

## Module 7: Geology Information

### [§77.403-404]

#### 7.1 Stratigraphy.

- a) **Rock Unit: Period (e.g., Lower Ordovician) Pennsylvanian - Freeport Formation**

**Formation (e.g., Rockdale Run) Freeport Sandstone**

See the attached Exhibit 7.1a) Geologic column of the Freeport Formation

- b) **Attach Geologic Logs of test holes or equivalent information on attached data sheet (test holes should be drilled to the ultimate depth of mining unless waived by the Department based on acceptable equivalent information). Log description must include the surface elevation of each hole submitted, lowest elevation of proposed excavation, elevation of static groundwater (method and date of measurement), lithologic description, location and extent of voids and thickness of strata encountered. Drill holes, highwall sections, or equivalent information should be located to represent the thickness of mineral and overburden to be disturbed in areas of maximum thickness.**

Drilling at the proposed site was completed in June 2021 and conducted by Preferred Drilling. A total of eight (8) holes were drilled within the proposed mining area. The holes were drilled through the Freeport Sandstone proposed for mining and into the underlying material. The drill hole locations were surveyed by Earthtech, Inc. for elevation and map placement on the Exhibit 6.2 Map. See the attached Module 7.1(B) Geologic Logs and the following chart summarizing the drilling information.

| Drill Hole | Surface Elev. (ft.) | Bottom of Freeport Sand Elev. (ft.) | Freeport Sandstone Thickness (ft.) |
|------------|---------------------|-------------------------------------|------------------------------------|
| RS-1       | 2031.4              | 1984.6                              | 41.3                               |
| RS-2       | 2045.7              | 1994.8                              | 46.9                               |
| RS-3       | 2108.6              | 2037.0                              | 67.4                               |
| RS-4       | 2080.4              | 2006.6                              | 69.9                               |
| RS-5       | 2127.2              | 2051.6                              | 71.2                               |
| RS-6       | 2094.7              | 2011.9                              | 79.5                               |
| RS-7       | 2118.7              | 2055.7                              | 60.0                               |
| RS-8       | 2058.8              | 2008.8                              | 41.7                               |

- c) **Provide stratigraphic correlation of the strata by geologic cross sections or fence diagrams to include lithology, stratigraphy, existing ground surface, proposed mining limits, proposed benching, final reclamation slopes, postmining water table, aquifers to be encountered or affected, directions of groundwater movement and underground mines and cave systems. [Horizontal scale shall not be smaller than the scale of Exhibit 6.2 (i.e. not less than 1 inch:400 feet, or 1 inch:200 feet), larger scales are acceptable (e.g. 1 inch:100 feet)]**

See the attached Exhibit (7.1c) Geologic Cross-Sections for cross-sections A-A' to B-B' through the proposed permit mining area. Stratigraphy was derived from on-site data. The cross-section lines are shown on the attached Exhibit 6.2 Map. Proposed post mining final reclamation slopes are shown in addition to water aquifer data. The post mining water table is anticipated to remain as it is pre-mining. Please refer to 7.4 for the known underground mines in or within 1,000 feet of the Rockwood Quarry site.

## 7.2 Structure.

- a) Describe the local geologic structure and its relationship to the regional structure. Use diagrams and regional structural relief maps where applicable.

The proposed mining area for the Rockwood Quarry is situated in the Allegheny Mountain Section of the Appalachian Plateaus Province. The sedimentary strata in this area of the province has been folded to varying degrees by a series of anticlines and synclines. The general orientation of the fold axes are in the southwest-northeast direction. Low magnitude and broad folds dominate this region, with higher degree folds associated with the ridge lines in the area of the Rockwood Quarry. The site is situated on the western flank of the Negro Mountain Anticline, approximately 4 miles west of the axis. The dip of the regional strata is northwesterly and the axis of the fold trends in a northeasterly direction of approximately N 45° E. See Exhibit 7.2a) Geologic Map of The Southern Half of Somerset County, Pennsylvania.

The sandstone proposed for mining is within the Freeport Formation and Pennsylvanian in age. The local geologic structure was derived from the drill hole data included with this module, and the original small/non-coal permit application. Like the regional structure, the local structure of the Freeport Sandstone also dips to the northwest away from the Negro Mountain Anticline. The Freeport Sandstone averages a N 48° E strike and a 7.1° (3.2%) NW dip. Measurements were obtained using the drill holes provided. See Exhibit 6.2 Map for local geologic structure.

- 7.3 Indicate joint and fracture orientations on the Module 6.2 map (or Module 6.1 if locations not within limits of Module 6.2), using standard joint strike and dip symbols, where fracture/joint measurements were taken. Rose diagrams may be submitted if available.

| Type of Joint Or Fracture* | Lithology                   | Number of Measurements | Depth Below Surface | Aperature (width) | Key to 6.2 (or 6.1) |
|----------------------------|-----------------------------|------------------------|---------------------|-------------------|---------------------|
| Stress Relief              | Lower Worthington Sandstone | 2                      | At Surface          | Closed at depth   | 6.2                 |

\*Type of Joint or Fracture refers to tectonic, stress relief, bedding plane, etc.

**Source of information (site specific measurements, publication source, etc.)** The stress relief joints and fractures listed above were measured at exposed outcropping along the walking trail adjacent to the Rockwood Quarry. The average readings were N 42°E and N 27°W.

**NOTE:** Operations in karst geology areas may be required to complete the *Karst Permitting Supplement* in addition to supplying this information.

## Page 1 of \_\_\_\_\_

Operation Name: \_\_\_\_\_

Method of Drilling: \_\_\_\_\_

Date Drilled: \_\_\_\_\_

Drilled By: \_\_\_\_\_

Logged By: \_\_\_\_\_

Township: \_\_\_\_\_

County: \_\_\_\_\_

---

Quadrangle: \_\_\_\_\_

Laboratory: \_\_\_\_\_

Latitude:     °     '     "      Longitude:     °     '     "

\_\_\_\_\_

\*When requested by the Department

#### 7.4 Mine Workings and Solid Waste Sites.

Submit the following data on all active, completed and abandoned underground and surface mines and coal refuse disposal sites which are in or within 1000 feet of the permit area: (Key location to Modules 6.2, 9 and 18.)

##### Surface and Underground Mines

| <i>Operator</i>     | <i>Permit No.</i> | <i>Map Key</i> | <i>Status</i> | <i>Mineral</i>        | <i>Water Sample No.(s)</i> |
|---------------------|-------------------|----------------|---------------|-----------------------|----------------------------|
| Rockwood Stone, LLC | 56190801          | A              | Existing      | Freeport Sandstone    | N/A                        |
| Penelec Coal        | Unknown           | B              | Abandoned     | Lower Kittanning Coal | 3, 4                       |
| Unknown Punch Mine  | Unknown           | C              | Abandoned     | Lower Kittanning Coal | 13                         |

List the operator permit number, and type of any **solid waste disposal sites in or within 1000 feet of the permit area.**

There are no known solid waste disposal sites in or within 1,000 feet of the permit area.

#### 7.5 Overburden Analysis.

**Note:** Typically overburden analysis is not required for noncoal mining operations. However, there are geologic conditions that may make overburden analysis necessary due to the potential for surface and/or groundwater pollution. Examples are mines in coal field strata that may be acid-forming, and sites where rock has undergone sulfide mineralization. The necessity for overburden analysis should be determined prior to permit application submittal. This can be done by contacting the appropriate District Mining Office.

The interpretation of overburden analysis should be provided in this Module. However, the operational plans for material placement should be provided in Module 10.

##### a) Overburden Analysis Report

The overburden analysis report must include at a minimum:

- 1) Geologic logs of overburden analysis test holes including Munsell color codes. This must include the information requested in Module 7.1b. Overburden holes must be logged by a geologist. Water condition information is the same as that requested in Module 7.1b. This information is to be presented on a completed Module 7.1(B) "Geologic Log Drill Holes/ Overburden Analysis Data."
- 2) An explanation of considerations employed in determining
  - aa) drill hole spacing and number of holes,
  - bb) sampling depth; and
  - cc) sampling intervals of overburden analysis test holes.
- 3) A series of stratigraphic cross-sections or fence diagrams including all overburden analysis test holes, plus other representative test holes. The vertical scale must be sufficient to show all potentially acidic and alkaline zones and any zones proposed for special handling; a scale of one (1) inch to twenty (20) feet or greater is recommended. The stratigraphic correlations between overburden holes and other test holes must be shown. In addition, hydrogeologic information (such as water table, perched systems and so forth) should be portrayed.
- 4) Overburden holes accurately located on Exhibit 6.2. Overburden holes must be surveyed such that surface elevations and hole locations are accurately determined and plotted.

- 5) **Results of the chemical analysis of all overburden strata and strata immediately below the lowest stratum being mined. Acid-base accounting data must be presented on Module 7.1(B) "Geologic Log Drill Holes/ Overburden Analysis Data." Actual laboratory analysis sheets may be submitted in addition to Module 7.1(B). Forms of sulfur (when submitted) should be submitted on a separate sheet.**
- 6) **Techniques and methods of chemical analyses. References pertaining to technique or method should be cited as appropriate (e.g. Sobek, and others 1978, p. 47-50; ASTM Method D2492-84) and where a standard method is not used or has been modified, the method used should be described in detail.**
- 7) **An identification of any stratigraphic units possessing the potential for significant acid or alkaline production and an overall interpretation of the overburden analysis data. The criterion and rationale by which the overburden is being judged must be explained.**
- 8) **The name, address and telephone number of the individual(s) responsible for the collection and analysis of the data and interpretation of the data.**

Although typically not required, an overburden analysis was conducted on the Freeport Sandstone from this proposed mine site in order to ascertain the chemical quality of the rock to be mined. An overburden analysis was performed on drill hole RS-3 from 0.0' to 74.60' and the results indicated the Freeport Sandstone to be predominantly neutral. Initial results from the overburden analysis were provided to the Department, and upon review, a corresponding request for additional overburden analysis testing was made. Additional testing was conducted on drillhole RS-2 to determine the consistency of the Freeport Sandstone throughout the proposed mine site. The overburden analysis testing was conducted from 44.9' to 53.9' in RS-2 and the results showed this material to be of similar quality to drillhole RS-3. It is believed the neutral nature of the Freeport Sandstone is consistent throughout the site. See the attached ABA spreadsheets for the lab testing results for these representative drillholes.

A review of the overburden results indicates there is no potentially acid producing overburden or material proposed to be mined. The siltstone below the Freeport Sandstone shows sulfur values ranging from 0.13 to 0.88 in RS-3 and 0.04 to 0.18 for RS-2. This material beneath the Freeport Sandstone will not be disturbed at the proposed mine site. As a best mining practice, 400 tons/acre of 100% CaCO<sub>3</sub> material will be placed in the backfill to ensure a post-mining alkaline site. Note that this rate of application was determined based on the sulfur values for RS-3 to achieve a net NP greater than 12. See attached 7.5 Overburden Analysis, drill logs, cross-sections, and the Exhibit 6.2 map for reference.

## 7.6 **Special Considerations.**

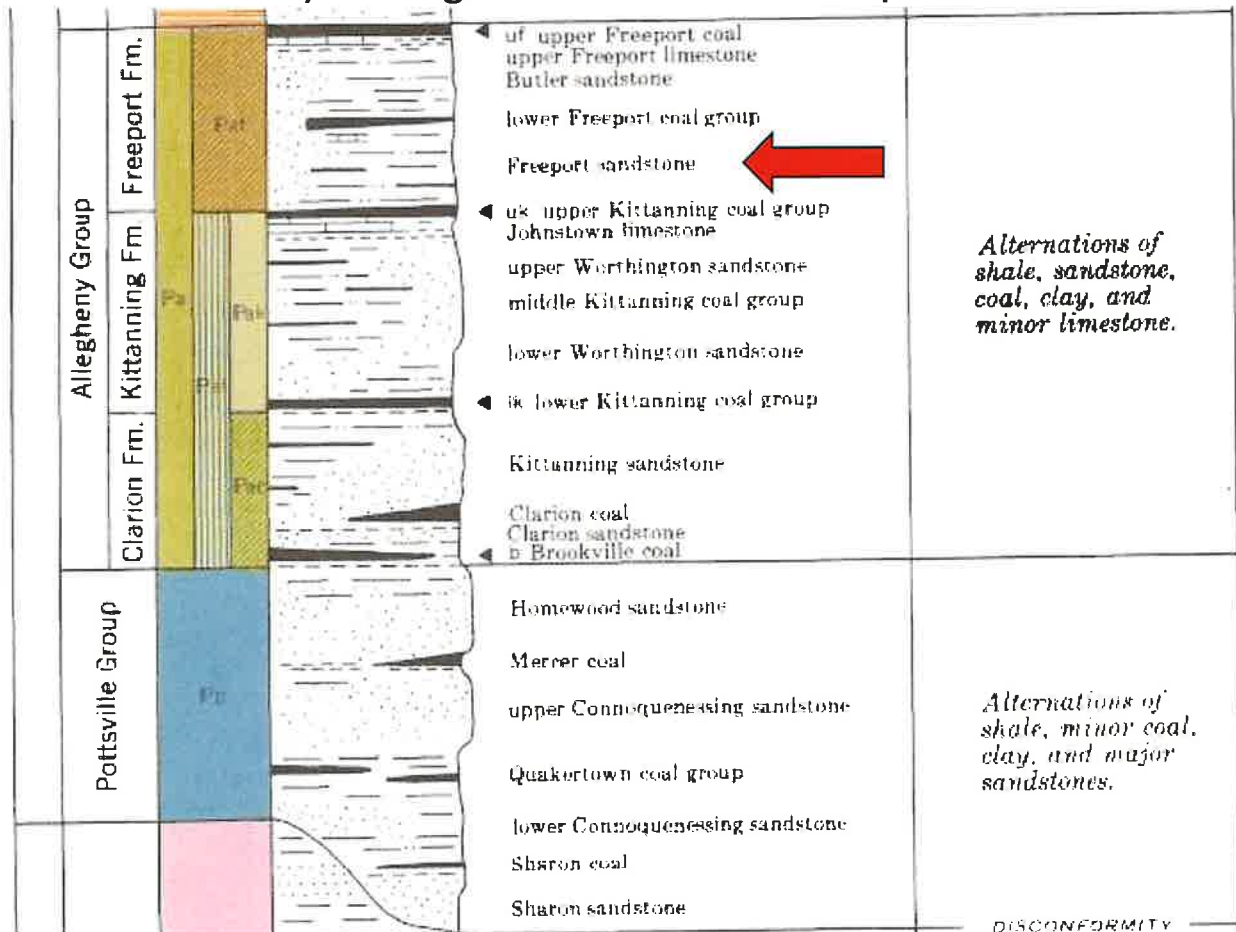
- a) **Karst Geology. Operations sited within carbonate rock areas (e.g. limestone, dolostone) may be required to complete the *Karst Permitting Supplement* (5600-PM-BMP0456). [§ 77.404(5)]**  
  
N/A – The site is not located within areas of known karst geology.
- b) **Naturally Occurring Asbestos. Operations sited within areas that contain igneous and/or metamorphic rock types with the potential to host naturally occurring asbestos (NOA) may be required to complete the *Naturally Occurring Asbestos (NOA) Application Supplement*. (5600-PM-BMP0022). [§ 77.404(3)]**

N/A – There is no known naturally occurring asbestos within the sandstone proposed for mining.

