COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF LAND RECYCLING AND WASTE MANAGEMENT

Permit
For
Solid Waste Disposal and/or Processing Facility
FORM NO. 8

Permit No.	101719
Date Issued	01/28/2020
Date Expires	01/28/2041

Under the provisions of the Pennsylvania Solid Waste Management Act of July 7, 1980, Act 97, a permit for a solid waste disposal and/or processing at (municipality) Boggs Township in the County of Clearfield is granted to (applicant) PA Waste, LLC (address) 175 Bustleton Pike Feasterville, PA 19053

This permit is applicable to the facility named as and Camp Hope Run Landfill and described as:

Total Property Acres: 2,071
Permitted Acres: 845
Disposal Acres: 217
Latitude: 40° 56' 0"
Longitude: -78° 23' 52"

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 (Department) for any violation of the applicable laws or the rules and regulations 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. 101719 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

FOR THE DEPARTMENT OF
ENVIRONMENTAL PROTECTION

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Standard Provisions

1. This permit is being issued pursuant to the Pennsylvania Solid Waste Management Act of July 7, 1980 and the Municipal Waste Management Regulations of most recent effective version. This permit is for the construction and operation of an 845-acre municipal waste landfill, of which 217 acres are permitted for waste disposal, employing artificial liners and collection and treatment of leachate, pursuant to, and including, the application for Municipal or Residual Waste Permit notarized June 1, 2017, and the following information:

   a. Phase I Permit Application submitted July 3, 2017.
   b. Phase I Technical Deficiencies revisions submitted June 7, 2018.
   c. Phase II Permit Application submitted February 27, 2018
   d. Response to Comments – November 26, 2018 (Phase II), submitted April 8, 2019.
   e. Response to Pre-denial Letter – June 4, 2019, submitted July 2, 2019
   f. All other related submissions/correspondence.

2. The permittee shall comply with all applicable requirements of 25 Pa. Code, Article VIII, Municipal Waste. Failure to comply with the Department's rules, regulations and special conditions of this permit may result in enforcement action by the Department.

3. A copy of the complete Waste Management permit and permit application, including all updates and revisions, shall be retained on site.

4. Permit modifications, other than equivalency approvals, granted for this facility will be listed in Appendix E, of this permit. The specific permit conditions for each of these permit modifications will be included in Attachment 1 of Appendix E. Appendix E will be updated for any new permit modifications approved after the date of this permit

General Provisions / Daily Operations

5. The permitted operating hours for the facility are 24 hours per day, seven (7) days per week to include waste disposal support activities, construction, maintenance, monitoring, operation of landfill environmental management and control systems and any other operations not involving waste receiving. The permitted days and hours of operation for waste receiving activities are from 6:00 am to 4:00 pm, Monday through Friday and 7:00 am to 3:00 pm on

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Saturdays, closed on Sundays or such other hours as the host municipality may set by ordinance, pursuant to Section 304(b)(2) of Act 101, the Municipal Waste Planning, Recycling and Waste Reduction Act, 53 P.S. Section 400.304(b)(2). For purposes of calculation of average and daily waste volumes, each partial day shall be counted as one day.

6. No more than 5,000 tons of solid waste may be received at this facility for disposal on an average daily volume basis over the standard calendar year quarter. This figure represents the average daily volume of the facility, pursuant to Section 1112 of Act 101, the Municipal Waste Planning, Recycling and Waste Reduction Act, 53 P.S. Section 4000.1112 and has been set after consideration of weather, seasonal variations, community cleanup days, and other factors. Section 1112 applies to any excess waste received for disposal at this facility for any reason. The Department shall calculate any penalty after determining the total tonnage of solid waste received for disposal at this facility during the calendar year quarter, divided by the number of permitted operating days that the facility is permitted to accept waste for disposal during that quarter.

7. No more than 5,000 tons of solid waste may be received at this facility for disposal on any single operating day. This figure represents the maximum daily volume of the facility, pursuant to Section 1112 of Act 101, the Municipal Waste Planning, Recycling and Waste Reduction Act, 53 P.S. Section 4000.1112, which section also provides that a mandatory civil penalty of $100 per ton applies to any excess volume received for disposal at this facility for any reason.

8. Any increase in the average or maximum daily waste disposal amount will require a major permit modification to be submitted to the NorthCentral Regional Office (NCRO) Waste Management Program for review. Written approval for an increase in daily waste amounts is required. Additionally, any modifications regarding changes in hours of waste acceptance will require re-evaluation of the Environmental Assessment and specifically the Traffic Impact Study.

9. The facility will not accept municipal waste from within Clearfield County unless the County Plan is modified. The facility shall not interfere with municipal waste collection, storage, transportation, processing or disposal in Clearfield County per the Municipal Waste Planning, Recycling and Waste Reduction Act § 507 (a)(2)(ii).

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10. The permittee is required to complete a daily operational record as required by 25 Pa. Code § 273.311. The daily operational record shall be recorded on a form supplied by the Department and shall be maintained on a daily basis and must be available at all times for review by the Department employees or their authorized representatives.

11. The permittee shall prevent trucks exiting the facility from tracking mud and other contaminants such as debris, litter, solid waste, and leachate, onto the public highway.

12. Litter shall be collected at least weekly from fences, roadways, trees and tree line barriers and other barriers and disposed of in the working face.

13. Litter shall not be allowed to be blown or otherwise deposited off-site.

14. Fences or other barriers sufficient to control blowing litter shall be constructed in the immediate operating area and all other areas necessary. The litter control fences or barriers must be constructed and in-place prior to waste acceptance at this facility.

15. The permittee shall not accept solid waste transported to the facility in a vehicle in which the waste is not covered or secured in accordance with the Department's rules and regulations governing the transportation of waste.

16. No Alternative Daily Covers (ADC) are approved for use at this facility. If the permittee wishes to utilize ADCs at the facility, a modification must be submitted to the NCRO Waste Management Program for review and approved in writing prior to using the material at the facility.

17. Geosynthetic Rain Cover (GRC) are approved for use at the facility. Upgradient portions of newly constructed cells, including sideslopes which have not received incremental protective cover material, may be covered with GRCs. ONLY stormwater collected on top of the GRC will be directed (by gravity or pumped) from the cell into the perimeter channel or other appropriate site stormwater structures for proper management. Should waste, contaminated runoff or leachate be found to be running onto or ponding atop the GRC, the GRCs must cease to be used in this area and the waste and/or contaminated liquid be disposed of properly.

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18. GRCs are also approved for use over the intermediate cover soils (except on final or intermediate areas that slope to the outer, final slopes) and on exposed protective cover/leachate collection material. Additionally, should waste, contaminated runoff or leachate be found to be running onto or ponding atop the GRC, the GRCs must cease to be used in this area and the waste and/or contaminated liquid be disposed of properly.

19. Upon issuance of this permit, the Preparedness, Prevention and Contingency Plan must be updated accordingly to incorporate site specific features and materials staged at the Camp Hope Run Landfill that has the potential for causing accidental pollution of air, land, or water or for causing endangerment of public health and safety through accidental release of toxic, hazardous, or other polluting materials. The plan must be submitted to the NCRO Waste Management Program for review and approval prior to any activity at the facility.

20. Upon commencing disposal of waste in the landfill cell, the first 8 feet of solid waste placed on the protective cover may not contain material capable of penetrating the protective cover. Acid-producing materials are not to be placed as a select waste layer in the lined cell area within 20 feet above the top of the protective cover layer.

21. The acid producing material shall be mixed at a rate of no greater than eight (8) tons of Municipal Solid Waste (MSW) mixed with each one (1) ton of acid-producing material.

Reporting

22. The permittee shall submit to the Department's Rachel Carson State Office Building, a quarterly operation report as required by 25 Pa. Code § 273.312. The report shall be submitted on or before the 20th day of April, July, October and January for the three (3) months ending the last day of March, June, September, and December. The report shall be submitted on forms supplied by the Department.

23. The permittee shall submit to the NCRO Waste Management Program, an annual operations report on or before June 30 of each year in accordance with the requirements of 25 Pa. Code § 273.313.

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24. The permittee shall submit along with the annual report a summary of the status of mitigation and benefits as outlined in the Environmental Assessment as approved by the Department. These measures include but are not limited to:

    a. AMD groundwater treatment & leachate treatment
    b. Movement of acid bearing rock with the first seven years of operation
    c. Wetland mitigations as approved by the Waterways and Wetlands Program per 25 Pa Code § 102 & 105
    d. Recycling of at least four (4) materials, to include but not be limited to, glass, aluminum cans, cardboard, and plastics.

Water Quality Monitoring and Protection

25. The water quality monitoring system includes the following groundwater monitoring points:

    Upgradient monitoring wells:
    GMW-1A, GMW-1B, GMW-1C
    Downgradient monitoring wells:
    GMW-2B, NW-3B, GMW-4B, GMW-4C, NW-5B, GMW-6A, GMW-6B, GMW-6C, GMW-7B, GMW-8B, GMW-9A, GMW-9B, GMW-9C, GMW-10A, GMW-10B, GMW-10C, GMW-11A.
    Upgradient surface water monitoring points:
    GR-415, GR-440
    Downgradient surface water points:
    GR-405, GR-410A, GR-419, GR-452, GR-505.

26. Contact the NCRO Waste Management Program before the installation of groundwater monitoring points (GMW-1A, GMW-1B, GMW-1C, GMW-2B, GMW-4B, GMW-4C, GMW-6A, GMW-6B, GMW-6C, GMW-7B, GMW-8B, GMW-9A, GMW-9B, GMW-9C, GMW-10A, GMW-10B, GMW-10C, GMW-11A). Coordinate with the NCRO Waste Management Program so that Department personnel may be on-site during installation. Any changes to well construction as outlined in Attachment 7-7, Table 7.5 of the permit application shall be approved by the NCRO Waste Management Program prior to final installation as per 25 Pa Code 273.281(b). The operator shall submit Form 18 and Form 37 upon completion of the installation of the groundwater monitoring system.

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27. All monitoring point report forms, whether from quarterly or annual samples, shall include, at a minimum, the following information which shall be measured in the field at the time of sampling:

    - water level depth for groundwater points
    - sampling depth for groundwater points
    - water temperature
    - pH
    - specific conductance
    - flow rate for surface points

28. As per Form 8 of the permit application, permanent weirs and/or staff gauges will be installed to measure surface water monitoring point flows. Prior to the installation of weirs and/or staff gauges, the applicant shall obtain approval from the Waterways and Wetlands Program in writing. A copy of the letter(s) must be submitted to NCRO Waste Management Program prior to installation.

29. Quarterly chemical analysis reports of all monitoring points must be submitted to the NCRO Waste Management Program within 60 days of sampling or 15 days after completion of the chemical analysis, whichever is sooner in accordance with 25 Pa. Code § 273.285. The data analysis shall be accompanied by a data evaluation to determine groundwater or surface water degradation.

30. Annual chemical analysis reports of all monitoring points must be submitted to the NCRO Waste Management Program within 60-days of sampling or 15-days after completion of the chemical analysis, whichever is sooner in accordance with 25 Pa. Code § 273.285. The data analysis shall be accompanied by a data evaluation to determine groundwater or surface water degradation.

31. If groundwater samples cannot be obtained from any of the monitoring well(s), the NCRO Waste Management Program shall be notified and the well(s) shall be re-drilled or relocated so as to obtain water for sampling groundwater. The permittee shall notify and obtain written approval from the Department prior to drilling and reconstructing any new monitoring wells.

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32. All monitoring wells shall be pumped at a rate so as not to cause excessive turbidity. If turbidity values exceed 10 NTU, all metals shall be tested for dissolved values to be included with the quarterly and annual chemical analysis reports.

33. The permittee shall not cause or allow water pollution within or outside of the permitted facility. Pollution, as defined in 25 Pa. Code § 271.1, for the purposes of this condition shall not be limited to groundwater but shall also include surface water. Degradation at any of the monitoring points dedicated to the facility shall be reported to the NCRO Waste Management Program in accordance with 25 Pa. Code § 273.286. The permittee must initiate a groundwater assessment plan in accordance with 25 Pa. Code § 273.286 to determine the source of the contamination at the monitoring point. Based on the results of the groundwater assessment plan, an abatement plan, in accordance with 25 Pa. Code § 273.287, shall be submitted to the NCRO Waste Management Program as required.

34. All monitoring points, groundwater and surface water, shall be numbered for identification with a label capable of withstanding field conditions. Reasonable access shall be maintained to all monitoring points.

Acid Mine Drainage

35. Upon issuance of this permit, the permittee is responsible for operation and maintenance, to include any additional construction, of Phase 1 of the Acid Mine Drainage (AMD) treatment facility.

36. Phase 2 of the AMD treatment facility shall be developed as described in Attachment 11-4, Acid Mine Drainage Treatment Plan, of the permit application. Phase 2 development of the AMD treatment facility shall commence upon the completion of stormwater management facilities in the vicinity of the AMD treatment facility and after electric power is extended to the AMD treatment facility. Phase 2 development shall be completed prior to the excavation of the S3 area.

37. All stormwater and groundwater in the S3 area shall be contained within the excavated area and conveyed to the AMD treatment facility.

38. The Acid Mine Drainage Highwall Interceptor Drain shall be constructed to function without clogging. The Highwall Interceptor Drain shall be cleaned and maintained as necessary.

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39. Flow from the Highwall Interceptor Drain shall be measured weekly and reported to the NCRO Waste Management Program quarterly.

Construction / Liner System

40. All provisions of the Traffic Impact Study must be implemented per PA DOT approval as reviewed and incorporated into the Environmental Assessment by the Department.

41. Permanent physical markers/benchmarks for the grid coordinate system must be installed at the locations set forth in the permit, prior to the beginning of operations. The base line of the grid system must be clearly marked and tied to the permanent benchmarks as described in 25 Pa. Code § 273.211 (b) thru (d).

42. The permittee shall submit to the NCRO Waste Management Program, on a form provided by the Department, certification by a Pennsylvania registered professional engineer of site construction in accordance with the approved plans and 25 Pa. Code § 273.203. Each phase of the landfill construction shall be certified.

43. The permittee shall, prior to commencing disposal operations in newly constructed disposal fields, construct field controls as described in 25 Pa. Code § 273.211 and the approved plans submitted with the permit application described in Condition # 1.

44. The following information, included in the permit application liner installation plan, shall be submitted to the NCRO Waste Management Program for review for any company hired to conduct liner installation at the facility. This shall be done prior to the construction of the liner system for each landfill cell. Written approval from the NCRO Waste Management Program must be received by the permittee prior to beginning construction of the liner system including the subbase. The information to be submitted for any liner installation company shall include, but not be limited to, the following:

- Methods of installation
- Time required
- Panel layouts
- Procedures for inclement weather

- Procedures for material delivery
- Procedures for deploying all liner system materials
- Procedures for handling wrinkles in the liner
- Plans for laying out entire liner system and then covering or laying out liner system and covering as work progresses
- Identification (including resumes) and number of work crews

45. Interface shear strength testing of the geosynthetic materials representative of those to be used in the construction of the liner system must be conducted prior to installation in order to verify the design criteria is met. Each interface must be tested using representative samples of the geosynthetics supplied under normal loads as indicated in the application and using test parameters as specified in the application. The interfaces to be tested are as follows:

    - Textured HDPE-GM (60 mil) against Subbase;
    - Drainage Geocomposite against Textured HDPE-GM (60 mil);
    - Geosynthetic Clay Liner against Drainage Geocomposite;
    - Textured HDPE-GM (60 mil) against Geosynthetic Clay Liner; and
    - Type GT-C Geotextile against Textured HDPE-GM (60 mil)

    If there are material differences in the surface of any of the geosynthetic materials from one side to the other, then all possible combinations of interfaces must be tested. For tests involving textured geomembranes, the laboratory must also report asperity height (ASTM D7466) for the material samples used in the actual direct shear tests. The test results and evaluation of the test results must be submitted to the NCRO Waste Management Program for review and approved in writing prior to using the materials at the facility.

