COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF MINING PROGRAMS

E-TEMPLATE
SPECIAL HANDLING AND ALKALINE ADDITION
08/2021

Special Handling of Potentially Acid-Forming, Toxic-Forming, and Alkaline-Producing Material [§87.68, 87.136, §87.145]

Location of acid and toxic-forming material placement must be shown on the Operations map or, if too cluttered, on a separate map. Map(s) must show locations of placement and sequence of placement within mining plan, include coal crop lines, final highwall limits, pit dimensions, and phase and sequence of mining. Schematic plan maps will be accepted where placement is site-wide and exact pit locations can not be precisely determined. Cross-section(s) must show the location of the handled material relative to anticipated postmining groundwater conditions

Provide the following:

a. Identify the stratigraphic and areal extent, and amount (thickness, tons, and/or cubic yards) of acid, toxic, and alkaline materials that will be special handled. The amount of coal and boney material that would be spoiled must be accurately determined. This may include the top and bottom of a coal interval and any partings. Identify the amount, chemical characteristics, and location of spoil to be placed above and below the special handled material.

Rosebud is requesting that the overburden report, special handling and alkaline addition from the adjacent Mine 78 Surface Mine (SMP #56080104) be used for this application. Mine 78 Surface Mine successfully mined the Lower Freeport, Upper Kittanning and Middle Kittanning with no post-mining discharges or impacts to the surrounding areas. Overburden analysis for the Upper Freeport coal seam is taken from OB-4 analysis. The information contained herein (other than the Upper Freeport coal seam) is taken directly from the Mine 78 Surface Mine application, but modified to account for the yardage at the proposed site.

<u>Potentially Acidic Zones</u>

<u>Middle Kittanning Coal</u>

The first one-foot unit of shale that underlies the coal

<u>Upper Kittanning Coal</u>

Mining of the Upper Kittanning coal will be crop removal only and will encounter only well weathered material.

<u>Lower Freeport Coal</u>

Only the coal seam itself.

<u>Upper Freeport Coal</u>

A three-foot shale unit 10 feet above the Upper Freeport coal seam, one-foot shale unit directly atop the Upper Freeport and the Upper Freeport coal itself.

<u>Maximum cubic yards of special handled materia expected to be encountered</u>

9.7 acres of 1' shale above Middle Kittanning at 5% being spoiled	**= 782 yds^3**
9.7 acres of 34" Middle Kittanning at 5% being spoiled	**= 2,191 yds^3**
17.0 acres of 48" Upper Kittanning at 5% being spoiled	**= 5,485 yds^3**
4.1 acres of 24" Lower Freeport at 5% being spoiled	**= 661 yds^3**
15.7 acre/ft of 36" Upper Freeport coal at 5% being spoiled	**= 153 yds^3**
5.17 acre/ft of 1' shale unit above Upper Freeport coal	**= 442 yds^3**
11.0 acre/ft of 3' shale unit above Upper Freeport coal	**= 1,261 yds^3**

b. Discuss the location of the handled material relative to anticipated postmining groundwater conditions.

Potentially acidic material will be deposited high in the backfill in every cut area due to the small amount of material being placed. At backfilling, it will be placed above any water table encountered and at least 5 feet below the soil level. It will also be placed 10' above the pit floor and 10 feet from the final highwall in all other areas in order to avoid contact with water in the backfill.

c. Describe the equipment to be used, and the methods to be used in the separation and handling of acid and toxic-forming material.

End loaders and/or trucks will be used to separate and place the potentially acid forming material.

d. Describe how special handling will be coordinated with other pollution prevention techniques such as alkaline addition, compaction, clay caps, etc.

Compacted clay seals or Unprocessed AgrowSil will be placed along the exposed coal face, in the final highwalls and lowalls and t o seal auger holes when complete.

e. Indicate methods that will be used to preclude combustion of the material.

☒ Compaction with heavy equipment
☐ Other:

Importation (Addition) and Redistribution of Alkaline Materials [§87.68, §87.110, §87.145]

a. If not included on the Operations submit a map showing the following:

1. Areas where alkaline addition or alkaline redistribution will be used.

Alkaline addition areas will be in all pit areas shown on the Exhibit 9.1 map.

2. Application rates - how much alkaline material will be added to specific areas (in total tons and in tons/acre) When different application rates will be used on different parts of the permit area, the map should delineate the boundaries of the different areas and their respective application rates.

The application rates are by coal seam and each coal seam excavation area is shown on the Exhibit 9.1 map.

3. Areas where alkaline material will be obtained and where the material will be redeposited.

Not applicable.

b. Provide a detailed description, supplemented by drawings and exhibits, showing how the alkaline materials will be placed. If the addition of alkaline material is being done in conjunction with selective handling of overburden materials, provide a cross section showing the placement of the alkaline material relative to the special handled overburden. Schematic plan maps will be accepted where placement is site-wide and exact pit locations can not be precisely determined.

Net NP material = 100% calcium carbonate equivalent.
Raw Tons = 98.6% calcium carbonate equivalent material.

Upper Freeport

A total of 111 Net NP tons per acres (113 raw tons per acre) will be utilized in the Upper Freeport mining sections. 10% of the alkaline material will be placed on the pit floor and the remainder will be intermixed with the potentially acidic material as it is spoiled.