**If the applicant is unsure if special considerations apply to an operation, please contact the respective District Mining Office.**

## Module 7: Geology Information

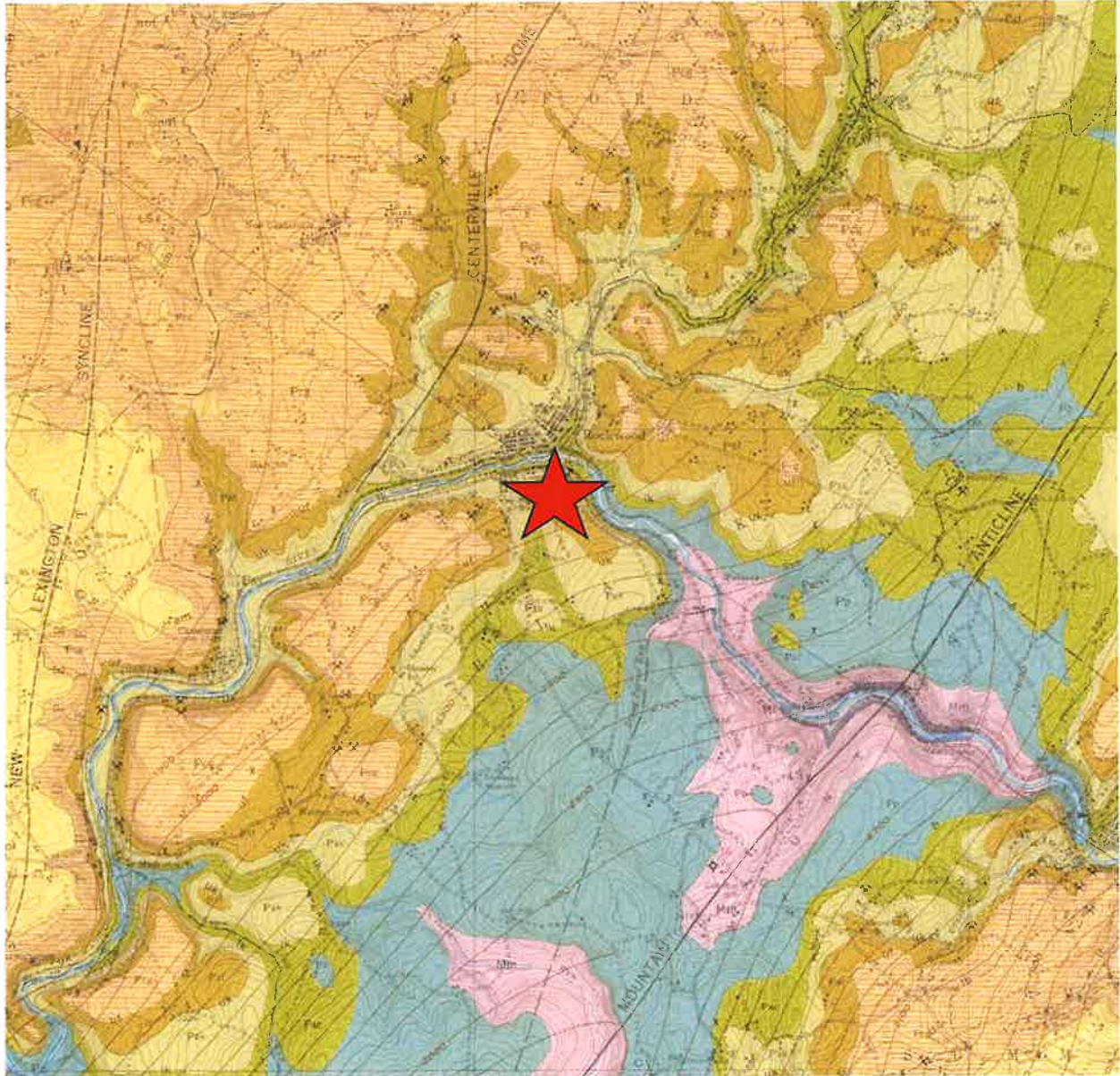
### Exhibit 7.1a) Geologic Column of the Freeport Formation



(Not to Scale)

Source: Geology and Mineral Resources of Somerset County, Pennsylvania, County Report 56A, 1973, Plate 1, Generalized Stratigraphic Section of the Surface Rocks of Southern Somerset County

Module 7: Geology Information  
Exhibit 7.2a) Geologic Map of The Southern Half of Somerset  
County, Pennsylvania



(Not to Scale)

Source: Geology and Mineral Resources of Somerset County, Pennsylvania, County Report 56A, 1973, Plate 1, Geologic Map of the Southern Half of Somerset County, Pennsylvania



Rockwood Stone, LLC  
Rockwood Quarry  
Black Township, Somerset County, PA

Driller : Preferred Drilling  
Rig type : CME - 55, Track  
Drilling Method : Continuous Core  
H.S.A. : 4 1/4" I.D.  
Rock Core Type : 2"  
Surface Elevation : 2031.4  
Latitude : 39° 54' 35.4"  
Longitude : 79° 09' 11.9"

LOG OF BORING RS-1  
(Page 1 of 1)

Date Drilled : 06-14-2021  
ETI Project # : 2177  
Logged By: : TM & AS  
Reviewed By: : Ryan Stairs, P.G.

| Depth in Feet | Surf. Elev. 2031.4 | GRAPHIC | DESCRIPTION                                                                                            | RUN # | RUN DEPTH (FT') | RECOVERY % | RQD % | REMARKS              |
|---------------|--------------------|---------|--------------------------------------------------------------------------------------------------------|-------|-----------------|------------|-------|----------------------|
| 0             | 2031.4             |         | SOILS and unconsolidated material                                                                      |       |                 |            |       |                      |
| 5             | 2026.4             |         |                                                                                                        | 5.5   |                 |            |       |                      |
| 10            | 2021.4             |         | FREEPORT SANDSTONE, brownish-gray, weathered, broken to massive, brittle to hard, fine to coarse grain | 1     | 5.5-6.1         | 100        | 0     | Auger Refusal @ 5.5' |
| 15            | 2016.4             |         |                                                                                                        | 2     | 6.1-11.1        | 52         | 8     |                      |
| 20            | 2011.4             |         |                                                                                                        | 3     | 11.1-16.1       | 100        | 60    |                      |
| 25            | 2006.4             |         |                                                                                                        | 4     | 16.1-21.1       | 100        | 90    |                      |
| 30            | 2001.4             |         | Sandy shale and siltstone zone at 30.4' to 34.1'                                                       | 5     | 21.1-26.1       | 90         | 56    |                      |
| 35            | 1996.4             |         | Fine grain and massive sandstone at 34.1' to 46.8'                                                     | 6     | 26.1-31.1       | 100        | 0     |                      |
| 40            | 1991.4             |         |                                                                                                        | 7     | 31.1-36.1       | 98         | 38    |                      |
| 45            | 1986.4             |         |                                                                                                        | 8     | 36.1-41.1       | 100        | 90    |                      |
| 50            | 1981.4             |         |                                                                                                        | 9     | 41.1-46.1       | 100        | 92    |                      |
| 55            | 1976.4             |         |                                                                                                        | 10    | 46.1-51.1       | 56         | 10    |                      |
| 60            | 1971.4             |         | SANDY SHALE with CLAY, dark gray, very broken to broken, soft to semi-hard                             | 11    | 51.1-56.1       | 82         | 0     |                      |
| 65            | 1966.4             |         |                                                                                                        | 12    | 56.1-61.1       | 60         | 0     |                      |
| 70            | 1961.4             |         |                                                                                                        | 13    | 61.1-65.0       | 49         | 0     |                      |
| 75            | 1956.4             |         |                                                                                                        |       |                 |            |       |                      |
| 80            | 1951.4             |         |                                                                                                        |       |                 |            |       |                      |
| 85            | 1946.4             |         |                                                                                                        |       |                 |            |       |                      |
| 90            | 1941.4             |         |                                                                                                        |       |                 |            |       |                      |
| 95            | 1936.4             |         |                                                                                                        |       |                 |            |       |                      |
| 100           |                    |         | END OF CORE                                                                                            |       |                 |            |       |                      |



Rockwood Stone, LLC  
Rockwood Quarry  
Black Township, Somerset County, PA

Driller : Preferred Drilling  
Rig type : CME - 55, Track  
Drilling Method : Continuous Core  
H.S.A. : 4 1/4" I.D.  
Rock Core Type : 2"  
Surface Elevation : 2045.7  
Latitude : 39° 54' 27.9"  
Longitude : 79° 09' 16.4"

## LOG OF BORING RS-2

(Page 1 of 1)

Date Drilled : 06-14 to 06-15-2021  
ETI Project # : 2177  
Logged By: : TM & AS  
Reviewed By: : Ryan Stairs, P.G.

| Depth in Feet | Surf. Elev. 2045.7 | GRAPHIC | DESCRIPTION                                                                                          | RUN # | RUN DEPTH (FT') | RECOVERY % | RQD % | REMARKS              |
|---------------|--------------------|---------|------------------------------------------------------------------------------------------------------|-------|-----------------|------------|-------|----------------------|
| 0             | 2045.7             |         | SOILS and unconsolidated material                                                                    | 4.0   |                 |            |       | Auger Refusal @ 4.0' |
| 5             | 2040.7             |         | FREEPORT SANDSTONE with CLAY, brownish-gray, weathered, broken to slightly broken, soft to semi-hard | 1     | 4.0-5.9         | 100        | 0     |                      |
| 10            | 2035.7             |         |                                                                                                      | 2     | 5.9-10.9        | 100        | 30    |                      |
| 15            | 2030.7             |         |                                                                                                      | 3     | 10.9-15.9       | 100        | 33    |                      |
| 20            | 2025.7             |         |                                                                                                      | 4     | 15.9-20.9       | 100        | 35    |                      |
| 25            | 2020.7             |         |                                                                                                      | 5     | 20.9-25.9       | 92         | 30    |                      |
| 30            | 2015.7             |         |                                                                                                      | 6     | 25.9-30.9       | 96         | 54    |                      |
| 35            | 2010.7             |         |                                                                                                      | 7     | 30.9-35.9       | 80         | 40    |                      |
| 40            | 2005.7             |         |                                                                                                      | 8     | 35.9-40.9       | 100        | 52    |                      |
| 45            | 2000.7             |         |                                                                                                      | 9     | 40.9-45.9       | 82         | 20    |                      |
| 50            | 1995.7             |         | 50.9                                                                                                 | 10    | 45.9-50.9       | 96         | 8     |                      |
| 55            | 1990.7             |         | CLAYSTONE/SILTSTONE, dark dullish-gray, very broken to slightly broken, brittle to semi-hard         | 55.9  | 50.9-55.9       | 100        | 16    | END OF CORE          |
| 60            | 1985.7             |         | END OF CORE                                                                                          |       |                 |            |       |                      |
| 65            | 1980.7             |         |                                                                                                      |       |                 |            |       |                      |
| 70            | 1975.7             |         |                                                                                                      |       |                 |            |       |                      |
| 75            | 1970.7             |         |                                                                                                      |       |                 |            |       |                      |
| 80            | 1965.7             |         |                                                                                                      |       |                 |            |       |                      |
| 85            | 1960.7             |         | END OF CORE                                                                                          |       |                 |            |       |                      |
| 90            | 1955.7             |         |                                                                                                      |       |                 |            |       |                      |
| 95            | 1950.7             |         |                                                                                                      |       |                 |            |       |                      |
| 100           |                    |         |                                                                                                      |       |                 |            |       |                      |



Rockwood Stone, LLC  
Rockwood Quarry  
Black Township, Somerset County, PA

Driller : Preferred Drilling  
Rig type : CME - 55, Track  
Drilling Method : Continuous Core  
H.S.A. : 4 1/4" I.D.  
Rock Core Type : 2"  
Surface Elevation : 2108.6  
Latitude : 39° 54' 18.2"  
Longitude : 79° 09' 01.4"

## LOG OF BORING RS-3

(Page 1 of 1)

Date Drilled : 06-15-2021  
ETI Project # : 2177  
Logged By: : TM & AS  
Reviewed By: : Ryan Stairs, P.G.

| Depth in Feet | Surf. Elev.<br>2108.6 | GRAPHIC | DESCRIPTION                                                                                                 | RUN # | RUN DEPTH (FT') | RECOVERY % | RQD % | REMARKS              |
|---------------|-----------------------|---------|-------------------------------------------------------------------------------------------------------------|-------|-----------------|------------|-------|----------------------|
| 0             | 2108.6                |         | SOILS and unconsolidated material                                                                           |       |                 |            |       | Auger Refusal @ 4.2' |
| 5             | 2103.6                |         | FREEPORT SANDSTONE, light brownish-gray, weathered, very broken to slightly broken, soft to moderately hard | 1     | 4.2-5.9         | 100        | 65    |                      |
| 10            | 2098.6                |         |                                                                                                             | 2     | 5.9-10.9        | 100        | 46    |                      |
| 15            | 2093.6                |         |                                                                                                             | 3     | 10.9-15.9       | 100        | 30    |                      |
| 20            | 2088.6                |         |                                                                                                             | 4     | 15.9-20.9       | 100        | 52    |                      |
| 25            | 2083.6                |         |                                                                                                             | 5     | 20.9-25.9       | 100        | 80    |                      |
| 30            | 2078.6                |         |                                                                                                             | 6     | 25.9-30.9       | 100        | 48    |                      |
| 35            | 2073.6                |         |                                                                                                             | 7     | 30.9-35.9       | 100        | 82    |                      |
| 40            | 2068.6                |         |                                                                                                             | 8     | 35.9-40.9       | 100        | 100   |                      |
| 45            | 2063.6                |         |                                                                                                             | 9     | 40.9-45.9       | 100        | 96    |                      |
| 50            | 2058.6                |         | Coarse grain/conglomerate sandstone at 49.0' to 54.2'                                                       | 10    | 45.9-50.9       | 100        | 94    |                      |
| 55            | 2053.6                |         |                                                                                                             | 11    | 50.9-55.9       | 100        | 98    |                      |
| 60            | 2048.6                |         |                                                                                                             | 12    | 55.9-60.9       | 100        | 93    |                      |
| 65            | 2043.6                |         |                                                                                                             | 13    | 60.9-65.9       | 100        | 100   |                      |
| 70            | 2038.6                |         | Coarse grain/conglomerate sandstone at 68.7' to 71.6'                                                       | 14    | 65.9-70.9       | 100        | 100   |                      |
| 75            | 2033.6                |         | SILTSTONE with sandy shale, dark gray, very broken to slightly broken, semi hard                            | 15    | 70.9-75.9       | 100        | 72    |                      |
| 80            | 2028.6                |         |                                                                                                             | 16    | 75.9-80.9       | 100        | 90    |                      |
| 85            | 2023.6                |         | END OF CORE                                                                                                 |       |                 |            |       |                      |
| 90            | 2018.6                |         |                                                                                                             |       |                 |            |       |                      |
| 95            | 2013.6                |         |                                                                                                             |       |                 |            |       |                      |
| 100           |                       |         |                                                                                                             |       |                 |            |       |                      |



