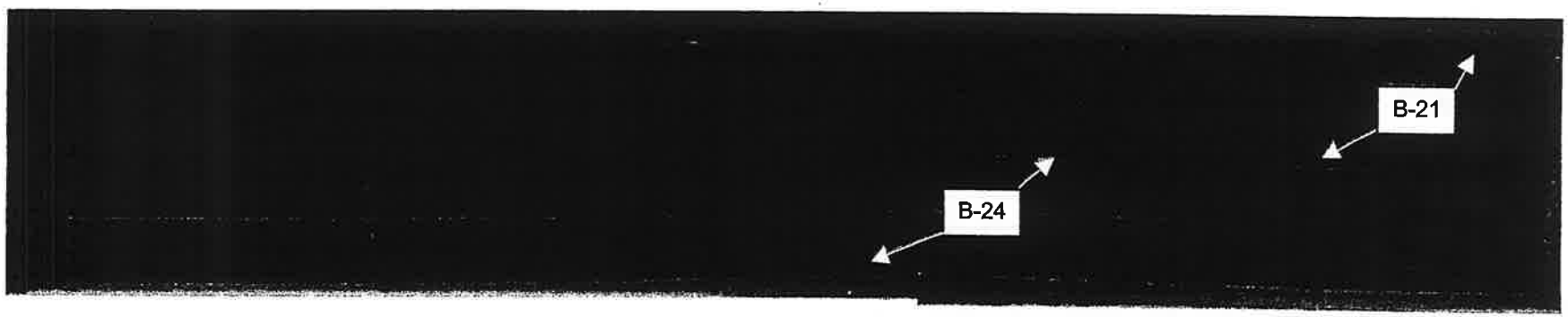


Keystone Cement Plant, Bath, Pa.				
Boring B-14 (cont'd)	Boring B-17			
R-3	R-1	R-2	R-3	R-4
Rec.=100%/ RQD=65%	Rec.=70%/RQD=20%	Rec.=73%/RQD=43%	Rec.=83%/RQD=58%	Rec.=33%/RQD=20%

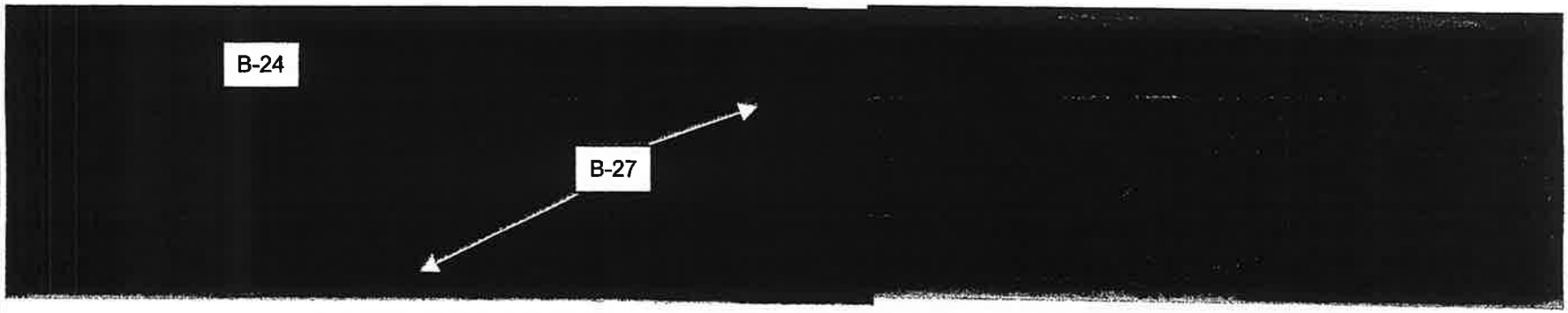


Keystone Cement Plant, Bath, Pa.			
Boring B-16			Boring B-21
R-1	R-2	R-3	R-1
Rec.=33%/RQD=10%	Rec.=63%/RQD=46%	Rec.=100%/RQD=73%	Rec.=46%/RQD=26%

URS

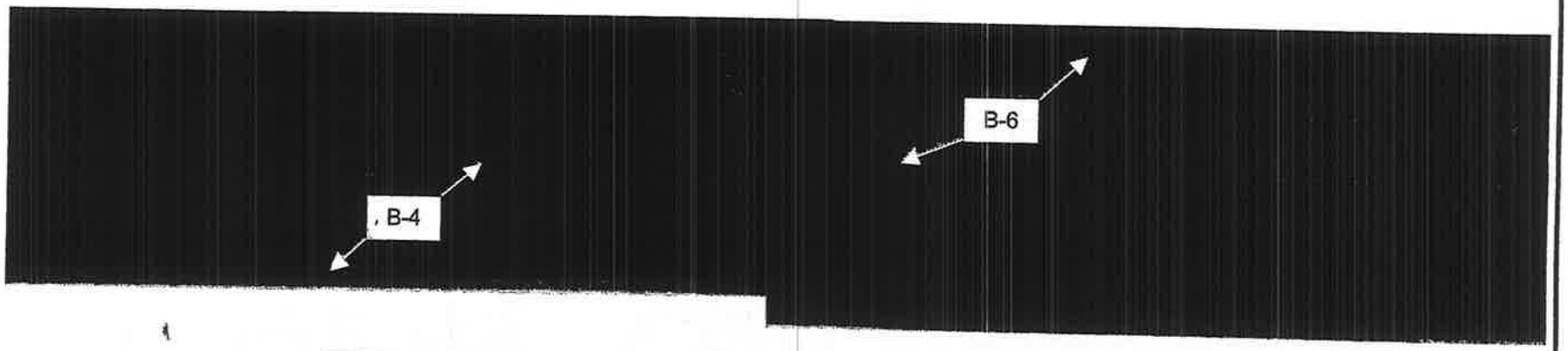


Keystone Cement Plant, Bath, Pa.			
Boring B-21 (cont'd)		Boring B-24	
R-2	R-3	R-1	R-2
Rec.=58%/ RQD=13%	Rec.=65%/RQD=44%	Rec.=10%/RQD=0%	Rec.=70%/RQD=51%



Keystone Cement Plant, Bath, Pa.				
Boring B-24 (cont'd)	Boring B-27			
R-3	R-1	R-2	R-3	R-4
Rec.=100%/ RQD=80%	Rec.=20%/RQD=0%	Rec.=5%/RQD=0%	Rec.=50%/RQD=32%	Rec.=58%/RQD=40%

URS

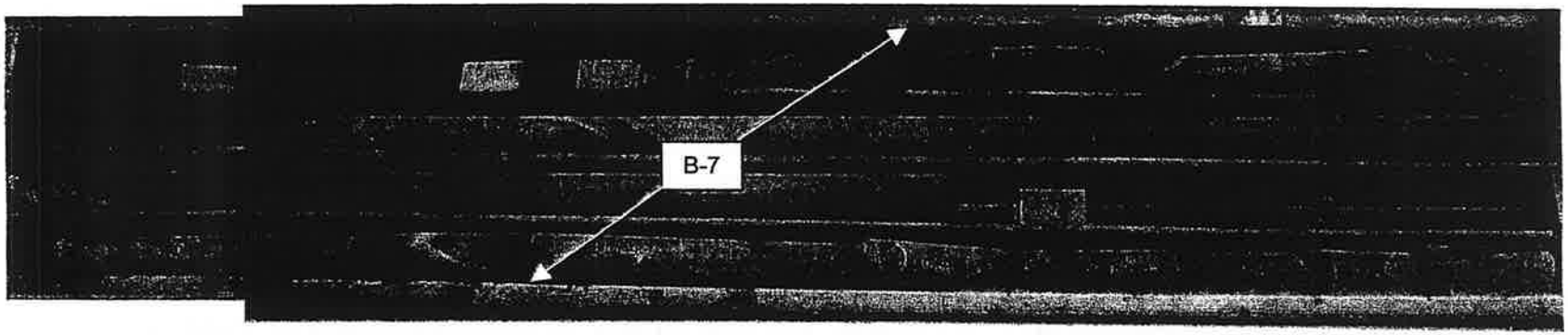


Keystone Cement Plant, Bath, Pa.			
Boring B-6		Boring B-4	
R-1	R-2	R-1	R-2
Rec.=50%/ RQD=28%	Rec.=30%/RQD=13%	Rec.=50%/RQD=33%	Rec.=80%/RQD=55%

Keystone Cement Plant, Bath, Pa.			
Boring B-4 (cont'd)	Boring B-2		
R-3	R-1	R-2	
Rec.=95%/RQD=63%	Rec.=40%/RQD=30%	Rec.=43%/RQD=40%	

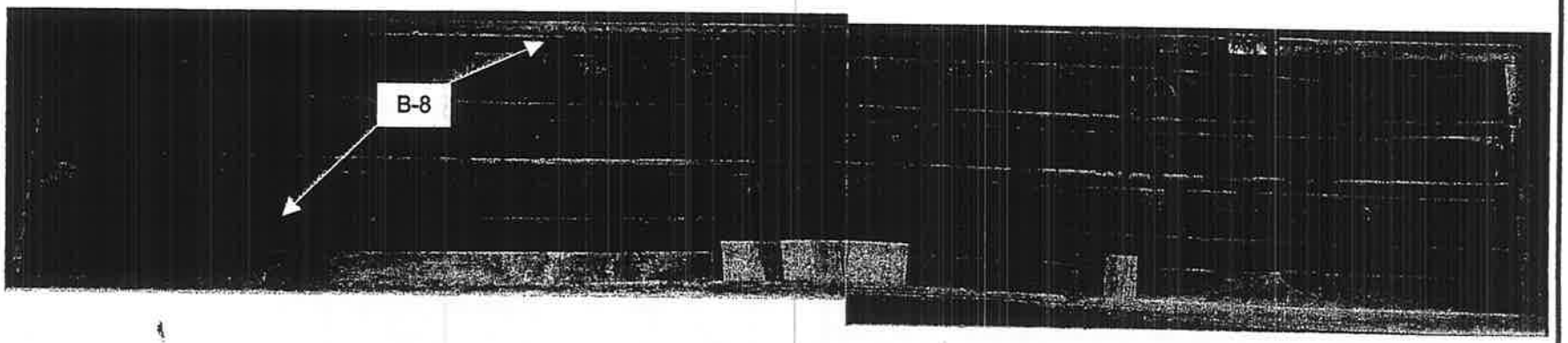
URS

Keystone Cement Plant, Bath, Pa.			
Boring B-5			
R-1	R-2	R-3	
Rec.=66%/ RQD=48%	Rec.=63%/RQD=42%	Rec.=100%/RQD=70%	

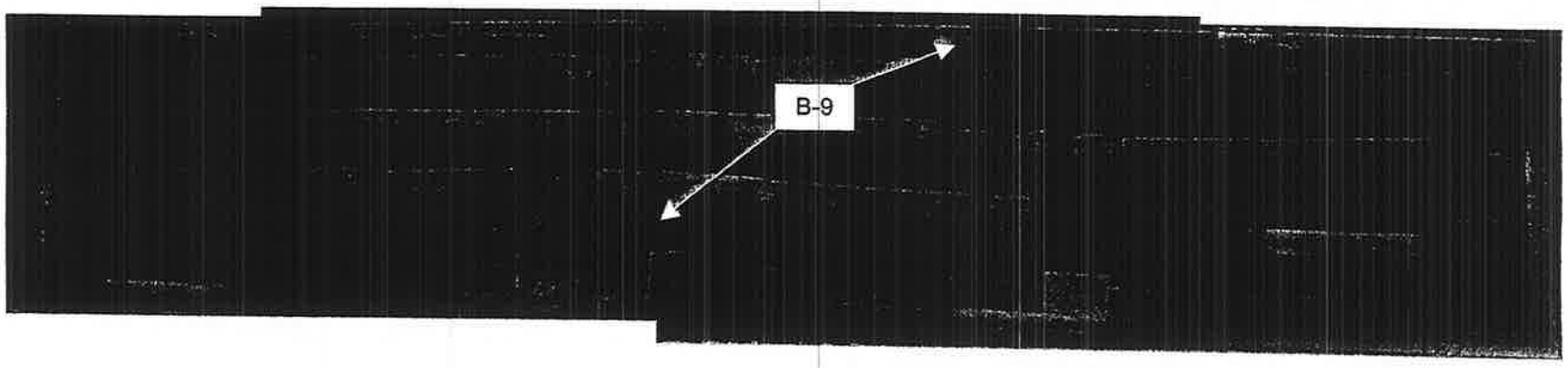


Keystone Cement Plant, Bath, Pa.			
Boring B-7			
R-1	R-2	R-3	R-4
Rec.=50%/RQD=25%	Rec.=83%/RQD=67%	Rec.=100%/RQD=55%	Rec.=100%/RQD=75%

URS

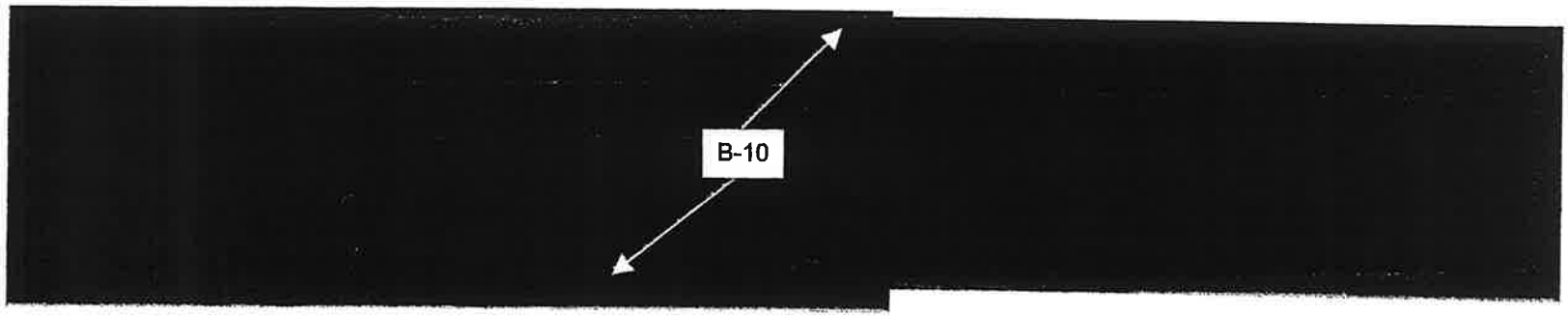


Keystone Cement Plant, Bath, Pa.			
Boring B-8			
R-1	R-2	R-3	
Rec.=100%/ RQD=67%	Rec.=100%/RQD=80%	Rec.=100%/RQD=80%	

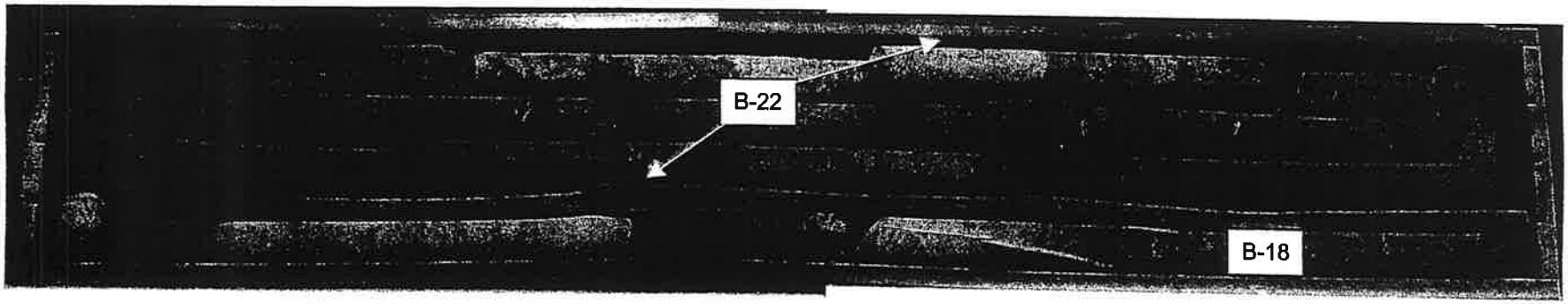


Keystone Cement Plant, Bath, Pa.			
Boring B-9			
R-1	R-2	R-3	
Rec.=100%/RQD=50%	Rec.=100%/RQD=68%	Rec.=100%/RQD=61%	

URS

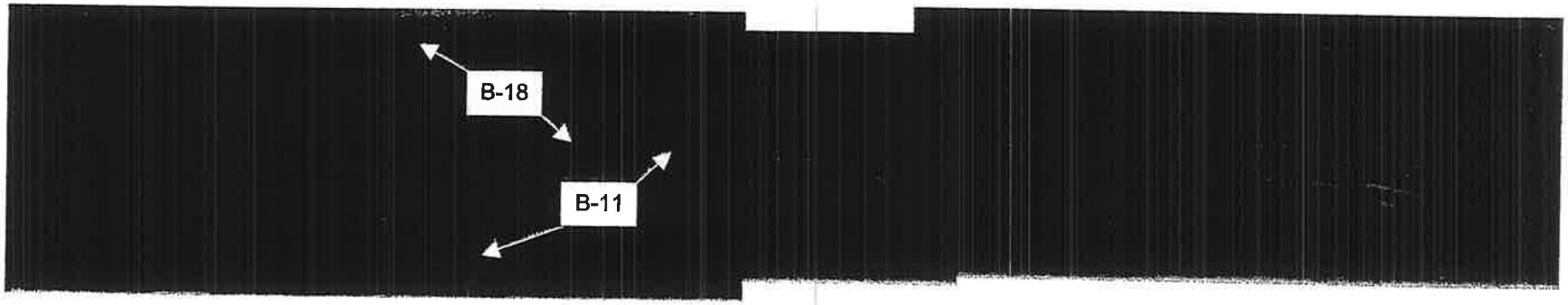


Keystone Cement Plant, Bath, Pa.			
Boring B-10			
R-1	R-2	R-3	R-4
Rec.=100%/ RQD=60%	Rec.=90%/RQD=70%	Rec.=50%/RQD=83%	Rec.=60%/RQD=25%

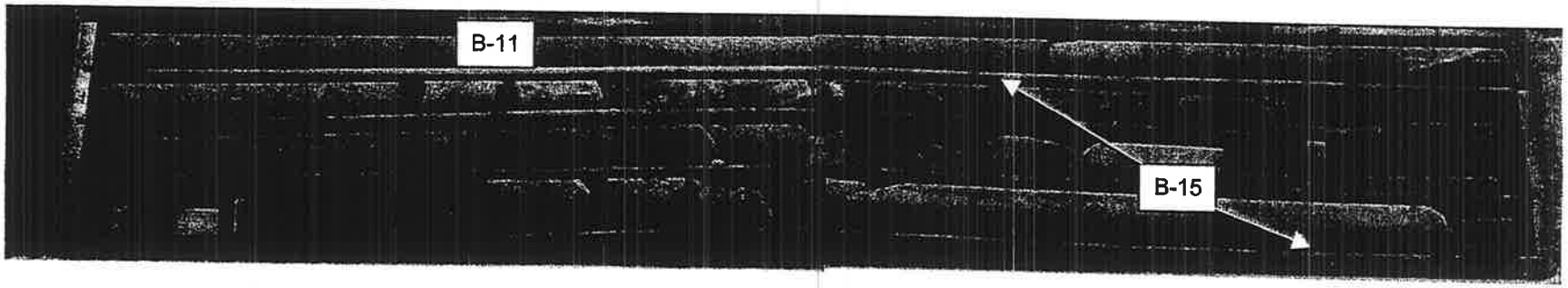


Keystone Cement Plant, Bath, Pa.			
Boring B-22			Boring B-18
R-1	R-2	R-3	R-1
Rec.=70%/RQD=65%	Rec.=90%/RQD=70%	Rec.=95%/RQD=92%	Rec.=86%/RQD=65%

