

c) Drilling operation.

All drilling operations will be conducted prior to mining activities. The drill rig will have a hood installed around the drill bit to control the dust associated with the activity.

d) Overburden removal and mineral extraction

Trees will remain around the site acting as a barrier to prevent dust.

e) Stockpiles (overburden, topsoil, product).

A temporary seed mixture will be applied to the topsoil areas to prevent wind erosion. See Module 23 for the temporary seed mixture. Water will be applied to the limestone stockpile area to prevent dust.

f) Loading and unloading areas.

Dust prone areas will be covered with crushed non-toxic stone to control dust and dirt build up.

g) Crushing and other processing equipment.

Shot rock will be watered prior to crushing.

h) Conveyors.

Conveyors will be used to transport material from the crushers and screeners to the stockpiles.

Activities under 17.2 a) through h) which are addressed and regulated as part of a separate Air Quality Permit do not need to be included in this module. Indicate which activities (or specific aspects of an activity) are addressed under a separate Air Quality Permit.

An Air Quality Permit will also address all of the above activities.

17.3 Noise Control Plan

[Rev 12.2021]

a) List all noise sources from equipment and mining activity that will originate within the permit area.

Possible operational noises include but are not limited to:

Haul trucks, excavators, dozers, Fuel trucks, water trucks, back up alarms on mobile equipment, drill, blasting of overburden, crushers, conveyors, etc.

b) Indicate the hours of operation for mobile and stationary equipment:

- Continuous 24 hours a day. Which equipment?
- Night time hours. Which equipment?
- Weekends. Which equipment? Saturday 6 am to 5 pm for all equipment.
- Holidays. Which equipment?

The proposed hours of operation will be limited to 6 am to 5 pm Monday through Saturday.

c) Are any of the following located adjacent to the proposed mine operation? Check all that apply and include distance and details.

- Residential Areas
- Schools
- Hospitals
- Churches

Details: N/A. None of the above are adjacent to mine property

- d) **Describe the pre-mining environmental sound levels within the adjacent area during weekdays, night time, weekends, and holidays.**

See the Module 17.3 Noise Assessment for pre-mining sound levels in the adjacent areas.

- e) **Has a noise study been conducted to characterize the pre-mining noise levels of the surrounding area and estimate the noise levels from the proposed mine operation? Yes No
If yes, submit that study.**

See the attached Module 17.3 Noise Assessment.

- f) **Describe the measures (best management practices) that will be taken to mitigate noise and prevent noise from becoming a public nuisance.**

All of the operations will be utilizing OSHA approved equipment equipped with mufflers as per the manufacture's standards for noise suppression. Blasting is proposed during the mineral excavation phase but will not be a continuous occurrence throughout the operation. Trees surrounding the site will be left in place as an additional barrier to sound. If the noise level from the operation becomes a nuisance, then additional measures will be implemented. For example, optimizing current equipment, using sound absorbing materials, and adding noise barriers.

Ligonier Stone & Lime Company SMT East Surface Mine

Module 17.3 Attachment **Noise Assessment**

Introduction

The following noise assessment is prepared for the proposed Ligonier Stone & Lime Company - SMT East Surface Mine Site. This site is located in Derry Township, Westmoreland County approximately ½ mile southwest of Blairsville, Pa along State Route 217. The planned site activities include surface mining and operating a mineral processing plant, in addition to any support activities. This noise assessment was completed to estimate the possible impact of the operation on the surrounding area.

Instrumentation

Quest MICRO-15 Noise Dosimeter's were used to document background noise at and surrounding the site. The dosimeters recorded the High Threshold Limit (HTL) Dose, Low Threshold Limit (LTL) Dose, Slow Max, and Peak Level readings at each chosen location. The HTL Dose and LTL Dose readings are expressed as percentages of the noise above those levels; the HTL being 90 decibels (dB) and the LTL being 80 dB. Note that all dosimeters were calibrated prior to conducting the study.

Background Ambient Noise Levels

On December 9, 2021 Earthtech, Inc. conducted a background noise study to estimate the current background ambient noise levels at multiple locations surrounding the proposed site. Seven (7) locations were chosen for the study. The proposed processing pad area and six (6) additional locations of various distances and topographic settings. These locations are identified on the attached Measured Noise Study Map.