Rockwood Stone, LLC  
Rockwood Quarry  
Black Township, Somerset County, PA

Driller : Preferred Drilling  
Rig type : CME - 55, Track  
Drilling Method : Continuous Core  
H.S.A. : 4 1/4" I.D.  
Rock Core Type : 2"  
Surface Elevation : 2080.4  
Latitude : 39° 54' 23.4"  
Longitude : 79° 09' 03.5"

## LOG OF BORING RS-4

(Page 1 of 1)

Date Drilled : 06-16-2021  
ETI Project # : 2177  
Logged By: : TM & AS  
Reviewed By: : Ryan Stairs, P.G.

| Depth in Feet | Surf. Elev. 2080.4 | GRAPHIC | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                    | RUN # | RUN DEPTH (FT') | RECOVERY % | RQD % | REMARKS              |
|---------------|--------------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----------------|------------|-------|----------------------|
| 0             | 2080.4             |         | SOILS and unconsolidated material                                                                                                                                                                                                                                                                                                                              | 3.9   |                 |            |       | Auger Refusal @ 3.9' |
| 5             | 2075.4             |         | FREEPORT SANDSTONE, light brownish-gray to light gray, weathered, very broken to broken, soft to moderately hard<br><br>Shale zone from 17.5' to 19.5'<br><br>Clay with claystone and siltstone zone at 23.5' to 28.2'<br><br>Fine to coarse grain sandstone at 28.2' to 52.6'<br><br><br><br><br><br><br><br><br><br>Conglomerate sandstone at 52.6' to 67.4' | 1     | 3.9-5.6         | 100        | 0     |                      |
| 10            | 2070.4             |         |                                                                                                                                                                                                                                                                                                                                                                | 2     | 5.6-10.6        | 100        | 16    |                      |
| 15            | 2065.4             |         |                                                                                                                                                                                                                                                                                                                                                                | 3     | 10.6-15.6       | 100        | 52    |                      |
| 20            | 2060.4             |         |                                                                                                                                                                                                                                                                                                                                                                | 4     | 15.6-20.6       | 100        | 42    |                      |
| 25            | 2055.4             |         |                                                                                                                                                                                                                                                                                                                                                                | 5     | 20.6-25.6       | 100        | 54    |                      |
| 30            | 2050.4             |         |                                                                                                                                                                                                                                                                                                                                                                | 6     | 25.6-30.6       | 100        | 62    |                      |
| 35            | 2045.4             |         |                                                                                                                                                                                                                                                                                                                                                                | 7     | 30.6-35.6       | 100        | 100   |                      |
| 40            | 2040.4             |         |                                                                                                                                                                                                                                                                                                                                                                | 8     | 35.6-40.6       | 100        | 100   |                      |
| 45            | 2035.4             |         |                                                                                                                                                                                                                                                                                                                                                                | 9     | 40.6-45.6       | 100        | 100   |                      |
| 50            | 2030.4             |         |                                                                                                                                                                                                                                                                                                                                                                | 10    | 45.6-50.6       | 100        | 92    |                      |
| 55            | 2025.4             |         |                                                                                                                                                                                                                                                                                                                                                                | 11    | 50.6-55.6       | 100        | 60    |                      |
| 60            | 2020.4             |         |                                                                                                                                                                                                                                                                                                                                                                | 12    | 55.6-60.6       | 100        | 98    |                      |
| 65            | 2015.4             |         |                                                                                                                                                                                                                                                                                                                                                                | 13    | 60.6-65.6       | 100        | 88    |                      |
| 70            | 2010.4             |         |                                                                                                                                                                                                                                                                                                                                                                | 14    | 65.6-70.6       | 100        | 100   |                      |
| 75            | 2005.4             |         |                                                                                                                                                                                                                                                                                                                                                                | 15    | 70.6-75.6       | 100        | 50    |                      |
| 80            | 2000.4             |         | SILTSTONE, dark gray, broken to slightly broken, semi-hard to hard                                                                                                                                                                                                                                                                                             | 16    | 75.6-80.6       | 100        | 50    |                      |
| 85            | 1995.4             |         | END OF CORE                                                                                                                                                                                                                                                                                                                                                    |       |                 |            |       |                      |
| 90            | 1990.4             |         |                                                                                                                                                                                                                                                                                                                                                                |       |                 |            |       |                      |
| 95            | 1985.4             |         |                                                                                                                                                                                                                                                                                                                                                                |       |                 |            |       |                      |
| 100           |                    |         |                                                                                                                                                                                                                                                                                                                                                                |       |                 |            |       |                      |



Rockwood Stone, LLC  
Rockwood Quarry  
Black Township, Somerset County, PA

Driller : Preferred Drilling  
Rig type : CME - 55, Track  
Drilling Method : Continuous Core  
H.S.A. : 4 1/4" I.D.  
Rock Core Type : 2"  
Surface Elevation : 2127.2  
Latitude : 39° 54' 10.6"  
Longitude : 79° 08' 58.4"

## LOG OF BORING RS-5

(Page 1 of 1)

Date Drilled : 06-17-2021  
ETI Project # : 2177  
Logged By: : TM & AS  
Reviewed By: : Ryan Stairs, P.G.

| Depth in Feet | Surf. Elev. 2127.2 | GRAPHIC | DESCRIPTION                                                                                            | RUN # | RUN DEPTH (FT') | RECOVERY % | RQD % | REMARKS              |
|---------------|--------------------|---------|--------------------------------------------------------------------------------------------------------|-------|-----------------|------------|-------|----------------------|
| 0             | 2127.2             |         | SOILS and unconsolidated material                                                                      |       |                 |            |       |                      |
| 5             | 2122.2             |         | 4.4                                                                                                    | 1     | 4.4-5.6         | 100        | 0     | Auger Refusal @ 4.4' |
| 10            | 2117.2             |         | FREEPORT SANDSTONE, brownish-gray, weathered, broken to slightly broken, brittle to hard, medium grain | 2     | 5.6-10.6        | 100        | 20    |                      |
| 15            | 2112.2             |         |                                                                                                        | 3     | 10.6-15.6       | 100        | 48    |                      |
| 20            | 2107.2             |         |                                                                                                        | 4     | 15.6-20.6       | 100        | 80    |                      |
| 25            | 2102.2             |         |                                                                                                        | 5     | 20.6-25.6       | 100        | 52    |                      |
| 30            | 2097.2             |         | Conglomerate sandstone at 27.5' to 48.9'                                                               | 6     | 25.6-30.6       | 100        | 59    |                      |
| 35            | 2092.2             |         |                                                                                                        | 7     | 30.6-35.6       | 100        | 94    |                      |
| 40            | 2087.2             |         |                                                                                                        | 8     | 35.6-40.6       | 100        | 100   |                      |
| 45            | 2082.2             |         |                                                                                                        | 9     | 40.6-45.6       | 100        | 82    |                      |
| 50            | 2077.2             |         |                                                                                                        | 10    | 45.6-50.6       | 100        | 98    |                      |
| 55            | 2072.2             |         | Fine grain sandstone at 48.9' to 75.6'                                                                 | 11    | 50.6-55.6       | 100        | 97    |                      |
| 60            | 2067.2             |         |                                                                                                        | 12    | 55.6-60.6       | 100        | 94    |                      |
| 65            | 2062.2             |         |                                                                                                        | 13    | 60.6-65.6       | 100        | 100   |                      |
| 70            | 2057.2             |         |                                                                                                        | 14    | 65.6-70.6       | 100        | 100   |                      |
| 75            | 2052.2             |         | 75.6                                                                                                   | 15    | 70.6-75.6       | 100        | 100   |                      |
| 80            | 2047.2             |         | SHALE with SILTSTONE and clay, dark gray, very broken to slightly broken, brittle to semi-hard         | 16    | 75.6-80.6       | 100        | 40    |                      |
| 85            | 2042.2             |         | 84.2                                                                                                   | 17    | 80.6-85.6       | 100        | 40    |                      |
| 85            | 2042.2             |         | CLAYSTONE, dull gray, brittle, very broken to broken                                                   | 85.6  |                 |            |       |                      |
| 90            | 2037.2             |         | END OF CORE                                                                                            |       |                 |            |       |                      |
| 95            | 2032.2             |         |                                                                                                        |       |                 |            |       |                      |
| 100           |                    |         |                                                                                                        |       |                 |            |       |                      |



Rockwood Stone, LLC  
Rockwood Quarry  
Black Township, Somerset County, PA

Driller : Preferred Drilling  
Rig type : CME - 55, Track  
Drilling Method : Continuous Core  
H.S.A. : 4 1/4" I.D.  
Rock Core Type : 2"  
Surface Elevation : 2094.7  
Latitude : 39° 54' 18.9"  
Longitude : 79° 09' 08.0"

## LOG OF BORING RS-6

(Page 1 of 1)

Date Drilled : 06-18 to 6-24-2021  
ETI Project # : 2177  
Logged By: : TM & AS  
Reviewed By: : Ryan Stairs, P.G.

| Depth in Feet | Surf. Elev. 2094.7 | GRAPHIC | DESCRIPTION                                                                                                                                                                                      | RUN # | RUN DEPTH (FT') | RECOVERY % | RQD % | REMARKS              |
|---------------|--------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----------------|------------|-------|----------------------|
| 0             | 2094.7             |         | SOILS and unconsolidated material 3.3                                                                                                                                                            |       |                 |            |       | Auger Refusal @ 3.3' |
| 5             | 2089.7             |         | FREEPORT SANDSTONE, light brownish-gray, weathered, very broken to broken, soft to moderately hard<br><br>Shale zone at 20.9' to 29.0'<br><br>Fine grain and massive sandstone at 29.0' to 80.7' | 1     | 3.3-5.8         | 100        | 50    |                      |
| 10            | 2084.7             |         |                                                                                                                                                                                                  | 2     | 5.8-10.8        | 100        | 8     |                      |
| 15            | 2079.7             |         |                                                                                                                                                                                                  | 3     | 10.8-15.8       | 76         | 0     |                      |
| 20            | 2074.7             |         |                                                                                                                                                                                                  | 4     | 15.8-20.8       | 90         | 66    |                      |
| 25            | 2069.7             |         |                                                                                                                                                                                                  | 5     | 20.8-25.8       | 100        | 32    |                      |
| 30            | 2064.7             |         |                                                                                                                                                                                                  | 6     | 25.8-30.8       | 100        | 72    |                      |
| 35            | 2059.7             |         |                                                                                                                                                                                                  | 7     | 30.8-35.8       | 100        | 100   |                      |
| 40            | 2054.7             |         |                                                                                                                                                                                                  | 8     | 35.8-40.8       | 100        | 96    |                      |
| 45            | 2049.7             |         |                                                                                                                                                                                                  | 9     | 40.8-45.8       | 100        | 100   |                      |
| 50            | 2044.7             |         |                                                                                                                                                                                                  | 10    | 45.8-50.8       | 100        | 96    |                      |
| 55            | 2039.7             |         |                                                                                                                                                                                                  | 11    | 50.8-55.8       | 100        | 75    |                      |
| 60            | 2034.7             |         |                                                                                                                                                                                                  | 12    | 55.8-60.8       | 100        | 100   |                      |
| 65            | 2029.7             |         |                                                                                                                                                                                                  | 13    | 60.8-65.8       | 100        | 90    |                      |
| 70            | 2024.7             |         |                                                                                                                                                                                                  | 14    | 65.8-70.8       | 100        | 96    |                      |
| 75            | 2019.7             |         |                                                                                                                                                                                                  | 15    | 70.8-75.8       | 100        | 100   |                      |
| 80            | 2014.7             |         |                                                                                                                                                                                                  | 16    | 75.8-80.8       | 100        | 100   |                      |
| 85            | 2009.7             |         | Conglomerate and coarse grain sandstone at 80.7' to 82.8' 82.8                                                                                                                                   | 17    | 80.8-85.8       | 100        | 88    |                      |
| 90            | 2004.7             |         | SILTSTONE with sandy shale, dark gray, very broken to slightly broken, semi hard 90.8                                                                                                            | 18    | 85.8-90.8       | 100        | 52    |                      |
| 95            | 1999.7             |         | END OF CORE                                                                                                                                                                                      |       |                 |            |       |                      |
| 100           |                    |         |                                                                                                                                                                                                  |       |                 |            |       |                      |



Rockwood Stone, LLC  
Rockwood Quarry  
Black Township, Somerset County, PA

Driller : Preferred Drilling  
Rig type : CME - 55, Track  
Drilling Method : Continuous Core  
H.S.A. : 4 1/4" I.D.  
Rock Core Type : 2"  
Surface Elevation : 2118.7  
Latitude : 39° 54' 17.4"  
Longitude : 79° 08' 53.1"

LOG OF BORING RS-7  
(Page 1 of 1)

Date Drilled : 6-28-2021  
ETI Project # : 2177  
Logged By: : TM & AS  
Reviewed By: : Ryan Stairs, P.G.