URS

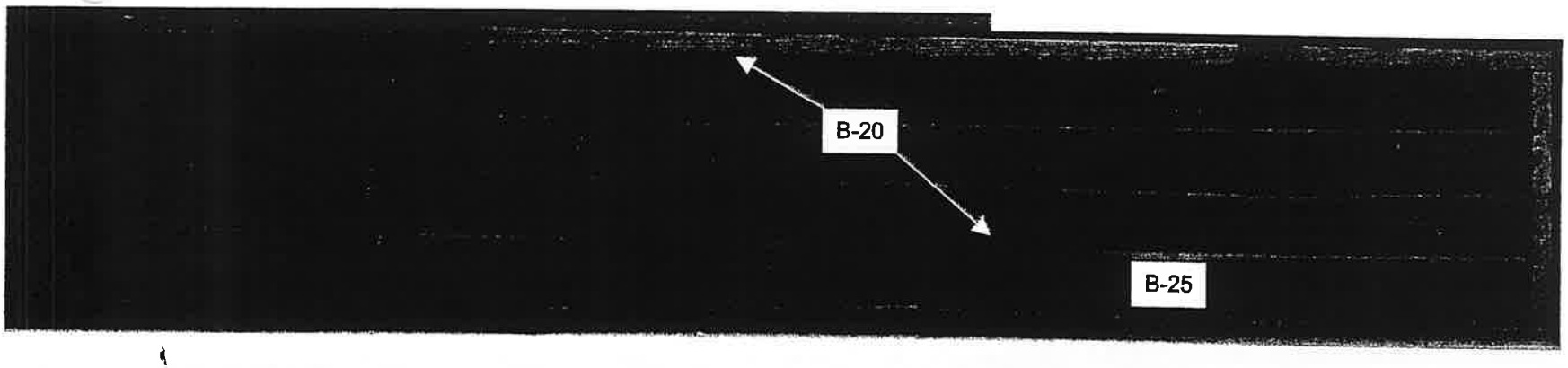


Keystone Cement Plant, Bath, Pa.			
Boring B-18 (cont'd)		Boring B-11	
R-2	R-3	R-1	R-2
Rec.=60%/ RQD=33%	Rec.=75%/RQD=60%	Rec.=83%/RQD=77%	Rec.=83%/RQD=58%

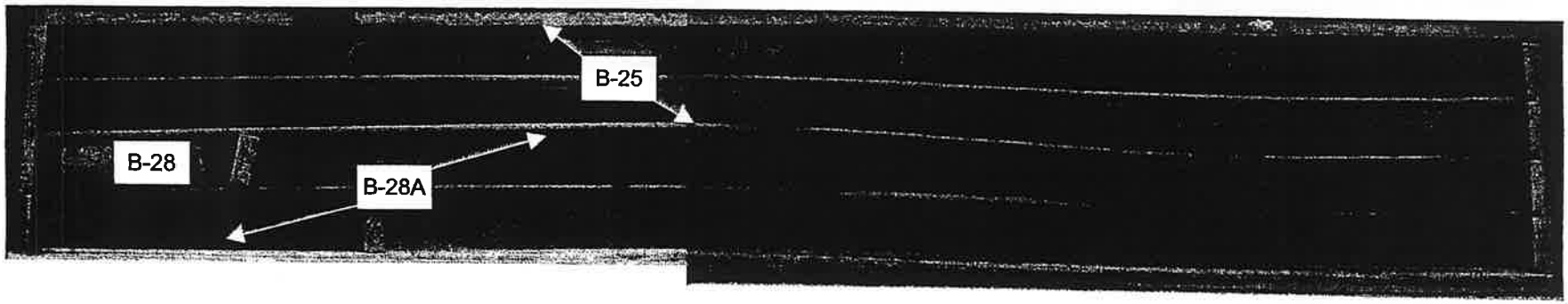


Keystone Cement Plant, Bath, Pa.				
Boring B-11 (cont'd)	Boring B-15			
R-3	R-1	R-2	R-3	R-4
Rec.=100%/RQD=67%	Rec.=80%/RQD=58%	Rec.=48%/RQD=48%	Rec.=20%/RQD=8%	Rec.=65%/RQD=38%

URS

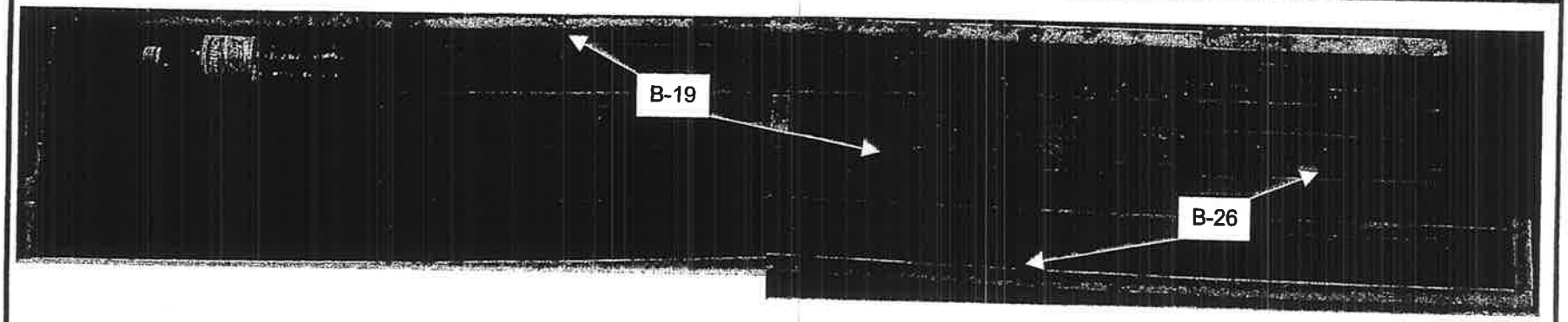


Keystone Cement Plant, Bath, Pa.			
Boring B-20			Boring B-25
R-1	R-2	R-3	R-1
Rec.=88%/ RQD=55%	Rec.=97%/RQD=70%	Rec.=83%/RQD=73%	Rec.=30%/RQD=30%

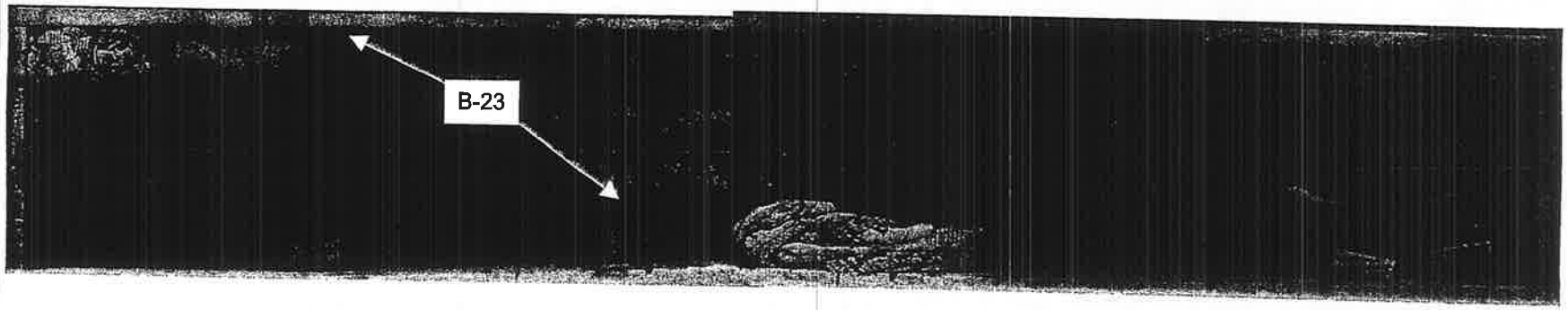


Keystone Cement Plant, Bath, Pa.				
Boring B-25 (cont'd)		Boring B-28	Boring B-28A	
R-2	R-3	R-1	R-1	R-2
Rec.=91%/RQD=87%	Rec.=95%/RQD=93%	Rec.=11%/RQD=8%	Rec.=28%/RQD=28%	Rec.=20%/RQD=0%

URS

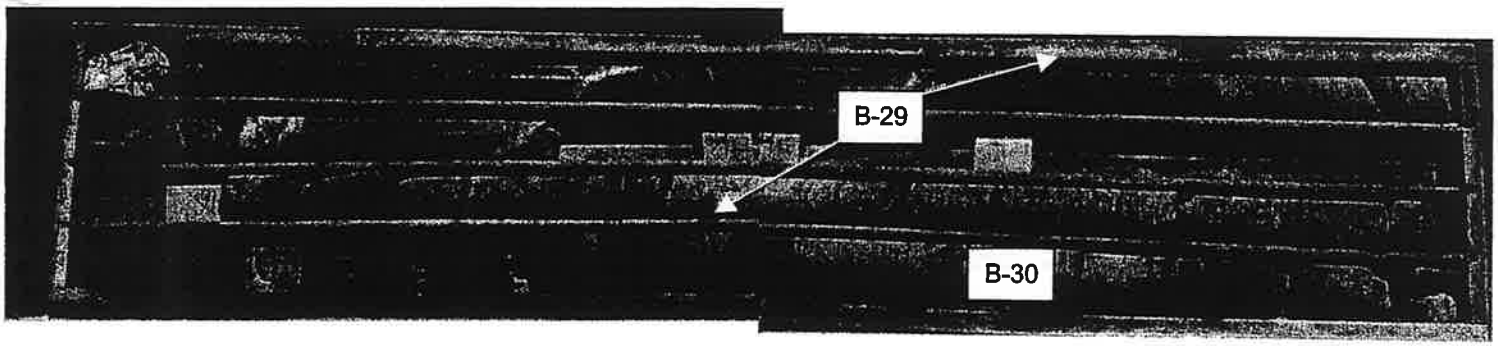


Keystone Cement Plant, Bath, Pa.				
Boring B-19			Boring B-26	
R-1	R-2	R-3	R-1	R-2
Rec.=45%/ RQD=40%	Rec.=43%/RQD=43%	Rec.=10%/RQD=0%	Rec.=91%/RQD=60%	Rec.=93%/RQD=38%

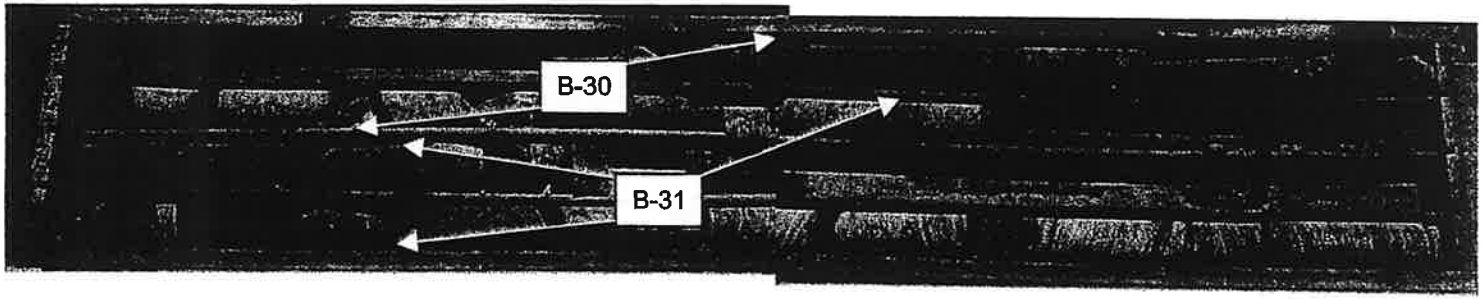


Keystone Cement Plant, Bath, Pa.			
Boring B-23			
R-1	R-2	R-3	
Rec.=90%/RQD=68%	Rec.=100%/RQD=88%	Rec.=96%/RQD=92%	

URS

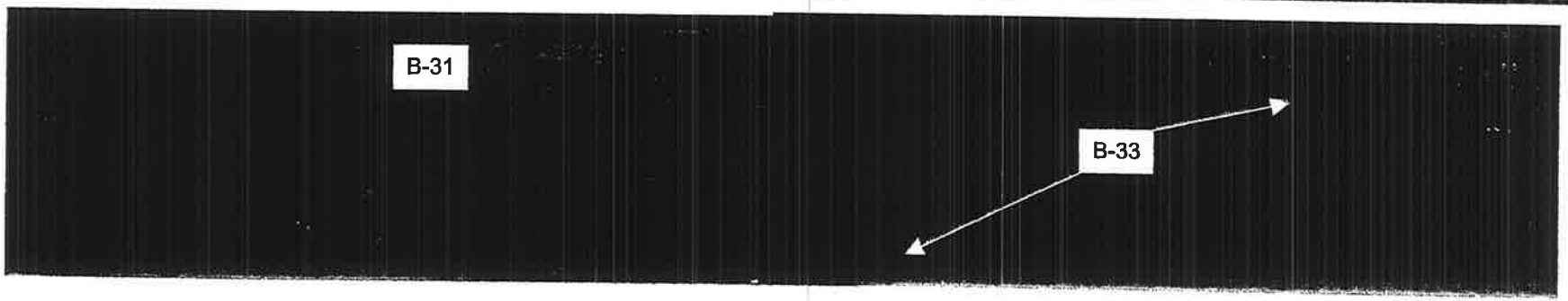


Keystone Cement Plant, Bath, Pa.			
Boring B-29			Boring B-30
R-1	R-2	R-3	R-1
Rec.=93%/ RQD=75%	Rec.=30%/RQD=25%	Rec.=87%/RQD=60%	Rec.=66%/RQD=37%



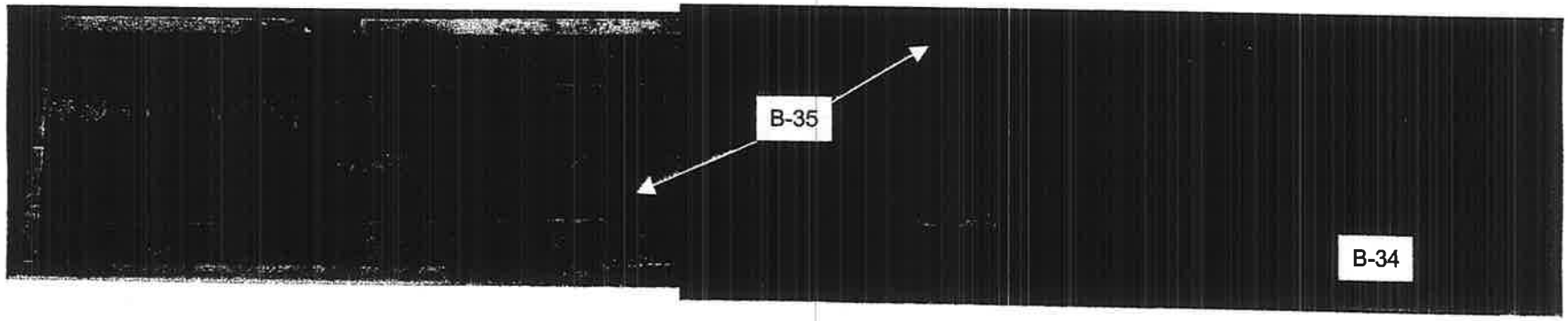
Keystone Cement Plant, Bath, Pa.				
Boring B-30 (cont'd)		Boring B-31		
R-2	R-3	R-1	R-2	R-2
Rec.=55%/RQD=40%	Rec.=48%/RQD=13%	Rec.=15%/RQD=15%	Rec.=30%/RQD=13%	Rec.=100%/RQD=70%

URS



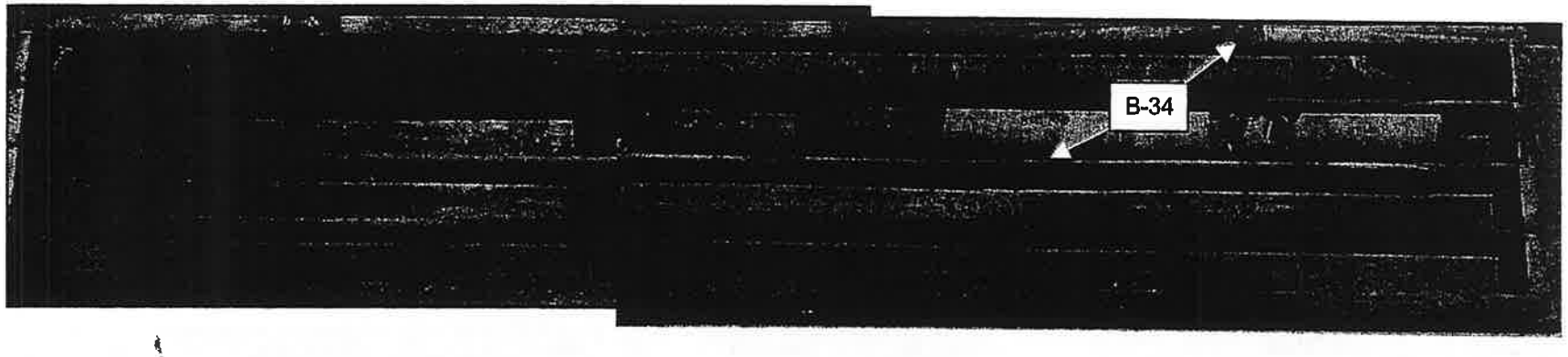
Keystone Cement Plant, Bath, Pa.			
Boring B-31 (cont'd)	Boring B-33		
R-4*	R-1	R-2	R-3
Rec.=95%/ RQD=10%	Rec.=46%/RQD=27	Rec.=60%/RQD=0%	Rec.=90%/RQD=68%

* Note: Core incorrectly marked as R-3

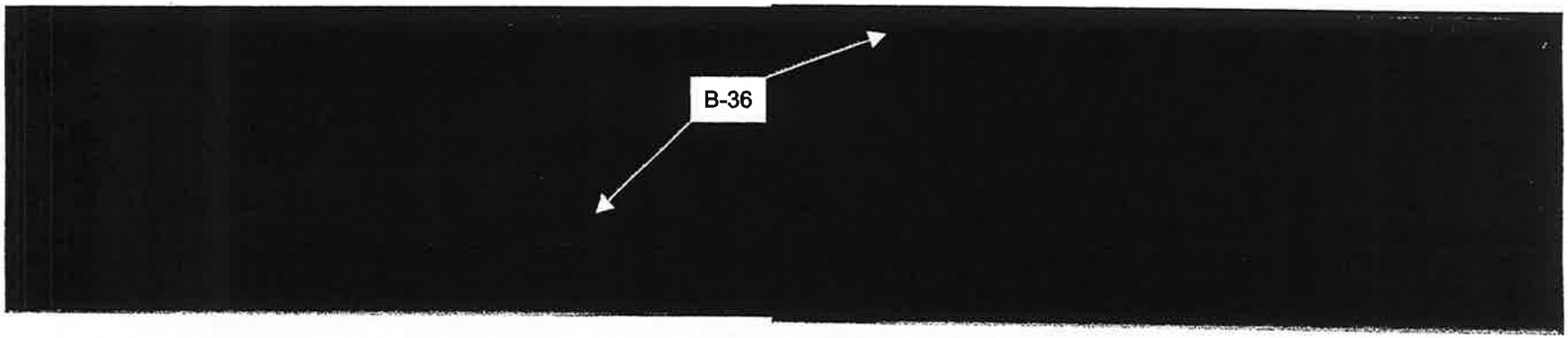


Keystone Cement Plant, Bath, Pa.			
Boring B-35			Boring B-34
R-1	R-2	R-3	R-1
Rec.=95%/RQD=70%	Rec.=100%/RQD=93%	Rec.=96%/RQD=87%	Rec.=30%/RQD=15%