46. Thermal welding/bonding of geotextiles or drainage composites for liner system construction are not approved at this facility. Should the operator desire to utilize thermal bonding at the facility for liner system construction, the operator must submit a modification of the permit to the NCRO Waste Management Program for review and approval in writing. This modification should include the Quality Assurance plan in addition to the following:

    - Approved EPA or ASTM methodology for the testing of field and lab seam samples
    - Pass/Fail criteria for the bonded seams

- Seam Quality Assurance (QA) sampling/frequency requirements for fabricated seams

This criteria and frequency must be established for each fabric weight and drainage composite used in the fabrication of each layer of the liner system.

47. The geosynthetics listed in Appendix A, of this permit, are approved for installation in the liner system for this facility. These geosynthetic materials listed in Appendix A have been shown to be compatible with the expected leachate from this facility and have been demonstrated to have acceptable engineering properties for use in the liner system. The list of geosynthetics in Appendix A may be amended by the permittee by permit modification. However, as a condition of this approval, any additional liner material not on the list shall be evaluated for leachate compatibility in accordance with Permit Condition 47, below, and shall be demonstrated to have acceptable engineering properties including interface friction angles for use in the liner system. Written approval must be received from NCRO Waste Management Program prior to using the alternate geosynthetic in the liner system.

48. Except for the geosynthetics already approved and which are listed in Appendix A, leachate compatibility testing shall be performed on all geomembranes, geonets, and geotextiles to be used in the liner system per 25 Pa. Code § 273.161. For geomembranes, the compatibility test procedure shall be based on USEPA or ASTM guidelines approved by the Department. For geonets and geotextiles, the test procedures listed below are required. The test results and evaluation of the test results for the compatibility tests must be submitted for review. Written approval must be received by the permittee from the NCRO Waste Management Program prior to using the specific geosynthetic in the liner system. These test procedures may be modified based on test developments by ASTM Committee D-35.

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Geonets

Property (unit)	Test Procedure
a. Mass per unit area	Direct measure (sample size >1 sq. ft.)
b. Volatiles	Procedure for determination of volatile of exposed and unexposed FML_1
c. Extractables	Procedure for determination of extractables content of exposed and unexposed FML_1
d. Thickness (mils)	ASTM D1777-96 (part 32)
e. Dimensions of configuration	Direct measure machine and cross machine (CM) direction
f. Specific gravity or density	ASTM D792-13 Method A or ASTM D1505-18 (dry sample before test)
g. CBR Puncture	Geosynthetic Research Institute (GRI) Test Method GS1 "CBR Puncture Strength"
h. Strip Tensile Strength	Alternative Strip Tensile Test Method for Geonets
i. Transmissivity (or flow rate)	ASTM D4716/D4716M-14 [All laboratory testing for transmissivity of geonets shall be conducted at the site conditions, including: (i) gradient at site (minimum and maximum), (ii) identical representation of geosynthetic layers].
j. Compression Behavior of Geonets	GRI Test Method GN1 "Compression Behavior of Geonets"

Footnote 1. Lining of Waste Containment and Other Impoundment Facilities: EPA; Sept. 1988; EPA 600/2-88-052.

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Geotextiles

Property (units)	Test Procedure
a. Thickness (mils)	ASTM D1777-96 (part 32)
b. Mass per unit area (oz/sq. yd.)	ASTM D3776/D3776M
c. Dimension (cm)	Direct measure machine and cross machine direction
d. Grab Tensile strength/ elongation	ASTM D4632/D4632M-15a
e. Trapezoidal tear resistance	ASTM D4533/ D4533M-15
f. Hydraulic burst strength	ASTM D3786/ASTM D 3786
g. Puncture resistance	ASTM D3787-16
h. Permittivity	ASTM D4491/D4491M-17

49. Upon receipt of the liner system geonets and geomembranes to the construction site, conformance testing shall be conducted on each type of material prior to installation. The following physical properties shall be tested:

Property	Test Procedure
a. Density (minimum)	ASTM D –1505-18
b. Melt Flow Index (maximum)	ASTM D-1238-13 Condition E
c. Percent Crystallinity	Differential Scanning Calorimeter

The frequency of the above tests shall be one set of tests for each truckload of material delivered to the site. Testing shall be conducted by the third-party QA Laboratory.

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50. Samples of all geosynthetic materials received shall be retained for future verification. The frequency of sampling shall be one sample for every truckload delivered.

51. All sample results from each layer of the liner system's preparation, construction and/or installation shall be submitted to the NCRO Waste Management Program for review.

52. Excavation areas anticipated to encounter potentially acidic material shall not be initiated until construction of the first landfill cell (S2-1) is completed. Unforeseen potentially acidic material encountered prior to the construction of the first landfill cell shall be handled as waste and removed from the site and properly disposed.

53. If blasting is required for construction of any portion of the landfill or support facilities, a blast plan shall be submitted to the Department's Bureau of Mining Program for review and approval prior to blasting.

54. Waste may not be disposed of in an area until the following have been met:

    a. A Certification of Facility Construction Activity (Form 37) has been completed and received by the NCRO Waste Management Program.

    b. A field Quality Assurance report for each specific liner system layer's construction is submitted with the Form 37. At a minimum, this report shall include:

        i. Personnel involved with the project.
        ii. Scope of work.
        iii. QA and QC methods and activities.
        iv. Test results
        v. Problems encountered during construction and resolution of these problems.
        vi. Field drawings signed and sealed by a Pennsylvania registered professional engineer.

    c. Written approval has been received by the permittee from the NCRO Waste Management Program for construction of each specific layer.

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55. Upon completion of each layer of the liner system, the permittee shall notify the NCRO Waste Management Program that the liner layer construction activity is ready for inspection.

56. For all liner system layers, construction or installation of the next layer of the liner system may not take place until the Department has conducted an inspection of the previous liner system construction activity, all the approved minimum specifications for that specific previous layer have been met, and written approval has been received by the permittee from the NCRO Waste Management Program for construction of that specific previous layer.

57. All daily Quality Assurance reports shall be available for review upon request by the NCRO Waste Management Program or their representatives.

58. There shall be at least one third-party QA monitor for each distinct work crew during the liner system construction and installation.

59. This facility is granted equivalency requests for the approvals listed in Appendix B, of this permit. The specific permit conditions for each of these equivalency approvals are included in Attachment 1 of Appendix B. Appendix B will be updated for any new equivalency approvals granted after the date of this permit.

Stormwater Management

60. Precipitation collected in a disposal field may be handled by a sedimentation basin only if no wastes have been placed in that specific disposal field and no run-on from any other disposal field is occurring. Once waste is placed in a disposal field or run-on from other disposal areas is occurring, all water that is collected in the disposal field must be handled by the leachate collection system. Run-off not in contact with waste can be managed as stormwater.

61. Erosion and sedimentation control structures must be inspected on a regular basis during operation, closure and post-closure periods. Inspections shall be conducted at least monthly and after each storm event as described in the Maintenance Program Section of Form I of the permit application. Any required maintenance shall be conducted immediately after the inspection.

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Leachate

62. Records shall be kept on the amount of leachate recirculated, problems encountered due to pipe collapse or clogging, leachate outbreaks and leachate short-circuiting, and the method of correction of any problems. The records shall be kept daily and maintained at the facility for the life of the facility. These records shall be available for inspection by the Department or its representative upon request. Should the Department determine that leachate recirculation is creating environmental or operational issues, the Department may revoke leachate recirculation at this facility.

63. Leachate recirculation will not be applied on less than 10 feet of waste. Leachate will be spray applied only during daylight hours and not when it is raining or when the waste is determined to be excessively wet.

64. The operator shall operate a leachate collection and treatment facility as provided in 25 Pa. Code § 273.272. Per Form 25 of the permit application, within three years of the start of operations at the landfill, leachate will be discharged to the wastewater treatment plant located on the northern portion of the PA Waste property.

Minerals and Gas

65. Per 40 CFR Part 60 Subpart XXX at § 60.765(b)(1) and (2), the permittee must install a Landfill Gas Collection and Control System, along with wells and /or design components as specified in the approved design plan, no later than 60 days after the date on which the initial solid waste has been in place for a period of:
    a. Five (5) years or more if active; or
    b. Two (2) years or more if closed or at final grade.

66. Should the facility decide to activate the landfill gas to energy system, the Department must be notified in writing six (6) months prior to system activation. Additionally, should the operator wish to modify any aspects of the design, a permit modification shall be submitted to the NCRO Waste Management Program prior to the system modification and approved in writing.

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BUREAU OF LAND RECYCLING AND WASTE MANAGEMENT

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67. Quarterly gas monitoring must be performed to identify subsurface migration of methane and MOCs, in on-site structures and at the property boundary. Subsurface methane monitoring wells must be installed per the approved plans between the landfill perimeter and property line prior to the beginning of waste disposal. Final locations are to be submitted and approved by the NCRO Waste Management Program in writing prior to installation.

Material Handling and Alkaline Addition

68. Material usage, placement, and alkaline addition for all excavated materials from the S2 and S3 areas shall be in accordance with Table 14-2.1 from the permit application as included in Appendix C of this permit. In accordance with 25 Pa. Code § 273.241(c), the operator may not cause or allow water pollution within or outside the site from operation of the facility.

69. All equipment operators shall be trained to identify excavated material to be special handled and any incidentally encountered coal. All incidentally encountered coal shall be placed in the landfill.

70. All excavated materials required to be handled as waste and placed within the landfill shall be isolated within the landfill in accordance with 25 Pa. Code § 273.291(a). Excavated materials required to be handled as waste include those identified in Table 14-2.1 from the permit application as included in Appendix C of this permit, incidentally encountered coal, and loose black or carbonaceous material encountered in the S3 area previous mining pit floor.

71. The operator shall submit a quarterly report documenting the source and tonnage of alkaline material utilized on-site, as well as a map or narrative describing where the alkaline material was placed. Documentation indicating the type and purity of alkaline material used shall be included in this report. The report shall be submitted before the end of April, July, October and January for the months ending the last day of March, June, September, and December.

72. The actual alkaline addition rate shall be based on the purity of the alkaline material and calculated as shown on Table 14-2.2 and Table 14-2.3 from the permit application as included in Appendix C of this permit.

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73. A minimum of one-month supply of alkaline material shall be stored on-site. Page 5 of Table 14-2.4 from the permit application as included in Appendix C of this permit indicates the approximate alkaline material stockpile sizes to be maintained on-site. Alkaline stockpiles shall be maintained within the active construction limits or within the stockpile areas.

Closure

74. The Camp Hope Run Landfill has not proposed any post-closure land use following closure of the facility. Should the permittee wish to utilize the facility following closure, a permit modification must be submitted to the NCRO Waste Management Program for review and written approval prior to any activities occurring at the facility after closure.

Limits of Authorization

75. This authorization does not relieve the applicant from applying for and obtaining any additional permits or approvals from local, state or federal agencies required for this project. If any other permits are required for this project, they must be issued prior to undertaking the activities described in those permit applications.

76. Nothing in this permit shall be construed to supersede, amend or authorize violation of the provisions of any valid and applicable local law, local ordinance or local regulation provided that said local law, local ordinance or local regulation is not preempted by the Pennsylvania Solid Waste Management Act, the Act of July 7, 1980, P.L. 380, No. 97, 35 P.S. § 6018.101, et seq.

77. As a condition of this permit, and of the permittee's authority to conduct the activities authorized by this permit, the permittee hereby authorizes and consents to allow authorized employees or agents of the Department, without advance notice or a search warrant, upon presentation of appropriate credentials, and without delay, to have access to and to inspect all areas on which solid waste management activities are being or will be conducted. The authorization and consent shall include consent to collect samples of waste, water or gases, to take photographs, to perform measurements, surveys and other tests, to inspect any monitoring equipment, to inspect the methods of operation, and to inspect and/or copy documents, books or papers required by the Department to be maintained. This permit

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condition is referenced in accordance with Sections 608 and 610(7) of the Solid Waste Management Act, 35 P.S. Sections 6018.608 and 6018.610(7). This condition in no way limits these powers or any other powers granted under the Solid Waste Management Act.

78. Any alterations or additions to the permitted facility constitute major or minor modifications and the applicable documents must be provided. Any alterations or additions must be approved in writing as a permit modification by the Department prior to the change taking place.

79. All submissions required under this permit to the NCRO Waste Management Program shall be sent to the following address:

Department of Environmental Protection
Northcentral Regional Office Waste Management Program
208 West Third St., Suite 101
Williamsport, Pa. 17701

80. The activities authorized by this permit shall not harm or present a threat of harm to the health, safety, or welfare of the people or the environment of this Commonwealth. The Department may modify, suspend, revoke, or reissue the authorization granted in this permit if it deems such action is necessary to prevent harm or a threat of harm to the public or the environment, or if the activities cannot be adequately regulated under the conditions of this permit.

81. Approval of any plans or facility herein refers to functional design but does not guarantee stability or operational efficiency. Failure of the measures and facility herein approved to perform as intended, or as designed, or in compliance with the applicable rules and regulations of the Department, for any reason, shall be grounds for the revocation or suspension of this permit. Failure of the permittee to comply with the terms of the permit or conditions, or failure of the permittee to construct or operate the proposed facility in conformity with the approved plans shall be grounds for the revocation or suspension of this permit.

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Waste Stream

82. No hazardous or toxic wastes or waste characteristic as identified in 25 Pa. Code Chapter 261a., may be managed or disposed of at this facility.

83. No lead acid batteries shall be placed into mixed waste at this facility, discarded, or otherwise disposed of at this facility.

84. The Camp Hope Run Landfill is hereby authorized to accept the generic residual or special handling waste streams as specified in Table R-1, Table R-2, Table R-3, Table R-4 and Attachments in Appendix D of this permit, and with the following specific conditions for accepting wastes for disposal:

    a. All wastes for acceptance shall be consistent with the requirements stated Form R of the permit application, Waste Analysis and Classification Plan.

    b. Submittals for the initial acceptance of individual generator wastes, identified in Table R-1, shall contain all information required by the respective forms and a signature of the official certifying the results for the generator.

    c. Submittals for the initial acceptance shall include all applicable Form U parameters unless the absence of parameters is certified in writing by the generator. Absence of parameters refers to absence in leaching and not total concentration. Generator certifications of absence of specific parameters shall be based on generator knowledge or known chemical composition of the waste.

    d. The minimum analytical requirements for initial waste characterization and reanalysis are designated in Table R-2. The results of the reanalysis shall be received by the permittee on or before the anniversary date of the Form U approval and shall be maintained at the permittee's site for five (5) years from the date the results were received. The results shall be made available to the Department upon request.