| Depth in Feet | Surf. Elev.<br>2118.7 | GRAPHIC     | DESCRIPTION                                                                                        | RUN #                                                                            | RUN DEPTH (FT') | RECOVERY % | RQD % | REMARKS              |
|---------------|-----------------------|-------------|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|-----------------|------------|-------|----------------------|
| 0             | 2118.7                |             | SOILS and unconsolidated material 3.0                                                              |                                                                                  |                 |            |       | Auger Refusal @ 3.0' |
| 5             | 2113.7                |             | FREEPORT SANDSTONE, light brownish-gray, weathered, very broken to broken, soft to moderately hard | 1                                                                                | 3.0-5.8         | 100        | 39    |                      |
| 10            | 2108.7                |             |                                                                                                    | 2                                                                                | 5.8-10.8        | 100        | 9     |                      |
| 15            | 2103.7                |             |                                                                                                    | 3                                                                                | 10.8-15.8       | 100        | 70    |                      |
| 20            | 2098.7                |             |                                                                                                    | 4                                                                                | 15.8-20.8       | 100        | 78    |                      |
| 25            | 2093.7                |             |                                                                                                    | 5                                                                                | 20.8-25.8       | 100        | 68    |                      |
| 30            | 2088.7                |             |                                                                                                    | 6                                                                                | 25.8-30.8       | 100        | 80    |                      |
| 35            | 2083.7                |             |                                                                                                    | 7                                                                                | 30.8-35.8       | 100        | 86    |                      |
| 40            | 2078.7                |             |                                                                                                    | 8                                                                                | 35.8-40.8       | 100        | 100   |                      |
| 45            | 2073.7                |             |                                                                                                    | 9                                                                                | 40.8-45.8       | 100        | 94    |                      |
| 50            | 2068.7                |             |                                                                                                    | 10                                                                               | 45.8-50.8       | 100        | 100   |                      |
| 55            | 2063.7                |             |                                                                                                    | 11                                                                               | 50.8-55.8       | 100        | 99    |                      |
| 60            | 2058.7                |             |                                                                                                    | 12                                                                               | 55.8-60.8       | 100        | 86    |                      |
| 65            | 2053.7                |             |                                                                                                    | SILTSTONE with sandy shale, dark gray, very broken to slightly broken, semi hard | 13              | 60.8-65.8  | 100   |                      |
| 70            | 2048.7                | 14          |                                                                                                    |                                                                                  | 65.8-70.8       | 100        | 68    |                      |
| 75            | 2043.7                | END OF CORE |                                                                                                    |                                                                                  |                 |            |       |                      |
| 80            | 2038.7                |             |                                                                                                    |                                                                                  |                 |            |       |                      |
| 85            | 2033.7                |             |                                                                                                    |                                                                                  |                 |            |       |                      |
| 90            | 2028.7                |             |                                                                                                    |                                                                                  |                 |            |       |                      |
| 95            | 2023.7                |             |                                                                                                    |                                                                                  |                 |            |       |                      |
| 100           |                       |             |                                                                                                    |                                                                                  |                 |            |       |                      |



Rockwood Stone, LLC  
Rockwood Quarry  
Black Township, Somerset County, PA

Driller : Preferred Drilling  
Rig type : CME - 55, Track  
Drilling Method : Continuous Core  
H.S.A. : 4 1/4" I.D.  
Rock Core Type : 2"  
Surface Elevation : 2058.8  
Latitude : 39° 54' 27.4"  
Longitude : 79° 09' 06.8"

## LOG OF BORING RS-8

(Page 1 of 1)

Date Drilled : 06-28 to 06-29-2021  
ETI Project # : 2177  
Logged By: : TM & AS  
Reviewed By: : Ryan Stairs, P.G.

| Depth in Feet | Surf. Elev. 2058.8 | GRAPHIC | DESCRIPTION                                                                                                                       | RUN # | RUN DEPTH (FT') | RECOVERY % | RQD % | REMARKS              |
|---------------|--------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------|-------|-----------------|------------|-------|----------------------|
| 0             | 2058.8             |         | SOILS and unconsolidated material                                                                                                 |       |                 |            |       |                      |
| 5             | 2053.8             |         |                                                                                                                                   | 8.3   |                 |            |       |                      |
| 10            | 2048.8             |         | FREEPORT SANDSTONE, light brownish-gray to gray, weathered, very broken to slightly broken, brittle to hard, fine to coarse grain | 1     | 8.3-10.5        | 100        | 36    | Auger Refusal @ 8.3' |
| 15            | 2043.8             |         |                                                                                                                                   | 2     | 10.5-15.5       | 100        | 72    |                      |
| 20            | 2038.8             |         | Shale and Siltstone zone at 20.5' to 30.2'                                                                                        | 3     | 15.5-20.5       | 100        | 62    |                      |
| 25            | 2033.8             |         |                                                                                                                                   | 4     | 20.5-25.5       | 100        | 6     |                      |
| 30            | 2028.8             |         | Fine grain and massive sandstone at 30.2' to 44.4'                                                                                | 5     | 25.5-30.5       | 100        | 82    |                      |
| 35            | 2023.8             |         |                                                                                                                                   | 6     | 30.5-35.5       | 100        | 92    |                      |
| 40            | 2018.8             |         |                                                                                                                                   | 7     | 35.5-40.5       | 100        | 94    |                      |
| 45            | 2013.8             |         | Conglomerate and coarse grain sandstone at 44.4' to 50.0'                                                                         | 8     | 40.5-45.5       | 100        | 86    |                      |
| 50            | 2008.8             |         |                                                                                                                                   | 9     | 45.5-50.5       | 100        | 86    |                      |
| 55            | 2003.8             |         | SHALE/SILTSTONE, sandy, dark gray, broken to slightly broken, brittle to semi-hard                                                | 10    | 50.5-55.5       | 100        | 50    |                      |
| 60            | 1998.8             |         |                                                                                                                                   | 11    | 55.5-60.5       | 100        | 92    |                      |
| 65            | 1993.8             |         |                                                                                                                                   | 12    | 60.5-65.5       | 90         | 72    |                      |
| 70            | 1988.8             |         | END OF CORE                                                                                                                       |       |                 |            |       |                      |
| 75            | 1983.8             |         |                                                                                                                                   |       |                 |            |       |                      |
| 80            | 1978.8             |         |                                                                                                                                   |       |                 |            |       |                      |
| 85            | 1973.8             |         |                                                                                                                                   |       |                 |            |       |                      |
| 90            | 1968.8             |         |                                                                                                                                   |       |                 |            |       |                      |
| 95            | 1963.8             |         |                                                                                                                                   |       |                 |            |       |                      |
| 100           |                    |         |                                                                                                                                   |       |                 |            |       |                      |

**Rockwood Stone, LLC**  
**Rockwood Quarry**  
Black Township, Somerset County, PA

## **Module 7.5 Overburden Analysis**

Geochemical Testing Report for overburden analysis on drillhole RS-2 (8 pages)  
Geochemical Testing Report for overburden analysis on drillhole RS-3 (29 pages)  
Overburden Analysis Spreadsheet Calculation Summary for drillhole RS-3 (1 page)  
Overburden Analysis Spreadsheet Calculation Summary and Mid-depth Acreage for RS-3 (1 page)  
Overburden Analysis Spreadsheet for drillhole RS-3 (1 page)

# OVERBURDEN ANALYSIS SPREAD SHEET CALCULATION SUMMARY

OPERATOR:  
PERMIT NO:  
DRILL HOLE: **RS-3**

COUNTY: Somerset  
TOWNSHIP: Black  
OPERATION NAME: Rockwood Stone

COAL SEAMS:  
% SANDSTONE: 42

| TOTAL<br>DEPTH | TOP<br>ACREAGE | BOTTOM<br>ACREAGE | ALK ADD (t/a 100 %CaCO3) | THRESHOLD VALUES |    |      |
|----------------|----------------|-------------------|--------------------------|------------------|----|------|
| 74.6           | 10.0           | 10.0              | 400                      | SULFUR           | NP | FIZZ |
|                |                |                   |                          | 0.5              | 30 | 1    |

MPA, NP or NNP/Thrs = Using Thresholds

|                        | MPA/Thrs |        | MPA    |        | NP/Thrs |        | NP     |        | NNP/Thrs |        | NNP    |        | Overburden   |              |
|------------------------|----------|--------|--------|--------|---------|--------|--------|--------|----------|--------|--------|--------|--------------|--------------|
|                        | (tons)   | (tons) | (tons) | (tons) | (tons)  | (tons) | (tons) | (tons) | (tons)   | (tons) | (tons) | (tons) | (total tons) | (total tons) |
| TOTAL (TONS):          | 0        | 0.00   | 207    | 0.73   | 4,000   | 14.19  | 4,458  | 15.82  | 4,000    | 14.19  | 4,251  | 15.08  | 281,864      |              |
| TOTAL (TONS/THOUSAND): |          |        |        |        |         |        |        |        |          |        |        |        |              |              |

With Thresholds @ 31.25

|                  |         |                |       |
|------------------|---------|----------------|-------|
| MPA (Total Tons) | 0       | Tons/1000 tons | 0.00  |
| NP (Total Tons)  | 4,000   | Tons/1000 tons | 14.19 |
| Net Tons NP      | 4,000   | Tons/1000 tons | 14.19 |
| NP/MPA Ratio     | #DIV/0! |                |       |
| Net NP Targets   |         |                |       |
| 0                | 400     | EXCESS         |       |
| 0.5              | 386     | 3.5            | 301   |
| 1.0              | 372     | 4.0            | 287   |
| 1.5              | 358     | 4.5            | 273   |
| 2.0              | 344     | 5.0            | 259   |
| 2.5              | 330     | 5.5            | 245   |
| 3.0              | 315     | 6.0            | 231   |

Without Thresholds @ 31.25

|                  |       |                |       |
|------------------|-------|----------------|-------|
| MPA (Total Tons) | 207   | Tons/1000 tons | 0.73  |
| NP (Total Tons)  | 4,458 | Tons/1000 tons | 15.82 |
| Net Tons NP      | 4,251 | Tons/1000 tons | 15.08 |
| NP/MPA Ratio     | 21.52 |                |       |
| Net NP Targets   |       |                |       |
| 0                | 425   | EXCESS         |       |
| 1                | 397   | 7              | 228   |
| 2                | 369   | 8              | 200   |
| 3                | 341   | 9              | 171   |
| 4                | 312   | 10             | 143   |
| 5                | 284   | 11             | 115   |
| 6                | 256   | 12             | 87    |

With Thresholds @ 62.50

|                  |         |                |       |
|------------------|---------|----------------|-------|
| MPA (Total Tons) | 0       | Tons/1000 tons | 0.00  |
| NP (Total Tons)  | 4,000   | Tons/1000 tons | 14.19 |
| Net Tons NP      | 4,000   | Tons/1000 tons | 14.19 |
| NP/MPA Ratio     | #DIV/0! |                |       |
| Available NP     |         |                |       |
| (Tons per acre)  | 400     | EXCESS         |       |

Without Thresholds @ 62.50

|                  |       |                |       |
|------------------|-------|----------------|-------|
| MPA (Total Tons) | 414   | Tons/1000 tons | 1.47  |
| NP (Total Tons)  | 4,458 | Tons/1000 tons | 15.82 |
| Net Tons NP      | 4,044 | Tons/1000 tons | 14.35 |
| NP/MPA Ratio     | 10.76 |                |       |
| Available NP     |       |                |       |
| (Tons per acre)  | 404   | EXCESS         |       |

# OVERBURDEN ANALYSIS SPREADSHEET

OPERATOR: COUNTY: Somerset  
 PERMIT NO: TOWNSHIP: Black  
 DRILL HOLE: RS-3 OPERATION NAME: Rockwood Stone

| THRESHOLD | VALUES | SULFUR | NP | FIZZ |
|-----------|--------|--------|----|------|
|           |        | 0.5    | 30 | 1    |

| TOTAL DEPTH | ACREAGE | TOP | BOTTOM | MID DEPTH ACRES |
|-------------|---------|-----|--------|-----------------|
| 74.6        | 10      | 10  | 10     |                 |

|                                 |               |
|---------------------------------|---------------|
| ALK ADD (lb CaCO <sub>3</sub> ) | 400           |
| LATITUDE                        | 39° 54' 18.2" |
| LONGITUDE                       | 79° 08' 01.4" |
| COAL SEAMS                      |               |
| STATE PLANE ZONE                |               |
| FEET (NORTH/SOUTH)              |               |
| FEET (EAST/WEST)                |               |
| SURFACE ELEV. (feet)            | 2108.6        |
| STATIC WATER (feet)             |               |

/Thrs = Using Thresholds

| BOTTOM DEPTH (feet) | BOTTOM ELEV. (feet) | THICK (feet) | ROCK TYPE | COAL SEAM | FIZZ (percent) | NP (t/1000ft) | EXCESS | AREA (acres) | UNIT WT. (lb/acre-ft) | FRACTION SPOILED | MPA/Thrs (tons) | NP/Thrs (tons) | NNP (tons) | OVERBDRN (tons) |
|---------------------|---------------------|--------------|-----------|-----------|----------------|---------------|--------|--------------|-----------------------|------------------|-----------------|----------------|------------|-----------------|
| 4.20                | 2104.40             | 4.20         | 01        |           | 0.01           | 0             | 1.40   | 1.09         | 10.00                 | 3670             | 0               | 216            | 0          | 154,140         |
| 7.20                | 2101.40             | 3.00         | SS        |           | 0.01           | 0             | 1.40   | 1.09         | 10.00                 | 3670             | 0               | 8              | 0          | 5,505           |
| 10.20               | 2098.40             | 3.00         | SS        |           | 0.01           | 0             | 0.60   | 0.29         | 10.00                 | 3670             | 0               | 0              | 0          | 5,505           |
| 13.20               | 2095.40             | 3.00         | SS        |           | 0.01           | 0             | 0.50   | 0.19         | 10.00                 | 3670             | 0               | 0              | 0          | 5,505           |
| 16.20               | 2092.40             | 3.00         | SS        |           | 0.01           | 0             | 0.80   | 0.49         | 10.00                 | 3670             | 0               | 0              | 0          | 5,505           |
| 19.20               | 2089.40             | 3.00         | SS        |           | 0.01           | 0             | 5.40   | 5.09         | 10.00                 | 3670             | 0               | 0              | 0          | 5,505           |
| 22.20               | 2086.40             | 3.00         | SS        |           | 0.01           | 0             | 1.00   | 0.69         | 10.00                 | 3670             | 0               | 0              | 0          | 5,505           |
| 24.00               | 2084.60             | 1.80         | SS        |           | 0.01           | 0             | 0.50   | 0.19         | 10.00                 | 3670             | 0               | 0              | 0          | 3,303           |
| 25.90               | 2082.70             | 1.90         | SS        |           | 0.01           | 0             | 0.60   | 0.29         | 10.00                 | 3670             | 0               | 0              | 0          | 3,487           |
| 28.90               | 2079.70             | 3.00         | SH        |           | 0.01           | 0             | 2.00   | 1.69         | 10.00                 | 3700             | 0               | 0              | 0          | 5,550           |
| 31.90               | 2076.70             | 3.00         | SS        |           | 0.01           | 0             | 0.40   | 0.09         | 10.00                 | 3670             | 0               | 0              | 0          | 5,505           |
| 34.90               | 2073.70             | 3.00         | SS        |           | 0.01           | 0             | 0.60   | 0.29         | 10.00                 | 3670             | 0               | 0              | 0          | 5,505           |
| 37.90               | 2070.70             | 3.00         | SS        |           | 0.01           | 0             | 11.20  | 10.89        | 10.00                 | 3670             | 0               | 0              | 0          | 5,505           |
| 40.90               | 2067.70             | 3.00         | SS        |           | 0.10           | 0             | 2.90   | -0.23        | 10.00                 | 3670             | 0               | 0              | 0          | 5,505           |
| 43.90               | 2064.70             | 3.00         | SS        |           | 0.01           | 0             | 0.20   | -0.11        | 10.00                 | 3670             | 0               | 0              | 0          | 5,505           |
| 46.90               | 2061.70             | 3.00         | SS        |           | 0.01           | 0             | 0.30   | -0.01        | 10.00                 | 3670             | 0               | 0              | 0          | 5,505           |
| 49.90               | 2058.70             | 3.00         | SS        |           | 0.01           | 0             | 1.10   | 0.79         | 10.00                 | 3670             | 0               | 0              | 0          | 5,505           |
| 52.90               | 2055.70             | 3.00         | SS        |           | 0.06           | 0             | 1.10   | -0.78        | 10.00                 | 3670             | 0               | 0              | 0          | 5,505           |
| 55.90               | 2052.70             | 3.00         | SS        |           | 0.11           | 0             | 0.50   | -2.94        | 10.00                 | 3670             | 0               | 0              | 0          | 5,505           |
| 58.90               | 2049.70             | 3.00         | SS        |           | 0.09           | 1             | 2.20   | -0.61        | 10.00                 | 3670             | 0               | 0              | 0          | 5,505           |
| 61.90               | 2046.70             | 3.00         | SS        |           | 0.09           | 0             | 4.10   | 1.29         | 10.00                 | 3670             | 0               | 0              | 0          | 5,505           |
| 64.90               | 2043.70             | 3.00         | SS        |           | 0.10           | 0             | 4.70   | 1.58         | 10.00                 | 3670             | 0               | 0              | 0          | 5,505           |
| 67.90               | 2040.70             | 3.00         | SS        |           | 0.12           | 1             | 1.90   | -1.85        | 10.00                 | 3670             | 0               | 0              | 0          | 5,505           |
| 69.70               | 2038.90             | 1.80         | SS        |           | 0.07           | 0             | 0.20   | -1.99        | 10.00                 | 3670             | 0               | 0              | 0          | 3,303           |
| 71.60               | 2037.00             | 1.90         | SS        |           | 0.11           | 0             | 0.40   | -3.04        | 10.00                 | 3670             | 0               | 0              | 0          | 3,303           |
| 72.60               | 2036.00             | 1.00         | SL        |           | 0.88           | 1             | 31.00  | 3.50         | 10.00                 | 3750             | 0               | 0              | 0          | 0               |
| 73.60               | 2035.00             | 1.00         | SL        |           | 0.13           | 0             | 10.80  | 6.74         | 10.00                 | 3750             | 0               | 0              | 0          | 0               |
| 74.60               | 2034.00             | 1.00         | SL        |           | 0.13           | 0             | 9.80   | 5.74         | 10.00                 | 3750             | 0               | 0              | 0          | 0               |