URS

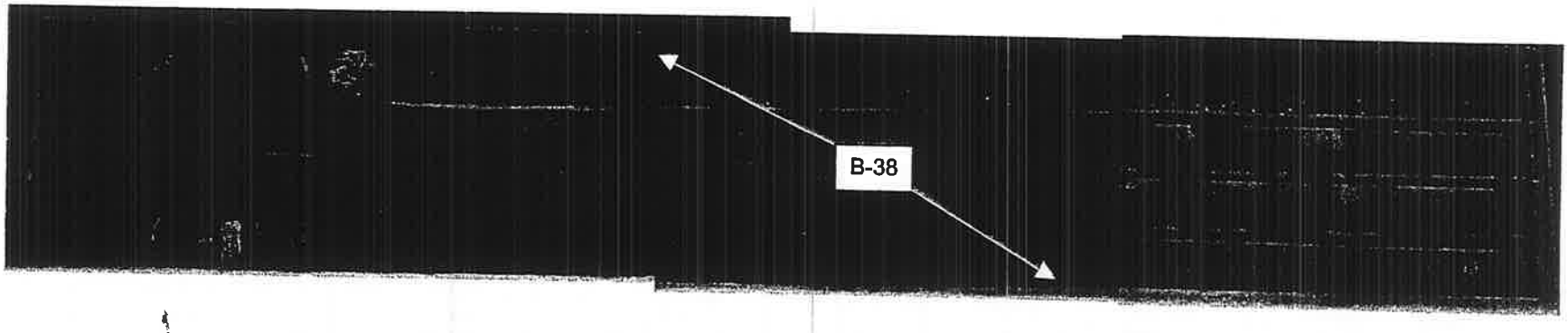


Keystone Cement Plant, Bath, Pa.			
Boring B-34 (cont'd)			
R-2	R-3		
Rec.=95%/ RQD=87%	Rec.=58%/RQD=40%		

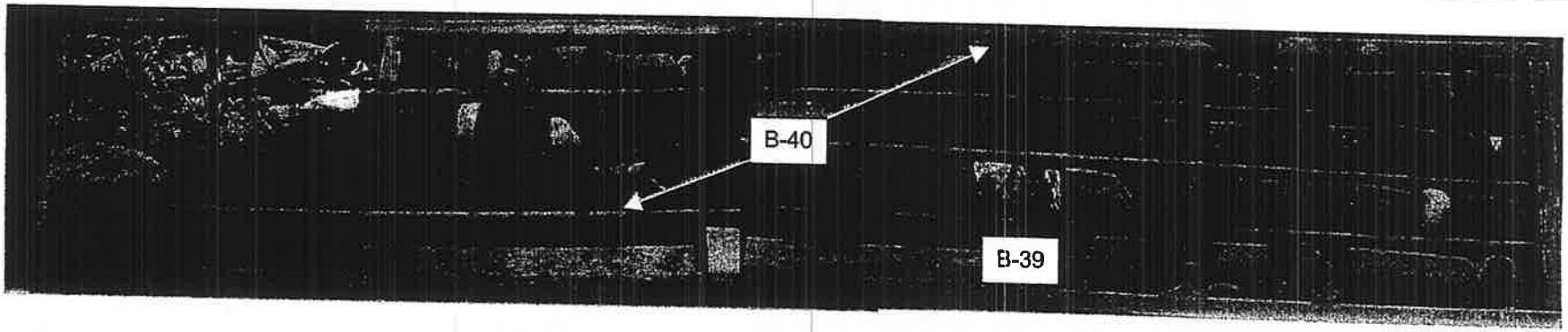


Keystone Cement Plant, Bath, Pa.			
Boring B-36			
R-1	R-2	R-3	
Rec.=95%/RQD=80%	Rec.=95%/RQD=58%	Rec.=100%/RQD=75%	

URS

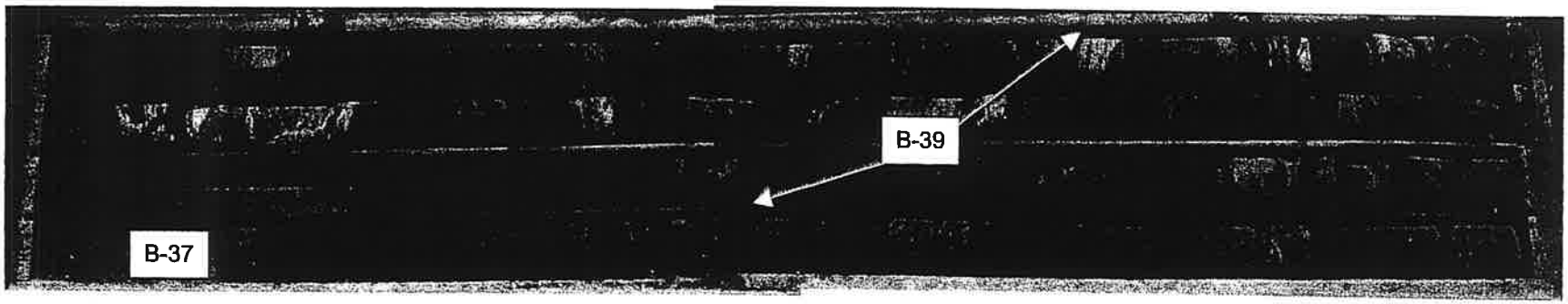


Keystone Cement Plant, Bath, Pa.			
Boring B-38			
R-0	R-1	R-2	R-3
Rec.=11%/ RQD=7%	Rec.=100%/RQD=75%	Rec.=100%/RQD=88%	Rec.=100%/RQD=93%



Keystone Cement Plant, Bath, Pa.			
Boring B-40			Boring B-39
R-1	R-2	R-3	R-0
Rec.=76%/RQD=28%	Rec.=85%/RQD=32%	Rec.=91%/RQD=27%	Rec.=23%/RQD=7%

URS



Keystone Cement Plant, Bath, Pa.			
Boring B-39 (cont'd)			Boring B-37
R-1	R-2	R-3	R-1
Rec.=95%/ RQD=17%	Rec.=95%/RQD=0%	Rec.=73%/RQD=0%	Rec.=86%/RQD=23%

URS

APPENDIX R
STORMWATER MANAGEMENT CORRESPONDENCE

GIANT CEMENT COMPANY
320-D Midland Parkway
Summerville, South Carolina 29485

Corporate & Sales
(843) 851-9898

Plant:
(803) 496-5033

Toll Free:
1-800-845-1174

Via FedEx
Obtain Delivery Signature

December 23, 2003

Mr. Robert L. Springer, Director
5301W
US EPA Office of Solid Waste
1200 Pennsylvania Ave., N.W.
Washington, DC 20460

Re: Giant Cement Company (Giant)
Burning of Contaminated Rainwater

Dear Mr. Springer:

The purpose of this letter is to seek clarification of issues related to the possible burning of containment rainwater contaminated with hazardous waste that were raised in a Notice of Deficiency issued to Giant Cement on October 31, 2003 concerning Giant's Part B application for a RCRA permit.

After consultation with our permit writer in EPA Region IV, Beth Antley, she suggested that we write your office directly for clarification of EPA's position on the implications of burning containment rainwater in Giant's kilns. First we will present the pertinent background information and the specific NOD, and then Giant's analysis of this matter.

Background

Giant stores hazardous waste fuel in an on-site tank farm. During a storm event rainwater collects in the tank farm secondary containment. Through contact with valves and other fittings the rainwater may become contaminated with small quantities of hazardous waste. In lieu of testing the containment rainwater and arranging for disposal off-site, Giant would like to have the option of pumping the rainwater into its tanks and blending it into the fuel. Because of the storage capacity of the tank farm this practice will not have a material effect on the Btu content or other characteristics of the fuel. Please note the proposed permit provides for a roof, which will reduce but not eliminate rainwater in secondary containment because the tank farm will still not be fully enclosed.

NOD No. 37 states that:

> If Giant intends to burn contaminated rainwater, Giant must document that the entire contaminated rainwater mixture has a minimum heating value of 5,000 Btu/lb as generated, or after bona fide treatment other than blending, so that the rainwater is being burned for legitimate energy recovery. Otherwise, the resulting cement product will

be considered waste-derived (pursuant to 40 CFR §§ 261.2(c)(1)(B) and 261.3(c)(2)(i)) and will be subject to the provisions of 40 CFR § 266.20.

Giant's Analysis

Giant understands the basis for the view of this issue reflected in the NOD, but believes the minimum heating value test is not applicable to this situation, for the following reasons:

First, the 5,000 Btu/lb minimum heating value test, to the extent it continues to be applicable to burners of waste fuel[1], only applies to waste at two points, "as generated" and "as burned."

> A hazardous waste is a legitimate fuel if it has substantial heat value, as generated. A blended hazardous waste is a legitimate fuel if the mixture has substantial heat value, provided that the mixture does not contain a hazardous waste that does not have substantial heat value.

2/28/84 Memorandum, John H. Skinner, Director of Office of Solid Waste, to Thomas W. Devine, Director, Air and Waste Management Division, Region IV (emphasis added).

Rainwater that collects in secondary containment is not a waste, but rather environmental media that may be contaminated with listed hazardous waste. Under EPA's contained-in policy, media contaminated with listed hazardous wastes are not wastes themselves, but simply contain hazardous wastes and therefore must be managed as hazardous wastes until they no longer contain the waste. See 61 Fed. Reg. 18795 (April 29, 1996). Accordingly, rainwater is not a newly generated waste when it becomes contaminated. The relevant point of generation is the point of generation for the listed hazardous waste that is "contained in" the rainwater. The listed wastes received by Giant that may be present in contaminated rainwater exceeded 5,000 Btu/lb, as generated. In addition, Giant will not burn wastes containing contaminated rainwater until they have been reblended into fuel that exceeds 5,000 Btu/lb. Thus any contaminated rainwater that is burned will comply with the minimum heating value test, both "as generated" and "as burned."

Second, we believe that Giant's cement products would not be subject to regulation as waste-derived products under 40 CFR §266.20 even if the contaminated rainwater were subject to the minimum heating value test.

In the final "first-third" LDR rule (53 Fed. Reg. 31198, col. 2 (August 17, 1988)), EPA made it clear that only processes where hazardous waste is being used as an ingredient (materials recovery) are within the scope of §266.20:

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[1] It should be noted that under §266.103(a)(6) a facility like Giant that has certified compliance with BIF interim status standards is not subject to any Btu restrictions under the 1983 Sham Recycling Policy, because after the BIF rule went into effect it no longer mattered whether waste was being burned for energy recovery or destruction. What remained of the Sham Recycling Policy as it applies to combustion was largely superseded by the dilution prohibition of 40 CFR § 268.3.

> EPA also wishes to take this opportunity to clarify, in response to comment, that the underlying regulatory provision §266.20 does not apply to materials, such as cement or aggregate, that are not produced from hazardous wastes. This is true even for cement or aggregate produced in a furnace that is powered in whole or in part by hazardous waste fuel. Section 266.20 applies when a process "use(s) hazardous wastes as ingredients" to produce a product that is then applied to the land (50 FR 628; January 4, 1985). To be covered by the rule, a product must "contain" the hazardous waste. Materials such as cement or aggregate that are produced from raw materials, but come from processes that may be fired by hazardous waste fuels, are consequently not covered by this provision. They do not use hazardous waste ingredients. Section 266.20 thus applies when hazardous wastes are incorporated directly into a product which is to be applied to the land; hazardous wastes recycled in this way thus really are being disposed. There is no such direct link with disposal when hazardous wastes are used to power a process that may be producing a material that will be used on the land. Products produced in processes that use hazardous waste fuels thus are not covered by section 266.20 unless the process also uses hazardous wastes as ingredients in a product destined for land application. (emphasis added)

EPA has always drawn a clear distinction among three distinct types of burning purposes: (1) energy recovery, (2) destruction, and (3) materials recovery (ingredient). In fact, EPA has regulated hazardous waste burning in phases, depending upon which of these purposes was being served. EPA began regulating burning for destruction in 1980. With the "Phase I" rules in 1985, EPA began regulating HWF used for energy recovery. With the BIF rule EPA also began regulating burning for material recovery (or as an "ingredient").

Thus, even if burning contaminated rainwater were not in compliance with the minimum heating value test, such a practice would still not subject Giant's cement products to §266.20 unless the products "contain" the hazardous waste being burned.

Clearly, the containment rainwater collected by Giant would not become an ingredient of Giant's cement products when burned. At worst it consists of a small quantity of hazardous waste fuel, no different in composition from the other fuel contained in Giant's tanks, mixed with water. Neither the water nor the waste fuel could become a part of Giant's products.

In summary, Giant believes that the hazardous waste in contaminated rainwater complies with the 5,000 Btu/lb minimum heat value test, both as generated and as burned, and in any event no constituents of the rainwater would become an ingredient of Giant's products, and therefore they would not be subject to §266.20.

Finally, we submit that disposing of containment rainwater contaminated with hazardous waste fuel by burning it in our kilns is an environmentally sound practice fully consistent with the intent of relevant EPA regulations and policies.

Thank you for your assistance in resolving this matter.

Respectfully submitted,

Stephen P. Holt, P.E.
Director, Environmental Affairs

Attachments – 61 FR 18795
53 FR 31198

Cc: Ms. Beth Antley, US EPA IV

media would again become subject to Subtitle C regulation. Understanding the role of the Bright Line and the contained-in principle is essential to understanding how today's proposal would work. Both the contained-in principle and the Bright Line are explained below.

a. The contained-in principle in today's proposed rule background. The contained-in principle is the basis for EPA's longstanding policy regarding the application of RCRA Subtitle C requirements to mixtures of environmental media (e.g., soils, ground water, sediments) and hazardous wastes. This concept has been discussed previously in several Agency directives and in several RCRA rulemakings. (See, e.g., 58 FR 48092, 48127 (September 14, 1993)). In today's proposed rule the Agency is expanding this concept as the basis for allowing EPA or an authorized State to exempt certain contaminated media from the stringent, prevention-oriented RCRA regulations for hazardous waste management that previously would have applied.

The contained-in concept was originally developed to define the regulatory status of environmental media that are contaminated with hazardous wastes. The mixture rule at 40 CFR 261.3(a)(2)(iv) states that "a mixture of solid waste and one or more [listed] hazardous wastes" constitutes a listed waste itself (emphasis added). Similarly, the derived-from rule at 40 CFR 261.3(c)(2)(i) provides that "a solid waste generated from the treatment, storage, or disposal of a hazardous waste" is a hazardous waste (emphasis added).

Since media are not solid wastes, these rules do not apply to mixtures of media and hazardous wastes. However, two other regulations subject contaminated media to Subtitle C requirements. Under 40 CFR 261.3(c)(1) a "hazardous waste will remain a hazardous waste" unless and until certain specified events occur. Under 40 CFR 261.3(d)(2) a "waste which contains" a listed waste remains a hazardous waste until it is delisted. Together these regulations provide for continued regulation of hazardous wastes even after they are released to the environment and mingled with media.

The U.S. Court of Appeals for the District of Columbia Circuit upheld this interpretation of §§ 261.3(c)(1) and (d)(2) in *Chemical Waste Management Inc. v. EPA*, 869 F.2d 1526, 1538–40 (D.C. Cir. 1989), and EPA has explained the policy and its regulatory basis in numerous preambles and letters. (See 53 FR 31138, 31142, 31148 (Aug. 17, 1988); 57 FR 21450, 21453 (May 20, 1992) (inadvertently citing 40 CFR 261(c)(2) in lieu of § 261.3(d)(2)); memorandum from Marcia E. Williams, Director, EPA Office of Solid Waste, to Patrick Tobin, EPA Region IV (Nov. 15, 1986); letter from Jonathan Z. Cannon, EPA Acting Assistant Administrator, Office of Solid Waste and Emergency Response, to Thomas Jorling, Commissioner, New York Department of Environmental Conservation (June 19, 1989); and letter from Sylvia K. Lowrance, Director, EPA Office of Solid Waste, to John Ely, Enforcement Director, Virginia Department of Waste Management (Mar. 26, 1991). Under the contained-in policy, media contaminated with listed hazardous wastes are not wastes themselves, but they contain hazardous wastes and must therefore be managed as hazardous wastes until they no longer contain the waste. This concept is based on the idea that at some point (e.g., at some concentration of hazardous constituents) the media would no longer contain the hazardous waste, or be subject to RCRA Subtitle C regulations.

Because the regulations that serve as the basis for the contained-in policy are part of the "base" RCRA program that was in effect prior to 1984, the Agency has taken the position that EPA or the State agency authorized to administer the "base" RCRA regulations may determine whether media contain listed wastes. Decisions that media no longer contain listed hazardous wastes (or "contained-in" decisions) have typically been made on a case-by-case basis, according to the risks posed by the contaminated media. The Agency has not issued any definitive guidance or regulations for determining appropriate contained-in levels; however, EPA Regions and States have been advised that conservative, health-based levels derived from direct exposure pathways would clearly be acceptable as "contained-in" levels. (See memorandum from Sylvia K. Lowrance to Jeff Zelikson, Region IX, (January 24, 1989)). It has been the common practice of EPA and many States to specify conservative, risk-based levels calculated with standard conservative exposure assumptions (usually based on unrestricted access), or site-specific risk assessments.

With regard to mixtures of media and characteristic wastes, EPA has often stated that media are regulated under RCRA Subtitle C if they exhibit a hazardous waste characteristic. (See 57 FR 21450, 21453, (May 20, 1992)). But, since media generally are not wastes, they become regulated when they have been contaminated with solid or hazardous wastes and the resultant mixture exhibits a characteristic. EPA has also taken the position that contaminated media cease to be regulated as hazardous waste when sufficient quantities of hazardous constituents are removed so that the mixture ceases to exhibit a characteristic* (57 FR 21450, 21453, May 20, 1992).

The contained-in concept in today's proposed rule. One of the primary objectives of today's proposal is to remove lower risk contaminated media from Subtitle C jurisdiction so that more appropriate, site-specific management requirements can be specified by the overseeing Agency. For the purpose of this rulemaking EPA has chosen to use the contained-in concept as the basis for allowing these materials to be exempted from Subtitle C requirements. In formulating the proposal, the Agency considered alternative concepts that might be provided under the RCRA statute that would produce the same or similar exemption. Those concepts are discussed in section (VI)(A)(2) of this preamble.

Today's proposal would allow two separate regulatory regimes to be applied to the management of contaminated media under EPA or State-approved cleanups. For media determined to contain hazardous wastes, modified LDR treatment standards would apply, as would other applicable Subtitle C requirements. For media determined not to contain hazardous wastes, Subtitle C requirements would generally not apply, and the State or EPA would have considerable discretion in applying appropriate management standards.

The proposed rule would limit an overseeing agency's discretion to make site-specific decisions that media no longer contain wastes by specifying "Bright Line" concentration levels. Media that are contaminated below Bright Line concentrations would be eligible for contained-in decisions by the overseeing Agency. However, Bright Line concentrations would not constitute an automatic exemption from Subtitle C; rather, they would represent the concentration below which the State or EPA might determine that media do not contain hazardous waste.

As described below, EPA believes it would generally be acceptable to make a decision that media do not contain hazardous waste at the Bright Line concentrations specified in today's proposal. However, the proposed rule is

*Recent developments under the RCRA land disposal restrictions (LDRs) may suggest a qualification to this latter point. (See discussion of LDRs in section (V)(C) of today's preamble.)

not wastes at all because they are not being "discarded".

EPA has decided to finalize the proposed rule with respect to hazardous waste derived products that are placed on the land, except that EPA is not taking any action with respect to fertilizers that use waste K061 as an ingredient (so that such fertilizers will remain exempt from regulation). EPA is conditioning the regulatory exemption for the reasons stated in the proposal, most particularly because the land disposal restrictions statutory provisions indicate that wastes are not to be placed on the land until they have been pretreated to meet the standards EPA established pursuant to section 3004(m). Where a waste-derived product is produced from more than one prohibited waste, the waste-derived product would have to meet the treatment standard for each hazardous waste that it contains, and if there are different treatment standards for common constituents, then the "product" would have to meet the most stringent of those standards.