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e. All waste will be analyzed by a Department accredited laboratory using the most recently promulgated test method updates. Test methods will be either EPA methods or other methods acceptable to the Department.

f. Waste acceptance limits shall be as designated in Table R-4.

g. Total analyses, in mg/kg, may be reported in lieu of leaching analyses for metals or organics, provided that the results for the total concentration do not exceed twenty (20) times the 80% warning limits for waste acceptance as shown in Table R-4.

h. The NCRO Waste Management Program shall be notified when the 80% warning limits of Table R-4 are met or exceeded, to review increased monitoring frequency and/or additional test parameters. If toxicity parameters are met or exceeded, the reanalysis may be a statistical treatment of the data.

i. Additional analytical requirements for initial characterization and waste stream reanalysis shall be determined according to the procedures set forth in this permit.

j. The NCRO Waste Management Program shall be notified immediately if a waste is accepted which is chemically incompatible with a waste already received at the facility. The permittee shall review with the NCRO Waste Management Program abatement alternatives for implementation. The permittee shall receive written approval from the NCRO Waste Management Program prior to implementation of any abatement alternatives.

k. Mixing residual wastes from the same or different generator is acceptable, provided the permittee maintains proper records and can demonstrate waste stream tracking from the generation sources and complies with the Waste Management regulations. Commingling special handling wastes with other waste types and with other generator's wastes is acceptable only as specifically provided by Department regulations. Waste stream analyses must be performed prior to mixing.

l. Form U's shall include separate residual waste code lists to identify Incidental/Small Quantity Process Waste.

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m. Cement kiln residue (RWC212) from generators burning hazardous waste fuels or using waste as raw materials shall be evaluated on a case-by-case basis by the Department for acceptance and monitoring.

n. In the event leachate treatment capability is reduced or more restrictive leachate discharge limitations are imposed by the Department or treatment facility, the permittee shall submit for review and written approval a permit modification application for the Form R leachate treatability to the NCRO Waste Management Program.

o. If the permittee wants to modify the acceptance limit concentrations or chemical test parameters, a minor permit modification must be submitted to the NCRO Waste Management Program for review and written approval.

p. Modifications of residual waste codes (RWC's), for acceptance of wastes for disposal not approved in the Waste Analysis and Classification Plan included in the permit application, or this permit, shall be a major permit modification, per 25 Pa. Code § 271.144.

q. Written requests for minor permit modifications to accept or modify the acceptance of large quantity (>2,200 lb/mo) residual or special handling waste, shall be submitted to the NCRO Waste Management Program on forms supplied by the Department, including Source Reduction Strategy.

These written requests must be received by the NCRO Waste Management Program, through Greenport or by other acceptable means agreed up by the Department. If not acted upon by the Department, the requested waste may be accepted for disposal fifteen (15) Departmental working days after receipt of the written request.

If it is determined after the fifteen (15) Departmental working day period that waste accepted was not consistent with this Waste Analysis and Classification Plan or the design of the landfill site, the permittee shall be subject to any and all applicable enforcement actions of the Solid Waste Management Act or the Department's rules and regulations promulgated thereunder. The absence of an action by the Department during or after the waiting period does not constitute an approval or final action of the Department.

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r. The permittee shall not accept residual or special handling waste from any generator who has not provided a Form 26R to the permittee. Submittal of Form 26R to the permittee shall comply with the timetable established under 25 Pa. Code § 287.54(b).

s. The Form 26R shall include written documentation that the waste is not a hazardous waste per 25 Pa. Code § 271.1, and written documentation that the waste continues to meet the landfill's Form R waste acceptance criteria.

t. Form 26R analysis or certification required under 25 Pa. Code § 287.54 shall be maintained at the permittee's site for five (5) years from date of receiving the form and shall be made available to the Department upon request.

u. The permittee shall receive annually from small quantity residual waste generators and large quantity generators of small quantity waste types, written documentation that their waste is not hazardous waste under 25 Pa. Code § 261a, and written documentation that their waste continues to meet the landfill's Form R waste acceptance criteria. This documentation shall be maintained at the facility for five (5) years from the date of receiving the forms and shall be made available to the Department upon request. If documentation is not supplied to the permittee by the generator, the facility must no longer accept that waste until such time as the generator supplies it.

v. All Form U and special-handling waste Department forms, Form 25R, Form FC-1, and Form U-CS documents must be maintained at the facility for five (5) years from the date of receiving the forms and shall be made available to the Department upon request per 25 Pa. Code § 271.621.

w. The most recent sampling methods, analysis methods, Department forms and policies, shall be utilized at all times.

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x. Each laboratory analytical report shall be maintained at the permittee's site or submitted to the NCRO Waste Management Program in compliance with this permit and shall include the following information:

   i. Chain-of-custody form for each sample shipment
   ii. Name, signature, and title identifying sampler on chain-of-custody form
   iii. Description of the field sampling
   iv. Proper analytical units on laboratory reports
   v. Extraction, digestion, and analytical methods of all required parameters on laboratory reports
   vi. Instrument detection/reporting limits for all required parameters on laboratory reports
   vii. Sample collection date, laboratory sample received date, date of laboratory analysis for all individual parameters, to verify holding times, on laboratory reports
   viii. Signature and title of the responsible laboratory representative on the laboratory reports

y. Acceptance limits for waste excluded from regulation as hazardous waste under 25 Pa. Code § 261.4(b) shall be based on limiting factors of applicable toxicity parameters, liner compatibility, leachate treatability, and waste-to-waste chemical compatibility.

z. The NCRO Waste Management Program shall be notified immediately when the permittee is aware of any of the following:

   i. waste is rejected
   ii. waste failed on-site screening has been disposed
   iii. unapproved waste has been accepted and disposed

APPENDIX A

Approved Geosynthetics For the Camp Hope Run Landfill Liner System[2]

1. **60 mil High Density Polyethylene Geomembranes**

   MicroSpike HDPE Geomembrane, manufactured by AGRU America, Inc.
   Solmax HDPE-Textured, manufactured by Solmax International
   PolyFlex Textured HDPE Geomembrane, manufactured by Poly-America L.P.

2. **60 mil Linear Low Density Polyethylene Geomembranes**

   MicroSpike LLDPE Geomembrane, manufactured by AGRU America, Inc.
   Solmax LLDPE-Textured, manufactured by Solmax International

3. **Drainage Geocomposites**
   Transnet 250 (6 oz./sy. geotextile), manufactured by SKAPS Industries
   Transnet 270 (6 oz./sy. geotextile), manufactured by SKAPS Industries
   Transnet 330 (6 oz./sy. geotextile), manufactured by SKAPS Industries
   6-250-6 Geocomposite, manufactured by Agru America, Inc.
   6-275-6 Geocomposite, manufactured by Agru America, Inc.
   6-300-6 Geocomposite, manufactured by Agru America, Inc.
   Fabrinet HF (6 oz./sy.), manufactured by Solmax International[3]
   Fabrinet HS (6 oz./sy.), manufactured by Solmax International[3]
   Fabrinet UF (6 oz./sy.), manufactured by Solmax International[3]

4. **Geotextiles**
   NW6 (6 oz./sy.), manufactured by Solmax International(GSE)
   NW16 (16 oz./sy.), manufactured by Solmax International(GSE)
   GE 160, (6 oz./sy.), manufactured by SKAPS Industries
   GE 116, (16 oz./sy.), manufactured by SKAPS Industries
   Agrutex 061 (6 oz./sy.), manufactured by Agru America, Inc.
   Agrutex 161 (16 oz./sy.), manufactured by Agru America, Inc.

5. **Geosynthetic Clay Liner[4]**

   Bentomat DN (reinforced), manufactured by CETCO[1]
   Bentomat ST, manufactured by CETCO[1]
   Bentomat 200R, manufactured by CETCO[1]
   Resistex DN (CETCO), manufactured by CETCO[1]
   BentoLiner NWL, manufactured by Solmax (GSE)
   BentoLiner NWL35, manufactured by Solmax (GSE)
   BentoLiner NWL60, manufactured by Solmax (GSE)

   Notes:
   [1]CETCO - Colloid Environmental Technologies Company

[2]Any geosynthetics that are approved for use in the liner system which are either no longer manufactured or the parent company is found to be no longer in business or merged with another company, prior to use of the new geosynthetic, the permittee must show that the new product is technically equivalent (physical, chemical, mechanical and thermal - refer to Form 24 Liner System – Phase II, 2540-PM-BWM0150).

[3]Material only approved for use in Final Cover System

[4]Reinforced geosynthetic clay liners must be used in the constructed liner system.

APPENDIX B

List of Approved Equivalency Approvals For the Camp Hope Run Landfill

1. Leachate Detection Zone

    a. Drainage Composite consisting of a high-density polyethylene (HDPE) geonet drainage core with a non-woven geotextile (polyethylene or polyester) bonded to each side.

Appendix C

Material Handling and Alkaline Addition Tables

- TABLE 14-2.1: Summary Handling Plan for Excavated Material – Submitted July 2019
- TABLE 14-2-2: Alkaline Addition for Haul Trucks – Submitted July 2019
- TABLE 14-2-3: Alkaline Addition Beneath Excavated Material – Submitted July 2019
- TABLE 14-2.4: Alkaline Treatment and Storage – Submitted July 2019

TABLE 14-2.1
SUMMARY HANDLING PLAN FOR EXCAVATED MATERIAL

Source Area	Excavated Material	Material Uses and Placement Location							
		Operational Soils		Structural Fill			Stockpile		Waste
		Daily Cover	Intermediate Cover	Exposed	Under Lined Areas	Under Lined Areas w/n 5' of LK or GW	S1	S2	
S2	Intact Bedrock (<1.0% Total Sulfur)	YES	NO	NO	YES	NO	NO	NO	NO
	Intact Bedrock (< 1.0% Total Sulfur w/ (Excess Alkaline Added)	YES	YES	YES	YES	YES	NO	YES	NO
	Intact Bedrock (>1.0% Total Sulfur	NO	NO	NO	NO	NO	NO	NO	YES
	Intact Bedrock (Incidentally Encountered LK Rider)	NO	NO	NO	NO	NO	NO	NO	YES
S3	Intact Bedrock (<1.0% Total Sulfur)	YES	NO	NO	YES	NO	NO	NO	NO
	Intact Bedrock (< 1.0% Total Sulfur w/ (Excess Alkaline Added)	YES	YES	YES	YES	YES	YES	NO	NO
	Intact Bedrock (>1.0% Total Sulfur	NO	NO	NO	NO	NO	NO	NO	YES
	Non-Pod Spoil Material	YES	NO	NO	YES	NO	NO	NO	NO
	Non-Pod Spoil Material (Excess Alkaline Added)	YES	YES	YES	YES	YES	YES	NO	NO
	Pod Material	NO	NO	NO	NO	NO	NO	NO	YES

LEGEND

1. NO - specified material may not be used or placed in the indicated location.
2. YES - specified material may be used or placed in the indicated location.
3. Excess alkaline is material that has:

   2 Tons $CaCO_3$ Per 1,000 Tons Material placed beneath the material
   4 Tons $CaCO_3$ Per 1,000 Tons Material mixed in the haul truck
   6 Tons $CaCO_3$ Per 1,000 Tons Material Total

TABLE 14-2-2
PA Waste, LLC
Camp Hope Run Landfill
Alkaline Addition for Haul Trucks

Assume:

1. 50-Ton Haul Trucks [1]
2. Graymont High Calcium Baghouse Lime
   a. 103.5% Calcium Carbonate Equivalent (Technical Data Attached). Use 100%. [2]
3. 4 Tons CCE/1000 Tons of Rock or Spoil Material (Excavated)
4. Baghouse Lime Density From Graymont 85 lbs/ft^3

$$\frac{4 \text{ Tons CCE}}{1000 \text{ Tons Rock Excavated}} X \frac{2000 \text{ lbs CCE}}{1 \text{ Ton CCE}} = \frac{8000 \text{ lbs of CCE (Baghouse Lime)}}{1000 \text{ Tons Excavated}}$$

$$\frac{1000 \text{ Tons}}{50 \text{ Tons/Truck}} = 20 \text{ Trucks}$$

$$\frac{8000 \text{ lbs Baghouse Lime}}{20 \text{ Trucks}} = \frac{400 \text{ lbs Baghouse Lime}}{\text{truck}} \times \frac{\text{ft}^3}{85 \text{ lbs}} = 4.7 \text{ ft}^3 \text{ Baghouse Lime/Truck} \quad [3]$$

NOTES:

(1) Different truck capacities will change the calculated CCE required per truck.

(2) Other sources of alkaline material could be utilized, with the appropriate CCE and density used in the calculations. For example, if 80% CCE alkaline material were used, then 4 tons of 100% CCE / 0.8 = 5 tons of alkaline material would be required per 1000 tons of material, or 500 lbs per truck. If the density of 80% CCE alkaline material were 110 lbs/ft^3, then 4.6 ft^3/truck would be required.

(3) There are excavator buckets that are approximately 4.7 ft^3, so one excavator bucket of baghouse lime per truck would be placed on top of the loaded truck.

TABLE 14-2-3
PA Waste, LLC
Camp Hope Run Landfill
Alkaline Addition
Beneath Excavated Material

Assume:

1. Graymont High Calcium Baghouse Lime
   a. 103.5% Calcium Carbonate Equivalent (Technical Data Attached - Figure 14-2-?) Use 100%(1)
2. 2 Tons CCE/1000 Tons of Rock or Spoil Material (Excavated)
3. Baghouse Lime Density from Graymont 85 lbs/ft^3
4. Lift is 10-feet high(2)
5. Spoil or excavated rock density is 3670 tons/acre-foot

$$\frac{3670\ \text{Tons}}{\text{Acre}-\text{Foot}} \text{X} \frac{10\ \text{Foot}}{\text{Lift}} = \frac{36700\ \text{Tons}}{\text{Lift}-\text{acre}} \text{X} \frac{2\ \text{Tons CCE}}{1000\ \text{Tons Excavated}} =$$

$$\frac{73.4\ \text{tons Alkaline}}{\text{Lift}-\text{acre}} \text{X} \frac{2000\ \text{lbs}}{\text{Ton}} = \frac{146800\ \text{lbs}}{\text{Lift}-\text{acre}} \text{X} \frac{1\text{ft}^3}{85\ \text{lbs}} = 17271\ \text{ft}^3 \text{X} \frac{1\ \text{acre}}{43560\ \text{ft}^2} =$$

$$0.04\ \text{ft X} \frac{12\ \text{inches}}{1\ \text{ft}} = \frac{0.5\ \text{inches}}{\text{Lift}}$$

NOTES:

(1) Other sources of alkaline material could be utilized, with the appropriate CCE and density used in the calculations. For example, if 80% CCE material were used, then 2 tons of 100% CCE / 0.8 = 2.5 tons of alkaline material would be required per 1000 tons of material. If the density were 110 lbs/ft^3, then 0.5 inches per lift would still be required.

(2) In general we recommend that a minimum of 0.5 inch of alkaline material be used even if less than a 10 feet of excavated material is place above it. The amount of alkaline material can be proportioned by the height of the lift. The appropriate alkaline material can be placed under each lift of at the bottom of all the material. For example, if 50 feet of excavated material were going to placed, then 2½ inches of alkaline material could be placed beneath all of the material, or ½ inch of alkaline material could be placed under each of 10 foot high lifts, or any combination that accounts for the height of the overlying material.

TABLE 14-2.4
PA Waste, LLC
Camp Hope Run Landfill
Alkaline Treatment and Storage

Objective:

1. Determine the quantity of Graymont Waste Lime required to treat the following:

    - Total Material Required for Construction (Structural Fill) and Operations (Daily and Intermediate Cover).
    - Total Material Required for S2-1 Construction (Structural Fill).
    - Total S3 Mine Spoil Material (Non-Pod) Excavation.

2. And estimate the stockpile size required to maintain a one-month supply of alkaline during construction and S3 overburden relocation.

Assumptions:

1. Operating Days 5.5 days/wk = 286 days/yr
2. Density(ρ) of mine spoil material = 2 ton/CY
3. Density(ρ) of Graymont Waste Lime (Alkaline as $CaCO_3$) = 85 lbs./ft^3 = 1.1 ton/CY

Determine the total quantity of Graymont Waste Lime required for construction, and operations.