TOTAL (TONS): 0 207 4,000 4,458 4,000 4,251 281,864  
 TOTAL (TONS/THOUSAND): 0.00 0.73 14.19 15.82 14.19 15.08

### Non-weighted averaging

**Alk-Add Area:**  (manually input hole ID#s in correct rows)

Alk-Add Area: Alk-Add Area: Alk-Add Area: 

|          |          |
|----------|----------|
| Hole ID# | 231      |
| RS-3     | NNP= 6.0 |

| AS3 | Hotel ID# | NNP=6 |
|-----|-----------|-------|
|     |           |       |

RS-3

Hole ID#

NNP= 6

| Hole ID# | NNP= |
|----------|------|
| RS-3     | 6    |

**AVERAGE:**

**AVERAGE:**

t/a

t/a

**Weighted averaging (according to bottom acres)**

For separating holes if needed (e.g. different alk-add areas, high and low cover areas, etc.)

Alk-Add Area:Alk-Add Area: Alk-Add Area:[illegible][illegible][illegible][illegible]

**Total Acreage:**

**Total Acreage:**

**Total Acreage:**

231 t/a

**WEIGHTED AVERAGE:**

t/a

**WEIGHTED AVERAGE:**

t/a

t/a



2005 N. Center Ave.  
Somerset, PA 15501

814/443-1671  
814/445-6666  
FAX: 814/445-6729

Thursday, August 8, 2024

Tom Matisko  
EARTHTECH INC  
966 PLEASANT HILL ROAD  
SOMERSET, PA 15501

RE: Earthtech OB

Order No.: G2407F81

Dear Tom Matisko:

Geochemical Testing received 5 sample(s) on 7/26/2024 for the analyses presented in the following report.

There were no problems with sample receipt protocols and analyses met the TNI/NELAC, EPA, and laboratory specifications except where noted in the Case Narrative or Laboratory Results.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Joelle Streczywilk  
Environmental Laboratory Manager

## Geochemical Testing

Date: 08-Aug-24

CLIENT: EARTHTECH INC  
Project: Earthtech OB  
Lab Order: G2407F81

## CASE NARRATIVE

No problems were encountered during analysis of this workorder, except if noted in this report.

COC Deficiencies

Other - See comments below

Comments: Correction tape/fluid used on COC.

COC Missing: Number of Containers

### Glossary:

H - Method Hold Time exceeded and is not compliant with 40CFR136 Table II.

U - The analyte was not detected at or above the listed concentration, which is below the laboratory quantitation limit.

B - Analyte detected in the associated Method Blank

Q1 - See case narrative ND - Not Detected

MCL - Contaminant Limit J - Indicates an estimated value.

Q - Qualifier QL - Quantitation Limit DF - Dilution Factor

S - Surrogate Recovery outside accepted recovery limits

T - Sample received above required temperature and is not compliant with 40CFR136 Table II.

T1 - Sample received above required temperature

MDA - Minimum Detectable Activity.

\*\* - Value exceeds Action Limit

TICs - Tentatively Identified Compounds.

E - Value above quantitation range



I.D. 56-00306 PA DEP

## Glossary (continued)

- 1 Spike recovery limits are not applicable when the sample concentration exceeds the spike concentration by a factor of four or greater.
- B1 Dilution water blank exceeded method criterion.
- C1 CCV recovery above the acceptance limits. Results may be biased high.
- C2 CCV recovery below the acceptance limits. Results may be biased low.
- C3 ICV recovery above the acceptance limits. Results may be biased high.
- C4 ICV recovery below the acceptance limits. Results may be biased low.
- C5 Positive values verified by second column confirmation.
- C6 Confirmation analysis by another detector or chromatographic column was not performed.
- D1 The analysis did not meet the minimum DO depletion of at least 2 mg/L.
- D2 The analysis did not meet the minimum residual DO of at least 1 mg/L.
- D3 Sample required dilution due to a matrix interference.
- D4 Sample was diluted in the extraction steps due to marked matrix interferences.
- D5 Sample required dilution due to a chloride interference.
- D6 Sample was diluted and the reporting limits were raised to achieve method compliant internal standard recovery.
- D7 Sample was digested at a dilution due to the formation of a post-digestion precipitate.
- D8 Sample was digested at a dilution to achieve method compliant matrix spike recovery.
- D9 Sample was digested at a dilution to meet method compliant digestion criteria.
- E2 Unable to obtain a stable weight within specified limits due to sample matrix. Value is estimated.
- F1 Fecal sample tested positive for residual chlorine.
- H1 Due to under-depletion from the initial dilutions for BOD, the sample was reanalyzed outside the hold time.
- H2 Due to over-depletion from the initial dilutions for BOD, the sample was reanalyzed outside the hold time.
- H3 Sample was re-analyzed outside of hold time due to error during original analysis.
- H4 The Nitrite result used to report Nitrate was analyzed past the 48-hour holding time.
- I1 Internal standard recovery above method acceptance limits. Results are estimated.
- I2 Internal standard recovery was below method acceptance limits. Results are estimated.
- IP One of the instrument performance checks ( ) did not meet the acceptance criteria.
- L1 LCS above the acceptance limits. Result may be biased high.
- L2 LCS below the acceptance limits. Result may be biased low.
- L3 Analyte was spiked into the LCS, but was not recovered.
- M1 Matrix Spike recovery above the acceptance limits.
- M2 Matrix Spike recovery below the acceptance limits.
- M4 The matrix spike failed high for the surrogate.
- M5 The matrix spike failed low for the surrogate.
- M6 The reporting limits were raised due to sample matrix interference.
- M7 Recovery for matrix spike could not be quantified due to matrix interference.
- M8 Analyte was spiked into the MS, but was not recovered.
- M9 Analyte concentration was determined by the method of standard addition (MSA).
- N1 The lab does not hold accreditation from PA-DEP for this parameter by this method
- N2 PADEP does not accredit labs for this analyte by this method.
- N3 The lab is accredited for this method in West Virginia, but not in PA (its primary accrediting body).
- N4 PADEP does not accredit labs for this analyte by this method in drinking water.
- O1 The flashpoint tester cannot detect below 50 degrees F.
- O2 Result is temperature of the sample when flame observed. No flash observed. Result qualified.
- O3 The reporting limits were raised due to the high concentration of non-target compounds.
- O4 Sample was received with headspace.
- O5 Sample was received in incorrect container and is not compliant with 40CFR136 Table II.
- O6 Insufficient sample volume was received to comply with the method.
- P1 The pH of the sample was >2 and is not compliant with 40CFR136 Table II.
- P2 Sample contained residual chlorine and is not compliant with 40CFR136 Table II
- P3 The pH of the sample was <10 and is not compliant with 40CFR136 Table II.
- P4 Field preservation does not meet EPA or method recommendations for this analysis.
- P5 Acid preservation may not be appropriate for the analysis of 2-Chloroethylvinyl ether.
- P6 Sample required additional preservative upon receipt.
- P7 The sample was received unpreserved.
- P8 The pH of the sample was < 9 and is not compliant with 40 CFR136 Table II.
- R Relative Percent Difference (RPD) was above the control limit.
- R1 RPD above control limits between matrix spike and MS duplicates.
- R2 RPD above the control limit between duplicates.
- R3 RSD above the control limit between replicates.
- R4 RPD above control limits between Inorganic Carbon check and spike.
- R5 RPD above control limits between control sample and control sample duplicates.
- S2 Surrogate recovery in the blank was below the control limit.
- S3 Surrogate recovery in the blank was above the control limit.
- S4 Surrogate recovery in the LCS is above the control limit.
- S5 Surrogate recovery in the LCS is below the control limit.
- SR Analyte recovery was outside the accepted recovery limits and above the control limit for RPD.
- T3 Target analyte found in trip/field blank.
- TC The MS tune check (tailing factor) did not meet the acceptance criteria.

## Laboratory Results

### Geochemical Testing

Date: 08-Aug-24

CLIENT: EARTHTECH INC

Client Sample ID: RS-2, S-1, 44.9-47.9

Lab Order: G2407F81

Project: Earthtech OB

Sampled By: Earthtech, Inc.

Lab ID: G2407F81-001

Collection Date: 7/26/2024 10:00:00 AM

Matrix: SOLID

Received Date: 7/26/2024 1:57:00 PM

| Analyses                              | Result | QL           | Q | Units    | DF | Date Prepared | Date Analyzed |
|---------------------------------------|--------|--------------|---|----------|----|---------------|---------------|
| <b>ACID BASE ACCOUNTING</b>           |        | Analyst: IRB |   |          |    | DEP OB MAN    |               |
| Total Sulfur (p44)                    | 0.01   | 0.01         |   | %        | 1  | 08/07/24      | 12:00 AM      |
| Max Potential Acidity (Calc)          | 0.31   | 0.30         |   | see note | 1  | 08/07/24      | 12:00 AM      |
| Fizz Rating (p67)                     | 0      |              |   |          | 1  | 08/07/24      | 12:00 AM      |
| Deficiency or Excess (Calc)           | 0.73   |              |   | see note | 1  | 08/07/24      | 12:00 AM      |
| Neutralization Potential (Tons) (p67) | 1.0    | 0.1          |   | see note | 1  | 08/07/24      | 12:00 AM      |

**NOTES:**

units are: Tons CaCO<sub>3</sub> / 1000 tons dry

## Laboratory Results

### Geochemical Testing

Date: 08-Aug-24

CLIENT: EARTHTECH INC

Client Sample ID: RS-2, S-2, 47.9-50.9

Lab Order: G2407F81

Project: Earthtech OB

Sampled By: Earthtech, Inc.

Lab ID: G2407F81-002

Collection Date: 7/26/2024 10:15:00 AM

Matrix: SOLID

Received Date: 7/26/2024 1:57:00 PM

| Analyses                              | Result | QL           | Q | Units    | DF | Date Prepared | Date Analyzed |
|---------------------------------------|--------|--------------|---|----------|----|---------------|---------------|
| <b>ACID BASE ACCOUNTING</b>           |        | Analyst: IRB |   |          |    | DEP OB MAN    |               |
| Total Sulfur (p44)                    | 0.01   | 0.01         |   | %        | 1  | 08/07/24      | 12:00 AM      |
| Max Potential Acidity (Calc)          | 0.31   | 0.30         |   | see note | 1  | 08/07/24      | 12:00 AM      |
| Fizz Rating (p67)                     | 0      |              |   |          | 1  | 08/07/24      | 12:00 AM      |
| Deficiency or Excess (Calc)           | 1.48   |              |   | see note | 1  | 08/07/24      | 12:00 AM      |
| Neutralization Potential (Tons) (p67) | 1.8    | 0.1          |   | see note | 1  | 08/07/24      | 12:00 AM      |

**NOTES:**

units are: Tons CaCO<sub>3</sub> / 1000 tons dry

## Laboratory Results

### Geochemical Testing

Date: 08-Aug-24

**CLIENT:** EARTHTECH INC  
**Lab Order:** G2407F81  
**Project:** Earthtech OB  
**Lab ID:** G2407F81-003  
**Matrix:** SOLID

**Client Sample ID:** RS-2, S-3, 50.9-51.9  
**Sampled By:** Earthtech, Inc.  
**Collection Date:** 7/26/2024 10:30:00 AM  
**Received Date:** 7/26/2024 1:57:00 PM

| Analyses                              | Result | QL           | Q | Units    | DF | Date Prepared | Date Analyzed |
|---------------------------------------|--------|--------------|---|----------|----|---------------|---------------|
| <b>ACID BASE ACCOUNTING</b>           |        | Analyst: IRB |   |          |    | DEP OB MAN    |               |
| Total Sulfur (p44)                    | 0.18   | 0.01         |   | %        | 1  | 08/07/24      | 12:00 AM      |
| Max Potential Acidity (Calc)          | 5.63   | 0.30         |   | see note | 1  | 08/07/24      | 12:00 AM      |
| Fizz Rating (p67)                     | 0      |              |   |          | 1  | 08/07/24      | 12:00 AM      |
| Deficiency or Excess (Calc)           | -4.59  |              |   | see note | 1  | 08/07/24      | 12:00 AM      |
| Neutralization Potential (Tons) (p67) | 1.0    | 0.1          |   | see note | 1  | 08/07/24      | 12:00 AM      |