EPA also solicited comment on an appropriate tracking system for hazardous waste-derived products to document that these materials meet the applicable treatment standards. Hazardous wastes sent to recycling facilities for ultimate use in waste-derived products that are to be placed on the land are already subject to regulation under section 268.7 (as well as the rest of subtitle C), and so persons shipping such wastes already must notify the recycler that the wastes are prohibited (§§ 268.7(a) and 268.21). EPA has decided, however, that once the recycler produces a waste-derived product that meets the treatment standard, the recycler is not required to notify the receiving facility that it (the receiving facility) is receiving a hazardous waste. The ultimate user of the hazardous waste-derived product is not a normal disposal facility, but rather operates as a commercial entity. As such, this entity is not a meaningful repository of a treatment facility's (i.e., the recycler's) certification and tracking documents prepared pursuant to § 268.7(b). Accordingly, EPA has decided that, instead of the recycler submitting information to the ultimate user, all of the § 268.7 information is to be submitted to the appropriate EPA Regional office or State authority. The only difference in reporting requirements would be that the recycling facility also keep records of the name and location of each entity receiving the hazardous waste-derived product. In this way, the appropriate regulatory authority will be on notice of the location of each shipment and that the shipment has met the applicable treatment standards for the hazardous wastes contained within the waste-derived product.

EPA has further determined that fertilizers produced from hazardous waste K061 should remain exempt from all regulation for the present time. For a further discussion of this determination, see section III. A. 7.

EPA also wishes to take this opportunity to clarify, in response to comment, that the underlying regulatory provision § 266.20, does not apply to materials, such as cement or aggregate, that are not produced from hazardous wastes. This is true even for cement or aggregate produced in a furnace that is powered in whole or in part by hazardous waste fuel. Section 266.20 applies when a process "use(s) hazardous wastes as ingredients" to produce a product that is then applied to the land (50 FR 628; January 4, 1985). To be covered by the rule, a product must "contain" the hazardous waste. Materials such as cement or aggregate that are produced from raw materials, but come from processes that may be fired by hazardous waste fuels, are consequently not covered by this provision. They do not use hazardous waste as ingredients. Section 266.20 thus applies when hazardous wastes are incorporated directly into a product which is to be applied to the land; hazardous wastes recycled in this way thus really are being disposed. There is no such direct link with disposal when hazardous wastes are used to power a process that may be producing a material that will be used on the land. Products produced in processes that use hazardous waste fuels thus are not covered by section 266.20 unless the process also uses hazardous wastes as ingredients in a product destined for land application.

Finally, EPA responds briefly to those commenters alleging that materials used in a manner constituting disposal are not being discarded and therefore are not solid wastes. As the Agency has explained many times, use constituting disposal involves as a practical matter the disposal of wastes. The wastes are being gotten rid of by placing them directly on the land (see e.g., 53 FR 521-22; January 8, 1988). The indications that Congress meant to control this recycling practice under RCRA are legion. [See RCRA section 3004(1) (use of hazardous waste as dust suppressant or for road treatment is prohibited); H.R. Rep. No. 198, 98th Cong. 1st Sess. at 46, 67-68 (hazardous waste-derived products that are placed on the land are to be the special object of EPA scrutiny under the Subtitle C program)]. To say that Congress did not intend to control these use constituting disposal situations under RCRA is to say that Congress had no intention of controlling such damage incidents as the Times Beach dioxin spreading incident where a group of communities were rendered uninhabitable as a result of use of a distillation bottoms mixed with used oil as a dust suppressant. No credible reading of the statute would authorize this type of conduct. Accordingly, EPA views all use constituting disposal recycling activities involving hazardous secondary materials as within its jurisdiction under RCRA subtitle C.

J. Reclamation of Indigenous Waste

In the proposed rules, the Agency indicated that where it was proposing treatment standards based on some type of metal recovery technology, it might not write treatment standards for the wastes generated by the metal recovery technology (for example, for the slag generated by resmelting hazardous waste K069, emission control dust/sludge from secondary lead smelting). (53 FR 11782). The Agency indicated that this result could follow from application of the so-called "indigenous" principle, which states that certain wastes destined for material recovery in industrial furnaces can be considered to be indigenous to those furnaces and so cease to be solid wastes at the point they are actually placed in the furnace. (53 FR 11753). The particular waste codes that might be affected by application of this principle are K061 and K069.

Although EPA has discussed this concept for some time, and most commenters have agreed that some type of indigenous principle is desirable and perhaps legally required, EPA has not fixed the precise scope of the concept. EPA proposed a definition in the May 6, 1987 rule dealing with emission standards for boilers and industrial furnaces, and plans shortly to repropose a somewhat different meaning for the term as part of a reproposal of the boiler and industrial furnace standards. This proposed revision would evaluate both the similarity of the process in which the waste was originally generated and the one in which it is being recovered, and would also evaluate the similarity of the waste from the standpoint of identity and concentration of Appendix VIII hazardous constituents, and the raw material that it is replacing.

Based on the information now before it, EPA believes that K061 and K069

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

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OCT 14 2004

OFFICE OF
SOLID WASTE AND EMERGENCY
RESPONSE

Mr. Stephen P. Holt
Director, Environmental Affairs
Giant Cement Company
320-D Midland Parkway
Summerville, South Carolina 29485

Dear Mr. Holt:

Thank you for your letter of December 23, 2003 regarding the burning of containment rainwater contaminated with hazardous waste fuel (referred to in this letter as "contaminated rainwater") in Giant Cement Company's (Giant) kilns. In your letter, you state that Giant would like to pump the contaminated rainwater into its burn tanks and blend it into the fuel used to fire the kilns. You requested that the Environmental Protection Agency (EPA) address the regulatory implications of burning contaminated rainwater in Giant's kilns. Before addressing the specific question raised in your letter, we review some of the general principles that govern application of Subtitle C requirements of the Resource Conservation and Recovery Act (RCRA) to contaminated environmental media, such as Giant's contaminated rainwater.

The "contained-in" policy is the basis for EPA's interpretation regarding application of RCRA Subtitle C requirements to environmental media contaminated with hazardous wastes. Under the contained-in policy, EPA requires that contaminated environmental media, although not hazardous wastes themselves, be managed as if they were hazardous waste if they contain hazardous waste or exhibit a characteristic of hazardous waste. See "Land Disposal Restrictions Phase IV" final rule (63 Fed. Reg. 28621-622, May 26, 1998).

Contaminated rainwater would be considered contaminated environmental media and subject to regulation under RCRA Subtitle C because it is contaminated with hazardous waste fuel. EPA generally considers contaminated environmental media to contain hazardous waste: (1) when they exhibit a characteristic of hazardous waste; or, (2) when they are contaminated with concentrations of hazardous constituents from listed hazardous waste that are above health-based levels. Note that if the contaminated rainwater does not exhibit a characteristic of hazardous waste or contain listed hazardous waste, then the containment rainwater is not subject to any RCRA requirements.

If contaminated rainwater "contains" hazardous waste fuel, it is subject to all applicable RCRA requirements until the rainwater no longer contains hazardous waste (i.e., until the containment rainwater is de-characterized or, in the case of containment rainwater containing listed hazardous waste, until EPA or an authorized State determines that the rainwater no longer contains listed hazardous waste). Typically, these determinations, called "contained-in" determinations, that contaminated media do not contain hazardous waste, do not mean that no hazardous constituents are present in environmental media, but simply that the concentrations of hazardous constituents present do not warrant management of the media as hazardous waste. A contained-in decision is made by EPA or an authorized State on a case-by-case basis considering the risks posed by the contaminated media. Given that your letter makes no mention of whether a contained-in determination has ever been made on the contaminated rainwater, for purposes of this response, we assume that it is or would be contaminated with concentrations of hazardous constituents from listed hazardous waste that are above health-based levels.

In the Giant case, we understand from our discussions that the contaminated rainwater is the result of rainwater contacting tanks and ancillary equipment which are all related to the hazardous waste-derived fuel operations. That is, rainwater does not come into contact with other tanks and equipment holding hazardous waste that would not be considered a legitimate hazardous waste-derived fuel.

Generally, when listed hazardous waste (i.e., wastes defined in 40 CFR part 261, subpart D) is burned in a cement kiln in a manner that results in the clinker product "containing" the hazardous waste (e.g., burned as an ingredient), then the clinker product is a waste-derived product subject to the provisions of 40 CFR 266.20.[1] See "Land Disposal Restrictions for First Third Scheduled Wastes" final rule (53 Fed. Reg. at 31198, August 17, 1988) that you mention in your letter. This waste-derived product is eligible for an exemption from any further regulatory requirements pursuant to 40 CFR 266.20(b) if the clinker product meets the applicable treatment standards in subpart D of 40 CFR part 268. That same preamble indicates, however, that cement produced from kilns that are fired by hazardous waste fuel are not considered to "contain" hazardous waste, because the hazardous waste is not being used as an ingredient and so would not be "contained" in the product.

Thus, cement produced when Giant's kilns are fired by hazardous waste fuel is not considered to contain hazardous waste, and so is not subject to the waste-derived product provisions in 40 CFR 266.20. We considered whether the burning of the contaminated rainwater – that is, contaminated with small amounts of that same hazardous waste fuel – should be analyzed the same way. As we understand how Giant intends to process and burn the contaminated rainwater, the cement product should not be considered to be a waste-derived product under 40 CFR 266.20. As you state in your letter, the contaminated rainwater contains small quantities of hazardous waste-derived fuel originally destined to be burned in Giant's

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[1] There would be no waste-derived product implications with regard to burning a solid waste that only exhibits the characteristic of hazardous waste (i.e., waste defined in 40 CFR part 261, subpart C).

cement kilns. Had these incidental and essentially unavoidable "losses"[2] of hazardous waste not occurred at Giant's on-site tank farm, then the hazardous waste fuel would have been burned in Giant's kilns without adverse waste-derived product consequences.

Water is typically associated with hazardous waste fuels in burn tanks of commercial facilities such as Giant. When the fuel is introduced into the kiln, this water is simply evaporated. In the case of the rainwater contaminated with fuel constituents, returning these hazardous waste fuel losses to the waste fuel burn tanks in a manner that does not significantly lower the heating value of the hazardous waste fuel will not alter the disposition of the toxic constituents in the contaminated rainwater. The hazardous constituents in the contaminated rainwater are no different than in the hazardous waste fuel, are no more likely to partition to cement product, and the burning activity is no more using the containment rainwater as an ingredient than burning the hazardous waste fuel itself. Thus, given that the clinker product will not "contain" the hazardous waste if the contaminated rainwater is burned in the kiln, we conclude that the cement produced should not be considered a waste-derived product.

We note that this letter applies only to the specific fact situation described in your letter (as we understand the facts concerning Giant's kilns and burn tanks). We would not necessarily analyze situations involving other contaminated media (such as contaminated soils, where the solid fraction could be contributing ingredient value to cement) the same way. Finally, a state program may be more stringent or different than the federal regulations so it may be necessary to check with the State of South Carolina on their interpretation.

I hope this information will be helpful in resolving issues related to Giant's Notice of Deficiency. If you have any further questions, please contact Frank Behan of my staff at 703-308-8476.

Sincerely yours,

Matt Hale, Director
Office of Solid Waste

cc: Beth Antley, Region IV (980 College Station Road, Athens, GA 30605)

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[2] Though not specified in your letter, we assume that the contaminated rainwater is a result of losses from normal hazardous waste material handling operations such as spills from the unloading or transfer of materials from other containers, or leaks from well-maintained pipes, valves, fittings, or other devices used to transfer hazardous waste materials. Thus, it is assumed that the contaminated rainwater contains trace levels of the original hazardous waste.

Environmental Hearing Board
Rachel Carson State Office Building, Second Floor
400 Market Street
P.O. Box 8457
Harrisburg, PA 17105-8457

TDD users may contact the Environmental Hearing Board through the Pennsylvania Relay Service, 800-654-5984.

Appeals must be filed with the Board within 30 days of receipt of notice of this action unless the appropriate statute provides a different time. This paragraph does not, in and of itself, create any right of appeal beyond that permitted by applicable statutes and decisional law.

A Notice of Appeal form and the Board's rules of practice and procedure may be obtained online at http://ehb.courtapps.com or by contacting the Secretary to the Board at 717-787-3483. The Notice of Appeal form and the Board's rules are also available in braille and on audiotape from the Secretary to the Board.

IMPORTANT LEGAL RIGHTS ARE AT STAKE. YOU SHOULD SHOW THIS DOCUMENT TO A LAWYER AT ONCE. IF YOU CANNOT AFFORD A LAWYER, YOU MAY QUALIFY FOR FREE PRO BONO REPRESENTATION. CALL THE SECRETARY TO THE BOARD AT 717-787-3483 FOR MORE INFORMATION. YOU DO NOT NEED A LAWYER TO FILE A NOTICE OF APPEAL WITH THE BOARD.

IF YOU WANT TO CHALLENGE THIS ACTION, YOUR APPEAL MUST BE FILED WITH AND RECEIVED BY THE BOARD WITHIN 30 DAYS OF RECEIPT OF NOTICE OF THIS ACTION.

Should you have any questions, please contact me at rbellas@pa.gov or 570-826-2201.

Sincerely,

Roger Bellas

Roger Bellas
Program Manager
Waste Management Program

Enclosure – Permit No. PAD002389559

cc: Northampton County w/enc. (via email: lheffner@northamptoncounty.org)
Lehigh Valley Planning Commission w/enc. (via email: cruggiero@lvpc.org)
East Allen Township w/enc. (via email: manager@eatwp.org)
Stuart H. Guinther w/enc. (via email: sguinther@keystonecement.com)
Claudia Scott, U.S. EPA Region III w/enc. (via email: Scott.Claudia@epa.com)
Thomas Mellott, PADEP Division of Hazardous Waste Management w/enc. (via email: mtmellott@pa.gov)

PERMIT
FOR

HAZARDOUS WASTE STORAGE AND (ENERGY RECOVERY WITHIN CEMENT KILN) FACILITY

Permit Number: **PAD002389559**

Date Issued: **May 7, 2025**

Date Expires: **May 7, 2035**

Under the provisions of the Pennsylvania Solid Waste Management Act of July 7, 1980, Act 97, a permit for hazardous waste storage, treatment, recycling, and disposal in (municipality) **East Allen Township** in the County of **Northampton**

is granted to (applicant) **Keystone Cement Company**

(address) **Route 329, P.O. Box A**

Bath, PA 18014-0058

This permit is applicable to the facility named as **Keystone Cement Company** and described as:

Latitude: 40 °42 ' 57.7 " North

Longitude: 75 ° 23 ' 55.5 " West

This permit shall become effective on **May 7, 2025**

This permit allows for the acceptance, blending, and storage of approved hazardous waste and residual wastes in the approved hazardous waste storage tank system prior to the beneficial use of the wastes as fuel in the existing rotary cement kiln (Kiln #1) per the Approved Application as superseded by the Hazardous Waste regulations and conditions and terms of this permit.

This permit is subject to modification, amendment and supplement by the Department of Environmental Protection and is further subject to revocation or suspension by the Department of Environmental Protection for any violation of the applicable laws or the rules and regulation adopted thereunder, for failure to comply in whole or in part with the conditions of this permit and the provisions set forth in the application No. **PAD002389559** which is made a part hereof, or for causing any condition inimical to the public health, safety or welfare.

See attachment for waste limitations and/or special conditions.

Roger Bellas (signature)

FOR THE DEPARTMENT OF ENVIRONMENTAL PROTECTION

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INTRODUCTION

Permittee: **Keystone Cement Company**

Facility: **Keystone Cement Company – Route 329, Bath, PA 18014-0058**

This permit is issued by the Commonwealth of Pennsylvania Department of Environmental Protection (DEP, hereinafter called the Department), under authority of the Act a.k.a. the Pennsylvania Solid Waste Management Act, the Act of July 7, 1980, Act 97, 35 P.S. Section 6018.101 et seq., Department waste regulations and Federal hazardous waste regulations to Keystone Cement Company (hereafter called the Permittee), to operate a Hazardous Waste Storage and Energy Recovery within an approved cement facility located in the East Allen Township, Northampton County, at latitude 40 ° 42 ‘ 57.7 longitude 75 ° 23 ‘ 55.5 “. See Parts **I – VI** for additional permit restrictions.

The Permittee must comply with all terms and conditions of this permit. This permit consists of the conditions contained herein (Parts **I – VI** consisting of pages **1 through 42** and the applicable regulations contained in 25 Pa. Code Chapters §§260a-270a, 40 CFR §§260-270 and 273 as incorporated by reference in 25 Pa. Code Chapters §§260a-270a and 25 Pa. Code Chapters §§287-299 (hereinafter called “regulations”) as specified in the permit.

This permit is based on the assumption that the information submitted in the permit application received by the Department on August 3, 2018 (as subsequently revised on June 9, 2020 and December 21, 2022, respectively) (hereinafter referred to as the “Approved Application” or “permit renewal application” or “Application”) is accurate and the facility will be operated as specified in the Approved Application. Any inaccuracies found in this information may be grounds for the revocation or modification of this permit and potential enforcement action. The Permittee must inform DEP of any deviation from or changes in the information in the application, which would affect the Permittee’s ability to comply with the applicable regulations or permit conditions.

This permit is conditioned upon full compliance with all applicable provisions of the Act a.k.a. Pennsylvania Solid Waste Management Act, the Act of July 7, 1980, Act 97, 35 P.S. 6018.101, et seq.; Department regulations contained in 25 Pa. Code Article VII Hazardous Waste Chapter 260a – 270a; 25 Pa. Code Article IX Residual Waste Chapters 287-299; Federal regulations contained in 40 CFR Parts 260 – 270 and 273 as incorporated by reference in 25 Pa. Code Chapters 260a – 270a; the Clean Streams Law, 35 P.S. 691.1 et seq.; the Air Pollution Control Act, 35 P.S. 4001 et seq.; the Dam Safety and Encroachments Act, 32 P.S. 693.1 et seq.; the

Surface Mining Conservation and Reclamation Act, 52 P.S. 1396.1 et seq.; the Coal Refuse Disposal Control Act, 52 P.S. 30.51 et seq.; the Storage Tank and Spill Prevention Act, 35. P.S. 6021.101 et seq.; 25 Pa. Code Chapter 245 Storage Tank and Spill Prevention Program; 25 Pa. Code Article II Erosion Control Chapter 102; all other Pennsylvania statutes related to the protection of the environment; and all Pennsylvania statutes related to the protection of public health, safety, and welfare.

This permit is effective as of **May 7, 2025,** and shall remain in effect until **May 7, 2035**, unless revoked and reissued, or terminated in accordance with 25 Pa. Code §§270a.41, 270a.42, 270a.43 and 40 CFR §§270.41, 270.42, and 270.43 as incorporated by reference at 25 Pa. Code §270a.1.

All conditions of the attached permit supersede conditions of the original permit and permit modifications issued under this Hazardous Waste Management Permit Number except as specifically noted within this permit. Conditions contained herein that reference “permit” refer to the hereby reissued permit. The Permittee retains liability and responsibility from the original issuance date **(December 27, 1991)** of compliance history, and other responsibilities under the Solid Waste Management Act, the Environmental Protection Acts, PA Title 25 Environmental Protection Regulations, and the terms and conditions of the permit

PART I – STANDARD CONDITIONS

A. EFFECT OF PERMIT

This permit authorizes only the management of hazardous and residual waste expressly described in this permit and does not authorize any other management of hazardous or residual waste. Issuance of this permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local laws or regulations. Compliance with the terms of this permit does not constitute a defense to any action brought under the Act or any other law governing protection of public health or the environment.

B. PERMIT ACTIONS

This permit may be modified, revoked and reissued, terminated for cause as specified in 25 Pa. Code §§270a.10, 270a.41, 270a.42, 270a.43 and 40 CFR §§270.41, 270.42, and 270.43 as incorporated by reference at 25 Pa. Code §270a.1 or suspended in accordance with the Act. The filing of a request for a permit modification, revocation and reissuance, or revocation or the notification of planned changes or anticipated noncompliance on the part of the Permittee does not stay or supersede the applicability or enforceability of any permit condition.

C. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held to be invalid, the application of such provision to other circumstances and the remaining provisions of this permit shall not be affected thereby.