Given (Reference Table F-5.1 for all values):

Volume S2 Excavation ($V_{S2\,(EXC)}$) = 4,600,146 CY
Volume S2 Structural Fill Under Liner ($V_{S2(UL)}$) = 670,053 CY
Volume S2 Daily Cover ($V_{S2(DC)}$) = 1,069,623 CY
Volume S2 Intact Rock (Sulfur ≥ 1%) ($V_{S2\,(S)}$) = 41,207 CY

Volume S3 Excavation ($V_{S3\,(EXC)}$) = 7,694,226 CY
Volume S3 Structural Fill Under Liner ($V_{S3(UL)}$) = 1,809,698 CY
Volume S3 Daily Cover ($V_{S3(DC)}$) = 738,029 CY
Volume S3 Pod ($V_{S3(POD)}$) = 490,990 CY
Volume S3 Intact Rock (Sulfur > 1%) ($V_{S3\,(S)}$) = 20,993 CY

Assumptions:

1. Material will be handled in accordance with the material handling plan.

Calculation:

Calculate the Total Material Requiring Treatment:

$$V_{Total} = V_{S2(EXC)} + V_{S3(EXC)} - V_{S2(UL)} - V_{S2\,(DC)} - V_{S2(S)} - V_{S3(UL)} - V_{S3(DC)} - V_{S3\,(POD)} - V_{S3(S)}$$

$$V_{Total} = 4{,}600{,}146\ CY + 7{,}694{,}226\ CY - 670{,}053\ CY - 1{,}069{,}623\ CY - 41{,}207\ CY - 1{,}809{,}698\ CY - 738{,}029\ CY - 490{,}990\ CY - 20{,}993\ CY$$

$$V_{Total} = 7{,}453{,}779\ CY^{*}$$

*Total excludes all material not requiring alkaline addition, including Structural Fill below liner, Daily Cover, and waste materials (Intact S2 and S3 Rock (Sulfur $\geq$ 1%) and S3 Pod Material).

Calculate Total Alkaline Required for V_{Total}:

$$7{,}453{,}779\ CY \times \frac{2\ TN}{CY} \times \frac{6\ TN\ CaCO_3}{1{,}000\ TN\ excavation} = 89{,}450\ TN\ CaCO_3$$

$$89{,}450\ TN\ CaCO_3 \times \frac{1\ CY}{1.1\ TN} \cong 81{,}300\ CY CaCO_3$$

Conclusion:

Approximately 81,300 CY of Graymont Waste Lime will be required to treat all material used for S-2 landfill construction and operations and S3 Mine Spoil Material (non-pod) excavation.

Determine the total and monthly quantity of Graymont Waste Lime required for S2-1 Construction.

Given:

Volume S2-1 Structural Fill ($V_{S2\text{-}1(EMB)}$) = 2,505,287 CY (Reference Attached S2-1 Isopach)
S2-1 Structural fill includes material inside and outside of liner

Assumptions:

1. Phase S2-1 structural fill is used for this calculation since S2-1 has the largest structural fill of all phases due to construction of the perimeter access road. As a result, the largest quantity of alkaline will be needed during this construction phase.
2. Alkaline treatment of all structural fill is used for this calculation, which is conservative, because untreated excavated rock material and/or non-pod Mine Spoil Material, may be used below liner systems.

Calculation:

Calculate the Total Alkaline Required for S2-1 for Treatment:

$$V_{S2-1(EMB)} = 2{,}505{,}287\ CY$$

$$2{,}505{,}287\ CY \times \frac{2\ TN}{CY} \times \frac{6\ TN\ CaCO_3}{1{,}000\ TN\ excavation} = 30{,}100\ TN\ CaCO_3$$

$$30{,}100\ TN\ CaCO_3 \times \frac{1\ CY}{1.1\ TN} \cong 27{,}400\ CY\ CaCO_3$$

Calculate an Approximate One-Month Supply of Alkaline:

Assume six (6) months required for construction of S2-1 and access roads.

$$\frac{27{,}400\ CY\ CaCO_3}{6\ months} \cong 4{,}600\ \frac{CY}{month}$$

Conclusion:

Approximately 27,400 CY of Graymont Waste Lime ($CaCO_3$) will be required to treat all the S2-1 Structural Fill, which is approximately 4,600 CY per month assuming a 6 month construction schedule. Since S2-1 construction requires the largest amount of structural fill, this monthly approximation would be considered most conservative in determining the amount of Alkaline needed during any one month of construction.

Determine the total and monthly quantity of Graymont Waste Lime required to treat all S3 Non-Pod Mine Spoil Material.

Given:

Volume S3 Non-Pod ($V_{S3\ (NON)}$) = 5,716,663 CY (Reference Table F-5.1)

Assumptions:

1. S3 Mine Spoil Material will be excavated and treated within the first seven (7) years of operation.
2. Treatment of all S3 (non-Pod) Mine Spoil Material is conservative, because untreated S3 (non-Pod) material may be used in daily cover operations or below liner systems.

Calculation:

Calculate the Total Alkaline Required for Treatment of the S3 Non-Pod Materials:

$$5{,}716{,}663 \times \frac{2\ TN}{CY} \times \frac{6\ TN\ CaCO_3}{1{,}000\ TN\ excavation} = 68{,}600\ TN\ CaCO_3$$

$$68{,}600\ TN\ CaCO_3 \times \frac{CY}{1.1\ TN} \cong 62{,}400\ CY\ CaCO_3$$

Calculate an Approximate One-Month Supply of Alkaline:

$$\frac{62{,}400\ CY\ CaCO_3}{7\ years} \times \frac{1\ year}{12\ months} \cong 740\ \frac{CY\ CaCO_3}{month}$$

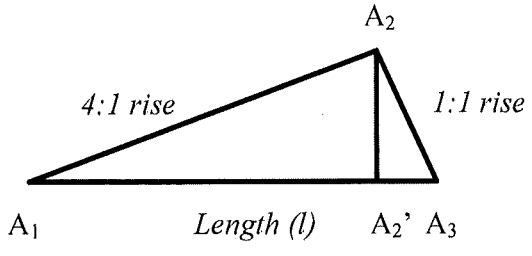
Conclusion:

Approximately 62,400 CY of Graymont Waste Lime ($CaCO_3$) will be required to treat all S3 Non-Pod Mine Spoil Material, which is approximately 740 CY per month assuming a 7-year operation. Since S3 Non-Pod Mine Spoil Material may be used below the liner system or as daily cover, this monthly approximation is conservative in determining the amount of Alkaline needed during any one month of operation.

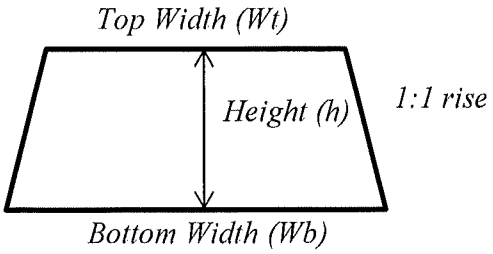
Determine the approximate stockpile size required to store Graymont Waste Lime during S2-1 Construction and S3 Mine Spoil Operations

Calculation:

- Calculate a stockpile volume based on the following assumed stockpile shape with 4:1 rise on long side (not to scale) and length (l), which is twice the width (w):



Typical Stockpile Section



Section $A_2 - A_2'$

$$Height\ (h) = \frac{Length\ (l)}{5}$$

$$Top\ Width\ (W_t) = \frac{l}{2}$$

$$Bottom\ Width\ (W_b) = Wt + 2H$$

$$Cross - Sectional\ Area\ (A_{2,2\prime}) = \frac{Wt + Wb}{2} \times H$$

$$V_{stockpile} = \frac{1}{2} A_{2,2\prime} \times l \times \frac{1\ CY}{27\ cubic\ feet}$$

Stockpile	Volume Required (CY)	Stockpile Length (*l*) FT	Stockpile Height (*h*) (FT)	Top Width (*Wt*) (FT)	Bottom Width (*Wb*) (FT)	Volume Actual (CY)
S2-1 Construction	4,600	125	25	62.5	113	5,100
Mine Spoil Operation	740	70	14	35	63	900

Appendix D

Waste Acceptance Tables and Attachments

- Table R-1: Approved Residual Waste Codes
- Table R-2: Waste Code Testing/Reporting Frequency and Analytical Requirements
- Table R-3: Basis of Waste Acceptance Criteria
- Table R-4: Waste Acceptance Criteria
- Table 1A: Proposed Waste Acceptance Criteria Residual Waste Analysis and Classification Plan
- Testing Reduction/Elimination Certification
- Non-Hazardous Waste Certification
- Contaminated Soil Sampling Protocol
- Contaminated Soil: Table 1: Residual Waste Categories and Abbreviated Testing Requirements
- Field Oversight for Contaminated Soil Characterization
- Contaminated Soil Pile or In-Situ Sampling

Table R-1
Approved Residual Waste Codes

CAMP HOPE RUN LANDFILL

RWCs	Residual Waste Code (RWC) Description
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 (to be further specified)
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
201	Water treatment sludge/sediment
203	Industrial wastewater treatment sludge, including acid mine drainage sludge
204	Metallurgical sludge
205	Food processing sludge
206	Paint, coating sludge and scale
207	Tank bottoms
208	Still bottoms (non-hazardous)
209	Oily sludge, petroleum derived
210	Air Emission control sludge (excluding FGD sludge and gypsum)
211	Other industrial sludge (to be further specified)
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)
301	Acidic chemicals (pH < 6)
302	Basic chemicals (pH > 8)

RWCs	Residual Waste Code (RWC) Description
303	Combustible chemicals (non-hazardous)
304	Chemical salts
305	Spent activated carbon (e.g., decoloring, filtering) For carbon/graphite scrap, see RWC 481
306	Surface coatings (e.g., solid/semi-solid paints, polishes, adhesives, inks, cans of hardened paint) For paint filters, see RWC 473
307	Filter media/aids (e.g., diatomaceous earth, ion exchange resins, silica gels, silica bead desiccant)
308	Spent dyes
310	Detergents, cleaning agents
311	Off-specifications products, intermediates (non-hazardous, further describe)
312	Pharmaceutical, biological wastes (manufacturing and lab wastes)
313	Wax, paraffin
318	Photographic chemicals (non-hazardous)
401	Leather wastes (for Cr tannery process sludges, see RWC 211)
402	Rubber, elastomer wastes, Latex
403	Wood wastes (scrap lumber, pallets, particle board)
404	Paper, cardboard wastes, laminated paper
405	Textile wastes including yarn, fabric, fiber, elastic
406	Glass wastes (cullet), excluding industrial refractory material
407	Polyethylene, polystyrene, polyurethane, and other non-halogenated plastics
408	Glass reinforced plastics
409	Halogenated plastics (e.g. PVC, Teflon, CPE)
410	Electronic component wastes (e.g. off-spec semiconductors, circuit boards)
411	Agricultural wastes (e.g. fertilizers, pesticides[1], feed, feed supplements)
412	Photographic wastes (e.g. film, photographic paper)
413	Asphalt (bituminous), asphalt shingles
414	Ceramic wastes
415	Linoleum wastes
416	Thermal insulation wastes (cellulose, glass, wool)
417	Wiring, conduit, electrical insulation
418	Sawdust, including wood shavings/turnings
419	Empty containers, metallic and non-metallic drums and pails. (For containers with contents, choose appropriate waste code for contents)
424	Treated wood, railroad ties
430	Food waste (for food processing wastewater treatment sludges, see RWC 205)
440	Resins, (Epoxy waste)
450	Polymers (other than 407, 409)

RWCs	Residual Waste Code (RWC) Description
460	Vinyl (sheet, upholstery)
470	Spent filters - air/gas
471	Spent filters - aqueous
472	Spent filters- non-hazardous fuel, oil, solvent
473	Paint filters, other cloth/paper filters, supersacs
474	Grease
480	Refractory (furnace, boiler), other than RWC 103
481	Carbon/graphite residue/scrap
482	Baghouse dust, other than RWC's 105 and 106
483	Blasting abrasive/residue, other than RWC 109
484	Gypsum plaster molds
501	Asbestos-containing waste (e.g. insulation, brake lining, etc.)
502	PCB-containing waste
503	Oil-contaminated waste (e.g. spent absorbent, oily rags)
505	Spent catalysts
506	Contaminated soils/debris/spill residues (nonpetroleum), dredged material, water intake debris and sediment, coal mill rejects
507	Waste petroleum material contaminated soil/debris
508	Virgin petroleum fuel contaminated soil and debris
510	Waste Tires (excluding whole tires, except as provided in Act 190)
701	Pumping, piping, vessels, instruments, storage tanks
702	Scrap materials from maintenance, product turnaround
703	Batteries[1] - non-hazardous (excluding lead acid batteries per §273.201(h))
704	Grinding wheels, sanding disks, polishing belts, welding rods, broken tools
710	Plant trash
801	Non-oil and Gas Well Drilling Waste – includes drilling fluids, residuals, and drill cuttings from monitoring well and drinking water well construction.
802	Produced Fluid – includes flow-back, brine and any other formation fluids recovered from the wellbore. Flow-back is defined as fracturing/stimulation fluids, including any colloidal and suspended solids within the fluid, recovered from the wellbore after injection into the wellbore.
803	Drilling Fluid Waste (oil & gas drilling mud, other drilling fluids other than fracking fluid and spent lubricant)
804	Wastewater Treatment Sludge – sludge and solids generated during the processing of any oil and gas-related wastewater including any sediment generated during storage of oil and gas-related wastewater. Mixed loads of wastewater treatment sludge with other waste for disposal purposes, such as filter socks (RWC 812), will be coded as RWC 804.
805	Unused Fracturing Fluid Waste - oil and gas fracturing/stimulation fluid waste and fracturing sand waste that has not been injected into a wellbore.

RWCs	Residual Waste Code (RWC) Description
806	Synthetic Liner Materials – includes well site liners, liners used in pits or other approved storage structures, freshwater impoundments, centralized impoundments, or used in conjunction with primary containers.
807	Sediment from Production Storage – sediment from storage of marketable oil and gas products. Does not include sediment from oil and gas related wastewater storage.
808	Servicing Fluid – oil and gas production well maintenance/work over fluids, oil/water-based mud and foam and well cellar cleanout waste after drilling operation shave been completed. Does not include well cellar cleanout waste covered under existing RWCs, well cellar fluids that are recycled/reused, or rainwater that is collected in a well cellar that has not been mixed with a residual waste.
809	Spent Lubricant Waste (spent oil & gas drilling lubricants, spent plug drilling lubricants)
810	Drill Cuttings (oil & gas drill cuttings using a drilling mud formula)
811	Soil Contaminated by oil and Gas-related Spills – Soil contaminated by spills of RWCs 802, 803, 805, 807, 808, 809 and 810. Soils contaminated by spills of RWC 804 will be coded using RWC 804. Soil contaminated by spills of RWC 812 will be coded using RWC 812.
812	Filter Socks – Filters, filter socks and other media used to filter any oil and gas-related wastewater. Does not include filter socks mixed with RWC 804 for disposal purposes. Except where filter socks are mixed with RWC 804 and coded as RWC 804, mixed loads of RWC 812 with other waste for disposal purposes, such as drill cuttings, will be coded as RWC 812.
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.
901	Auto shredder "fluff"
902	Non-hazardous residue from treatment of hazardous waste, other than RWC 203. (Treated hazardous waste residue should include land ban certification as required.)
35	Processed infectious/chemotherapeutic waste
36	Municipal waste incinerator ash
43	Sewage sludge

[1] Unless acceptance is restricted by the Universal Waste Rule.