**NOTES:**

units are: Tons CaCO<sub>3</sub> / 1000 tons dry

## Laboratory Results

### Geochemical Testing

Date: 08-Aug-24

**CLIENT:** EARTHTECH INC  
**Lab Order:** G2407F81  
**Project:** Earthtech OB  
**Lab ID:** G2407F81-004  
**Matrix:** SOLID

**Client Sample ID:** RS-2, S-4, 51.9-52.9  
**Sampled By:** Earthtech, Inc.  
**Collection Date:** 7/26/2024 10:45:00 AM  
**Received Date:** 7/26/2024 1:57:00 PM

| Analyses                              | Result | QL           | Q | Units    | DF | Date Prepared | Date Analyzed |
|---------------------------------------|--------|--------------|---|----------|----|---------------|---------------|
| <b>ACID BASE ACCOUNTING</b>           |        | Analyst: IRB |   |          |    | DEP OB MAN    |               |
| Total Sulfur (p44)                    | 0.04   | 0.01         |   | %        | 1  | 08/07/24      | 12:00 AM      |
| Max Potential Acidity (Calc)          | 1.25   | 0.30         |   | see note | 1  | 08/07/24      | 12:00 AM      |
| Fizz Rating (p67)                     | 0      |              |   |          | 1  | 08/07/24      | 12:00 AM      |
| Deficiency or Excess (Calc)           | -0.31  |              |   | see note | 1  | 08/07/24      | 12:00 AM      |
| Neutralization Potential (Tons) (p67) | 0.9    | 0.1          |   | see note | 1  | 08/07/24      | 12:00 AM      |

**NOTES:**

units are: Tons CaCO<sub>3</sub> / 1000 tons dry

## Laboratory Results

### Geochemical Testing

Date: 08-Aug-24

**CLIENT:** EARTHTECH INC

**Client Sample ID:** RS-2, S-5, 52.9-53.9

**Lab Order:** G2407F81

**Project:** Earthtech OB

**Sampled By:** Earthtech, Inc.

**Lab ID:** G2407F81-005

**Collection Date:** 7/26/2024 11:00:00 AM

**Matrix:** SOLID

**Received Date:** 7/26/2024 1:57:00 PM

| Analyses                              | Result | QL           | Q | Units    | DF | Date Prepared | Date Analyzed     |
|---------------------------------------|--------|--------------|---|----------|----|---------------|-------------------|
| <b>ACID BASE ACCOUNTING</b>           |        | Analyst: IRB |   |          |    | DEP OB MAN    |                   |
| Total Sulfur (p44)                    | 0.04   | 0.01         |   | %        | 1  |               | 08/07/24 12:00 AM |
| Max Potential Acidity (Calc)          | 1.25   | 0.30         |   | see note | 1  |               | 08/07/24 12:00 AM |
| Fizz Rating (p67)                     | 0      |              |   |          | 1  |               | 08/07/24 12:00 AM |
| Deficiency or Excess (Calc)           | -0.65  |              |   | see note | 1  |               | 08/07/24 12:00 AM |
| Neutralization Potential (Tons) (p67) | 0.6    | 0.1          |   | see note | 1  |               | 08/07/24 12:00 AM |

**NOTES:**

units are: Tons CaCO<sub>3</sub> / 1000 tons dry



# GEOCHEMICAL TESTING

Environmental and Energy Analysis

2005 N. Center Ave.  
Somerset, PA 15501

814/443-1671  
814/445-6666  
FAX: 814/445-6729

Monday, February 14, 2022

Heather Leydig  
EARTHTECH INC  
966 PLEASANT HILL ROAD  
SOMERSET, PA 15501

Order No.: G2202449

Dear Heather Leydig:

Geochemical Testing received 27 sample(s) on 2/8/2022 for the analyses presented in the following report.

There were no problems with sample receipt protocols and analyses met the TNI/NELAC, EPA, and laboratory specifications except where noted in the Case Narrative or Laboratory Results.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Timothy W. Bergstresser  
Director of Technical Services

## Geochemical Testing

Date: 14-Feb-22

CLIENT: EARTHTECH INC  
Project:  
Lab Order: G2202449

## CASE NARRATIVE

No problems were encountered during analysis of this workorder, except if noted in this report.

Core hole RS-3 was drilled on 6-15-21 and has been in storage in core boxes since. The client broke down the individual (27) samples on 2-7-22 for overburden analysis. Technically, the (OB) samples weren't obtained until 2-7-22.

**Legend:**  
H - Method Hold Time exceeded and is not compliant with 40CFR136 Table II.  
U - The analyte was not detected at or above the listed concentration, which is below the laboratory quantitation limit.  
B - Analyte detected in the associated Method Blank  
Q1 - See case narrative ND - Not Detected  
MCL - Contaminant Limit J - Indicates an estimated value.  
Q - Qualifier QL - Quantitation Limit DF - Dilution Factor

S - Surrogate Recovery outside accepted recovery limits  
T - Sample received above required temperature and is not compliant with 40CFR136 Table II.  
T1 - Sample received above required temperature  
MDA - Minimum Detectable Activity.  
\*\* - Value exceeds Action Limit  
TICs - Tentatively Identified Compounds.  
E - Value above quantitation range



I.D. 56-00306 PA DEP

## Laboratory Results

### Geochemical Testing

Date: 14-Feb-22

|                   |               |                          |                               |
|-------------------|---------------|--------------------------|-------------------------------|
| <b>CLIENT:</b>    | EARTHTECH INC | <b>Client Sample ID:</b> | RS-3-1                        |
| <b>Lab Order:</b> | G2202449      |                          | 4.2'-7.2' Weathered Sandstone |
| <b>Project:</b>   |               | <b>Sampled By:</b>       | Earthtech                     |
| <b>Lab ID:</b>    | G2202449-001  | <b>Collection Date:</b>  | 2/7/2022                      |
| <b>Matrix:</b>    | SOLID         | <b>Received Date:</b>    | 2/8/2022 1:18:38 PM           |

| Analyses                              | Result | QL           | Q | Units | DF | Date Prepared | Date Analyzed    |
|---------------------------------------|--------|--------------|---|-------|----|---------------|------------------|
| <b>ACID BASE ACCOUNTING</b>           |        |              |   |       |    |               |                  |
|                                       |        | Analyst: RLL |   |       |    |               | DEP OB MAN P67   |
| Total Sulfur                          | < 0.01 | 0.01         |   | %     | 1  |               | 02/11/22 7:30 AM |
| Fizz Rating                           | 0      |              |   | %     | 1  |               | 02/11/22 7:30 AM |
| Neutralization Potential (CaCO3 Tons) | 1.4    | 0.1          |   | %     | 1  |               | 02/11/22 7:30 AM |

**NOTES:**

units are: Tons CaCO3 / 1000 tons dry

## Laboratory Results

### Geochemical Testing

Date: 14-Feb-22

|            |               |                   |                                |
|------------|---------------|-------------------|--------------------------------|
| CLIENT:    | EARTHTECH INC | Client Sample ID: | RS-3-2                         |
| Lab Order: | G2202449      |                   | 7.2'-10.2' Weathered Sandstone |
| Project:   |               | Sampled By:       | Earthtech                      |
| Lab ID:    | G2202449-002  | Collection Date:  | 2/7/2022                       |
| Matrix:    | SOLID         | Received Date:    | 2/8/2022 1:18:38 PM            |

| Analyses                              | Result | QL           | Q | Units | DF | Date Prepared  | Date Analyzed    |
|---------------------------------------|--------|--------------|---|-------|----|----------------|------------------|
| <b>ACID BASE ACCOUNTING</b>           |        | Analyst: RLL |   |       |    | DEP OB MAN P67 |                  |
| Total Sulfur                          | < 0.01 | 0.01         |   | %     | 1  |                | 02/11/22 7:30 AM |
| Fizz Rating                           | 0      |              |   | %     | 1  |                | 02/11/22 7:30 AM |
| Neutralization Potential (CaCO3 Tons) | 0.6    | 0.1          |   | %     | 1  |                | 02/11/22 7:30 AM |

**NOTES:**

units are: Tons CaCO3 / 1000 tons dry

## Laboratory Results

### Geochemical Testing

Date: 14-Feb-22

|                   |               |                          |                                 |
|-------------------|---------------|--------------------------|---------------------------------|
| <b>CLIENT:</b>    | EARTHTECH INC | <b>Client Sample ID:</b> | RS-3-3                          |
| <b>Lab Order:</b> | G2202449      |                          | 10.2'-13.2' Weathered Sandstone |
| <b>Project:</b>   |               | <b>Sampled By:</b>       | Earthtech                       |
| <b>Lab ID:</b>    | G2202449-003  | <b>Collection Date:</b>  | 2/7/2022                        |
| <b>Matrix:</b>    | SOLID         | <b>Received Date:</b>    | 2/8/2022 1:18:38 PM             |

| Analyses                              | Result | QL           | Q | Units | DF | Date Prepared  | Date Analyzed    |
|---------------------------------------|--------|--------------|---|-------|----|----------------|------------------|
| <b>ACID BASE ACCOUNTING</b>           |        | Analyst: RLL |   |       |    | DEP OB MAN P67 |                  |
| Total Sulfur                          | < 0.01 | 0.01         |   | %     | 1  |                | 02/11/22 7:30 AM |
| Fizz Rating                           | 0      |              |   | %     | 1  |                | 02/11/22 7:30 AM |
| Neutralization Potential (CaCO3 Tons) | 0.5    | 0.1          |   | %     | 1  |                | 02/11/22 7:30 AM |

**NOTES:**

units are: Tons CaCO3 / 1000 tons dry

## Laboratory Results

### Geochemical Testing

Date: 14-Feb-22

|            |               |                   |                                 |
|------------|---------------|-------------------|---------------------------------|
| CLIENT:    | EARTHTECH INC | Client Sample ID: | RS-3-4                          |
| Lab Order: | G2202449      |                   | 13.2'-16.2' Weathered Sandstone |
| Project:   |               | Sampled By:       | Earthtech                       |
| Lab ID:    | G2202449-004  | Collection Date:  | 2/7/2022                        |
| Matrix:    | SOLID         | Received Date:    | 2/8/2022 1:18:38 PM             |

| Analyses                              | Result | QL           | Q | Units | DF | Date Prepared  | Date Analyzed    |
|---------------------------------------|--------|--------------|---|-------|----|----------------|------------------|
| <b>ACID BASE ACCOUNTING</b>           |        | Analyst: RLL |   |       |    | DEP OB MAN P67 |                  |
| Total Sulfur                          | < 0.01 | 0.01         |   | %     | 1  |                | 02/11/22 7:30 AM |
| Fizz Rating                           | 0      |              |   | %     | 1  |                | 02/11/22 7:30 AM |
| Neutralization Potential (CaCO3 Tons) | 0.8    | 0.1          |   | %     | 1  |                | 02/11/22 7:30 AM |

**NOTES:**

units are: Tons CaCO3 / 1000 tons dry

## Laboratory Results

### Geochemical Testing

Date: 14-Feb-22

|                   |               |                          |                                 |
|-------------------|---------------|--------------------------|---------------------------------|
| <b>CLIENT:</b>    | EARTHTECH INC | <b>Client Sample ID:</b> | RS-3-5                          |
| <b>Lab Order:</b> | G2202449      |                          | 16.2'-19.2' Weathered Sandstone |
| <b>Project:</b>   |               | <b>Sampled By:</b>       | Earthtech                       |
| <b>Lab ID:</b>    | G2202449-005  | <b>Collection Date:</b>  | 2/7/2022                        |
| <b>Matrix:</b>    | SOLID         | <b>Received Date:</b>    | 2/8/2022 1:18:38 PM             |

| Analyses                              | Result | QL           | Q | Units | DF | Date Prepared  | Date Analyzed    |
|---------------------------------------|--------|--------------|---|-------|----|----------------|------------------|
| <b>ACID BASE ACCOUNTING</b>           |        | Analyst: RLL |   |       |    | DEP OB MAN P67 |                  |
| Total Sulfur                          | < 0.01 | 0.01         |   | %     | 1  |                | 02/11/22 7:30 AM |
| Fizz Rating                           | 0      |              |   | %     | 1  |                | 02/11/22 7:30 AM |
| Neutralization Potential (CaCO3 Tons) | 5.4    | 0.1          |   | %     | 1  |                | 02/11/22 7:30 AM |

**NOTES:**

units are: Tons CaCO3 / 1000 tons dry

## Laboratory Results

### Geochemical Testing

Date: 14-Feb-22

|                   |               |                          |                                 |
|-------------------|---------------|--------------------------|---------------------------------|
| <b>CLIENT:</b>    | EARTHTECH INC | <b>Client Sample ID:</b> | RS-3-6                          |
| <b>Lab Order:</b> | G2202449      |                          | 19.2'-22.2' Weathered Sandstone |
| <b>Project:</b>   |               | <b>Sampled By:</b>       | Earthtech                       |
| <b>Lab ID:</b>    | G2202449-006  | <b>Collection Date:</b>  | 2/7/2022                        |
| <b>Matrix:</b>    | SOLID         | <b>Received Date:</b>    | 2/8/2022 1:18:38 PM             |

| Analyses                              | Result | QL           | Q | Units | DF | Date Prepared  | Date Analyzed    |
|---------------------------------------|--------|--------------|---|-------|----|----------------|------------------|
| <b>ACID BASE ACCOUNTING</b>           |        | Analyst: RLL |   |       |    | DEP OB MAN P67 |                  |
| Total Sulfur                          | < 0.01 | 0.01         |   | %     | 1  |                | 02/11/22 7:30 AM |
| Fizz Rating                           | 0      |              |   | %     | 1  |                | 02/11/22 7:30 AM |
| Neutralization Potential (CaCO3 Tons) | 1.0    | 0.1          |   | %     | 1  |                | 02/11/22 7:30 AM |

**NOTES:**

units are: Tons CaCO3 / 1000 tons dry

## Laboratory Results

### Geochemical Testing

Date: 14-Feb-22

|                   |               |                          |                                 |
|-------------------|---------------|--------------------------|---------------------------------|
| <b>CLIENT:</b>    | EARTHTECH INC | <b>Client Sample ID:</b> | RS-3-7                          |
| <b>Lab Order:</b> | G2202449      |                          | 22.2'-24.0' Weathered Sandstone |
| <b>Project:</b>   |               | <b>Sampled By:</b>       | Earthtech                       |
| <b>Lab ID:</b>    | G2202449-007  | <b>Collection Date:</b>  | 2/7/2022                        |
| <b>Matrix:</b>    | SOLID         | <b>Received Date:</b>    | 2/8/2022 1:18:38 PM             |

| Analyses                              | Result | QL           | Q | Units | DF | Date Prepared  | Date Analyzed    |
|---------------------------------------|--------|--------------|---|-------|----|----------------|------------------|
| <b>ACID BASE ACCOUNTING</b>           |        | Analyst: RLL |   |       |    | DEP OB MAN P67 |                  |
| Total Sulfur                          | < 0.01 | 0.01         |   | %     | 1  |                | 02/11/22 7:30 AM |
| Fizz Rating                           | 0      |              |   | %     | 1  |                | 02/11/22 7:30 AM |
| Neutralization Potential (CaCO3 Tons) | 0.5    | 0.1          |   | %     | 1  |                | 02/11/22 7:30 AM |