D. DEFINITIONS

For the purpose of this permit, terms used herein shall have the same meaning as those in Title 25 of the Pennsylvania Code and Title 40 of the Code of Federal Regulations (25 Pa. Code Chapters 260a – 270a and 40 CFR 260 – 270 & 273 as incorporated by reference in 25 Pa. Code 260a -270a and applicable sections of the Residual Solid Waste Regulations 25 Pa. Code 287 – 299), unless this permit specifically states otherwise; where terms are not otherwise defined, the meaning associated with such terms shall be as defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term. “The Department” is the Department of Environmental Protection of the Commonwealth of Pennsylvania.

E. REPORTS, NOTIFICATIONS AND SUBMISSIONS TO THE DEPARTMENT

All reports, notifications or other submissions which are required by this permit to be sent or given to the Department should be sent electronically via the Department’s Public Upload system or via certified mail to:

Program Manager

Waste Management Program

Commonwealth of Pennsylvania

Department of Environmental Protection

2 Public Square

Wilkes-Barre, PA 18701-1915

F. SIGNATORY REQUIREMENTS

All reports or other information requested by the Department shall be signed and certified as required by 40 CFR §270.11 as incorporated by reference at 25 Pa. Code §270a.1 and as modified by 25 Pa. Code §270a.10(c)(2).

G. DOCUMENTS TO BE MAINTAINED AT THE FACILITY SITE

The Permittee shall maintain at the facility, until closure is completed and certified by an independent

registered professional engineer, the following documents and amendments, revisions, and modifications to these documents:

1. Waste analysis plan required by 25 Pa. Code §264a.13, and 25 Pa. Code §297.203 and this permit.

2. Personnel training documents and records required by 40 CFR §264.16(d) as incorporated by reference at 25 Pa. Code §264a.1 and this permit.

3. Contingency plan required by 40 CFR §264.53(a) as incorporated by reference at 25 Pa. Code §264a.1 and this permit.

4. Closure plan required by 25 Pa. Code §§264a.115, 264a.120, 40 CFR §264.112(a) and (b) and 40 CFR §264.118(a) and (b) as incorporated by reference at 25 Pa. Code §264a.1 and this permit.

5. Annually-adjusted cost estimate(s) for facility closure required by 25 Pa. Code §§264a.115, 264a.120, 264a.162, 40 CFR §§264.142 and 264.144 as incorporated by reference at 25 Pa. Code §264a.1 and this permit.

6. Operating record required by 40 CFR §264.73 as incorporated by reference at 25 Pa. Code §264a.1 and Part II, Section H.1 of this permit.

7. Inspection schedules and logs required by 25 Pa. Code §264a.15 and 40 CFR §264.15(b)(2) as incorporated by reference in 25 Pa. Code §264a.1 and this permit.

8. Documents required by Part I, Sections H.9, H.13, H.14, H.15, I, and J; by Part II, Sections B, D, E, F, H, I, J, L, and M.2; by Part III Sections F.3, K.2, L.2, M, and P.4; Part IV Sections B, E; Part V Sections B, C, D, E, Part VI Sections A, B, I, F, and renewal application Appendix A of this permit.

9. Source Reduction Strategy required by 25 Pa. Code §§262a.100 and 287.53 for wastes generated by the permitted operations at this facility.

H. DUTIES AND REQUIREMENTS

1. Duty to Comply: The Permittee shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and the regulations promulgated hereunder and is grounds for enforcement action; for permit revocation, termination and reissuance, or modification; or for denial of a permit renewal application.

2. Duty to Reapply: If the Permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the Permittee must submit a complete application for a new permit at least one hundred eighty (180) days before this permit expires.

3. Permit Expiration: This permit and all conditions therein will remain in effect beyond the permit's expiration date if the Permittee has submitted a timely, complete application and through no fault of the Permittee, the Department has not issued a new permit.

4. Need to Halt or Reduce Activity Not a Defense: It shall not be a defense for the Permittee in an enforcement action to argue that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

5. Duty to Mitigate: In the event of noncompliance with the Act, the regulations, or this permit, the Permittee shall take all necessary steps to prevent and abate any releases to the environment, and shall carry out such measures as are necessary to prevent significant adverse impacts on human health or the environment.

6. Proper Operation and Maintenance: The Permittee shall at all times properly operate and maintain all facilities and systems of storage, treatment and control (and related appurtenances) which are

installed or used by the Permittee to achieve compliance with the Act, the regulations, and the conditions of this permit. Proper operation and maintenance shall include effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. The Permittee shall operate back-up or auxiliary facilities or similar systems if necessary, to achieve compliance with the Act, the regulations, and the conditions of the permit.

7. Duty to Provide Information: The Permittee shall furnish to the Department within a reasonable time, any relevant information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Department, upon request, copies of records required to be kept by the Permittee pursuant to the Act, the regulations, or any permit condition.

8. Inspection and Entry: The Permittee shall allow the Department, its agents, and authorized representatives, upon the presentation of credentials and other documents as may be required by law, or without advance notice or a search warrant to:

   a. Enter at reasonable times upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records concerning the regulated facility or activity are kept;

   b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

   c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under the Act, the regulations, or this permit;

   d. Sample or monitor any substances or parameters at any location for the purposes of assuring permit compliance or as otherwise authorized by the Act or the regulations; and,

   e. Engage in any other activities necessary or appropriate to the documentation of events or conditions at any locations including the taking of photographs; the performing of measurements, surveys, and other tests; to inspect monitoring equipment; to inspect methods of operation; and to inspect and/or copy documents, books and papers required by the Department to be maintained.

9. Monitoring and Records:

   a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the waste to be analyzed must be the appropriate method from Appendix I of 40 CFR Part 261 – Criteria, Identification and Listing of Hazardous Waste as incorporated by reference at 25 Pa. Code §261a.1 or an equivalent method approved by the Department. Laboratory test methods must be those incorporated by reference in 40 CFR 260.11 and ; Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (U.S. EPA Document SW-846, most recent edition); Standard Methods of Waste Water Analysis (U.S. EPA; most recent edition); or an equivalent method approved by the Department and as specified in renewal permit application Appendix B.

   b. The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports and records required by the Act, the regulations, or this permit, and all records of all data used to complete the application for this permit for a period of at least three (3) years from the date of the sample, measurement, report or record, or application. These periods may be extended by request of the Department at any time and are automatically extended during the course of any unresolved enforcement action regarding this facility.

   c. The Permittee shall maintain any required records of groundwater quality and groundwater surface elevations for the active life of the facility and during the post-closure care period as well.

d. The Permittee shall, at a minimum, keep monitoring records which include the following information:

i. The dates, exact place, and times of sampling or measurements;

ii. The individuals who performed the sampling or measurements;

iii. The dates analyses were performed;

iv. The individuals who performed the analyses;

v. The analytical techniques or methods used; and,

vi. The results of such analyses.

e. Please see Operating Record under Part II Section H.1 for other record and retention requirements

10. Reporting Planned Changes: The Permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility. This notice must include a description of all incidents of noncompliance reasonably expected to result from the proposed changes. The Permittee shall not modify the facility without first obtaining a permit or permit modification from the Department.

11. Anticipated Noncompliance: The Permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

12. Transfer of Permits: This permit shall not be transferred or assigned to any other person or municipality.

13. Twenty-Four Hour Reporting: The Permittee shall report to the Department any noncompliance with the Act, the regulations or any condition of this permit or any occurrence or event at the facility which may endanger health or the environment.

a. Information shall be provided orally within twenty-four (24) hours from the time the Permittee becomes aware of the circumstances. The Permittee should notify the Bethlehem District Office at 610-861-2070 and the Regional Office at 570-826-2511. This report shall include the following:

i. Information concerning release or potential release of any hazardous or residual waste from the facility that may endanger public drinking water supply sources.

ii. Any information of a release, potential release, or discharge of hazardous or residual waste from the facility, or information of a potential or actual fire or explosion at the facility, which may threaten the environment or human health.

b. The description of the occurrence and its cause shall include:

i. Name, address, and telephone number of the owner or operator;

ii. Name, address, and telephone number of the facility;

iii. Date, time, and type of incident;

iv. Name and quantity of material(s) involved;

v. The extent of injuries, if any;

vi. An assessment of actual or potential hazards to the environment and human health at or near the facility; and,

vii. Estimated quantity and disposition of recovered material that resulted from the incident.

c. A written submission shall also be provided to the Department within five (5) days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance (including exact dates and times); if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. The Permittee need not comply with the five (5) day written notice requirement if the Department extends it to fifteen (15) days.

14. Other Noncompliance: The Permittee shall report to the Department all other instances of noncompliance not otherwise required to be reported above, at the time monitoring reports are submitted. The reports shall contain the information listed in Part I Section H.13.

15. Other Information: Whenever the Permittee becomes aware that it failed to submit any relevant facts in the permit application, or submitted incorrect information in a permit application or in any report to the Department, or whenever the Permittee becomes aware of circumstances which require a modification or clarification of any fact or representation made to the Department in connection with a permit application, it shall promptly submit such facts or information to the Department.

16. Administrative Fees. The Permittee shall submit the annual administrative fee per 25 Pa Code §§264a.82 and 264a.83.

17. Information Repository. The Permittee shall comply with 25 Pa Code §270a.84.

I. COMPLIANCE SCHEDULE REPORTING

1. The Permittee shall submit written reports of compliance or noncompliance with interim and final requirements contained in any compliance schedule of this permit to the Department no later than fourteen (14) days following each schedule date.

2. See Part IV Section E for the Compliance Schedule

J. CERTIFICATION OF CONSTRUCTION OR MODIFICATION

The Permittee may not manage hazardous waste at the facility at any new or modified waste management area/unit until:

1. The Permittee has submitted to the Department by the submittal methods listed in Part I, Section E, a letter signed by the Permittee and a registered professional engineer stating that the facility has been constructed or modified in compliance with the permit; and,

2. The Department has inspected the modified or newly constructed facility and finds it in compliance with the conditions of the permit; or,

3. The Department has either waived the inspection or has not within fifteen (15) days notified the Permittee of its intent to inspect.

PART II – GENERAL FACILITY CONDITIONS

A. DESIGN AND OPERATION OF FACILITY

The Permittee shall maintain and operate the facility to minimize the possibility of a fire, explosion, or release of hazardous or residual waste or waste constituents to air, soil, surface water, or groundwater which could threaten human health or the environment.

B. GENERAL WASTE ANALYSIS

1. Analytical Procedures. The Permittee shall follow the procedures described in renewal permit application Waste Analysis Plan, Appendix B. The Permittee shall verify its waste analysis as part of its quality assurance program, in accordance with current EPA practices (Test Methods for Evaluating Solid Waste: Physical/Chemical Methods SW-846, most recent edition) or equivalent methods approved by the Department in accordance with procedures in 40 CFR §260.21 as incorporated by reference at 25 Pa. Code §260a.1; and at a minimum maintain proper functional instruments, use approved sampling and analytical methods, verify the validity of sampling and analytical procedures, and perform correct calculations.

2. New Waste Streams. Before accepting new hazardous or residual waste streams by any generator, a Module 1, a Generic Module I application in accordance with the requirements detailed at 25 Pa. Code §265a.13(6 – 9) and renewal application Appendix B, or Form U must be submitted to the Department per the submittal methods in Part I, Section E, of this operating permit. If the Permittee can certify in their submittal that the waste stream(s) are not characteristically hazardous for pesticides and herbicides D012, D013, D014, D015, D016, D017, D020, D031, D037, D041 & D042), then the Module 1 will be reviewed in the following way:

   a. If the Module 1/Form U is not returned within fifteen (15) working days from the date of receipt. Then the waste may be accepted for storage.

   b. If at any time after fifteen (15) working day period, it is determined that the waste accepted is not consistent with this Permit, then the Permittee may be subject to applicable enforcement actions under the Act or Regulations.

   If the above-mentioned Permittee certification is not submitted with the Module 1 / Form U, then the submittal shall be reviewed within the standard one hundred twenty (120) day review time-frame for new Module 1s.

   Existing Approved Waste Streams. The Department is incorporating all existing approved waste streams (Module 1 / Form U) with the relevant conditions of approval into the permit except as superseded by the permit. If there are any changes in the generator's / fuel blender's manufacturing, operations, process, or raw material(s) which chemically alter make-up of their waste streams(s), a new Module 1 / Form U will have to be submitted to the Department per the submittal methods in Part I, Section E, of this operating permit. If the Permittee can certify in the submittal that the waste stream(s) are not characteristically hazardous for pesticides and herbicides (D012, D013, D014, D015, D016, D017, D020, D031, D037, D041 & D042), then the Module 1/Form U will be reviewed in the following way:

   c. If the Module 1/Form U is not returned within fifteen (15) working days from the date of receipt. Then the waste may be accepted for storage.

   d. If at any time after fifteen (15) working day period, it is determined that the waste accepted is not consistent with this Permit, then the Permittee may be subject to applicable enforcement actions under the Act or Regulations.

   If the above-mentioned Permittee certification is not submitted with the Module 1 / Form U, then the submittal shall be reviewed within the standard one hundred twenty (120) day review time-frame for new Module 1s.

3. Waste Consistency. All waste streams approved for acceptance through the Module 1/Form U process must remain consistent with the Module 1/ Form U process description, Module 1/Form U waste ranges, and requirements stated in this permit. If a waste changes and becomes inconsistent with these requirements, the Permittee must cease accepting the waste until the Module 1 / Form U is resubmitted for Department approval per Part II Section B.3 above. On the Anniversary date of issuance of this permit, the Permittee shall reevaluate each waste stream to verify that the waste remains physically and chemically consistent with their original Module 1 / Form U analysis (if a waste stream is approved for acceptance within a year of the anniversary date, however, no update is required for the year for that particular waste stream). The reevaluation procedure shall be as follows:

   a. If the waste is chemically or physically different from that described in the original Module 1 /Form U submittal because of a process change, the generator must resubmit a new Module 1 / Form U. A full pre-qualification Module 1 / Form U analysis shall be performed by the permittee any time the generator identifies that the waste stream and/or process generating the waste stream has significantly changed in chemical composition, or if the waste stream has changed in hazardous characterization or management methods of waste.

   b. If lieu of annually performing an analysis, an authorized representative of the generator of waste may sign a certification that the physical and chemical properties of the waste and the process by which the waste was generated has not changed from those set forth for the previous year. This certification shall include a copy of the original Module 1 / Form U.

   c. Notwithstanding the certification permitted in (b) above, a Module 1 / Form U chemical analysis shall be completed every five (5) years.

   d. This re-evaluation will identify any significant environmental and operational impacts that the wastes have had on the facility, and identify any special processing requirements for the waste streams.

   e. Documentation regarding this annual waste stream evaluation will be made available to the Department upon request.

   f. Each waste load's analytical results and waste acceptance / rejection procedure documents shall be compared with the approved Module 1 / Form U for consistency.

4. Herbicides & Pesticides. The Permittee shall implement the Pesticide and Herbicide Management Implementation Plan located in the renewal permit Appendix A and per other conditions of this permit.

5. Site Records. Copies of all Department approved Module 1 / Form U for waste fuels must be kept and maintained at the Keystone Cement Company plant office in East Allen Township.

C. SECURITY

The Permittee shall comply with the security provisions of 40 CFR §§264.14(b) and (c) as incorporated by reference at 25 Pa. Code §264a.1.

D. GENERAL INSPECTION REQUIREMENTS

The Permittee shall follow the inspection plan(s) as dictated by the inspection(s) included in renewal application Appendix D. The Permittee shall remedy any deterioration or malfunction discovered by an inspection as required by 40 CFR §264.15 as incorporated by reference at 25 Pa. Code §264a.1. Records of inspections including preventive maintenance inspections shall be kept as required by 40 CFR §264.15(d) as incorporated by reference at 25 Pa. Code §264a.1.

E. PERSONNEL TRAINING

The Permittee shall conduct personnel training as required by 40 CFR §264.16 as incorporated by reference at 25 Pa. Code §264a.1. This training program shall follow the attached outline, renewal application Appendix P. The Permittee shall maintain training documents and records as required by 40 CFR §264.16 (d) and (e) as incorporated by reference at 25 Pa. Code §264a.1.

F. PREPAREDNESS AND PREVENTION

1. Required Equipment: At a minimum, the Permittee shall equip the facility with the equipment set forth in the PPC plan, renewal application Appendix C, as required by 40 CFR §264.32 as incorporated by reference at 25 Pa. Code §264a.1.
2. Testing and Maintenance of Equipment: The Permittee shall test and maintain the equipment specified in the previous permit condition and in renewal application Appendix C, as necessary to assure its proper operation in time of emergency and as required by 40 CFR §264.33 as incorporated by reference at 25 Pa. Code §264a.1.
3. Access to Communications or Alarm System: The Permittee shall maintain access to the communications or alarm system as required by 40 CFR §264.34 as incorporated by reference at 25 Pa. Code §264a.1.
4. Required Aisle Space: At a minimum, the Permittee shall maintain aisle space as required by 25 Pa. Code §264a.173 and 40 CFR §264.35 as incorporated by reference at 25 Pa. Code §264a.1.
5. Arrangements with Local Authorities: The Permittee shall maintain arrangements with State and local authorities as required by 40 CFR §264.37 as incorporated by reference at 25 Pa. Code §264a.1. If State or local officials refuse to enter in or renew existing preparedness and prevention arrangements with the Permittee, the Permittee must document this refusal in the operating record.

G. PREPAREDNESS, PREVENTION AND CONTINGENCY (PPC) PLAN

1. Implementation of PPC Plan: The Permittee shall immediately carry out the provisions of the PPC plan, renewal application Appendix C and follow the emergency procedures described by 25 Pa. Code §264a.56 and 40 CFR §264.56 (a) – (i) as incorporated by reference at 25 Pa. Code §264a.1 whenever there is a fire, explosion, emission or discharge of hazardous waste or hazardous waste constituents which could threaten human health or the environment.
2. Copies of Plan: The Permittee shall comply with the requirements of 40 CFR §264.53 as incorporated by reference at 25 Pa. Code §264a.1.
3. Amendments to Plan: The Permittee shall review and immediately amend, if necessary, the PPC plan, as required by 40 CFR §264.54 as incorporated by reference at 25 Pa. Code §264a.1.
4. Emergency Coordinator: The Permittee shall comply with the requirements of 40 CFR §264.55 as incorporated by reference at 25 Pa. Code §264a.1.
5. Emergency Procedures: The Permittee shall comply with the requirements of 40 CFR §264.56(a-i) as incorporated by reference at 25 Pa. Code §264a.1.
6. Corrective Action at Solid Waste Management Units: In event of uncontrolled releases, the Permittee shall comply with all requirements of 40 CFR §264.101 as incorporated by reference at 25 Pa. Code §264a.1

H. RECORDKEEPING AND REPORTING

1. Operating Record: The Permittee shall maintain a written operating record at the facility in accordance with 40 CFR §264.73 as incorporated by reference at 25 Pa. Code §264a.1. The operating record shall contain information from a waste inventory and tracking system. The system must identify the waste description, quantity, generator, date received, transport manifest number, location stored, and any unusual conditions noted by the site personnel. The storage location and

quantity shall be cross-referenced with transport document numbers.

2. Biennial Report: The Permittee shall comply with all applicable biennial facility reporting requirements of 25 Pa Code §264a.75 and 40 CFR §264.75 as incorporated by reference at 25 Pa. Code §264a.1.

3. Required Reports: The Permittee shall comply with all applicable reporting requirements as described in 40 CFR §264.77 as incorporated by reference in 25 Pa. Code §264a.1, 40 CFR §270.30(l)(7,8) as incorporated by reference in 25 Pa. Code §270a.1; Part I Sections E, F, H.7, H.9, H.10, H.11, H.13, H.14, H.15, I, J; Part II, Sections B, G.2, L and M; Part IV Sections A.6.d, B.4.c, and E; Part V Section B; and Part VI Sections B, C, and E of this permit.

I. CLOSURE

1. Performance Standard: The Permittee shall close the facility as required by 40 CFR §264.111 as incorporated by reference at 25 Pa. Code §264a.1, 40 CFR §266.102(e)(11) as incorporated by reference at 25 Pa. Code §266a.20,and in accordance with the closure plan in renewal application Appendix E and conditions of this permit.