Rev. January 28, 2020

Table R-2
Waste Code Testing/Reporting Frequency and Analytical Requirements

CAMP HOPE RUN LANDFILL

RW	CHAR		RCRA TOXICITY				NON-RCRA TOXICITY			ASTM LEACH	TOTALS					Freq
Code	Ign	Free Liq	Metals	Vols	Semi Vols	Herb Pest	Metals	Vols	Semi Vols	Corr pH	TOX[1]	or TOX[1]	CN S	PCB	O&G TPH	Retest[5]
001	X			X	X	X		X	X		X	X		X	X	I
002	X			X	X	X		X	X		X	X		X	X	I
003	X			X	X	X		X	X		X	X		X	X	I
004	X			X	X	X		X	X		X	X		X	X	I
005	X			X	X	X		X	X		X	X		X	X	I
006	X			X	X	X		X	X		X	X		X	X	I
007	X			X	X	X		X	X		X	X		X	X	I
101	X	X		X	X	X		X	X		X	X		X		I
102	X	X		X	X	X		X	X		X	X		X		I
103	X	X		X	X	X		X	X		X	X		X		I
104	X	X		X	X	X		X	X					X		I
105		X		X	X	X		X	X					X		I
106		X		X	X	X		X	X					X		I
107	X			X	X	X		X	X					X		I
108	X			X	X	X		X	X					X		I
109	X			X	X	X		X	X					X		II
110	X			X	X	X		X	X					X		I
111	X			X	X	X		X	X					X		I
201	X			X	X	X		X	X					X		I

Table R-2

Waste Code Testing/Reporting
Camp Hope Run Landfill

RW	CHAR		RCRA TOXICITY				NON-RCRA TOXICITY			ASTM LEACH	TOTALS				Freq
Code	Ign	Free Liq	Metals	Vols	Semi Vols	Herb Pest	Metals	Vols	Semi Vols	Corr pH	TOX[1] or TOX[1]	CN S	PCB	O&G TPH	Retest[5]
203	X				X	X			X				X		I
204	X			X	X	X		X	X				X		I
205	X			X	X	X		X	X				X		I
206					X	X			X				X		I
207					X	X			X				X		I
208					X	X			X				X		I
209					X	X			X				X		I
210	X	X		X	X	X		X	X				X		I
211					X	X			X				X		I
212	X	X		X	X	X		X	X				X		I
213	X			X	X	X		X	X				X		I
214	X			X	X	X		X	X				X		I
215	X	X		X	X	X		X	X				X		I
301				X	X	X		X	X				X		I
302				X	X	X		X	X				X		I
303				X	X	X		X	X				X		I
304				X	X	X		X	X				X		I
305				X	X	X		X	X				X		I
306					X	X			X				X		I
307					X	X		X	X				X		I
308					X	X			X				X		I

Waste Code Testing/Reporting
Camp Hope Run Landfill

RW	CHAR		RCRA TOXICITY				NON-RCRA TOXICITY			ASTM LEACH		TOTALS				Freq
Code	Ign	Free Liq	Metals	Vols	Semi Vols	Herb Pest	Metals	Vols	Semi Vols	Corr pH	TOX[1]	or TOX[1]	CN S	PCB	O&G TPH	Retest[5]
310				X	X	X		X	X					X		I
311				X	X	X		X	X					X		I
312				X	X	X		X	X					X		I
313		X	X	X	X	X	X	X	X				X	X		I
318				X	X	X		X	X					X		I
401	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	I
402	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	I
403	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	I
404	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	I
405	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	I
406	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	I
407	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	I
408	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	I
409	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	I
410	X	X		X	X	X		X	X	X			X	X	X	I
411	X	(Pest)	(Pest)	X	X	(Pest)	(Pest)	X	Phenols (Pest)		(Pest)	(Pest)	(Pest)	X	(Pest)	I
412				X	X	X		X	X					X		I
413																
414	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	I
415	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	I

Waste Code Testing/Reporting
Camp Hope Run Landfill

RW	CHAR		RCRA TOXICITY				NON-RCRA TOXICITY			ASTM LEACH		TOTALS				Freq
Code	Ign	Free Liq	Metals	Vols	Semi Vols	Herb Pest	Metals	Vols	Semi Vols	Corr pH	TOX[1]	or TOX[1]	CN S	PCB	O&G TPH	Retest[5]
416	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	I
417	X	X		X	X	X	X	X	X	X	X	X	X	X	X	I
418	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	I
419	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	I
424	X	X	Cr, As if pre-served	X	PCP – if pre-served	X	Cu – if pre-served	X	X	X	X	X	X	X	TPH – if pre-served	I
430	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	I
440				X	X	X		X	X					X		I
450				X	X	X		X	X					X		I
460	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	I
470		X		X	X	X		X	Phenols					X		I
471				X	X	X		X	Phenols					X		I
472				X	X	X		X	Phenols					X		I
473					X	X		ETX	X					X		I
474				X	X	X		X	X				X	X		I
480	X	X		X	X	X		X	X					X		I
481				X	X	X		X	X					X		I
482		X		X	X	X		X	X					X		I
483	X	X		X	X	X		X	X					X		II
484	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	I
501																

Waste Code Testing/Reporting
Camp Hope Run Landfill

RW	CHAR		RCRA TOXICITY				NON-RCRA TOXICITY			ASTM LEACH	TOTALS					Freq
Code	Ign	Free Liq	Metals	Vols	Semi Vols	Herb Pest	Metals	Vols	Semi Vols	Corr pH	TOX[1]	or TOX[1]	CN S	PCB	O&G TPH	Retest[5]
502	X					X		ETX	X		X	X	X			III
503	Use Most Recent Form U-CS & Attachment I Procedures for RWC 503															IV
505				X	X	X		X	Phenols					X		I
506	Use Most Recent Form U-CS & Attachment I Procedures for RWC 506															IV
507	Use Most Recent Form U-CS & Attachment I Procedures for RWC 507															IV
508	Use Most Recent Form FC-1 & Procedures for RWC 508															IV
510																
701	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	I
702	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	I
703	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	I
704	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	I
710																V
801	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	VI
802[2,3]						X	+ Sr	Diesel range short list[4]	Diesel range short list[5]	+ Cl				X	O&G + Diesel TPH	II
803						X	+ Sr	Diesel range short list[4]	Diesel range short list[5]	+ Cl				X		II
804						X	+ Sr	Diesel range short list[4]	Diesel range short list[5]	+ Cl				X	O&G + Diesel TPH	VII VIII IX, X XI

Waste Code Testing/Reporting
Camp Hope Run Landfill

RW	CHAR		RCRA TOXICITY				NON-RCRA TOXICITY			ASTM LEACH	TOTALS				Freq
Code	Ign	Free Liq	Metals	Vols	Semi Vols	Herb Pest	Metals	Vols	Semi Vols	Corr pH	TOX[1] or TOX[1]	CNS	PCB	O&G TPH	Retest[5]
805						X							X		II
806															II
807						X	+ Sr	Diesel range short list[4]	Diesel range short list[5]	+ Cl			X	O&G + DieselTPH	II
808						X	+ Sr	Diesel range short list[4]	Diesel range short list[5]	+ Cl			X	O&G + Diesel TPH	II
809						X	+ Sr	Diesel range short list[4]	Diesel range short list[5]	+ Cl			X	O&G + Diesel TPH	II
810						X	+ Sr	Diesel range short list[4]	Diesel range short list[5]	+ Cl			X	O&G + Diesel TPH	IX X XI
811						X	+ Sr	Diesel range short list[4]	Diesel range short list[5]	+ Cl			X	O&G + Diesel TPH	II
812						X	+ Sr	Diesel range short list[4]	Diesel range short list[5]	+ Cl			X	O&G + Diesel TPH	II
899						X	+ Sr	Diesel range short list[4]	Diesel range short list[5]	+ Cl			X	O&G + Diesel TPH	II
901				X	X	X		X	Phenols				X		I

Waste Code Testing/Reporting
Camp Hope Run Landfill

RW	CHAR		RCRA TOXICITY				NON-RCRA TOXICITY			ASTM LEACH	TOTALS				Freq
Code	Ign	Free Liq	Metals	Vols	Semi Vols	Herb Pest	Metals	Vols	Semi Vols	Corr pH	TOX[1] or TOX[1]	CN S	PCB	O&G TPH	Retest[5]
902			(if treated for)	(if treated for)	(if treated for)	(if treated for)		X	Phenols				(if treated for)		I
35	Forms 40 and 44 for incineration, Form 40 for autoclaving														XII
36	Form 41 Parameters (No certifications in lieu of testing. This is considered a variable wastestream)														XIII
43	Form 43 Parameters														

KEY:

X	INITIAL CHARACTERIZATION TESTING OR GENERATOR CERTIFICATION: Initial waste stream characterization may be certified in writing through generator knowledge in lieu of testing. Certification may be made if the process by which the waste was generated is known, the process has not changed, the waste's composition is known, and has not changed. Certification based on known composition must either be for absence of the parameter or absence of its leaching in the waste stream.
	INITIAL CHARACTERIZATION TESTING WITH LIMITED GENERATOR CERTIFICATION. ROUTINE MONITORING TESTING REQUIRED UNLESS GENERATOR CERTIFICATION: Initial Generator Certifications are restricted to known composition and must either be for absence of the parameter in the waste stream or absence of parameter leaching in the waste stream. Routine monitoring generator knowledge would be based on known composition, certification that the process and waste stream composition have not changed.

(I) A complete Form U reanalysis is required once every five years to verify certifications, due on or before the anniversary date of original Form U approval. This is not required for parameters at or below 30% of Form R acceptance limiting criteria, if waste generating process is certified as not having changed. Results shall be filed at your facility and be made available upon request.

(II) Tested per disposal event, per generator location.

(III) Tested per disposal event, per generator location. If the waste is PCB-contaminated soil, follow RWC 506 for sampling and chemical monitoring requirements.

(IV) Contaminated soils are to be tested per clean-up event, per generator location.

(V) Form U approval for plant trash generated from oil & gas industry operations is required to be submitted for approval minimally on a countywide basis as the generation source.

(VI) Test parameters depend on contaminants in groundwater. Initial characterization parameters may be reduced or dropped for monitoring well and potable water well drilling residues.

(VII) Oil & gas industry hydro-fracture water is tested per well, per generator.

(VIII) . Flow-back hydro-fracture water treatment sludge is to be tested monthly from fixed treatment generators and per disposal event from mobile treatment generators. This treatment sludge is to be tested for TENORM parameters. Monthly reporting to the Department may be required once sludge is approved

(IX) Oil & gas drill cuttings and hydro-fracture flow-back sands are tested per well pad, per generator.

(X) Test samples of drill cuttings and hydro-fracture flow-back sands shall be from within the geologic formation for oil/gas extraction and which utilize lubricants and other additives in the drilling mud. Samples shall be representative of the deepest horizontal drilling/fracturing or deepest vertical drilling/fracturing if horizontal drilling is not performed.

(XI) For chemical characterization of drill cuttings and hydro-fracture flowback sands as new waste types, initial analytical testing shall be of that first well pad. Requests for these wastestreams at the second well pad shall include submittal of the chemical characterization analytical testing from the first well pad. Subsequent wastestream requests shall continue in this manner, submitting the chemical characterization analytical testing for the most recent previous well pad as the characterization analytical with the current well pad wastestream request. Simultaneous development of multiple well pads could result in multiple analytical reports in subsequent requests or multiple requests based on a single previous analysis, as long as analytical representing all well pads is received once and promptly. Sample results for these wastes from the final well pad constructed by the generator, or from a well pad submittal that has gone beyond ninety days without a subsequent well pad development, shall be submitted to the Department within thirty days after Department determination of their disposal request. Unacceptable analytical chemistry for wastestream characterization requests shall require wastestream chemical characterization retesting at the previous well pad where analytical was obtained and used for temporary certification, and chemical characterization analytical testing shall be required at the pending well pad being requested, all prior to Department approval, unless there is no activity at the previous well pad. In that event, retesting and submitting there shall occur prior to removing these wastestreams resulting from future drilling there.

(XII) For incinerator ash, test ash chemistry annually on Form 44. For incinerator ash microbiological, test quarterly on Form 40. For autoclaving, test microbiological every forty (40) hours on Form 40.

(XIII) You are required to receive quarterly monitoring chemistry from the ash generator, following Form 41 parameters. For start-up resource recovery facilities, sampling must meet the EPA's Guidance for *The Sampling and Analysis of Municipal Waste Combustion Ash for the Toxicity Characteristic*, June 1995. The ash generator must supply your disposal facility with the plan they follow for sampling their ash for disposal at your facility.

Endnotes

[1] Organic scans for TCLP halogens may be used to certify "known composition" of the TOX indicator parameter. This is allowed because TOX is not a required parameter for wastestream characterization but may be required as an indicator parameter for monitoring. Analysis for TOX may be performed using the ASTM Leach or Total TOX test methods.

[2] Specific wastestreams excluded as hazardous solid waste per 261.4(b)(5) may be characterized by total analysis rather than TCLP leach analysis.

[3] For releases to soil or water of the environment, see Attachment I - Non-hazardous Contaminated Soil, 506 Contaminated Soil/Debris/Spill Residue (Non-Petroleum) From Non-Hazardous Spills Containing (from RWC 800).

[4] See Department Storage Tank Program diesel range short list. Use most current list.

[5] An updated Form U must be submitted to the Department for approval for any change in characterization of the waste stream, including process changes. For an existing Form U to remain in effect, all sampling and reporting requirements of §297.54 must be met.