**NOTES:**

units are: Tons CaCO3 / 1000 tons dry

## Laboratory Results

### Geochemical Testing

Date: 14-Feb-22

|                   |               |                          |                                 |
|-------------------|---------------|--------------------------|---------------------------------|
| <b>CLIENT:</b>    | EARTHTECH INC | <b>Client Sample ID:</b> | RS-3-8                          |
| <b>Lab Order:</b> | G2202449      |                          | 24.0'-25.9' Weathered Sandstone |
| <b>Project:</b>   |               | <b>Sampled By:</b>       | Earthtech                       |
| <b>Lab ID:</b>    | G2202449-008  | <b>Collection Date:</b>  | 2/7/2022                        |
| <b>Matrix:</b>    | SOLID         | <b>Received Date:</b>    | 2/8/2022 1:18:38 PM             |

| Analyses                              | Result | QL           | Q | Units | DF | Date Prepared  | Date Analyzed    |
|---------------------------------------|--------|--------------|---|-------|----|----------------|------------------|
| <b>ACID BASE ACCOUNTING</b>           |        | Analyst: RLL |   |       |    | DEP OB MAN P67 |                  |
| Total Sulfur                          | < 0.01 | 0.01         |   | %     | 1  |                | 02/11/22 7:30 AM |
| Fizz Rating                           | 0      |              |   | %     | 1  |                | 02/11/22 7:30 AM |
| Neutralization Potential (CaCO3 Tons) | 0.6    | 0.1          |   | %     | 1  |                | 02/11/22 7:30 AM |

**NOTES:**

units are: Tons CaCO3 / 1000 tons dry



## Laboratory Results

### Geochemical Testing

Date: 14-Feb-22

|                   |               |                          |                             |
|-------------------|---------------|--------------------------|-----------------------------|
| <b>CLIENT:</b>    | EARTHTECH INC | <b>Client Sample ID:</b> | RS-3-9                      |
| <b>Lab Order:</b> | G2202449      |                          | 25.9'-28.9' Shale/Claystone |
| <b>Project:</b>   |               | <b>Sampled By:</b>       | Earthtech                   |
| <b>Lab ID:</b>    | G2202449-009  | <b>Collection Date:</b>  | 2/7/2022                    |
| <b>Matrix:</b>    | SOLID         | <b>Received Date:</b>    | 2/8/2022 1:18:38 PM         |

| Analyses                              | Result | QL           | Q | Units | DF | Date Prepared  | Date Analyzed    |
|---------------------------------------|--------|--------------|---|-------|----|----------------|------------------|
| <b>ACID BASE ACCOUNTING</b>           |        | Analyst: RLL |   |       |    | DEP OB MAN P67 |                  |
| Total Sulfur                          | < 0.01 | 0.01         |   | %     | 1  |                | 02/11/22 7:30 AM |
| Fizz Rating                           | 0      |              |   | %     | 1  |                | 02/11/22 7:30 AM |
| Neutralization Potential (CaCO3 Tons) | 2.0    | 0.1          |   | %     | 1  |                | 02/11/22 7:30 AM |
| <b>NOTES:</b>                         |        |              |   |       |    |                |                  |
| units are: Tons CaCO3 / 1000 tons dry |        |              |   |       |    |                |                  |

## Laboratory Results

### Geochemical Testing

Date: 14-Feb-22

|                   |               |                          |                       |
|-------------------|---------------|--------------------------|-----------------------|
| <b>CLIENT:</b>    | EARTHTECH INC | <b>Client Sample ID:</b> | RS-3-10               |
| <b>Lab Order:</b> | G2202449      |                          | 28.9'-31.9' Sandstone |
| <b>Project:</b>   |               | <b>Sampled By:</b>       | Earthtech             |
| <b>Lab ID:</b>    | G2202449-010  | <b>Collection Date:</b>  | 2/7/2022              |
| <b>Matrix:</b>    | SOLID         | <b>Received Date:</b>    | 2/8/2022 1:18:38 PM   |

| Analyses                              | Result | QL           | Q | Units | DF | Date Prepared  | Date Analyzed    |
|---------------------------------------|--------|--------------|---|-------|----|----------------|------------------|
| <b>ACID BASE ACCOUNTING</b>           |        | Analyst: RLL |   |       |    | DEP OB MAN P67 |                  |
| Total Sulfur                          | < 0.01 | 0.01         |   | %     | 1  |                | 02/11/22 7:30 AM |
| Fizz Rating                           | 0      |              |   | %     | 1  |                | 02/11/22 7:30 AM |
| Neutralization Potential (CaCO3 Tons) | 0.4    | 0.1          |   | %     | 1  |                | 02/11/22 7:30 AM |

**NOTES:**

units are: Tons CaCO3 / 1000 tons dry

## Laboratory Results

### Geochemical Testing

Date: 14-Feb-22

|            |               |                   |                       |
|------------|---------------|-------------------|-----------------------|
| CLIENT:    | EARTHTECH INC | Client Sample ID: | RS-3-11               |
| Lab Order: | G2202449      |                   | 31.9'-34.9' Sandstone |
| Project:   |               | Sampled By:       | Earthtech             |
| Lab ID:    | G2202449-011  | Collection Date:  | 2/7/2022              |
| Matrix:    | SOLID         | Received Date:    | 2/8/2022 1:18:38 PM   |

| Analyses                              | Result | QL           | Q | Units | DF | Date Prepared  | Date Analyzed    |
|---------------------------------------|--------|--------------|---|-------|----|----------------|------------------|
| <b>ACID BASE ACCOUNTING</b>           |        | Analyst: RLL |   |       |    | DEP OB MAN P67 |                  |
| Total Sulfur                          | 0.01   | 0.01         |   | %     | 1  |                | 02/11/22 7:30 AM |
| Fizz Rating                           | 0      |              |   | %     | 1  |                | 02/11/22 7:30 AM |
| Neutralization Potential (CaCO3 Tons) | 0.6    | 0.1          |   | %     | 1  |                | 02/11/22 7:30 AM |

**NOTES:**

units are: Tons CaCO3 / 1000 tons dry

## Laboratory Results

### Geochemical Testing

Date: 14-Feb-22

|                   |               |                          |                       |
|-------------------|---------------|--------------------------|-----------------------|
| <b>CLIENT:</b>    | EARTHTECH INC | <b>Client Sample ID:</b> | RS-3-12               |
| <b>Lab Order:</b> | G2202449      |                          | 34.9'-37.9' Sandstone |
| <b>Project:</b>   |               | <b>Sampled By:</b>       | Earthtech             |
| <b>Lab ID:</b>    | G2202449-012  | <b>Collection Date:</b>  | 2/7/2022              |
| <b>Matrix:</b>    | SOLID         | <b>Received Date:</b>    | 2/8/2022 1:18:38 PM   |

| Analyses                              | Result | QL           | Q | Units | DF | Date Prepared | Date Analyzed    |
|---------------------------------------|--------|--------------|---|-------|----|---------------|------------------|
| <b>ACID BASE ACCOUNTING</b>           |        |              |   |       |    |               |                  |
|                                       |        | Analyst: RLL |   |       |    |               | DEP OB MAN P67   |
| Total Sulfur                          | 0.01   | 0.01         |   | %     | 1  |               | 02/11/22 7:30 AM |
| Fizz Rating                           | 0      |              |   | %     | 1  |               | 02/11/22 7:30 AM |
| Neutralization Potential (CaCO3 Tons) | 11.2   | 0.1          |   | %     | 1  |               | 02/11/22 7:30 AM |

**NOTES:**

units are: Tons CaCO3 / 1000 tons dry

## Laboratory Results

### Geochemical Testing

Date: 14-Feb-22

|                   |               |                          |                       |
|-------------------|---------------|--------------------------|-----------------------|
| <b>CLIENT:</b>    | EARTHTECH INC | <b>Client Sample ID:</b> | RS-3-13               |
| <b>Lab Order:</b> | G2202449      |                          | 37.9'-40.9' Sandstone |
| <b>Project:</b>   |               | <b>Sampled By:</b>       | Earthtech             |
| <b>Lab ID:</b>    | G2202449-013  | <b>Collection Date:</b>  | 2/7/2022              |
| <b>Matrix:</b>    | SOLID         | <b>Received Date:</b>    | 2/8/2022 1:18:38 PM   |

| Analyses                              | Result | QL           | Q | Units | DF | Date Prepared  | Date Analyzed    |
|---------------------------------------|--------|--------------|---|-------|----|----------------|------------------|
| <b>ACID BASE ACCOUNTING</b>           |        | Analyst: RLL |   |       |    | DEP OB MAN P67 |                  |
| Total Sulfur                          | 0.10   | 0.01         |   | %     | 1  |                | 02/11/22 7:30 AM |
| Fizz Rating                           | 0      |              |   | %     | 1  |                | 02/11/22 7:30 AM |
| Neutralization Potential (CaCO3 Tons) | 2.9    | 0.1          |   | %     | 1  |                | 02/11/22 7:30 AM |

**NOTES:**

units are: Tons CaCO3 / 1000 tons dry

## Laboratory Results

### Geochemical Testing

Date: 14-Feb-22

|            |               |                   |                       |
|------------|---------------|-------------------|-----------------------|
| CLIENT:    | EARTHTECH INC | Client Sample ID: | RS-3-14               |
| Lab Order: | G2202449      |                   | 40.9'-43.9' Sandstone |
| Project:   |               | Sampled By:       | Earthtech             |
| Lab ID:    | G2202449-014  | Collection Date:  | 2/7/2022              |
| Matrix:    | SOLID         | Received Date:    | 2/8/2022 1:18:38 PM   |

| Analyses                              | Result | QL   | Q            | Units | DF | Date Prepared | Date Analyzed    |
|---------------------------------------|--------|------|--------------|-------|----|---------------|------------------|
| ACID BASE ACCOUNTING                  |        |      |              |       |    |               |                  |
|                                       |        |      | Analyst: RLL |       |    |               | DEP OB MAN P67   |
| Total Sulfur                          | 0.01   | 0.01 |              | %     | 1  |               | 02/11/22 7:30 AM |
| Fizz Rating                           | 0      |      |              | %     | 1  |               | 02/11/22 7:30 AM |
| Neutralization Potential (CaCO3 Tons) | 0.2    | 0.1  |              | %     | 1  |               | 02/11/22 7:30 AM |

**NOTES:**

units are: Tons CaCO3 / 1000 tons dry

## Laboratory Results

### Geochemical Testing

Date: 14-Feb-22

|            |               |                   |                       |
|------------|---------------|-------------------|-----------------------|
| CLIENT:    | EARTHTECH INC | Client Sample ID: | RS-3-15               |
| Lab Order: | G2202449      |                   | 43.9'-46.9' Sandstone |
| Project:   |               | Sampled By:       | Earthtech             |
| Lab ID:    | G2202449-015  | Collection Date:  | 2/7/2022              |
| Matrix:    | SOLID         | Received Date:    | 2/8/2022 1:18:38 PM   |

| Analyses                              | Result | QL           | Q | Units | DF | Date Prepared  | Date Analyzed    |
|---------------------------------------|--------|--------------|---|-------|----|----------------|------------------|
| <b>ACID BASE ACCOUNTING</b>           |        | Analyst: RLL |   |       |    | DEP OB MAN P67 |                  |
| Total Sulfur                          | < 0.01 | 0.01         |   | %     | 1  |                | 02/11/22 7:30 AM |
| Fizz Rating                           | 0      |              |   | %     | 1  |                | 02/11/22 7:30 AM |
| Neutralization Potential (CaCO3 Tons) | 0.3    | 0.1          |   | %     | 1  |                | 02/11/22 7:30 AM |

**NOTES:**

units are: Tons CaCO3 / 1000 tons dry

## Laboratory Results

### Geochemical Testing

Date: 14-Feb-22

|            |               |                   |                       |
|------------|---------------|-------------------|-----------------------|
| CLIENT:    | EARTHTECH INC | Client Sample ID: | RS-3-16               |
| Lab Order: | G2202449      |                   | 46.9'-49.9' Sandstone |
| Project:   |               | Sampled By:       | Earthtech             |
| Lab ID:    | G2202449-016  | Collection Date:  | 2/7/2022              |
| Matrix:    | SOLID         | Received Date:    | 2/8/2022 1:18:38 PM   |

| Analyses                              | Result | QL           | Q | Units | DF | Date Prepared  | Date Analyzed    |
|---------------------------------------|--------|--------------|---|-------|----|----------------|------------------|
| <b>ACID BASE ACCOUNTING</b>           |        | Analyst: RLL |   |       |    | DEP OB MAN P67 |                  |
| Total Sulfur                          | < 0.01 | 0.01         |   | %     | 1  |                | 02/11/22 7:30 AM |
| Fizz Rating                           | 0      |              |   | %     | 1  |                | 02/11/22 7:30 AM |
| Neutralization Potential (CaCO3 Tons) | 1.1    | 0.1          |   | %     | 1  |                | 02/11/22 7:30 AM |

**NOTES:**

units are: Tons CaCO3 / 1000 tons dry

## Laboratory Results

### Geochemical Testing

Date: 14-Feb-22

|            |               |                   |                       |
|------------|---------------|-------------------|-----------------------|
| CLIENT:    | EARTHTECH INC | Client Sample ID: | RS-3-17               |
| Lab Order: | G2202449      |                   | 49.9'-52.9' Sandstone |
| Project:   |               | Sampled By:       | Earthtech             |
| Lab ID:    | G2202449-017  | Collection Date:  | 2/7/2022              |
| Matrix:    | SOLID         | Received Date:    | 2/8/2022 1:18:38 PM   |

| Analyses                              | Result | QL           | Q | Units | DF | Date Prepared  | Date Analyzed    |
|---------------------------------------|--------|--------------|---|-------|----|----------------|------------------|
| <b>ACID BASE ACCOUNTING</b>           |        | Analyst: RLL |   |       |    | DEP OB MAN P67 |                  |
| Total Sulfur                          | 0.06   | 0.01         |   | %     | 1  |                | 02/11/22 7:30 AM |
| Fizz Rating                           | 0      |              |   | %     | 1  |                | 02/11/22 7:30 AM |
| Neutralization Potential (CaCO3 Tons) | 1.1    | 0.1          |   | %     | 1  |                | 02/11/22 7:30 AM |