2. Amendment to Closure Plan: The Permittee shall amend the closure plan in accordance with 40 CFR §264.112(c) as incorporated by reference at 25 Pa. Code §264a.1 whenever necessary.

3. Notification of Closure: The Permittee shall notify the Department in writing at least forty-five (45) days prior to partial or final closure per 40 CFR §264.112(d) as incorporated by reference at 25 Pa. Code §264a.1.

4. Time Allowed for Closure: After receiving the final volume of hazardous waste, the Permittee shall remove from the site or dispose of on-site all hazardous and residual waste and shall complete closure activities in accordance with 40 CFR §264.113 as incorporated at 25 Pa. Code §264a.1 unless an alternative schedule is approved in writing by the Department.

5. Disposal or Decontamination of Equipment, Structures, and Soils: The Permittee shall decontaminate and/or dispose of all facility equipment, structures, and soils as required by 40 CFR §264.114 as incorporated by reference in 25 Pa. Code §264a.1 and the closure plan from renewal permit application Appendix E.

6. Analysis of Samples: The Permittee shall conduct analysis to verify that all decontaminated facility equipment and structures are adequately decontaminated as required by 40 CFR §264.114 as incorporated by reference in 25 Pa. Code 264a.1 and the closure plan from renewal permit application Appendix E.

7. Certification of Closure: The Permittee shall certify that the facility has been closed in accordance with the specifications in the closure plan as required by 25 Pa. Code §264a.115, §264a.166, and 40 CFR §264.115, as incorporated by reference at 25 Pa. Code §264a.1.The owner /operator certification must comply with the signature requirements of 40 CFR §270.11 as incorporated by reference at 25 Pa. Code §270a.1.

J. COST ESTIMATE FOR FACILITY CLOSURE

1. Annual Adjustment: The Permittee shall adjust the closure and post-closure cost estimate for inflation within thirty (30) days after each anniversary of the date on which the first cost estimate was made as required by 40 CFR §264a.153, 40 CFR §§264.142 and 264.144(b) as incorporated at 25 Pa. Code 264a.1. See Closure Plan from renewal application Appendix E.

2. Adjustment for Changed Conditions: The Permittee shall revise the cost estimate whenever there is a change in the facility's closure plan or in the measures necessary to prevent adverse effects upon the environment as required by 40 CFR §264.142 and §264.144(c) as incorporated by reference at 25 Pa. Code §264a.1.

3. Availability: The Permittee must keep at the facility the latest cost estimate as required by 40 CFR §264.112 as incorporated by reference at 25 Pa. Code §264a.1.

4. Incapacity of Permittee or Financial Institutions: The Permittee shall comply with 25 Pa. Code

§264a.148 and 40 CFR §264.148 as incorporated by reference at 25 Pa. Code §264a.1 whenever necessary.

K. BONDING REQUIREMENT

1. The Permittee shall maintain the collateral bond submitted to and approved by the Department as required by 40 CFR §264 Subpart H, as incorporated by reference at 25 Pa. Code §264a.1 and as modified by 25 Pa. Code §264a Subpart H. The Permittee shall comply with all applicable financial assurance requirements. See permit renewal application Appendix E.

2. The facility shall not exceed the bonded tank storage volume amount (220,000 gallons) when transitioning from closing the existing four (4) storage tanks (1A, 1B, 2, 3) to the installation of seven (7) new storage tanks (5,6,7,8,9,10,11).

3. The Permittee shall include an annual adjustment to the bond amount to account for inflation and provide the inflation calculations as part of the 4th quarter facility report.

4. The permittee shall have a Department approved bond for all previously approved and new construction.

L. LIABILITY INSURANCE

The Permittee shall comply with the liability insurance requirements of 25 Pa. Code §264a.147 and the documentation requirements of 40 CFR §264.147(e) as incorporated by reference at 25 Pa. Code §264a.1**.** These include the requirements to have and maintain liability coverage for sudden accidental occurrences in the amount of at least $1 million per occurrence with an annual aggregate of at least $2 million, exclusive of legal defense costs, and for non-sudden accidental occurrences in the amount of at least $3 million per occurrence with an annual aggregate of at least $6 million, exclusive of legal defense costs. If combined, the coverage levels for sudden and non-sudden occurrences shall be in the amount of at least $4 million per occurrence and $8 million annual aggregate pursuant to 40 CFR §264.147(a, b) as incorporated by reference in 25 Pa. Code §264a.1. The Permittee shall submit new certificates of liability insurance annually or sixty (60) days prior to the expiration of the current certificate.

M. REQUIRED NOTICES

1. Notice to Department: 40 CFR Part 262.84(b)(1) requires that the importer to provide notification in English to EPA of the proposed transboundary movement of hazardous waste at least sixty (60) days before the first shipment is expected to depart the country of export. Notice of subsequent shipments of the same waste from the same foreign source is not required. The notice shall demonstrate that the requirements of 25 Pa. Code §262a Subchapter H (Transfrontier Shipments of Hazardous Waste for Recovery within the Organization for Economic Cooperation and Development (OECD)) have been met.

2. Notice to Generator: When the Permittee plans to receive hazardous waste from an off-site source (except where the Permittee is also the generator), they must inform the generator in writing that they have the appropriate permits for, and will accept, the waste the generator is shipping (i.e. for storage (i.e., combusting for energy recovery) in the kiln)). The Permittee must keep a copy of this written notice as part of the operating record. (See Part II Section H.1).

3. Notice from Generator: Whenever the generator violates any environmental laws in the processing of waste at a permitted facility or violates any laws or regulations relating to the generation of a waste in an industrial process, the generator will report this to the Permittee. The Permittee shall then notify the Department per 40 CFR §264.12 Required Notices, as incorporated by reference at 25 Pa. Code §264a.1.

N. GENERAL REQUIREMENTS FOR IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTE

The Permittee shall comply with the requirements of 40 CFR §264.17 as incorporated by reference at 25 Pa. Code §264a.1. Reactive and /or incompatible wastes may not be accepted at this facility.

O. MANIFEST SYSTEM

1. Use of the Manifest System: The Permittee shall comply with the manifest requirements of 25 Pa. Code §264a.71 and 40 CFR §§264.70, 264.71, 264.72, 264.72(a) & 264.72(b), as incorporated by reference at 25 Pa. Code §264a.1.

2. Hazardous Waste Management Fees. The Permittee will comply with the requirements of 25 Pa. Code §§264a.78 – 264a.79, 264a.82 and 264a.83.

PART III - STORAGE IN TANKS

A. WASTE IDENTIFICATION

1. The Permittee may store and blend the hazardous and/or residual waste in the tanks listed below, subject to the terms of this permit:

Tanks No(s)	**Approved Hazardous Waste Code No(s) for listed tanks**
Aboveground Waste Solvent Storage Tanks Nos. 1A, 1B, 2, 3, 5, 6, 7, 8, 9, 10, 11 (when constructed)	D001, D018, D035, F001, F002, F003, F004, F005, F037, F038, K014, K015, K016, K017, K018, K019, K020, K022, K023, K025, K026, K028, K030, K035, K036, K048, K049, K050, K051, K052, K083, K085, K086 (solvent washings only), K087, K156, K169, K170, K171, K172, U001, U002, U004, U009, U012, U019, U031, U051, U052, U055, U056, U057, U072, U075, U078, U105, U112, U113, U115, U117, U127, U128, U131, U140, U153, U154, U159, U161, U169, U171, U188, U194, U220, U239 & approved residual wastes. See renewal application Appendix B. **Approved Secondary Waste Codes** Each primary hazardous waste code listed above may exhibit the following secondary hazardous waste characteristics D004, D005, D006, D007, D008, D009, D010, D011, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D036, D038, D039, D040, and D043.* *Herbicides & Pesticides – See Part IV Section B. The pesticide & herbicide secondary waste codes include D012, D013, D014, D015, D016, D017, D020, D031, D037, D041, and D042. Each primary waste code listed above may exhibit the following secondary waste codes for commercial chemical products, manufacturing chemical intermediates, or off-specification commercial products: U003, U037, U043, U044, U070, U077, U080, U118, U121, U122, U162, U165, U196, U210, U211, U213, U226, U227. U228, U359**. **These secondary waste codes may only be accepted at concentrations as approved for each individual waste stream via the Module 1 process, in addition to the general waste acceptance limit for chlorides. See Part IV Section B (Waste Acceptance Criteria) for additional restrictions on Incoming wastes. See renewal application Appendix B (Waste Analysis Plan) for a description of the waste codes.

2. The Permittee is allowed to store off-spec used oil in an above ground storage tank. Off-spec used oil

will be stored in the tank prior to being combusted in the kiln. The Tank that is holding the off spec RW oil should be identified and information should be submitted to the Department prior to tank installation.

B. DURATION OF STORAGE

The Permittee shall not store hazardous and/or residual waste at this facility in excess of one (1) year.

C. DESIGN AND CONSTRUCTION OF TANKS

1. The permittee shall construct, modify, and maintain all tanks in accordance with the approved plans and specifications. The permittee shall maintain the minimum shell thickness specified in the American Petroleum Institute (API) Standard 650, unless the Department authorizes an alternate standard, identified below, at all times, to ensure sufficient structural strength. The maximum tank capacities are provided in Part IV.D.

Tank No(s)	Minimum Shell Thickness (inches)	Construction Status (C.4)
Tank #1A	0.150 (nominal)	In-Service
Tank #1B	0.150 (nominal)	In-Service
Tank #2	0.1875 (nominal)	In-Service
Tank #3	0.1875 (nominal)	In-Service
Tank #5	0.1875 (nominal) to be determined at time of construction	Future
Tank #6	0.1875 (nominal) to be determined at time of construction	Future
Tank #7	0.1875 (nominal) to be determined at time of construction	Future
Tank #8	0.1875 (nominal) to be determined at time of construction	Future
Tank #9	0.1875 (nominal) to be determined at time of construction	Future
Tank #10	0.1875 (nominal) to be determined at time of construction	Future
Tank #11	0.1875 (nominal) to be determined at time of construction	Future

2. The permittee shall submit all related documentation for each phase of construction previously approved and as detailed in Appendix G of the permit renewal application.
3. The permittee shall have a licensed Professional Engineer conduct a yearly inspection of all existing tanks to ensure minimum shell thickness requirements are met. A copy of the engineer's yearly inspection report shall be submitted to the Department.
4. Status at the time of permit issuance.

D. PROTECTION FROM OVERFILLING

The permittee shall prevent overfilling of tanks by the methods specified in **r**enewal application Appendix A and summarized below.

Tank No(s).	Type of Control
Waste Solvent Tanks Nos. 1A, 1B, 2 and 3	High level Alarm
Waste Solvent Tanks Nos. 5,6,7,8,9,10, 11 (when constructed)	High level Alarm

E. SECONDARY CONTAINMENT

The Permittee shall maintain the existing containment structures and construct and/or maintain new containment structure(s) per 40 CFR §§264.193(b, c, d, e, f) & 264.194(b) and 264.195 as incorporated by reference at 25 Pa. Code §264a.1.

F. EMERGENCY REPAIRS; CONTINGENCY PLAN

1. TER Inspection Plan. The permittee shall inspect the tanks in accordance with the Tank Evaluation and Repair (TER) Plan whenever there is any indication of a possible failure as required by 40 CFR §§264.191(a), 264.192(g) & 264.196 as incorporated by reference at 25 Pa. Code §264a.1 and as modified by 25 Pa. Code §264a.191.

2. Removal from Service. Whenever there is evidence of tank failure, the permittee shall remove the tank from service as required by 40 CFR §264.196(a) as incorporated by reference at 25 Pa. Code §264a.1 and implement the procedures required by 40 CFR §264.196(b)-(e) as incorporated by reference by 25 Pa. Code §264a.1 and specified in the PPC Plan, renewal application Appendix C.

3. Return to Service. Prior to return to service, the permittee shall repair the tank and obtain a certification from a registered professional engineer that it meets the design specifications approved in this permit, as required by 40 CFR §§264.191(a), 264.192(g) & 264.196(f) as incorporated by reference at 25 Pa. Code §264a.1.

4. Closure of Tank. If a tank has been removed from service due to failure and is not being repaired, the permittee shall close it as required by 40 CFR §264.196(e) and 40 CFR §264.197 as incorporated by reference at 25 Pa. Code §264a.1 and submit a Form HW-B certifying closure.

G. ACCESS ROADS

The permittee shall construct and/or maintain access roads as needed to meet Chapter 102 (Erosion Control) requirements.

H. BUFFER ZONE

The Permittee shall establish and maintain a buffer zone of fifty (50) feet between the property line and the permitted facility within which no hazardous waste storage activities shall occur.

I. EQUIPMENT

1. Equipment Maintenance. The Permittee shall maintain tank operating equipment in operable condition and adequate in size and performance capability to assure that the facility operation will not be interrupted during normal working periods and that the facility operation is in accordance with this permit.

2. Standby Equipment. The Permittee shall maintain standby equipment on-site or readily available for use in the event of a major equipment breakdown.

J. PROTECTION FROM CORROSION

The permittee shall protect the tanks from accelerated corrosion, erosion, and abrasion as specified in 40 CFR §264.194(a) as incorporated by reference at 25 Pa. Code §264a.1, renewal application Appendix F and as summarized below:

Tank No(s)	Type of Protection
Waste Solvent Storage Tank Nos. 1A, 1B, 2, 3, 5,6,7,8,9,10 and 11 (when constructed)	Carbon steel construction plus biennial sonic Testing for corrosion and compatibility testing of incoming wastes.

K. SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTE

1. Special Requirements. The permittee shall not accept reactive waste. The permittee shall not place ignitable waste in a tank unless the procedures described in renewal application Appendix B are followed.

2. Documentation. The permittee shall document compliance with the above permit condition as required by 40 CFR §264.17(c) and place this documentation in the operating record (Part II Section H.1).

3. NFPA Requirements. The permittee shall comply with all applicable requirements for covered tanks listed in the National Fire Protection Association's "Flammable and Combustible Liquids Code, 1981", or latest revised edition.

L. SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES

1. Incompatible Wastes Precautions: The Permittee shall not accept incompatible wastes. The Permittee shall not place incompatible wastes in the same tank or place hazardous waste in an unwashed tank that previously held an incompatible waste or material unless the procedures specified in renewal application Appendix B are followed.

2. Documentation: The Permittee must document compliance with sections (1) and (2) of this condition as required by 40 CFR §264.17(c) and as incorporated by reference at 25 Pa. Code §264a.1 and place this documentation in the operating record (Part II Section H.1).

M. WASTE ANALYSIS

The Permittee shall conduct waste analyses, or shall obtain written, documented information as required by 40 CFR §264.13 as incorporated by reference at 25 Pa. Code §264a.1 and the Waste Analysis Plan, renewal application Appendix B, before storing a hazardous waste which is different from waste previously stored in a tank. The analyses, tests, and information shall be placed in the operating record (Part II Section H.1).

N. WEIGHING OR MEASURING FACILITIES

The Permittee shall provide, maintain, and operate weighing or measuring facilities that can accurately weigh the incoming waste volumes.

O. OPERATING HOURS

Facility Sign. The Permittee shall maintain at the entrance of the facility a sign displaying hours of operation for receipt of waste, the lettering shall have a minimum of four (4) inches in height and of a color contrasting with the background.

P. TANK CONSTRUCTION OR INSTALLATION

1. Inspections. The Permittee shall inspect the tank for uniformity, damage and imperfections during

construction or installation.

2. Construction Practices. The Permittee shall use best engineering construction practices during all phases of installation and construction.

3. Quality Control Measures. The Permittee shall use the approved quality control measures and tests specified in the relevant approval to ensure that installation and construction conform to the design materials and construction specifications approved in this permit.

4. Professional Engineer Certification. The Permittee shall obtain a written certification from a registered professional engineer for each phase of installation or construction as required by 40 CFR §264.192 as incorporated by reference at 25 Pa. Code §264a.1. Each certification shall be submitted to the Department in accordance with the Compliance Schedule (Part IV Section E.4.).

5. Construction Schedule. The Permittee shall construct or install the tank(s) or other structures in accordance with the schedule approved by the Department, in permit renewal application Appendix G.

Q. SURFACE WATER MANAGEMENT

1. Design Standards. The Permittee shall manage surface water on the site as required by 25 Pa. Code Chapter 102, the Clean Streams Law, the Approved Application, and the Regulations.

2. Run-Off. The Permittee shall manage surface water run-off as required by the Regulations and the Approved Application.

3. Run-On. The Permittee shall manage surface water run-on as required by the Regulations and the Approved Application.

R. WASTE TRACKING

The Permittee shall minimize or eliminate the tracking of waste within or outside the site as required by the Regulations.

S. TRUCK UNLOADING, PARKING AND STAGING AREAS

1. The Permittee shall maintain the Truck Unloading Area to permit vehicles to unload promptly. All vehicles being unloaded shall be parked on the unloading pad within the secondary containment.

2. Vehicles may be staged at the Truck Staging Area or parked in the Truck Parking Area but must either be unloaded at the Truck Unloading Area or rejected with the waste trucks departing the site. No storage of waste-containing trucks is allowed in the Truck Parking Area outside of normal working hours (overnight). No storage of waste-containing trucks is allowed in the Truck Staging Area beyond forty-eight (48) hours. See Part VI Section C.2 for additional requirements.

3. Truck sampling activities may only occur at the Truck Unloading Area within secondary containment and at the Truck Staging Area while portable secondary containment units (e.g., spill barrows) are in place as described in the applicable Standard Operating Procedures (permit renewal application Appendix A).

T. AIR EMISSION REQUIREMENTS

1. This permit does not authorize the discharge of air emissions unless the Department Air Quality Program has approved the discharge of these emissions.

2. The Permittee will comply with all requirements of 40 CFR § 264.200 and 40 CFR Part 264 Subparts BB and CC as incorporated by reference at 25 Pa. Code § 264a.1, except as superseded by 40 CFR Part

63 Subparts DD and EEE (40 CFR 266.100(b), 40 CFR 264.1064(m), 40 CFR 264.1080(b)(7)).

PART IV – CONDITIONS SPECIFIC TO KEYSTONE CEMENT COMPANY

A. SITE AREA AND AUTHORIZED ACTIVITIES

1. Site Area.

a. This permit authorizes the operation of a hazardous waste storage facility, at Keystone Cement Company, in East Allen Township, Northampton County, for acceptance of approved wastes that will be stored within the HW Storage Tank System prior to their beneficial energy recovery as alternative fuel within the on-site cement kiln. The site boundaries are labeled as Permit Area Plan of Operations, Figure 4 (RCRA Part B Permit Renewal Application). A separate CKD Contingency Area, for the storage of hazardous waste kiln residues (in roll-offs) for less than 90 days, is identified on the PPC Plan Figure 2B.

b. Hazardous Waste Management Units (HWMUs):

i. Active HWMUs:
The "active" hazardous waste management units of the Hazardous Waste Facility and site, located within the "site" boundaries, includes the existing Tanker Truck Parking Area, the existing Tanker Truck Staging Area, the existing Tanker Truck Unloading Area, the existing HW Storage Tank System including all ancillary systems, the existing cement kiln, and the contiguous area immediately impacted by the hazardous waste management activities at these units.

ii. Future HWMUs:
The currently "future" hazardous waste management units of the Facility include the unconstructed Railcar Area, unconstructed HW Storage Tanks (5 -11), unconstructed direct transfer system, and unconstructed HW fuel mixing system located within the existing Tanker Truck Unloading Area. Construction and operation of the Railcar Area and a portion of the new HW Storage Tanks are authorized to occur within the construction schedule as described in Appendix G of the renewal permit application. The Future HWMUs cannot be operated until the Part IV Section E (Compliance Section) and Part VI (Permitted Railcar and Truck Operations) requirements are satisfied. At that time, the Future HWMUs will become Active HWMUs.

c. New construction or activities within the hazardous waste storage site will require written Department approval.

2. Railcar Areas. Waste containing railcars may not be accepted onsite prior to written Department approval after construction of the combined HWMU. See Part IV Section E (Compliance Schedule) and Part VI (Additional Railcar/Truck Conditions) for additional requirements.