Table R-3
Basis of Waste Acceptance Criteria
CAMP HOPE RUN LANDFILL

Parameters	Toxicity Limits (mg/L)	Liner Compatibility Limits (mg/L)	Leachate Treatability Limits (mg/L)	Basis
Waste Characteristics				
Corrosivity	pH > 2[1]			1,5
Free Liquids	No Free Liquids			1
Ignitability	Non-Ignitable Non-Oxidizer			1,2 1,2
Toxicity Characteristic Inorganics				
Arsenic	<5.00	15.00[2]		2
Barium	<100.00	120.00		2
Cadmium	<1.00	540.00[3]		2
Chromium	<5.00	11.00		2
Lead	<5.00	3.00		2
Mercury	<0.20	540.00[4]		2
Selenium	<1.00	15.00[5]		2
Silver	<5.00	12.00[6]		2
Inorganics[7]				
Aluminum		540.00[8]		
Antimony		15.00		
Beryllium		120.00[9]		
Boron		540.00[10]		
Cobalt		25.00[11]		
Copper		12.00		
Iron		3,600.00		
Magnesium				
Manganese		120.00		
Molybdenum		3.00		
Nickel		25.00		
Thallium		3.00[12]		
Zinc		540.00		
Toxicity Characteristic Volatile Organics				
Benzene	<0.50	0.78		2
Carbon Tetrachloride	<0.50	0.40		2
Chlorobenzene	<100.00	18.00		2
Chloroform	<6.00	6.90		2
1,2-Dichloroethane	<0.50	16.00		2

Parameters	Toxicity Limits (mg/L)	Liner Compatibility Limits (mg/L)	Leachate Treatability Limits (mg/L)	Basis
1,1-Dichloroethene	<0.70	16.00[13]		2
Methyl Ethyl Ketone	<200.00	13.00		2
Tetrachloroethene	<0.70	0.55		2
Trichloroethene	<0.50	0.70		2
Vinyl Chloride	<0.20	16.00[14]		2
Volatile Organics				
Acetone		14.00		3
1,2-Dibromoethane (Ethylene dibromide)		16.00[15]		3
Dibromomethane		14.00[16]		3
1,1-Dichloroethane		10.40		3
cis-1,2-Dichloroethene		0.36		3
trans-1,2-Dichloroethene		0.68		3
cis-1,3-Dichloropropene		16.00[17]		3
Ethylbenzene		2.50		3
2-Hexanone		13.00[18]		3
Isopropylbenzene (Cumene)		2.50[19]		3
Methylene Chloride		14.00		3
4-Methyl-2-pentanone		13.00[20]		3
Methyl-tert-butyl ether (MTBE)		13.00[21]		3
Styrene		0.16		3
Tetrachloroethane		0.50		3
Toluene		15.00		3
1,1,1-Trichloroethane		1.28		3
1,2,4-Trimethylbenzene		2.50[22]		3
1,3,5-Trimethylbenzene		2.50[23]		3
Xylenes		0.26		3
Toxicity Characteristic Semivolatile Organics				
Cresol	<200.00	0.68		3
o-Cresol	<200.00	0.68		3
m-Cresol	<200.00	0.68		3
p-Cresol	<200.00	0.68		3
1,4-Dichlorobenzene	<7.50	0.80		2
2,4-Dinitrotoluene	<0.13	0.08		2
Hexachlorobenzene	<0.13	0.20		2

Parameters	Toxicity Limits (mg/L)	Liner Compatibility Limits (mg/L)	Leachate Treatability Limits (mg/L)	Basis
Hexachlorobutadiene	<0.50	0.42		2
Hexachloroethane	<3.00	0.60		2
Nitrobenzene	<2.00	0.56		2
Pentachlorophenol	<100.00	0.40		3
Pyridine	<5.00	0.64		2
2,4,5-Trichlorophenol	<400.00	0.30		3
2,4,6-Trichlorophenol	<2.00	0.30		2
Semivolatile Organics				
Acenaphthene		0.11		3
Anthracene		0.05		3
Benzo (a) anthracene		0.03		3
Benzo (a) pyrene		0.05		3
Benzo (b) fluoranthene		0.03		3
Benzo (g,h,i) perylene		0.05[24]		3
Butylbenzyl Phthalate		0.23		3
Chrysene		0.04		3
bis (2-Ethylhexyl)phthalate		0.89		3
Fluoranthene		0.05		3
Fluorene		0.05		3
Indeno (1,2,3-cd) pyrene		0.03[25]		3
Naphthalene		0.28		3
di-n-Octyl Phthalate		0.89[26]		3
Phenanthrene		0.06		3
Phenolics, Total		14.00		3
Pyrene		0.05[27]		3
Toxicity Characteristic Pesticide Organics				
Chlordane	<0.03	0.01		2
2,4-D	<10.00	0.01[28]		2
Endrin	<0.02	0.01		2
Heptachlor and its Epoxide	<0.008	0.05		2
Lindane	<0.40	0.01		2
Methoxychlor	<10.00	0.05[29]		3
Toxaphene	<0.50	0.05		2
2,4,5-TP (Silvex)	<1.00	0.01		2
Water Leaching Tests[30]				

Parameters	Toxicity Limits (mg/L)	Liner Compatibility Limits (mg/L)	Leachate Treatability Limits (mg/L)	Basis
Ammonia-Nitrogen		700.00		
Chemical Oxygen Demand		200,000.00		
Chloride		7,500.00		
Cyanide				
Fluoride		460.00		
Nitrate		1.00		
Nitrite		1.00		
Oil and Grease		400.00[31]		
Organic Halogen				
Petroleum Hydrocarbons		135.00[32]		
pH	pH > 2	7.50		
Solids, Dissolved (TDS)				
Sulfate		240.00		
Total Analyses				
Cyanides				
Oil and Grease		120,000.00 mg/kg[33]		3
Organic Halogen				
PCBs	< 50.00 mg/kg			1,2
Petroleum Hydrocarbons		120,000.00 mg/kg[34]		3
Sulfides				

Table R-3
Basis of Waste Acceptance Criteria
CAMP HOPE RUN LANDFILL

Basis:

1. Regulatory Requirements.
2. Toxicity Limit.
3. (Liner Compatibility Limit) x (Dilution Attenuation Factor of 100).
4. (Leachate Treatability Limit) x (Dilution Attenuation Factor of 100).
5. Waste of extreme pH must be chemically compatible with other waste disposed at the landfill.

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[1] Hazardous Waste Regulation 261.22 does not apply for solid wastes that are not aqueous. Therefore, an upper pH limit of 12.5 is not appropriate. However, maintaining a lower pH limit is appropriate, due to corrosive characteristic of strong acids, compatibility problems with more alkaline wastes, and leachability of metals at low pH.
[2] Liner compatibility value for arsenic is based on antimony.
[3] Liner compatibility value for cadmium is based on zinc.
[4] Liner compatibility value for mercury is based on zinc.
[5] Liner compatibility value for selenium is based on antimony.
[6] Liner compatibility value for silver is based on copper.
[7] Liner compatibility limits for inorganics were not included in acceptance limits for Table R4 since the Department's worst-case leachate list does not include inorganics. Inorganics are not known to degrade landfill liner systems.
[8] Liner compatibility value for aluminum is based on zinc.
[9] Liner compatibility value for beryllium is based on barium.
[10] Liner compatibility value for boron is based on zinc.
[11] Liner compatibility value for cobalt is based on nickel.
[12] Liner compatibility value for thallium is based on lead.
[13] Liner compatibility value for 1,1-dichloroethene is based on 1,2-dichloroethane.
[14] Liner compatibility value for vinyl chloride is based on 1,2-dichloroethane.
[15] Liner compatibility value for 1,2-dibromoethane is based on 1,2-dichloroethane.
[16] Detected in Bradford County Landfill untreated leachate.
[17] Liner compatibility value for cis-1,3-dichloropropene is based on 1,2-dichloroethane.
[18] Liner compatibility value for 2-hexanone is based on MEK.
[19] Liner compatibility value for Cumene is based on Ethylbenzene.
[20] Liner compatibility value for 4-methyl-2-pentanone is based on MEK.
[21] Liner compatibility value for MTBE is based on MEK.
[22] Liner compatibility value for 1,2,4-Trimethylbenzene is based on ethylbenzene.
[23] Liner compatibility value for 1,3,5-Trimethylbenzene is based on ethylbenzene.
[24] Liner compatibility value for benzo (g,h,i) perylene is based on benzo (a) pyrene.
[25] Liner compatibility value for indeno (1,2,3-cd) pyrene is based on benzo (b) fluoranthene.
[26] Liner compatibility value for di-n-Octyl phthalate is based on Diethyl phthalate.
[27] Liner compatibility value for pyrene is based on benzo (a) pyrene.
[28] Liner compatibility value for 2,4-D is based on 2,4,5-TP LOQ.
[29] Liner compatibility value for methoxychlor is based on heptachlor LOQ.
[30] Liner compatibility limits for inorganic indicator parameters were not included in acceptance limits for Table R4 since the Department's worst-case leachate list does not include inorganic indicator parameters. Inorganic indicator parameters are not known to degrade landfill liner systems.
[31] Exceeds solubility limit of BTEX in water. Therefore, regulate Oil & Grease by total analysis.
[32] Approximate solubility limit of BTEX in water. A 100x DAF results in a limit that well exceeds the solubility limit of BTEX in water, therefore regulate total petroleum hydrocarbon by total analysis.
[33] Exceeding 12% content in waste could approach ignitability of a solid
[34] Exceeding 12% content in waste could approach ignitability of a solid

Table R-4
Waste Acceptance Criteria

CAMP HOPE RUN MUNICIPAL WASTE LANDFILL

Parameter	Warning Limits (mg/L)	Acceptable Limits (mg/L)
Waste Characteristics		
Corrosivity	pH < 3	pH > 2
Free Liquids		No Free Liquids
Ignitability		Non-Ignitable, Non-Oxidizer
Toxicity Characteristic Inorganics		
Arsenic	4.00	<5.00
Barium	80.00	<100.00
Cadmium	0.80	<1.00
Chromium	4.00	<5.00
Lead	4.00	<5.00
Mercury	0.16	<0.20
Selenium	0.80	<1.00
Silver	4.00	<5.00
Toxicity Characteristic Volatile Organics		
Benzene	0.40	<0.50
Carbon Tetrachloride	0.40	<0.50
Chlorobenzene	80.00	<100.00
Chloroform	4.80	<6.00
1,2-Dichloroethane	0.40	<0.50
1,1-Dichloroethene	0.56	<0.70
Methyl Ethyl Ketone	160.00	<200.00
Tetrachloroethene	0.56	<0.70
Trichloroethene	0.40	<0.50
Vinyl Chloride	0.16	<0.20
Volatile Organics		
Acetone	1,120.00	1,400.00
1,2-Dibromoethane (Ethylene dibromide)	1,280.00	1,600.00
1,1-Dichloroethane	832.00	1,040.00
cis-1,2-Dichloroethene	28.80	36.00
trans-1,2-Dichloroethene	54.40	68.00
cis-1,3-Dichloropropene	1,280.00	1,600.00
Ethylbenzene	200.00	250.00
2-Hexanone	1,040.00	1,300.00

Parameter	Warning Limits (mg/L)	Acceptable Limits (mg/L)
2-Hexanone	1,040.00	1,300.00
Isopropylbenzene (Cumene)	200.00	250.00
Methylene Chloride	1,120.00	1,400.00
4-Methyl-2-pentanone	1,040.00	1,300.00
Methyl-tert-butyl ether (MTBE)	1,040.00	1,300.00
Styrene	12.80	16.00
Toluene	1,200.00	1,500.00
1,1,1-Trichloroethane	102.40	128.00
1,2,4-Trimethylbenzene	200.00	250.00
1,3,5-Trimethylbenzene	200.00	250.00
Xylenes	20.80	26.00
Toxicity Characteristic Semi-Volatile Organics		
Cresol	54.40	68.00
o-Cresol	54.40	68.00
m-Cresol	54.40	68.00
p-Cresol	54.40	68.00
1,4-Dichlorobenzene	6.00	<7.50
2,4-Dinitrotoluene	0.10	<0.13
Hexachlorobenzene	0.10	<0.13
Hexachlorobutadiene	0.40	<0.50
Hexachloroethane	2.40	<3.00
Nitrobenzene	1.60	<2.00
Pentachlorophenol	32.00	40.00
Pyridine	4.00	<5.00
2,4,5-Trichlorophenol	24.00	30.00
2,4,6-Trichlorophenol	1.60	<2.00
Semi-Volatile Organics		
Acenaphthene	8.80	11.00
Anthracene	4.00	5.00
Benzo (a) anthracene	2.40	3.00
Benzo (a) pyrene	4.00	5.00
Benzo (b) fluoranthene	2.40	3.00
Benzo (g,h,i) perylene	4.00	5.00
Butylbenzyl Phthalate	18.40	23.00
Chrysene	3.20	4.00

Parameter	Warning Limits (mg/L)	Acceptable Limits (mg/L)
bis (2-Ethylhexyl)phthalate	71.20	89.00
Fluoranthene	4.00	5.00
Fluorene	4.00	5.00
Indeno (1,2,3-cd) pyrene	2.40	3.00
Naphthalene	22.40	28.00
di-n-Octyl Phthalate	71.20	89.00
Phenanthrene	4.80	6.00
Phenolics, Total	1,120.00	1,400.00
Pyrene	4.00	5.00
Toxicity Characteristic Pesticide Organics		
Chlordane	0.024	<0.03
2,4-D	0.80	1.00
Endrin	0.016	<0.02
Heptachlor and its Epoxide	0.006	<0.008
Lindane	0.32	<0.40
Methoxychlor	4.00	5.00
Toxaphene	0.40	<0.50
2,4,5-TP (Silvex)	0.80	<1.00
Water Leaching Tests		
Organic Halogen[1]	>100.00 mg/L	
Total Analyses		
Cyanides[2]	>250.00 mg/kg	
Oil and Grease[3]	96,000.00 mg/kg	120,000.00 mg/kg
Organic Halogen[4]	>100.00 mg/kg	
PCBs	40.00 mg/kg	<50.00 mg/kg
Petroleum Hydrocarbons[5,6]	96,000.00 mg/kg	120,000.00 mg/kg
Sulfides[7]	>500.00 mg/kg	

Table R-4
Waste Acceptance Criteria

CAMP HOPE RUN MUNICIPAL WASTE LANDFILL

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[1] Exceeding 100 mg/L organic halogen on any waste shall "trigger" organic scans. On a case-by-case basis, additional test parameters may include volatile and semi-volatile scans.
[2] Exceeding 250 mg/kg total CN^{-1} on any waste shall require discussion with the Department on limitation of waste acceptance volume for the specific waste stream.
[3] Exceeding 120,000 mg/kg Oil & Grease on any waste requires total petroleum hydrocarbon analysis.
[4] Exceeding 100 mg/kg organic halogen on any waste shall "trigger" organic scans. On a case-by-case basis, additional test parameters may include volatile and semi-volatile scans.
[5] Total petroleum hydrocarbon exceeding 120,000 mg/kg for any waste will be evaluated on a case-by-case basis. Additional test parameters may include Ignitability of Solids Test, volatile, and semi-volatile scans.
[6] Total petroleum hydrocarbon is to be measured on a dry weight basis.
[7] Exceeding 500 mg/kg total S^{-2} on any waste shall require discussion with the Department on limitation of waste acceptance volume for the specific waste stream.