**NOTES:**

units are: Tons CaCO3 / 1000 tons dry

## Laboratory Results

### Geochemical Testing

Date: 14-Feb-22

|                   |               |                          |                       |
|-------------------|---------------|--------------------------|-----------------------|
| <b>CLIENT:</b>    | EARTHTECH INC | <b>Client Sample ID:</b> | RS-3-18               |
| <b>Lab Order:</b> | G2202449      |                          | 52.9'-55.9' Sandstone |
| <b>Project:</b>   |               | <b>Sampled By:</b>       | Earthtech             |
| <b>Lab ID:</b>    | G2202449-018  | <b>Collection Date:</b>  | 2/7/2022              |
| <b>Matrix:</b>    | SOLID         | <b>Received Date:</b>    | 2/8/2022 1:18:38 PM   |

| Analyses                              | Result | QL   | Q            | Units | DF | Date Prepared | Date Analyzed    |
|---------------------------------------|--------|------|--------------|-------|----|---------------|------------------|
| <b>ACID BASE ACCOUNTING</b>           |        |      |              |       |    |               |                  |
|                                       |        |      | Analyst: RLL |       |    |               | DEP OB MAN P67   |
| Total Sulfur                          | 0.11   | 0.01 |              | %     | 1  |               | 02/11/22 7:30 AM |
| Fizz Rating                           | 0      |      |              | %     | 1  |               | 02/11/22 7:30 AM |
| Neutralization Potential (CaCO3 Tons) | 0.5    | 0.1  |              | %     | 1  |               | 02/11/22 7:30 AM |

**NOTES:**

units are: Tons CaCO3 / 1000 tons dry

## Laboratory Results

### Geochemical Testing

Date: 14-Feb-22

|                   |               |                          |                       |
|-------------------|---------------|--------------------------|-----------------------|
| <b>CLIENT:</b>    | EARTHTECH INC | <b>Client Sample ID:</b> | RS-3-19               |
| <b>Lab Order:</b> | G2202449      |                          | 55.9'-58.9' Sandstone |
| <b>Project:</b>   |               | <b>Sampled By:</b>       | Earthtech             |
| <b>Lab ID:</b>    | G2202449-019  | <b>Collection Date:</b>  | 2/7/2022              |
| <b>Matrix:</b>    | SOLID         | <b>Received Date:</b>    | 2/8/2022 1:18:38 PM   |

| Analyses                              | Result | QL           | Q | Units | DF | Date Prepared | Date Analyzed    |
|---------------------------------------|--------|--------------|---|-------|----|---------------|------------------|
| <b>ACID BASE ACCOUNTING</b>           |        |              |   |       |    |               |                  |
|                                       |        | Analyst: RLL |   |       |    |               | DEP OB MAN P67   |
| Total Sulfur                          | 0.09   | 0.01         |   | %     | 1  |               | 02/11/22 7:30 AM |
| Fizz Rating                           | 1      |              |   | %     | 1  |               | 02/11/22 7:30 AM |
| Neutralization Potential (CaCO3 Tons) | 2.2    | 0.1          |   | %     | 1  |               | 02/11/22 7:30 AM |

**NOTES:**

units are: Tons CaCO3 / 1000 tons dry

## Laboratory Results

### Geochemical Testing

Date: 14-Feb-22

|                   |               |                          |                       |
|-------------------|---------------|--------------------------|-----------------------|
| <b>CLIENT:</b>    | EARTHTECH INC | <b>Client Sample ID:</b> | RS-3-20               |
| <b>Lab Order:</b> | G2202449      |                          | 58.9'-61.9' Sandstone |
| <b>Project:</b>   |               | <b>Sampled By:</b>       | Earthtech             |
| <b>Lab ID:</b>    | G2202449-020  | <b>Collection Date:</b>  | 2/7/2022              |
| <b>Matrix:</b>    | SOLID         | <b>Received Date:</b>    | 2/8/2022 1:18:38 PM   |

| Analyses                              | Result | QL           | Q | Units | DF | Date Prepared | Date Analyzed    |
|---------------------------------------|--------|--------------|---|-------|----|---------------|------------------|
| <b>ACID BASE ACCOUNTING</b>           |        |              |   |       |    |               |                  |
|                                       |        | Analyst: RLL |   |       |    |               | DEP OB MAN P67   |
| Total Sulfur                          | 0.09   | 0.01         |   | %     | 1  |               | 02/11/22 7:30 AM |
| Fizz Rating                           | 0      |              |   | %     | 1  |               | 02/11/22 7:30 AM |
| Neutralization Potential (CaCO3 Tons) | 4.1    | 0.1          |   | %     | 1  |               | 02/11/22 7:30 AM |

**NOTES:**

units are: Tons CaCO3 / 1000 tons dry

## Laboratory Results

### Geochemical Testing

Date: 14-Feb-22

|                   |               |                          |                       |
|-------------------|---------------|--------------------------|-----------------------|
| <b>CLIENT:</b>    | EARTHTECH INC | <b>Client Sample ID:</b> | RS-3-21               |
| <b>Lab Order:</b> | G2202449      |                          | 61.9'-64.9' Sandstone |
| <b>Project:</b>   |               | <b>Sampled By:</b>       | Earthtech             |
| <b>Lab ID:</b>    | G2202449-021  | <b>Collection Date:</b>  | 2/7/2022              |
| <b>Matrix:</b>    | SOLID         | <b>Received Date:</b>    | 2/8/2022 1:18:38 PM   |

| Analyses                              | Result | QL           | Q | Units | DF | Date Prepared | Date Analyzed    |
|---------------------------------------|--------|--------------|---|-------|----|---------------|------------------|
| <b>ACID BASE ACCOUNTING</b>           |        |              |   |       |    |               |                  |
|                                       |        | Analyst: RLL |   |       |    |               | DEP OB MAN P67   |
| Total Sulfur                          | 0.10   | 0.01         |   | %     | 1  |               | 02/11/22 7:30 AM |
| Fizz Rating                           | 0      |              |   | %     | 1  |               | 02/11/22 7:30 AM |
| Neutralization Potential (CaCO3 Tons) | 4.7    | 0.1          |   | %     | 1  |               | 02/11/22 7:30 AM |

**NOTES:**

units are: Tons CaCO3 / 1000 tons dry

## Laboratory Results

### Geochemical Testing

Date: 14-Feb-22

|                   |               |                          |                       |
|-------------------|---------------|--------------------------|-----------------------|
| <b>CLIENT:</b>    | EARTHTECH INC | <b>Client Sample ID:</b> | RS-3-22               |
| <b>Lab Order:</b> | G2202449      |                          | 64.9'-67.9' Sandstone |
| <b>Project:</b>   |               | <b>Sampled By:</b>       | Earthtech             |
| <b>Lab ID:</b>    | G2202449-022  | <b>Collection Date:</b>  | 2/7/2022              |
| <b>Matrix:</b>    | SOLID         | <b>Received Date:</b>    | 2/8/2022 1:18:38 PM   |

| Analyses                              | Result | QL   | Q            | Units | DF | Date Prepared | Date Analyzed    |
|---------------------------------------|--------|------|--------------|-------|----|---------------|------------------|
| <b>ACID BASE ACCOUNTING</b>           |        |      |              |       |    |               |                  |
|                                       |        |      | Analyst: RLL |       |    |               | DEP OB MAN P67   |
| Total Sulfur                          | 0.12   | 0.01 |              | %     | 1  |               | 02/11/22 7:30 AM |
| Fizz Rating                           | 1      |      |              | %     | 1  |               | 02/11/22 7:30 AM |
| Neutralization Potential (CaCO3 Tons) | 1.9    | 0.1  |              | %     | 1  |               | 02/11/22 7:30 AM |

**NOTES:**

units are: Tons CaCO3 / 1000 tons dry



## Laboratory Results

### Geochemical Testing

Date: 14-Feb-22

|                   |               |                          |                       |
|-------------------|---------------|--------------------------|-----------------------|
| <b>CLIENT:</b>    | EARTHTECH INC | <b>Client Sample ID:</b> | RS-3-23               |
| <b>Lab Order:</b> | G2202449      |                          | 67.9'-69.7' Sandstone |
| <b>Project:</b>   |               | <b>Sampled By:</b>       | Earthtech             |
| <b>Lab ID:</b>    | G2202449-023  | <b>Collection Date:</b>  | 2/7/2022              |
| <b>Matrix:</b>    | SOLID         | <b>Received Date:</b>    | 2/8/2022 1:18:38 PM   |

| Analyses                              | Result | QL           | Q | Units | DF | Date Prepared | Date Analyzed    |
|---------------------------------------|--------|--------------|---|-------|----|---------------|------------------|
| <b>ACID BASE ACCOUNTING</b>           |        |              |   |       |    |               |                  |
|                                       |        | Analyst: RLL |   |       |    |               | DEP OB MAN P67   |
| Total Sulfur                          | 0.07   | 0.01         |   | %     | 1  |               | 02/11/22 7:30 AM |
| Fizz Rating                           | 0      |              |   | %     | 1  |               | 02/11/22 7:30 AM |
| Neutralization Potential (CaCO3 Tons) | 0.2    | 0.1          |   | %     | 1  |               | 02/11/22 7:30 AM |

**NOTES:**

units are: Tons CaCO3 / 1000 tons dry

## Laboratory Results

### Geochemical Testing

Date: 14-Feb-22

|                   |               |                          |                       |
|-------------------|---------------|--------------------------|-----------------------|
| <b>CLIENT:</b>    | EARTHTECH INC | <b>Client Sample ID:</b> | RS-3-24               |
| <b>Lab Order:</b> | G2202449      |                          | 69.7'-71.6' Sandstone |
| <b>Project:</b>   |               | <b>Sampled By:</b>       | Earthtech             |
| <b>Lab ID:</b>    | G2202449-024  | <b>Collection Date:</b>  | 2/7/2022              |
| <b>Matrix:</b>    | SOLID         | <b>Received Date:</b>    | 2/8/2022 1:18:38 PM   |

| Analyses                              | Result | QL           | Q | Units | DF | Date Prepared | Date Analyzed    |
|---------------------------------------|--------|--------------|---|-------|----|---------------|------------------|
| <b>ACID BASE ACCOUNTING</b>           |        |              |   |       |    |               |                  |
|                                       |        | Analyst: RLL |   |       |    |               | DEP OB MAN P67   |
| Total Sulfur                          | 0.11   | 0.01         |   | %     | 1  |               | 02/11/22 7:30 AM |
| Fizz Rating                           | 0      |              |   | %     | 1  |               | 02/11/22 7:30 AM |
| Neutralization Potential (CaCO3 Tons) | 0.4    | 0.1          |   | %     | 1  |               | 02/11/22 7:30 AM |

**NOTES:**

units are: Tons CaCO3 / 1000 tons dry

## Laboratory Results

### Geochemical Testing

Date: 14-Feb-22

|                   |               |                          |                       |
|-------------------|---------------|--------------------------|-----------------------|
| <b>CLIENT:</b>    | EARTHTECH INC | <b>Client Sample ID:</b> | RS-3-25               |
| <b>Lab Order:</b> | G2202449      |                          | 71.6'-72.6' Siltstone |
| <b>Project:</b>   |               | <b>Sampled By:</b>       | Earthtech             |
| <b>Lab ID:</b>    | G2202449-025  | <b>Collection Date:</b>  | 2/7/2022              |
| <b>Matrix:</b>    | SOLID         | <b>Received Date:</b>    | 2/8/2022 1:18:38 PM   |

| Analyses                              | Result | QL           | Q | Units | DF | Date Prepared | Date Analyzed    |
|---------------------------------------|--------|--------------|---|-------|----|---------------|------------------|
| <b>ACID BASE ACCOUNTING</b>           |        |              |   |       |    |               |                  |
|                                       |        | Analyst: RLL |   |       |    |               | DEP OB MAN P67   |
| Total Sulfur                          | 0.88   | 0.01         |   | %     | 1  |               | 02/11/22 7:30 AM |
| Fizz Rating                           | 1      |              |   | %     | 1  |               | 02/11/22 7:30 AM |
| Neutralization Potential (CaCO3 Tons) | 31.0   | 0.1          |   | %     | 1  |               | 02/11/22 7:30 AM |

**NOTES:**

units are: Tons CaCO3 / 1000 tons dry

## Laboratory Results

### Geochemical Testing

Date: 14-Feb-22

CLIENT: EARTHTECH INC

Client Sample ID: RS-3-26

Lab Order: G2202449

72.6'-73.6' Siltstone

Project:

Sampled By: Earthtech

Lab ID: G2202449-026

Collection Date: 2/7/2022

Matrix: SOLID

Received Date: 2/8/2022 1:18:38 PM

| Analyses                              | Result | QL           | Q | Units | DF | Date Prepared  | Date Analyzed    |
|---------------------------------------|--------|--------------|---|-------|----|----------------|------------------|
| ACID BASE ACCOUNTING                  |        | Analyst: RLL |   |       |    | DEP OB MAN P67 |                  |
| Total Sulfur                          | 0.13   | 0.01         |   | %     | 1  |                | 02/11/22 7:30 AM |
| Fizz Rating                           | 0      |              |   | %     | 1  |                | 02/11/22 7:30 AM |
| Neutralization Potential (CaCO3 Tons) | 10.8   | 0.1          |   | %     | 1  |                | 02/11/22 7:30 AM |

**NOTES:**

units are: Tons CaCO3 / 1000 tons dry



I.D. 56-00306 PA DEP

## Laboratory Results

### Geochemical Testing

Date: 14-Feb-22

CLIENT: EARTHTECH INC

Client Sample ID: RS-3-27

Lab Order: G2202449

73.6'-74.6' Siltstone

Project:

Sampled By: Earthtech

Lab ID: G2202449-027

Collection Date: 2/7/2022

Matrix: SOLID

Received Date: 2/8/2022 1:18:38 PM

| Analyses                                          | Result | QL           | Q | Units | DF | Date Prepared  | Date Analyzed    |
|---------------------------------------------------|--------|--------------|---|-------|----|----------------|------------------|
| ACID BASE ACCOUNTING                              |        | Analyst: RLL |   |       |    | DEP OB MAN P67 |                  |
| Total Sulfur                                      | 0.13   | 0.01         |   | %     | 1  |                | 02/11/22 7:30 AM |
| Fizz Rating                                       | 0      |              |   | %     | 1  |                | 02/11/22 7:30 AM |
| Neutralization Potential (CaCO <sub>3</sub> Tons) | 9.8    | 0.1          |   | %     | 1  |                | 02/11/22 7:30 AM |

**NOTES:**

units are: Tons CaCO<sub>3</sub> / 1000 tons dry