3. Hazardous Waste (HW) storage tanks. The permittee is authorized to install the HW storage tanks as described in the renewal permit application. Any approval contained in this permit for the unconstructed Tanks will terminate within five (5) years of the issuance of this permit. The permittee will be required to submit a Class 2 or 3 Hazardous Waste Permit Modification if the Permittee proposes to construct additional waste fuel tanks other than those proposed as part of the Combined HWMU.

   Processing Conditions. The blending, mixing, and/or treatment of waste streams to meet waste acceptance criteria is prohibited. Use of the existing tank agitators and/or shredders located inside the existing or modified HW Storage Tank System is defined as normal flow control intended to maintain consistent pumpability of waste streams previously meeting waste acceptance criteria upon initial receipt, not blending, mixing, treatment or processing to meet acceptance criteria. This permit does not authorize other processing of waste except for energy recovery by combustion of approved waste streams (with a heating value of ≥ 5000 Btu/lb).Once the waste is received and stored, permittee will blend a fuel to meet its energy recovery criteria.
4. Storage Tank Venting System.

   a. This permit authorizes the connection of the Hazardous Waste Storage Tank System's venting system to the unloading waste vehicles (i.e., vapor balancing system).

   b. The carbon canister system shall remain in place as a back-up system to the existing, certified vapor balancing system.

   c. The permittee is authorized to install and operate a new Hazardous Waste Fuel vapor vent line. This new vapor line will vent vapors (organic emissions) from the HW storage tanks to the first under grate fan of the existing clinker cooler and ultimately to the kiln for combustion.

5. Transfer Facility Operations. This permit does not authorize any transfer activities except for the following:

   a. Truck Unloading Area:

      i. Prompt unloading at the existing Truck Unloading Area(s), within secondary containment, for incorporation of incoming waste into the approved hazardous waste storage tank system. See Part III Sections S & Part IV Sections A, B, C, E for overnight storage provisions.

   b. Existing Truck Staging Area and New Railcar Staging Area:
      i. All hazardous and/or residual waste-containing trucks plus emptied but not decontaminated trucks or railcars previously used to contain wastes, are limited to staging within the approved active Railcar / Truck Unloading Area, Truck Parking Area, and Railcar / Truck Staging Area(s).
      ii. See Part III Section S (Truck Unloading, Parking, and Staging Areas), Part IV Section E (Compliance Schedule) and Part VI (Railcar Operations).
      iii. The Truck Staging Area shall be utilized for sampling activities in accordance with Standard Operating Procedures approved by the Department (SOP WF-60).
      iv. Railcars may be sampled on any rail track located on-site, including within the Railcar Unloading and Railcar Staging Area per the Railcar Management Plan (permit renewal Appendix L).

   6. Direct Transfer System: Direct discharge of waste from incoming vehicles into the cement kiln is authorized through the direct transfer system.

   8. Waste Re-Manifesting: Incoming rejected waste loads may be re-manifested for disposal off-site. The Permittee shall maintain in the operating record the following information related to re- manifested loads: the original generator, the waste description, the reasons for rejection, and the name of the facility to where the material was sent. The Permittee shall include all rejected loads in the Biennial reports and the region for each rejected load.

B. WASTE ACCEPTANCE CRITERIA:

No wastes may be accepted if the waste fails to meet the limits set forth below:

1. On-site Waste Screening Tests & Limits and Module 1/Form U Waste Tests & Limits.

   a. Waste Codes: No hazardous waste codes may be accepted other than those listed in Part III Section A above.

   b. On-site Waste Screening Tests and Limits: The on-site waste tests and waste screening limits are set forth in Table 1 below.

   c. Module 1/Form U Screening Tests and Limits:

      i. Module 1/Form U acceptance criteria limits incorporate all Table 1 On-site Waste Screening Tests and Limits except as noted otherwise.

      ii. See Part III Section A for the listing of primary and secondary waste codes.

      iii. See Part II Section B of this permit and the renewal application Appendix B, Waste Analysis Plan for additional Module 1/Form U analytical requirements.

      iv. Should a waste stream have multiple phases, the Keystone Cement Module1/Form U analysis will include the following:

         1. Determine the percent (by volume) of all phases of separation comprising the waste.
         2. Determine the percent water content of all phases that are equal or greater than 25% of the sample volume.
         3. For any phase identified in subsection “2” above and containing greater than or equal to 75% water by volume, analysis for the entire range of halogenated inorganic anions will be performed.
         4. The permittee shall retain the capability of analyzing incoming waste loads for the entire range of anions via onsite laboratory test method or by an offsite laboratory which is able to provide results within a reasonable timeframe.

TABLE 1
WASTE ACCEPTANCE CRITERIA
FOR ON-SITE WASTE TESTING

PARAMETER	TEST METHOD [1]	SOURCE	APPENDIX B TEST METHOD	LIMITS
%Cl (Chlorine)	9253 (MOD)	SW846	RL.7 detection	≤ 3.0%
PCBs Screening	3620B/8082	SW846	RL.18/RL.19/RL.20	25 ppm
BTU/lbs.	E711 (MOD)	ASTM	RL.6	≥ 5000 BTU/lb.
Peroxide	Manufacturer's Specification	EM QUANT	RL.12	Not Present (per Module 1 analytical data or certification that peroxides are not present with on-site screening at <10 PPM detection limits)[3]
pH	9045C	SW846	RL.14	>2.00 – <12.5
Phases[4]	Visual Inspection	N/A	N/A	Consistent with Mod 1 (Number of Phases)
Iodine[5]	Keystone SOP	KCC Method	S-1	<2%
Compatibility[7]	5058 (MOD)	ASTM	RL.9, RL.10, RL.11	Compatible as determined by the cited test methods

[1]Changes to analytical methods may be made via the Part IV Section F (SOP Modification) process. Updated methods will be incorporated consistent with the facility's laboratory accreditation.

[2]Keystone collects a sample every incoming shipment

[3]On site screening level

[4]The incoming shipment should not indicate a greater number of phases than indicated on the Mod 1 Form. In the event that there are a greater number of phases than indicated on the Mod 1 Form, the generator will be contacted to ensure that the additional phases do not represent a change in waste or process generating waste.

[5]Applies waste streams where there is discrepancy in the number of phases is identified during incoming shipment inspection procedures (i.e. – there are a greater number of phases than identified on the Module 1/Form U). Keystone will determine iodine content for any phase containing 25% or greater of the waste sample by volume and containing 75% or greater water content.

[7]Compatibility testing required from materials to be commingled in the facility tank farm is not required for direct transfer materials.

PERIOD CONFIRMATION TESTING
SUMMARY OF ANALYTICAL METHODS AND MODULE 1 LIMITS

PARAMETER	TEST METHOD	SOURCE	KEYSTONE TEST METHOD[2]	LIMITS[1]
As (Arsenic)	3051/6010B or 7061A	SW846	RL.15/RL.16	≤ 1120 PPM (combined)
Be (Beryllium)	3051/6010B or 7090	SW846	RL.15/RL.16	
Cr (Chromium)	3051/6010B or 7190	SW846	RL.15/RL.16	
Cd (Cadmium)	3051/6010B or 7130	SW846	RL.15/RL.16	≤ 3500 PPM (combined)
Pb (Lead)	3051/6010B or 7420	SW846	RL.15/RL.16	
Hg (Mercury)	3051/3051A/7470A/7471A	SW846	RL.15/RL.17	≤ 10 PPM

[1]Metals testing is only required to be performed on every tenth shipment of waste from each generator. The periodic testing will be used to confirm that the waste stream metals concentrations remain below the limits detailed above.
[2] Keystone Test Method References are included in Appendix A of permit renewal application.

KILN GENERATED WASTES-
SUMMARY OF ANALYTICAL METHODS

PARAMETER	REFERENCE METHODS [1]	SOURCE	RATIONALE	CRITERIA
TCLP Metals	1311(Mod.)/3051(Mod.)/6010B(Mod.), 7470(Mod.) or 7000 series	SW846	Regulatory	Note 2
TCLP Organics	1311(Mod)/8260/8270/8015/8260(Mod)/8270 (Mod.)	SW846	Regulatory	Note 2

[1]Changes to analytical methods may be made via the Part IV Section F (SOP Modification) process
[2]CKD generated waste will be sampled in accordance with the CKD Sampling and Analysis Plan and the results will be assessed in accordance with the criteria detailed at 40 CFR Part 266.112(b)(1) or (2). Refractory lining will be sampled and compared to the TCLP limits at 40 CFR 261.24.

2. Unacceptable Wastes. Materials contaminated with PCBs, peroxides, and dioxin/furans may not be accepted. Unacceptable materials also include certain listed herbicides and pesticides defined as tri-, tetra-, and pentachlorophenols (i.e., waste codes F027); wastes from the production of specific pesticides, such as chlorodane (i.e., waste code K032); and “P” and “U” wastes defined in 40 CFR §261.33(e) and (f). A generator certification, stating that these parameters are not present, must accompany each incoming load.

3. Incoming Waste Loads.

   a. Except for the acceptance and processing of heated material subject to the Heated Material and Direct Transfer SOP, the incoming waste loads cannot be heated after the load is generated in an industrial process for any purpose of facilitating shipping or unloading at this facility. The incoming wastes cannot be heated after blending at a permitted facility for any purpose of facilitating shipping or unloading at this facility.

   b. Incoming loads of sludges may be mixed in bulk tanker trucks using the Mixing System, prior to unloading the mixed sludges to the HW Storage Tanks subject to the Mixing System Operation SOP.

   c. Should a waste stream have multiple phases, the Permittee’s on-site analysis will include the following:

      i. Determine of the percent (by volume) of all phases of separation comprising the waste.
      ii. Determine of the percent of water content of all phases that are equal or greater than 25%

of the sample by volume.

iii. For any phase identified in subsection "ii" above and containing 75% or greater by water by volume, analysis for iodine and chloride will be performed.

d. Incoming waste loads shall be visually inspected for changes from the approved Module 1/Form U physical description including additional phases, color changes, and reduced pumpability and as otherwise set forth in the Waste Analysis Plan (WAP).

e. Until the existing HW Truck Unloading Area and existing HW Storage Tank System are closed and converted to the sole management of off-specification waste oil, all off-specification waste oil shall be managed as a residual waste under the terms and conditions of this permit. Upon certification of closure of the existing HW Truck Unloading Area and existing HW Storage Tank System, the Permittee may manage off-specification waste oil under the residual waste regulations. Upon approval, the waste oil may then be managed within the closed Storage Tank System under the residual waste oil regulations (as modified by permit conditions) until the waste oil enters the Cement Kiln HWMU.

4. Approved Waste Sources.

a. No waste from an unapproved source may be accepted onsite.

b. All conditions of this permit renewal **s**upersede the conditions of the previous permit modifications if discrepancies or inconsistencies between the documents become evident. See Appendix A (Attachment #1 to SOP WF-02) for a compilation of waste approvals.

c. Waste Management Municipal Contract (WMMC) Clients:

1. Prior to accepting a new waste stream (not listed in Attachment #1 to SOP WF-02 of Appendix A), from a WMMC Client under the WMMC Module 1/Form U, the Permittee must submit a Module 1/Form U for that waste stream to the Department. The submittal shall be per Part I, Section E, of this operating permit. If the Permittee can certify in their submittal that the waste stream(s) are not characteristically hazardous for pesticides and herbicides (D012, D013, D014, D015, D016, D017, D020, D031, D037, D041, & D042) then the Module 1 will be reviewed in the following way:

a. If the Module 1/Form U is not returned to the Permittee within (15) working days from the date of receipt by the Department then the waste may be accepted for storage.

b. If at any time after the fifteen (15) working day period, it is determined that the waste accepted is not consistent with this Permit, then the Permittee may be subject to applicable enforcement actions under the Act or Regulations.

If the above-mentioned Permittee certification is not submitted with the Module 1, then the submittal shall be reviewed within the standard one-hundred twenty (120) day review time frame for New Module 1s.

2. The Permittee may notify the Department in writing that emergency circumstances exist that require the receipt of a WMMC Client waste stream prior to the fifteen (15) day review period and request priority review. The Permittee must obtain written approval from the Department prior to receipt of the waste stream.

3. All analysis and Module 1 /Form U information must be kept onsite and reviewed by trained Permittee staff prior to waste acceptance. The Permittee shall notify the Department in writing or withdraw the submittal in the event that the Permittee determines that the submittal to the Department is deficient.

C. APPROVED APPLICATION

The approved permit application consists of the following:

Volume 1 of 4:

a. Letter request/application for RCRA Part B permit renewal from Keystone Cement Company, dated August 3, 2018. Responses to Technical Deficiencies dated June 9, 2020 and December 21, 2022.
b. Form HW-B – Professional Certification
c. Form GIF – General Information Form
d. RCRA Hazardous Waste Part A permit application
e. RCRA Hazardous Waste Part B permit application for Treatment, Storage, and Disposal
-Part B Checklist
f. Proof of Payment
g. Form HW-E – Contractual Consent of Landowner
h. Module 9 – Environmental Siting Criteria/Environmental Assessment Process Review Checklist for Hazardous Waste Management Facilities
i. HW-C - Compliance History
j. Narrative
k. Appendix A – Standard Operating Procedures
l. Appendix B – Waste Analysis Plan

Volume 2 of 4:

m. Appendix C - Preparedness, Prevention, and Contingency Plan
n. Appendix D - Inspection Forms
o. Appendix E - Closure Plan and Financial Requirements
p. Appendix F - Structural Evaluation of Storage Tanks
q. Appendix G - Schedule for Related Construction Activities

Volume 3 of 4:

r. Appendix H – Drawings

Volume 4 of 4:

s. Appendix I – Management of Waste Oil
t. Appendix J – Cement Kiln Dust Sampling and Analysis Plan
u. Appendix K - Report of Details Relative to the Construction of the New Tank Farm and Supporting Unloading Facilities
v. Appendix L - Railcar Management Plan
w. Appendix M –Report on Use of Tanks 1A and 1 B to Store Waste Oil
x. Appendix N – Air Permit Related Correspondence
y. Appendix O – Design Related Information
z. Appendix P - Personnel Training
aa. Appendix Q – Geologic Investigative Report
bb. Appendix R – Stormwater Management Correspondence

D. MAXIMUM STORAGE VOLUMES

1) The maximum approved liquid waste storage capacity of the approved, existing, and future HW Storage tanks are:

a.	Storage Tank #1A:	15,000 gallons
b.	Storage Tank #1B:	15,000 gallons
c.	Storage Tank #2:	31,500 gallons

d.	Storage Tank #3	31,500 gallons
e.	Storage Tank #5	32,000 gallons
f.	Storage Tank #6	32,000 gallons
g.	Storage Tank #7	32,000 gallons
h.	Storage Tank #8	32,000 gallons
i.	Storage Tank #9	32,000 gallons
j.	Storage Tank #10	32,000 gallons
k.	Storage Tank #11	28,000 gallons

2) The maximum approved in-service liquid waste storage capacity for the facility is 220,000 gallons. This includes any combination of existing and future HW Fuel Storage Tanks.

3) The maximum approved facility liquid waste storage capacity shall not be exceeded any time during new HW Fuel Storage Tank construction or repurposing of existing tanks in combination with new constructed tanks.

E. COMPLIANCE SCHEDULE

1. New Construction and Construction Certification Requirements.

   a. The submitted construction certification will contain any impacted or new Standard Operating Procedures (SOPs) with documentation addressing requirements set forth in Part IV Section F.2 below. These SOPs will be reviewed as part of the construction certification and may not be implemented until the Department approves the submitted construction certification in writing.

2. Combined HWMU-specific Requirements:

   a. General: No Combined HWMU operations (including railcar/tanks/truck acceptance or staging) can begin prior to written Department approval of the construction certification for those systems to be constructed according to general design plans and Construction Schedule of Appendix G of the permit renewal application.

   b. Construction Certification: At least ninety (90) days prior to acceptance of hazardous or residual waste at the Combined HWMU, the Permittee shall submit a construction certification, signed and sealed by a Pennsylvania Professional Engineer with identified expertise in fire safety and the field of industrial hygiene, including the following:

   i. Professional certification that the Combined HWMU (the HW Storage Tank System including ancillary systems, the Railcar Unloading Area, the Truck Unloading Area, the Railcar Staging Area, Truck Staging Area, secondary containment, spill & leak controls, and structure) has been designed and constructed to minimize the possibility of a fire, explosion, or any unplanned release of hazardous waste or hazardous waste constituents to the air, soil or surface water which could threaten human health or the environment (40 CFR§264.31). This certification will include:

   (a) A hazard analysis completed in accordance with the 2008 Edition (or most recent edition) NFPA 30 Chapter 6 (Fire Prevention and Fire Risk Control) based upon an engineering evaluation of the operation and application of sound fire protection and process engineering principles by a Pennsylvania Professional Engineer with identified expertise in the fields of fire safety engineering and industrial hygiene. This hazard analysis shall also address all aspects of the waste-containing railcar operations onsite.

   (b) Design calculations, design specifications, and certification that the ancillary systems (nitrogen blanketing system, vapor balancing system, solvent piping/pumping system, carbon canister system, foam system) and related fire hydrant/water supplies have been properly sized and constructed per identified NFPA or other nationally recognized design/safety code.

(c) Certification that the installed tanks meet the most recent edition of API 650 Industry Standard unless the Department approves an alternate API 620 standard in writing.

(d) Certification by a Pennsylvania Professional (Geotechnical) Engineer that the Combined HWMU foundations have been engineered against any potential subsidence or sinkhole formation, with an annual inspection plan to detect any signs of potential sinkhole formation or subsidence. The certification shall include a copy of an inspection plan and contingency plan to be followed in event of signs of potential subsidence or sinkhole formation.

(e) Written Pennsylvania Department of Labor & Industry (PA DL&I) approval for the Combined HWMU's design and construction in terms of the Title 37 Flammable & Combustible Liquid regulations and any other applicable PADL&I occupational safety regulations.

(f) Written approval from East Allen Township in regard to compliance with the applicable building codes (Uniform Construction Codes including International Fire Codes).

ii. Documents to be kept on-site include as-built engineering drawing(s), signed and sealed by a Pennsylvania Professional Engineer, showing & identifying the constructed Combined HWMU, access points/routes for sampling and personnel access (including catwalks), and all associated fire control equipment including fire hydrants, connections to water supplies, spill & leak controls, surface water controls, surface water flow directions, and ultimate destination for any release outside of secondary containment. These drawings will be correlated to:

(a) A table identifying any specific industry or safety code (API, NFPA 30, etc.) that the constructed Combined HWMU components, equipment, instruments, and structures meet.

(b) An inspection plan including a written schedule for the inspection of individually identified monitoring equipment (with identifier number); safety and emergency equipment (with identifier number); security devices (with identifier number); and operating and structural equipment (with identifier number) that are important to preventing, detecting or responding to environmental or human hazards. The Plan shall include a table identifying the type of malfunction or deterioration to be inspected for, and the frequency for the required inspections (40 CFR §264.15). Examples of equipment include pumps, valves, pipes, ancillary system equipment that contact waste or waste constituents.

(c) Security systems including fencing, lighting, locks, alarms, 24 hour-per-day/7-days-per-week video surveillance system location & specifying which areas are being visually monitored by whom, and any form of access control or barrier.