TABLE 1A
PROPOSED WASTE ACCEPTANCE CRITERIA
PA WASTE LLC, CAMP HOPE RUN LANDFILL
RESIDUAL WASTE ANALYSIS AND CLASSIFICATION PLAN

Parameter	Acceptance Limit	Classification	Test Method	Freq	Retest Basis
pH	≥2 and ≤12.5	Non-hazardous[b]	Method 9045[c]	Once	Annually
Flash Point/Ignitability	>60°C/ Not Ignitable	Non-hazardous[b]	Pensky-Martens Closed Cup Tester ASTM D93-79, D93-80 or Setaflash Closed Cup Tester D3278-78,1010,1020[c] 40 CFR 261.21	Once	Annually
Reactivity	Not Reactive	Non-hazardous[b]	Section 7.3[e]	Once	Annually
TCLP Parameters[f]				Once	Annually
Arsenic	<5.0 mg/l	Non-hazardous[b]	6010,7061[c]	Once	Annually
Barium	<100.0 mg/l	Non-hazardous[b]	6010,7000,7010[c]	Once	Annually
Benzene	<0.5 mg/l	Non-hazardous[b]	8021,8260[c]	Once	Annually
Cadmium	<1.0 mg/l	Non-hazardous[b]	6010,7000,7010[c]	Once	Annually
Carbon tetrachloride	<0.5 mgl	Non-hazardous[b]	8021,8260[c]	Once	Annually
Chlordane	<0.03 mg/l	Non-hazardous[b]	8081,8270[c]	Once	Annually
Chlorobenzene	<100.0 mg/l	Non-hazardous[b]	8021,8270[c]	Once	Annually
Chloroform	<6.0 mg/l	Non-hazardous[b]	8021,8260[c]	Once	Annually
Chromium	<5.0 mg/l	Non-hazardous[b]	6010,7000,7010[c]	Once	Annually
Chromium, trivalent and hexavalent	<5.0 mg/l	Leachate treatment[g]	7195,7197/6010, 7000, 7010[c]	Once	Annually
Copper	<10.0 mg/l	Leachate treatment[g]	6010,7000,7010[c]	Once	Annually
o-Cresol	<68.0 mg/l[h]	Non-hazardous[b][o]	8041,8270[c]	Once	Annually
m-Cresol	<68.0 mg/l[h]	Non-hazardous[b][o]	8041,8270[c]	Once	Annually
p-Cresol	<68.0 mg/l[h]	Non-hazardous[b][o]	8041,8270[c]	Once	Annually
Cresol	<68.0 mg/l[h]	Non-hazardous[b][o]	8041,8270[c]	Once	Annually
Cyanide	<2.0 mg/l	Leachate treatment[g]	9013/9010[c]	Once	Annually
Cyanates	<2.0 mg/l	Leachate treatment[g]	9013/9014[c]	Once	Annually
2,4-D	<1.0 mg/l	Non-hazardous[b][o]	8151[c]	Once	Annually
1,4-Dichlorobenzene	<7.5 mg/l	Non-hazardous[b]	8021, 8260[c]	Once	Annually
1,2-Dichloroethane	<0.5 mg/l	Non-hazardous[b]	8021, 8260[c]	Once	Annually
1,1-Dichloroethylene	<0.7 mg/l	Non-hazardous[b]	8021, 8260[c]	Once	Annually
2,4-Dinitrotoluene	<0.13 mg/l	Non-hazardous[b]	8091,8270[c]	Once	Annually
Endrin	<0.02 mg/l	Non-hazardous[b]	8081,8270[c]	Once	Annually
Heptachlor (and its epoxide)	<0.008 mg/l	Non-hazardous[b]	8081,8270[c]	Once	Annually
Hexachlorobenzene	<0.13 mg/l	Non-hazardous[b]	8121, 8081,8270[c]	Once	Annually
Hexachlorobutadiene	<0.5 mg/l	Non-hazardous[b]	8121,8260, 8270[c]	Once	Annually

Hexachloroethane	<3.0 mg/l	Non-hazardous[b]	8260,8270[c]	Once	Annually
Iron	<6400 mg/l	Leachate treatment[g]	6010,7000, 7010[c]	Once	Annually
Lead	<5.0 mg/l	Non-hazardous[b]	6010,7000,7010[c]	Once	Annually
Lindane	<0.4 mg/l	Non-hazardous[b]	8081,8270[c]	Once	Annually
Mercury	<0.2 mg/l	Non-hazardous[b]	7470,7471[c]	Once	Annually
Methoxychlor	<5.0 mg/l	Non-hazardous[b][o]	8081,8270[c]	Once	Annually
Methyl ethyl ketone	<200.0 mg/l	Non-hazardous[b]	8015,8260[c]	Once	Annually
Nickel	<5.0 mg/l	Typical properties[d]	6010,7000,7010[c]	Once	Annually
Nitrobenzene	<2.0 mg/l	Non-hazardous[b]	8091,8270[c]	Once	Annually
Pentachlorophenol	<40.0 mg/l	Non-hazardous[b][o]	8041,8270[c]	Once	Annually
Pyridine	< 5.0 mg/l[9]	Non-hazardous[b]	8260,8270[c]	Once	Annually
Selenium	<1.0 mg/l	Non-hazardous[b]	6010,7000,7010[c]	Once	Annually
Silver	<5.0 mg/l	Non-hazardous[b]	6010,7000,7010[c]	Once	Annually
Tetrachloroethylene	<0.7 mg/l	Non-hazardous[b]	8260[c]	Once	Annually
Toxaphene	<0.5 mg/l	Non-hazardous[b]	8081,8270[c]	Once	Annually
Tricloroethylene	<0.5 mg/l	Non-hazardous[b]	8260[c]	Once	Annually
2,4,5-Trichlorophenol	<30.0 mg/l	Non-hazardous[b][o]	8041,8270[c]	Once	Annually
2,4,6-Trichlorophenol	<2.0 mg/l	Non-hazardous[b]	8041,8270[c]	Once	Annually
2,4,5-TP (Silvex)	<1.0 mg/l	Non-hazardous[b]	8151[c]	Once	Annually
Vinyl Chloride	<0.2 mg/l	Non-hazardous[b]	8021,8260[c]	Once	Annually
Zinc	<17.5 mg/l	Leachate treatment[g]	6010,7000,7010[c]	Once	Annually
Phenolics	<130 mg/l	Leachate treatment[g]	8041[c]	Once	Annually
Free Liquids	<40%	Typical properties[d]	9095[c]	Once	Annually
Polychlorinated Bipheyls (PCBs)	<40 mg/kg	Typical properties[d]	8082[c]	Once	Annually
Water Leaching Procedure[j] Test Parameters					
COD	<700 mg/l	Typical properties[d]	410.1[c]	Once	Annually
Total solids	<5000 mg/l	Typical properties[d]	160.3[k]	Once	Annually
Oil and Grease or Petroleum Hydrocarbons	<50 mg/l	Typical properties[d][o]	8015,1664[m]	Once	Annually
Ammonia Nitrogen	<50 mg/l	Typical properties[d]	350.2[k]	Once	Annually
Total Solids	>10%, Dewatered sludges	Typical properties[d]	209F[a] ASTM D2216	Once	Annually
Total Solids, continued	>50%, Treatment Plant Filter Cakes >60%, Other Wastes	Typical Properties	209F[a] ASTM D2216		
Total Volatile Solids	<60%	Typical properties[d]	209F[a]	Once	Annually
Total Oil & Grease or Total Petroleum	<5% (50,000 mg/kg)	Typical properties[d]			

Hydrocarbons or Gasoline Range Organics (GRO) or Diesel Range Organics (DRO)	Unless otherwise approved by DEP on a waste specific basis		1664[m]		

Notes:

a. The method list, or another method approved by the PADEP will be used when performing the analysis.

b. Non-hazardous according to §261.20 through 261.24 of Title 40 of the Code of Federal Regulations.

c. SW-846, Test Methods for Evaluating Solid Waste, USEPA, November 1986, or latest approved revision.

d. Typical properties of residual waste were determined from a review of laboratory data.

e. EPA withdrew the specific test methods for reactivity previously specified in SW-846 Chapter 7.3 in an action in 1998. Pursuant to current USEPA guidance, reactivity must be determined by evaluating the waste for the specific properties identified in 40 CFR 261.23.

f. Toxicity Characteristic Leaching Procedure as described in Method 1311, USEPA SW-846.

g. Leachate treatment limits are based on the maximum daily discharge limit specified in the PA Waste, LLC NPDES Permit for the landfill's leachate treatment plant (see Appendix A) multiplied by Dilution/Attenuation Factor of 100.

h. If o-, m- and p-cresol concentrations cannot be differentiated, the total cresol concentration is used. The cresol acceptance criteria is <68.0 mg/l.

i. If quantitation limit is greater than acceptance criteria, use quantitation limit.

j. ASTM Method D3987-85.

k. EPA 600/4-79-020, Methods for Chemical Analysis of Water and Wastes, USEPA, March 1979.

l. American Public Health Association, American Water Works Association, and Water Pollution Control Federation, 1985, Standard Methods for the Examination of Water and Wastewater, A.E. Greenbert, R.R. Trussel, L.S. Clescen, and M.H. Franson, eds., 16th ed., American Public Health Association, Washington, D.C.

m. EPA 40 C.F.R. Part 136

n. All wastes are subject to initial characterization analysis. Characterization Analysis is reported annually unless more frequent characterization is required as specified in Section 2.0 and Figure 1 of the Form R1.

o. Acceptance criteria limit provided by PADEP based on agency permitting history.

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TESTING REDUCTION/ELIMINATION CERTIFICATION

Check (X) all applicable

Generator: _____

Waste: _____

Disposal Facility: _____

The generator hereby certifies that the Form R chemical parameters, not shown as tested in this application for our above-named waste, are being certified in lieu of analysis, on the following bases:

I. INITIAL WASTESTREAM CHARACTERIZATION:

1. Generator Knowledge:

☐ The chemicals are not used in our production process. There is no reason to expect presence of these parameters in the waste. This certification is based on our knowledge of the production process and review of MSDS's for the raw materials used in the part of our process generating this waste. This certification is limited to the levels of accuracy for any instrumentation used and reporting requirements for MSDS's required of the manufacturers of our raw materials by the State and Federal governments.

2. Known Chemical Composition:

☐ The parameters are of known chemical concentrations or are leaching N/D, based on recent chemical analyses performed on _____. This wastestream is of known composition and remains acceptable for disposal at the above-named facility.

II. APPROVED WASTESTREAM MONITORING:

1. Generator Knowledge. (Pertains to parameters on Table R-2 of the permit):

☐ The chemicals are not used in our production process. There is no reason to expect presence of these parameters in the waste. This certification is based on our knowledge of the production process and review of MSDS's for the raw materials used in the part of our process generating this waste. This certification is limited to the levels of accuracy for any instrumentation used and reporting requirements for MSDS's required of the manufacturers of our raw materials by the State and Federal governments.

☐ The chemical parameters have not changed in concentration from the original chemical characterization performed on _____. We know this because the process by which the above-named waste was generated has not changed since the original wastestream chemical characterization.

2. Known Chemical Composition. (Pertains to parameters on Table R-2 of the permit):

☐ The chemical parameters are of known chemical concentrations or are leaching N/D, based on recent chemical analyses performed on _____. This wastestream is of known composition and remains acceptable for disposal at the above-named facility.

III. ONCE EVERY FIVE-YEAR REANALYSIS TO VERIFY CERTIFICATIONS:

1. Parameters N/D Leaching or Within 30% of Form R Limiting Criteria

☐ Untested chemical parameters remain within 30% of the named disposal facility's approved Form R limiting criteria and need not undergo reanalysis at this time. We know this because the parameters were certified N/D or tested within 30% of the named disposal facility Form R limiting criteria at the time of last analysis on _____, and the process generating the waste has not changed since then.

Name of Generator's Certifying Official: _____

Title of Generator's Certifying Official: _____

Signature of Generator Official: _____

Date: _____

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NON-HAZARDOUS WASTE CERTIFICATION

Check (X) all applicable

Generator: _____

Waste: _____

Waste Code: _____

Disposal Facility: _____

1. **Generator Knowledge:**

☐ The generator hereby certifies that the _____ is non-hazardous. This certification is based on our knowledge of the production process and review of MSDS's for the raw materials used in the part of our process generating this waste. This certification is limited to the levels of accuracy for any instrumentation used and reporting requirements for MSDS's required of the manufacturers of our raw materials by the State and Federal governments.

2. **Known Chemical Composition:**

☐ The generator hereby certifies that the _____ is non-hazardous. This certification is based on review of pertinent MSDS's, "spec" sheets, and/or testing. The waste is of known composition. TCLP metals, ZHE volatile or semi-volatile organics, herbicides, pesticides, or PCB's are not present from sources, or at levels that would make the above wastestream a listed or characteristic hazardous waste.

Name of Generator's Certifying Official: _____

Title of Generator's Certifying Official: _____

Signature of Generator Official: _____

Date: _____

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Contaminated Soil Sampling Protocol
Non-Hazardous Chemical (RWC 506)
Waste Petroleum (RWC 507)
Virgin Petroleum Fuel (RWC 508)

CAMP HOPE RUN LANDFILL

Regardless of the sampler, the following procedures are to be used in collecting Non-hazardous Contaminated Soil samples:

1. Notification for release of regulated substances, (1-gal or greater) shall be documented in t he Form U-CS or Form FC-1 by identifying the Department staff involved in oversight of the soil cleanup.

2. Before collecting the sample, the sampler will verify the quantity of contaminated soil by measuring the pile and performing the most suitable mathematical computation. A form for reporting this information will be provided by the Landfill.

3. Each PADEP Form contains specific directions on the minimum number of required samples, both with and without field screening.

4. To assure the protection of the sample, the sampler shall wear protective gloves and other personal protective equipment as needed and utilize standard EPA and Department sampling techniques and sampling tools to obtain the sample.

5. Composite sampling shall not be used to determine volatile organics.

6. A composite sample must originate from no less than four grab samples.

7. Volatiles are to be collected per SW-846 method 5035 to prevent loss of the volatile.

8. Analysis is waived for 25 tons or less of FC-1 soil, but not for U-CS soil.

9. Contaminated soil resulting from a sudden and unplanned event such as a fire, spill or accident, as described in § 287.103, will be handled as follows:
   a. Virgin fuel, hydraulic fluid, motor oil, and antifreeze via letter or Form FC-1 for 25 tons or less. Use form FC-1 for >25 tons with analytical.
   b. Hydraulic fluid, motor oil, and antifreeze alone, less than 25 tons, notification of disposal via a letter or email to the Department.

10. Complete Form U-CS testing may be appropriate initially to characterize the contaminants of concern. Abbreviated Form R testing requirements for Form U-CS wastes apply to known contamination.

11. Samples are to be analyzed by a PA DEP accredited environmental testing laboratory.

12. Appropriate holding time limitations for testing shall be met and verified by the laboratory in the submittal.

13. Chain-of-custody for all samples shall be documented in the submittal
14. The bulk density that will be used to convert from yd^3 volume to tonnage is 1.4 tons/yd^3.

Table 1 - Residual Waste Categories and Abbreviated Testing Requirements

CAMP HOPE RUN LANDFILL

503	Petroleum-Containing Waste
Form U. Minimum testing requirements are: One test sample for TPH and TOX is required per 30-40 cubic yard waste container where absorbent volumes exceed 25 gallons per 30-40 cubic yard waste container.	

	Petroleum-contaminated absorbent, petroleum-contaminated rags from clean-up.

506	Contaminated Soil/Debris/Spill Residue (Non-Petroleum) From Non-Hazardous Spills Containing:
Form U-CS. Minimum testing requirements are pH; the known contaminant(s) of concern; TPH and TOX for organic contamination; plus appropriate non-checked parameters from Form R, Table R-2. Includes contaminated paper, plastic, wood, and vegetation from clean-up.	

(from RWC 000)	Combustion Residues. Coal-derived bottom ash, coal-derived fly ash, flue gas desulfurization residue FGD, incinerator fly ash, incinerator mixed ash, other specified non-coal derived ash.
(from RWC 100)	Metallurgical Process Residue. Foundry sand, slag, refractory other than RWC 480 boiler furnace refractory, grindings, shavings, ferrous baghouse dust, non-ferrous baghouse dust, ferrous scrap, non-ferrous scrap, sandblast abrasive/residue, air emission control dust, lubricating soaps. (Soil contaminated with mill scales and heat treat residues are excluded. Low temperature metal dross and dross skims from Sn, Pb, Zn, and Al are excluded).
(from RWC 200)	Sludges, Scales. Water treatment plant sludge/sediment, industrial wastewater treatment sludge/sediment including acid mine drainage sludge, metallurgical sludge, food processing sludge, paint coating sludge and scale, non-hazardous tank bottoms, non-hazardous still bottoms, air emission control sludge, flue gas desulfurization residue (FGD), sludge (including FGD gypsum), other specified industrial sludge, lime/cement kiln scale and residue, lime-stabilized spent pickle liquor; cooling tower sediment/sludge.
(from RWC 300)	Chemical Waste. Acidic chemicals (pH < 6), basic chemicals (pH > 8), non-hazardous combustible chemicals, chemical salts, spent activated carbon, surface coatings, solid/semi-solid paints, polishes, adhesives, inks, cans of hardened paint, filter media/aids, diatomaceous earth, ion exchange resins, silica gels, non-hazardous spent dyes, detergents, cleaning agents, off-specification products and intermediates, non-infectious pharmaceutical and biological manufacturing and lab wastes, wax, paraffin, solvents, incidental glycols/antifreeze, incidental alcohols (machine coolants, photographic chemicals. Includes soil contaminated with alcohols, solvents, glycols/antifreeze, machine coolants and non-hazardous spent plating baths.