Lower Freeport (taken from Mine 78 Surface Mine Module 10)

A total of 160 Net NP tons per acres (162 raw tons per acre) will be utilized in the Lower Freeport mining sections. 10% of the alkaline material will be placed on the pit floor and the remainder will be intermixed with the potentially acidic material as it is spoiled.

Upper Kittanning (taken from Mine 78 Surface Mine Module 10)

A total of 55 Net NP tons per acres (56 raw tons per acre) will be utilized in the Upper Kittanning mining sections. 10% of the alkaline material will be placed on the pit floor and the remainder will be intermixed with the potentially acidic material as it is spoiled.

Middle Kittanning (taken from Mine 78 Surface Mine Module 10)

A total of 430 Net NP tons per acres (436 raw tons per acre) will be utilized in the Middle Kittanning mining sections. 10% of the alkaline material will be placed on the pit floor and the remainder will be intermixed with the potentially acidic material as it is spoiled.

c. Describe how alkaline addition calculations were determined. Provide the calculations used to determine the amount of alkaline material. The amount of coal and boney material that would be spoiled must be accurately determined and considered in any alkaline addition calculations. This may include the top and bottom of a coal interval and any partings. Calculations should be reported in tons of alkaline material per acre, or tons of alkaline material per tons of overburden material, and as an application thickness. For example: "The limestone placed on the backfill surface will be 400 tons per acre, which is an approximate thickness of 2 inches."

See Overburden Analysis submitted in the Geology Section.

d. Provide the following information about the proposed alkaline material:

1. Type of material, (e.g., limestone, hydrated lime, bag house lime, etc.)

   Unprocessed AgrowSil – calcium and magnesium silicates and oxides (Rec-mix)

2. Source(s) of material

   Harsco Metals and Minerals

3. Grain size distribution (particle size)

   See attached analysis.

4. Test analysis for purity, neutralization potential, and/or other indicators of alkaline potential. (The application rate must be adjusted to compensate for impurities.)

   See attached analysis. Product has typical calcium carbonate equivalent of 98.6%

REPORT NO.
F15009-7002

ACCOUNT NUMBER
74004

A & L GREAT LAKES LABORATORIES, INC.

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QUALITY ANALYSES FOR INFORMED DECISIONS

TO: HARSCO MINERALS OF PA, LLC
359 N PIKE RD
SARVER, PA 16055-8633

PURCHASE ORDER: 83653-OI

REPORT OF ANALYSIS

LAB NUMBER: 42867
SAMPLE ID: FA56-14 12-19-14
EXPECTED ANALYSIS: NONE GIVEN

DATE RECEIVED: 1/9/2015
DATE REPORTED: 1/14/2015 PAGE: 1 of 1

PARAMETER	AS RECEIVED BASIS	DRY BASIS	UNIT	REPORTING LIMIT (AR BASIS)	METHOD REFERENCE
Moisture (105 deg. C)	16.1	0.0	%	0.1	AOAC 950.01
Solids	83.9	100.0	%	0.1	AOAC 950.01
Calcium (Ca)	20.9	24.9	%	0.1	ASTM C602.20
Magnesium (Mg)	6.5	7.8	%	0.1	ASTM C602.18-20
CCE - Potentiometric	77.6	92.4	%	0.1	AOAC 955.01.C
Passing U.S. #20 Sieve		97.9	%	0.1	AOAC 924.02
Passing U.S. #60 Sieve		76.5	%	0.1	AOAC 924.02
Passing U.S. #100 Sieve		64.2	%	0.1	AOAC 924.02
Passing U.S. #200 Sieve		49.5	%	0.1	AOAC 924.02
Passing U.S #325 Sieve		38.3	%	0.1	AOAC 924.02

Sample was wet sieved.
CCE was titrated 24 hours after acid digestion.

Report Approved By: Diane Thayer
Diane Thayer - Fertilizer Chemist

Approval Date: 1/14/2015

a&l-ar-dry

RECEIVED JUL 0 7 2016

Laboratory Results

Geochemical Testing

Date: *07-Jul-16*

CLIENT:	EARTHTECH INC	**Client Sample ID:**	S16-5984
Lab Order:	G1607001		Ehrenfeld
Project:		**Sampled By:**	Earth Tech Inc
Lab ID:	G1607001-001	**Collection Date:**	6/30/2016
Matrix:	SOLID	**Received Date:**	7/1/2016 7:06:32 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
CARBONATE RESULTS		Analyst: LNG					CALCULATED
Calcium Carbonate	64.0			%	1		07/06/16 12:00 AM
Calcium Carbonate Equivalent	98.6			%	1		07/06/16 12:00 AM
Magnesium Carbonate	29.1			%	1		07/06/16 12:00 AM
MAJOR / MINOR ELEMENTS IN ASH		Analyst: LNG				ASTM D 6349	EPA 6010
Calcium Oxide	35.85	0.02		% Dry	2	07/02/16 2:30 AM	07/05/16 4:29 PM
Magnesium Oxide	13.84	0.02		% Dry	2	07/02/16 2:30 AM	07/06/16 11:39 AM

ACCREDITED IN ACCORDANCE WITH nelac
I.D. 55-00308 PA DEP