(d) The Railcar traffic pattern (showing how railcars will be maneuvered onsite), railcar storage/staging aisle space, traffic controls including traffic signals, load-bearing capacity, truck access road & turn/stacking lanes for intersections.

c. <u>Air Emissions Requirements:</u> 40 CFR Part 63 Subpart DD documentation and PADEP AQP correspondence demonstrating that the Combined HWMU equipment air emissions have been addressed via the PADEP AQP Title V Permit and Plan Approval.

d. PPC Plan Requirements: An updated "stand alone" PPC Plan.

e. Standard Operating Procedures: At least ninety (90) days prior to the proposed acceptance of railcar waste shipments, the Permittee shall submit updated Standard Operating Procedures to address changes due to railcar operations with SOP WF-06 (Process Change) documentation.

i. New SOP for Railcar Unloading addressing requirements of 40 CFR §270.14(b) (8, 9).

ii. New SOP for Railcar Loading Procedure.

iii. New SOP for the management of rejected waste-containing railcars.

iv. New SOP for Railcar Staging Area Procedure.

v. New SOP for operational maneuvering & movement of railcars including traffic control signals or other approved traffic control plan to minimize and prevent potential vehicular accidents. This SOP shall include figures showing all traffic controls, railcar staging areas, railcar storage areas, and rail spurs used to maneuver railcars. This SOP shall address how the Permittee will manage a leaking railcar and if needed to move it to the Railcar Unloading Area in event that the Railcar Unloading Area is filled or if there are additional railcars between the leaking railcar and Unloading Area.

vi. Updated SOP WF-01, WF-02, WF-05, WF-07, WF-08, WF-09; WF-10; WF-11; WF-13; WF-26; SOP WF-28; SOP WF-30; SOP WF-34; SOP WF-35; SOP WF-36, WF-50, WF-59, as necessary .

F. STANDARD OPERATING PROCEDURES (SOPs)

1. Approved Site SOPs

   a. Appendix A of the permit renewal application contains the Site SOPs.

2. SOP Modification Procedure.

   a. Any proposed change to Approved Site SOPs shall be submitted in writing to the Department at least fifteen (15) days prior to initiation of changes to site operations except if submitted as part of a construction certification or application for permit or permit modification.

   b. The new or revised SOP submittal (for each SOP) shall include the following:

      1. The new or revised SOP;
      2. The original SOP being revised (if any);
      3. A cover letter identifying the change (if any);
      4. The completed WF-06 Process Change form;
      5. Certification that the proposed SOP will meet relevant OSHA, MSHA, NFPA or other industry standard, with identification of standard, if applicable; and,
      6. Any other documentation needed to show that the change does not affect the safety, health and environment of site personnel and the public or otherwise violate the conditions of this permit.

   c. If the Department does not respond within fifteen (15) working days, the Permittee may implement the new or revised SOP if the SOP does not require changes to site construction or otherwise conflict with conditions of this permit and if the SOP is not part of an application for permit or permit modification or construction certification.

   d. Any SOP change requiring or associated with changes to site construction will require an application for permit modification or submitted construction certification, and shall be approved, rejected or approved with conditions as part of the permit modification application or construction certification.

   e. A complete set of approved SOPs will be maintained onsite. Copies of SOPs shall be provided to the Department upon request.

PART V - INDUSTRIAL FURNACE/CEMENT KILN RELATED REQUIREMENTS

A. SCOPE OF COVERED ACTIVITIES:

1. Combusting for Energy Recovery: This permit authorizes the combustion for energy recovery of approved liquid (pumpable at ambient temperatures and pressures except for the acceptance and processing of heated material subject to Heated Material and Direct Transfer SOP and the mixing of sludges subject to the Mixing System Operation SOP) hazardous and residual wastes, with a minimum fuel value greater than or equal to 5,000 BTU/pound, within the approved cement kiln industrial furnace identified in the permit application per 25 Pa. Code Chapter 266a, 40 CFR Part 266 Subpart H (Hazardous Waste Burned in Boilers and Industrial Furnaces), the terms and conditions of this permit and the terms and conditions of the PADEP AQP Title V Permit (including kiln operating ranges which allow for hazardous waste combustion). In this Part, the term "burn" or “combust” means combusting for energy recovery in the Approved Cement Kiln.

2. Kiln Residue Management: This permit authorizes the management of kiln-generated residues produced during the combusting of wastes within the cement kiln. Kiln residues include cement kiln dust, kiln refractory brick, and other "non-cement product”, materials that have been in contact with hazardous wastes or their products of combustion in the kilns (including pipes, ducts, fans, etc.).

a. Residues generated during the treatment of hazardous waste shall be managed as hazardous waste unless the Permittee has promptly determined that the residue is non- hazardous as set forth in 25 Pa. Code §261a.3(b) and 40 CFR §266.112 as incorporated by reference at 25 Pa. Code §266a.20. The following criteria must be met to qualify for this exemption:

i. A minimum of fifty (50) percent by weight of the normal cement- production raw materials must be processed in the cement kiln during the generation of the waste;

ii. The concentration of each constituent of concern, determined by following the CKD Sampling & Analysis Plan, in the hazardous waste-derived CKD or residue must not exceed the limits provided in 40 CFR§266.112(b)(1) or 40 CFR§266.112(b)(2), whichever is higher for the nonmetal constituents; and,

iii. Records sufficient to document with the above requirements are retained until closure of the cement kiln.

b. Non-hazardous kiln residues, kept segregated from hazardous wastes or potentially hazardous wastes, may be managed as residual waste after removal from the Kiln HWMU.

c. Properly decontaminated instruments, equipment, components, and structures may be re-used, sold for scrap, or otherwise disposed.

d. In event that cement kiln dust or other kiln residues are generated by kilns combusting less than 50% by weight normal cement-production raw materials, the kiln residues shall be managed as hazardous waste.

e. The Department may authorize a reduction in cement kiln dust sampling and analytical requirements in writing. No reduction in current sampling & analysis requirements has been authorized as of the effective date of this renewal permit.

3. Contaminated Stormwater Management: This permit authorizes the use or re-use of contaminated stormwater collected from the HW secondary containment system as an ingredient (water) to the cement kiln as part of the cement- making process (40 CFR §261.1(b) as incorporated by reference at 25 Pa. Code §261a.1).

a. This permit does not authorize any alternate use of contaminated stormwater.

b. Collected hazardous waste, spills, leaks, clean up residues, and contaminated stormwater from secondary containment or surface water controls shall be removed promptly after the spillage/rainfall event.

c. Stormwater, collected from the HW secondary containment systems, shall be managed as hazardous waste unless the Department approves an alternate disposition or Standard Operating Procedure for determining the regulatory status of the collected stormwater and specific end-uses for this fluid/wastewater. If stored in containers, the containers shall comply with 40 CFR Part 264 Subpart CC (Container) requirements.

d. Hazardous waste released into the secondary containment system may be returned to the HW Storage Tank System if meeting applicable waste acceptance permit requirements including fuel value as combusted.

B. ENGINEERING DESIGN PLANS AND SPECIFICATION:

1. The Cement Kiln HWMU (including associated ancillary systems, instruments, equipment, and structures) will be constructed in accordance with the general design plans.

2. No substantive design or construction modifications may be made without prior Department written concurrence or permit modification as required in Part I Section H.10. Routine replacement of functionally equivalent parts during preventive maintenance will not require pre-approval.

C. GENERAL OPERATING REQUIREMENTS:

1. At all times, the Permittee shall operate and maintain the Cement Kiln HWMU to minimize the possibility of a fire, explosion, or any unplanned release hazardous waste or hazardous waste constituents to air, soil, or waters of the Commonwealth that might threaten human health or the environment.
2. The Permittee shall operate the Cement Kiln HWMU in accordance with this permit and the PADEP AQP Title V Permit.
3. Prohibited Wastes. Combusting of the following wastes is prohibited at all times:
   a. Dioxin and furan-containing waste streams, including HW waste codes F020, F021, F022, F023, F026 (40 CFR §261.31).

   b. Polychlorinated biphenyl (PCB) waste as defined in 40 CFR §761.3.
   c. Radioactive source, special nuclear or byproduct material (as defined by the United States Nuclear Regulatory Commission), except byproduct materials that meet the criteria for exempt concentrations set forth in 10 CFR §30.71 at the point of generation.
   d. Explosive material, as defined by the US Department of Transportation under 49 CFR Part 173.
   e. Reactive wastes, as defined by 40 CFR §261.23.
   f. Containerized gas
   g. Municipal waste as defined in 25 Pa. Code §271.1
   h. Infectious or chemotherapeutic waste as defined by 25 Pa Code §271.1.
   i. Prohibited inorganic metal-bearing hazardous wastes (listed in 40 CFR Part 268 Appendix XI- Metal Bearing Wastes Prohibited from Dilution in a Combustion Unit), unless the hazardous waste can be demonstrated to comply with one or more criteria specified in 40 CFR §268.3(c) to prepare fuel for the kiln.
   j. Wastes which are not pumpable at standard conditions (defined in 25 Pa. Code 121.1 (air quality regulations) as 70 degrees Fahrenheit and 14.7 pounds per square inch absolute pressure i.e. 1 atmosphere) except for the acceptance and processing of heated material subject to the Heated Material and Direct Transfer SOP and the mixing of sludges subject to the Mixing System Operation SOP.

   k. Wastes with a heating value of less than 5000 BTU per pound. Blending is prohibited as a means of augmenting the heating value to meet the facility acceptance criteria defined in this permit (40 CFR §268.3).

4. Direct Transfer fuel lines to allow transfer of heated waste fuel from the truck unloading area to the kiln without using a storage unit are permitted.

5. Mixing System allows the mixing of sludges in bulk tanker trucks prior to unloading the mixed sludges into one of the HW storage tanks.

6. Only those waste types approved per this permit's Part II Section B, Part III Section A, and Part IV Section B may be combusted as fuel in the cement kiln. On-specification waste oil shall be managed as a commercial

fuel product as set forth in the Pennsylvania Residual Waste regulations.

D. INSPECTION REQUIREMENTS:

1. The Cement Kiln HWMU, including associated equipment (pumps, valves, pipes, and other ancillary equipment) shall be visually inspected at least daily when they contain or potentially contain hazardous waste or waste constituents. The equipment shall be inspected for leaks, spills, discharges, other releases, fugitive emissions, and signs of tampering.

2. Documentation of each inspection shall be maintained in the operating record for a minimum of five (5) years. At a minimum, the record shall include the following:

a. Date of the inspection,
b. Identification of each device (e.g., hazardous waste feed pump #1) or operating system (e.g., burner injection system component) inspected, including part number or other descriptive identifier,
c. Name of the person(s) conducting the inspection,
d. Description of any leaks, spills, other discharges, fugitive emissions observed,
e. Description of any corrective measures taken as a result of the inspection,
f. Any other information associated with the inspection.
g. The automatic waste feed cut-off system (AWFCO) and associated alarms must be tested at least once every thirty (30) days when hazardous waste is combusted to verify operability unless the Department authorizes a different schedule in writing.

3. The Kiln Residue Management areas shall be inspected daily for dust and any potential releases to the environment.

E. MAINTENANCE:

1. The Permittee shall maintain the Cement Kiln HWMU (including the cement kiln, ancillary equipment including air pollution control equipment and instrumentation) per a written preventive maintenance schedule that is consistent with the conditions of this permit.

2. The Permittee shall maintain a written record of all preventive maintenance and repairs performed on the Cement Kiln HWMU (including cement kiln, the ancillary equipment, and instrumentation). At a minimum, the record shall include the following information:

a. The date the problem was discovered, if not routine maintenance,
b. The piece of equipment or instrumentation repaired or maintained including part number or other appropriate descriptive identifier,
c. The type of maintenance or repair,
d. The date maintenance or repair,
e. The name of the person(s) conducting the maintenance,
f. Any data associated with any calibration and testing; and,
g. The date the unit was placed back into service.

F. CLOSURE

The Cement Kiln HWMU shall close in accordance with 40 CFR §266.102(e)(11) as incorporated at 25 Pa. Code §266a.20, 40 CFR §264.178 as incorporated by reference at 25 Pa. Code §264a.1, Part II Section I of this permit, and renewal application Appendix E of this permit, as modified by the terms and conditions of this

permit including Part IV Section E.

PART VI - ADDITIONAL RAILCAR/TRUCK REQUIREMENTS

A. SCOPE OF AUTHORIZED OPERATIONS:

1. This Part pertains to the management of waste-containing railcars and trucks onsite:
   a. Railcar Acceptance & Management:
      i. The Permittee accepts the railcar and all applicable regulatory and statutory responsibilities for proper management of the waste-containing railcar after the railcar crosses the railcar acceptance point depicted on Permit Area Plan of Operations, RCRA Part B renewal application, Figure 4.
      ii. The railroad transporter retains any (DOT and Department) transporter regulatory responsibilities and obligations until the manifest is signed by the Permittee or in event that the waste-containing railcar is rejected by the Permittee and departs from the site with the delivering train locomotive.
      iii. Railcars shall be managed per the updated Railcar Management Plan in Appendix L submitted with the permit renewal application.

   b. Truck Acceptance & Management:

      i. The Permittee accepts waste-containing trucks and all applicable regulatory and statutory responsibilities after the manifest is signed or the truck driver/tractor leaves the site (whichever is first).

   c. Storage: No waste-containing railcar or truck may be staged or stored outside of the approved HWMUs.

   d. Related Requirements: See Part III Section S (Truck Unloading, Parking, and Staging Areas) and Part IV for related requirements. Part III Sections G (Access Road), H (Buffer Zone), N (Weighing or Measuring Facilities), Q (Surface Water Management), R (Waste Tracking), T (Air Emissions Requirements) are incorporated by reference into this Part.

B. LOADING OF OUTGOING WASTES VIA RAILCAR:

1. Shipment Offsite: Offsite shipments of waste are authorized for rejected loads, emergency removal of unapproved wastes accidentally received and stored in the approved active HW Storage Tanks, or when Keystone's kiln is not combusting waste. Transfer from storage tanks to railcars is performed in accordance with the Railcar Management Plan in Appendix L submitted with the permit renewal application.

2. Shipment Time-frame: The Permittee shall contact the railroad company and a pickup must be scheduled upon completion of loading one or more railcars per the Railcar Management Plan in Appendix L. Shipment occurs when:
   a. The transporter signs the manifest acknowledging acceptance of the railcar, and returns it to the Permittee; and,
   b. The railcar crosses the Railcar Acceptance Point (RCRA Part B, renewal application, Figure 4) in departing the site.

3. Additional Recordkeeping: The Permittee must maintain a log of the date and time of each waste-containing or emptied railcar's arrival and departure from the facility. The Permittee must maintain a copy of the Railcar Checklist to verify that the railcar has been inspected for safe shipment off-site.

4. Additional Inspection Requirement: The Permittee will inspect outgoing railcars to verify that the railcar has been inspected for safe shipment off-site.

5. Other Regulatory Obligations: The Permittee shall comply with all applicable requirements of the US Department of Transportation (DOT) including 49 CFR Parts 172, 173, 179 and the Federal Railroad Administration (FRA)requirements of the PA Department of Transportation (DOT) including PA Title 67: and of the US Department of Homeland Security including the Transportation Security Administration.

C. DURATION OF STORAGE

1. Railcar Storage: No incoming waste-containing railcar can remain onsite for more than twenty (20) days total prior to unloading, except for outgoing waste-containing railcars. Upon arrival on-site, the railcar will be moved onto the Keystone rail siding and tracks. Within 10 days, movement into the railcar staging and unloading area will occur. Once inside the railcar facility, the Permittee will unload the waste derived fuel within 10 days. If necessary, a railcar will be rejected and scheduled with the rail company to be returned to the generator or re-manifested to another facility as soon as practicable.

   If Permittee is unable to move the railcar into the railcar staging and unloading area, or unload a railcar within 10 days of being placed in the railcar staging and unloading area, then Permittee will notify the Department. Within three (3) days of either of these instances, Permittee will provide a notification to the Department stating why the movement or unloading is delayed beyond 10 days and the date by which it will be moved or unloaded.

2. Truck Storage: The Permittee shall notify the Department immediately if any waste- containing truck is stored for more than forty-eight (48) hours onsite and provide written explanation within twenty-four (24) hours.

D. CONDITION OF CONTAINERS

If a waste-containing truck or railcar container holding hazardous or residual waste is not in good condition (e.g., severe rusting, apparent structural defects) or if it begins to leak, the Permittee shall ensure that the truck/railcar is within secondary containment and transfer the waste from such container to a container that is in good condition or otherwise manage the waste in compliance with the conditions of this permit.

E. MANAGEMENT OF TRUCK/RAILCAR CONTAINERS

The Permittee shall manage waste-containing truck and railcar containers as required by 25 Pa. Code §264a.173 and 40 CFR §264.173 as incorporated by reference at 25 Pa.

Code §264a.1. In addition:

1. The Permittee shall store all hazardous and residual waste-containing truck/railcar containers in accordance with the following volume, content, and location requirements:

   a. Any waste-containing railcar/truck parking or staging area must be monitored 24-hours per day if outside of secondary containment and/or fencing.

   b. The Permittee shall store waste-containing and emptied railcars and truck containers of hazardous or residual waste as required by 40 CFR §264.173 as incorporated by reference at 25 Pa. Code §264a.1 and 25 Pa. Code §264a.173. The Staging, Storage and Parking Areas shall comply with NFPA 30 aisle space requirements in order to allow for safe management of waste and the unobstructed movement of personnel, fire protection equipment, spill control equipment, decontamination equipment and emergency vehicles to any area of the facility operation in event of an emergency plus inspection, containment and remedial action.

   c. Unless the Department authorizes additional storage in writing:

      i. No more than four (4) waste-containing railcars may be located in the fenced railcar staging and unloading area at any one time.

   d. The Permittee shall maintain onsite and immediately available when waste-containing trucks and/or railcars are onsite, means of moving waste-containing trucks and railcars as needed to allow for access and to move the containers in event of fire, explosion, release or other incident triggering the site PPC Plan. If this capability is not available, no staging outside of the approved Truck/Railcar Unloading Areas is authorized.

   e. The Permittee shall ensure that any equipment or vehicles which come into contact with waste in the loading/unloading areas, storage, staging, and parking areas have been decontaminated prior to their movement outside of the permit- defined loading/unloading, storage, parking and staging areas. Decontamination can include washing of contaminated equipment and the washing of undercarriages & wheels to remove all waste residues and to prevent spreading of contamination. All wash water shall be collected and disposed.

F. COMPATIBILITY OF WASTES WITH CONTAINERS

If shipping waste offsite, the Permittee shall assure that the ability of the truck or railcar to contain the waste is not impaired as required by 40 CFR §264.172 as incorporated by reference at 25 Pa. Code §264a.1.

G. CONTAINMENT

The Permittee shall construct and/or maintain the containment system as required by 40 CFR §264.175 as incorporated by reference at 25 Pa. Code §264a. 1. All secondary containment area floors shall be uniform and free from cracks or holes.

H. SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTES

The Permittee shall not locate trucks, railcars or other containers holding ignitable or reactive wastes within fifteen (15) meters (50 feet) of the facility's property line.

I. SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES

1. Placement of Incompatible Wastes: Incompatible wastes and/or materials will not be placed in the same container. Further, waste shall be separated from any nearby incompatible material.
2. Incompatible Wastes in Unwashed Containers: The Permittee shall not place hazardous or residual waste in an unwashed container that previously held an incompatible waste or material.
3. Storage of Incompatible Wastes: The Permittee shall not accept incompatible waste. If wastes are determined to be incompatible while onsite, the containers of incompatible wastes shall be stored as required by 40 CFR §264.177(c) as incorporated by reference at 25 Pa. Code §264a.1.
4. Documentation: In the event of incompatible wastes, the Permittee must document compliance with sections (1) and (2) of this condition as required by 40 CFR §264.17(c) as incorporated by reference at 25 Pa. Code §264a.1 and place this documentation in the operating record (Part II Section H.1).

J. RCRA ORGANIC AIR EMISSIONS

The Permittee shall comply with all applicable requirements of 40 CFR §264 Subpart CC - Air Emission Standards for Containers as incorporated by reference at 25 Pa. Code §264a.1 except as superseded by 40 CFR Part 63 Subparts DD and EEE.

K. CONTAINER RESIDUES

Residues of hazardous waste in empty containers shall be managed per 25 Pa. Code §261a.7 and 40 CFR §261.7 as incorporated by reference at 25 Pa. Code §261a.1.

L. CLOSURE

Closure must be implemented in accordance with 25 Pa. Code §264a.115, Part II Section I the Closure Plan in renewal application Appendix E and 40 CFR §264.178 as incorporated by reference at 25 Pa. Code §264a.l.