506 contd	Contaminated Soil/Debris/Spill Residue (Non-Petroleum) From Non-Hazardous Spills Containing:
(from RWC 400)	Generic Manufacturing Wastes. Leather, rubber, Latex, wood, scrap lumber, pallets, particle board, laminated paper, cardboard, textile, yarn, fabric, fiber, elastic, glass, cullet, polyethylene, polystyrene, polyurethane, other non-halogenated plastics, glass reinforced plastic, PVC, Teflon, CPE, other halogenated plastic, electronic components, off-spec semiconductors, circuit boards, agricultural fertilizers, agricultural pesticides, agricultural feed, agricultural feed supplements, photographic film, photographic paper, bituminous asphalt, ceramic, linoleum, thermal insulation cellulose, thermal insulation glass, thermal insulation wool, wiring, conduit, electrical insulation, sawdust, wood shavings, wood turnings, empty containers, chemically treated wood, railroad ties, metallic/non-metallic drums and pails, food waste, resins, polymers other than RWC 407 and 409, vinyl sheet, upholstery, spent air/gas filters, spent air/gas filters, spent aqueous filters, spent non-hazardous fuel/oil/solvent filters, paint filters, cloth filters, paper filters, supersacs, grease, boiler furnace refractory other than RWC 103, carbon/graphite residue/scrap, baghouse dust other than RWC 105 and RWC 106, blasting abrasive/residue other than RWC 109, gypsum plaster molds, and drywall. Includes soil contaminated by non-hazardous process wastewaters, contaminated non-contact cooling waters, oil/water emulsions, oily wastewaters, and landfill leachate.
(from RWC 500)	Special Handling Wastes. Asbestos-containing waste, asbestos-containing insulation, asbestos-containing brake lining, spent catalysts, dredge material, water intake debris, water intake sediment, coal mill rejects. (Tires should be segregated from soil and excluded from disposal as whole tires).
(from RWC 700)	Industrial Equipment, Maintenance Scrap. Pumps, piping, vessels, instruments, storage tanks, maintenance scrap, product turn-around scrap, non-hazardous batteries, grinding wheels, sanding disks, polishing belts, welding rods, broken tools and plant trash. (Pb-acid batteries in soil should be segregated and excluded)
(from RWC 800)	Oil & Gas brine (RWC 802, drilling fluid waste (RWC 803), fracturing fluid waste (RWC 804), basic sediment (RWC 807), servicing fluid (RWC 808), drill cuttings and drilling residuals with bulking agents (RWC 810) released to soil or water of the environment.
(from RWC 900)	Miscellaneous. Auto shredder fluff and treated hazardous waste residue. (Treated hazardous waste residue in soil should include land ban certification if required.)
Form 35	Processed infections/chemotherapeutic waste
Form 36	Municipal waste incinerator ash
Form 43	Sewage sludge

507	Waste Petroleum Material Contaminated Soil/Debris
Form U-CS. Minimum testing requirements are: the known metal contaminant(s) of concern, pH, TPH, TOX.	

	Hydraulic oil/fluid, lubricating oil, lubricating greases (including non-petroleum based), machining and cutting oil, electrical transformer oil, automotive transmission oil, petroleum-derived oily sludge, oil/water emulsions, oily wastewaters, drilling fluid residues. Includes petroleum-contaminated paper, plastic, wood, and vegetation from clean-up. Includes cleanup absorbent where absorbent volumes do not exceed 25 gallons per 30-40 cubic yard waste container.

508	Virgin Petroleum Fuel Contaminated Soil/Debris
Form FC-1. Follow the Policy and Procedure for the Disposal of Fuel-C Contaminated Soils.	

	Fuel oil, diesel fuel, aviation fuel, kerosene, or gasoline spilled to soil from traffic accidents, tanks, drums or other containers. Includes petroleum-contaminated paper, plastic, wood and vegetation from clean-up. Includes cleanup absorbent where absorbent volumes do not exceed 25 gallons per 30-40 cubic yard waste container.

508	**Virgin Petroleum Fuel Contaminated Soil/Debris**
Directions: Follow the sampling and testing requirements from the latest version of Form FC-1 and the Policy and Procedure For the Disposal of Fuel-Contaminated Soils, finalized July 23, 1993.	

	Fuel oil, diesel fuel, aviation fuel, kerosene, or gasoline spilled to soil from traffic accidents, tanks, drums or other containers, drilling fluid residues. Includes petroleum-contaminated paper, plastic, wood, and vegetation from clean-up.

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Field Oversight for Contaminated Soil Characterization

The Department forms, FC-1 and U-CS are used by regulated disposal facilities for requesting acceptance of virgin petroleum fuel contaminated soil and waste petroleum/chemically contaminated soil, respectively. Generators or contractors for the generators supply the sampling and analytical information that gets attached to these forms for submittal to the Department's regional chemists for review.

The Department's Fill Policy is used by generators to evaluate soil for use as fill rather than disposal.

Both of the Department disposal request forms and the fill policy require a minimum number of samples, tested for specific applicable parameters. Parameters are dictated by the forms and/or by the landfill's Form R, Waste Analysis and Classification permit amendment to their operating permit. Minimum number of samples is dictated by the forms and the policy.

1. **To ensure that the minimum number of samples are collected in the field and to verify proper sampling:**

    a. Refer sample collectors to the appropriate Department form or policy.
    b. Refer sample collectors to the two-sheet guide: Pile or *In-Situ* Sampling For Form FC-1, Form U-CS or Fill Policy Contaminated Soil Characterization with Field Screening For Volatiles and Compositing for Metals. This guide compares sampling requirements of the two disposal forms and the fill policy and indicates the minimal requirements to meet all three criteria, in the event that the generator wants to evaluate the soil for clean fill or disposal with the same analytical.

Both Department disposal request forms require a diagram of the sample collection area. With *in-situ* sampling, this is often overlooked.

2. **To ensure that a diagram of the sample collection area is made to document the sampling:**

    a. Refer sample collectors to directions for the appropriate Department disposal request form.
    b. Refer sample collectors to the one-sheet guide: Diagram of Sample Collection Area. The sampler can mark samples on the guide sheet and use it as their diagram submittal.

3. **Other important points to be aware of:**

- Compositing cannot be used for volatile organic compounds, due to potential loss of volatiles.
- A composite sample must originate from no less than four grab samples.
- The Department must pre-approve visual screening to reduce number of samples and field screening other than PID or immunoassay. Refer samplers to Department regional chemists.
- Samples collected for volatiles must meet EPA SW-846 Method 5035. Soil collection options are: (<200 ppb) 5-g sample weighed in the field w sodium bisulfate preservative in vial. (>200 ppb) ~5-g sample in Encore or preweighed vial containing methanol. (>200 ppb oily wastes) Encore, diluted methanol method or Method 3585 n-hexadecane solvent for oily wastes insoluble in water-miscible solvents.
- Piles must be sampled no shallower than one foot from the surface of the pile.
- Encourage an extra sample beyond the minimum, especially for *in situ* samples, to avoid coming-up short at the landfill scales. Sampling is based on yd3 volume and is checked at the landfill scales by weight and a bulk density conversion, recorded in NCRO landfill Form R amendments.
- Analysis is waived for 25 tons or less of FC-1 soil, but not for U-CS soil.
- Abbreviated Form R testing requirements for Form U-CS wastes apply to known contamination. Complete Form U-CS testing may be appropriate initially to characterize the contaminants of concern prior to utilizing this abbreviated testing scheme.
- Applicable Residual Waste Codes (RWCs) for disposal requests are:
    - RWC 506 Contaminated soils/debris/spill residues (nonpetroleum) Use Form U-CS
    - RWC 507 Waste petroleum material contaminated soil/debris Use Form U-CS
    - RWC 508 Virgin petroleum fuel contaminated soil and debris Use Form FC-1

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Pile or *In-Situ* Sampling
For Form FC-1, Form U-CS or Fill Policy Contaminated Soil Characterization with Field Screening for Volatiles and Compositing for Metals

Tank Short List Volatiles including BTEX + TPH[1] & TOX[2], or any volatiles that can be screened by PID[3]

Soil Volume[4]	Fill Policy		Fill Policy w PID Screen or EPA Method 4030 Immunoassay[5]		Form FC-1		Form U-CS		Forms FC-1 or U-CS w PID Screen[6]		Total Min # PID Screens	Total Min # of Screen Grab Samples
yd^3	Grab Frequency	# Grab Samples	Screen[7] Frequency	# Screened Samples	Grab[8] Frequency	# Grab Samples	Grab Frequency	# Grab Samples	Screen Frequency	# Screened Samples[9]		
10	8/125	8	8/125	2	1/50+1	2	1/250	1	1/25	2	8	2
25	8/125	8	8/125	2	1/50+1	2	1/250	1	1/25	2	8	2
50	8/125	8	8/125	2	1/50+1	2	1/250	1	1/25	2	8	2
75	8/125	8	8/125	2	1/50+1	3	1/250	1	1/25	2	8	2
100	8/125	8	8/125	2	1/50+1	3	1/250	1	1/25	2	8	2
125	8/125	8	8/125	2	1/100+2	3	1/250	1	1/25	2	8	2
140	12/3,000	12	12/3,000	3	1/100+2	3	1/250	1	1/25	2	12	3
175	12/3,000	12	12/3,000	3	1/100+2	3	1/250	1	1/25	2	12	3
250	12/3,000	12	12/3,000	3	1/100+2	4	1/250	2	1/25	2	12	3
350	12/3,000	12	12/3,000	3	1/100+2	5	1/250	2	1/25	2	14	3
500	12/3,000	12	12/3,000	3	1/100+2	7	1/250	2	1/25	2	20	3
550	12/3,000	12	12/3,000	3	1/100+2	7	1/250	2	1/25	3	22	3
600	12/3,000	12	12/3,000	3	1/100+2	8	1/250	2	1/25	3	24	3
750	12/3,000	12	12/3,000	3	1/100+2	9	1/250	3	1/25	3	30	3
1,000	12/3,000	12	12/3,000	3	1/100+2	12	1/250	4	1/25	4	40	4
1,500	12/3,000	12	12/3,000	3	1/100+2	17	1/250	6	40+1/100	6	45	6
3,000	12/3,000	12	12/3,000	3	1/100+2	32	1/250	12	40+1/100	12	60	12
3,500	12/3,000	24	12/3,000	6	1/100+2	37	1/250	14	40+1/100	14	65	14
6,500	12/3,000	36	12/3,000	9	1/100+2	67	1/250	26	40+1/100	26	95	26
10,000[10]	12/3,000	48	12/3,000	12	1/100+2	102	1/250	40	40+1/100	40	130	40
10,200	12/3,000	48	12/3,000	12	1/100+2	104	1/250	40	40+1/100	41	132	41

[1] A PID reads the volatile components of gasoline, #2 diesel fuel or home heating oil as a single component.
[2] Halogenated solvents that can not be detected by PID do not qualify for PID-screening to reduce number of samples. With a 10.6 eV lamp, PID's will detect TCE and PCE, but not TCA. An 11.7 eV lamp is required to detect TCA by PID. Consult table of electron volt ionization potentials for photo ionization detection capability.
[3] Complete Form U testing may be appropriate initially to characterize the contaminants of concern prior to utilizing this abbreviated testing scheme.
[4] When determining soil volume in-situ, use coefficient of expansion for the appropriate class of soil to allow for % increase in soil volume when soil is excavated for disposal. This will allow assurance of sufficient minimum number of samples being taken, since number of samples in these tables are taken from policies that generally applied to soil piles rather than *in-situ*. This should only be a significant issue on very large contaminated soil cases.
[5] Other screening methods or visual screening must be pre-approved by the Department. Contact a regional chemist.
[6] Locations of highest PID readings.
[7] or fraction thereof
[8] or fraction thereof, in the first 100 yd^3.
[9] Locations of highest PID readings.
[10] 10,000 yd^3 = 100yd x 100 yd x 3' depth.

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Pile or *In-Situ* Sampling
For Form FC-1, Form U-CS or Fill Policy Contaminated Soil Characterization with Field Screening for Volatiles and Compositing for Metals

Total Pb/TCLP Pb, other metals of known concern[11]

Soil Volume	Fill Policy		Fill Policy w Composite		Form FC-1		Form FC-1 w Composite		Form U-CS	Form U-CS w Composite	Total Minimum # Composite Samples
yd^3	Grab Frequency	# Grab Samples	Composite Frequency	# Composite Samples	Grab Frequency	# Grab Samples	Composite Frequency	# Composite Samples	Grab & Composite Frequency[12]	# Grab or Composite Samples	
10	8/125	8	2/125	2	0	0[13]	0	0[13]	1/250	1	2
25	8/125	8	2/125	2	1/50+1	2	4/250	1	1/250	1	2
50	8/125	8	2/125	2	1/50+1	2	4/250	1	1/250	1	2
75	8/125	8	2/125	2	1/50+1	3	4/250	1	1/250	1	2
100	8/125	8	2/125	2	1/50+1	3	4/250	1	1/250	1	2
125	8/125	8	2/125	2	1/100+2	3	4/250	1	1/250	1	2
140	12/3000	12	3/3000	3	1/100+2	3	4/250	1	1/250	1	3
175	12/3000	12	3/3000	3	1/100+2	3	4/250	1	1/250	1	3
250	12/3000	12	3/3000	3	1/100+2	4	4/250	1	1/250	1	3
350	12/3000	12	3/3000	3	1/100+2	5	4/250	1	1/250	1	3
500	12/3000	12	3/3000	3	1/100+2	7	4/250	2	1/250	2	3
550	12/3000	12	3/3000	3	1/100+2	7	4/250	2	1/250	2	3
600	12/3000	12	3/3000	3	1/100+2	8	4/250	2	1/250	2	3
750	12/3000	12	3/3000	3	1/100+2	9	4/250	3	1/250	3	3
1,000	12/3000	12	3/3000	3	1/100+2	12	4/250	4	1/250	4	4
1,500	12/3000	12	3/3000	3	1/100+2	17	4/250	6	1/250	6	6
3,000	12/3000	12	3/3000	3	1/100+2	32	4/250	12	1/250	12	12
3,500	12/3000	24	6/6000	6	1/100+2	37	4/250	14	1/250	14	14
6,500	12/3000	36	9/9000	9	1/100+2	67	4/250	26	1/250	26	26
10,000	12/3000	48	12/12000	12	1/100+2	102	4/250	40	1/250	40	40
10,200	12/3000	48	12/12000	12	1/100+2	104	4/250	40	1/250	40	40

[11] Complete Form U testing may be appropriate initially to characterize the contaminants of concern prior to utilizing this abbreviated testing scheme.

[12] No advantage to composite sampling for Form U-CS.

[13] Per the Form FC-1 Policy of July 23, 1993, NCRO waives analytical reporting requirements for 25 tons or less. Use the bulk density for the soil (generally >1 ton/yd^3 but <2 ton/yd^3) to determine the minimum volume of soil that is expected to exceed 25 tons and require analytical. The bulk density that the disposal facilities in the NCRO agree to use for soil calculations is included in their Form R permits.

Appendix E

List of Approved Permit Modifications For the Camp Hope Run Landfill

(See Attachment 1 for Conditions)

This Appendix is reserved for listing of future permit modifications.

Appendix E
Attachment 1

This attachment is reserved for conditions of future permit modifications.