The dosimeters were used to measure noise levels at the seven (7) locations for approximately 6 hours from 9:00 to 15:00. Site conditions were mild, approximately 50°F and cloudy during testing. The following Measured Noise Locations Data chart provides approximate distances from the proposed processing area and summarizes the results of the study. Property numbers indicated in the "Location" field key to the Exhibit 9 Map.

Meters 11, 12, 14, and 15 exhibited similar results to each other such as HTL in the 3-8% range and LTL in the 12-19% range. These four (4) locations are all adjacent to public roads where vehicle traffic is likely a main component of ambient noise. Meter 3, located at Taylor Leasing truck garage, exhibited similar results except for a slightly higher HTL. This may be due to daily activities conducted at the truck garage itself. Meter 4 indicated elevated LTL and HTL percentages (54% and 43%) as compared to the rest of the locations. It was recorded that a brush hog machine was being utilized during time the study was conducted therefore the elevated results are likely an effect of the machine noise. Meter 2, located in the proposed processing pad area revealed results of 19% HTL and 60% LTL.

| MEASURED NOISE LOCATIONS DATA | | | | | |
|-------------------------------|---|--|-----------------------------------|----------------------------------|-----------------|
| Meter I.D. | Location | Apx. Distance From Processing Area (ft.) | High Threshold Limit (HTL) % (dB) | Low Threshold Limit (LTL) % (dB) | Peak Level (dB) |
| 2 | Processing Pad Area | 0 | 19.28 | 60.71 | 116.6 |
| 3 | Near Taylor Leasing (Property 22) | 370 | 12.58 | 25.81 | 120.0 |
| 4 | Westmoreland Federal Savings (Property 20) | 940 | 43.09 | 54.33 | 119.6 |
| 11 | Adjacent to Corob Residence (Property 16) & Pizza Barn Road | 2670 | 7.91 | 18.79 | 117.0 |
| 12 | Near Limestone Drive and Harr Residence (Property 23) | 910 | 3.23 | 14.49 | 123.7 |
| 14 | Cokeville Street | 1980 | 5.48 | 12.26 | 123.0 |
| 15 | Near Anderson Residence (Property 18) | 1490 | 5.59 | 23.15 | 115.8 |

Estimated Noise from Proposed Site

The U.S. National Institute for Occupational Safety and Health (NIOSH) conducted case studies of equipment sound levels and worker noise exposures in the stone/aggregate mining industry. The report, Noise Assessment of Stone/Aggregate Mines: Six Case Studies¹, recorded sound measurements of equipment at surface processing facilities. Sound level measurements near equipment such as crushers, screeners, etc. and at various locations at the surface processing facilities for the case studies ranged from approximately 70 to 110 dBA and averaged approximately 90 dBA. The estimated amount of noise that would be generated by the proposed SMT East operation would likely be similar to levels recorded in the report as similar equipment will be used at the site.

Assessment of Noise Effect from the Proposed Site

Estimating sound levels at locations in the surrounding area can be done by applying the Inverse Square Law. This calculation "predicts" a sound level as it dissipates at a certain distance from a measured sound level. For example, by applying the calculation to an average noise level range from the case studies referenced above (90 dBA) and the closest measured background location (Taylor Leasing, approx. 370-feet) from the proposed processing area the result is a predicted noise level of approximately 59 dBA (See calculation below). This result is equivalent to a normal conversation (approximately 60 dBA) as per the CDC². Additionally, the calculation assumes equal distribution of noise in all directions however the noise impact from the proposed operation may vary due to physical obstructions, terrain, etc. These variables will allow for additional noise reduction as it travels from the site to various locations in the surrounding area.

Inverse Square Law: $I_2/I_1 = [D_1/D_2]^2$ Where I_1 = Measured noise level = 90 decibels
 I_2 = Predicted noise level
 D_1 = Distance from source of measured level = 10 feet
 D_2 = Distance to receptor = 370 feet

¹ Bauer, E.R. & Babich, D.R., Noise Assessment of Stone/Aggregate Mines: Six Case Studies, 2007

² https://www.cdc.gov/nceh/hearing_loss/what_noises_cause_hearing_loss.html

So $I_2/I_1 = 0.0007$

The relationship between I_2 and I_1 is logarithmic therefore the expected noise reduction is as follows.

$$10 * \log [0.0007] = 31.5 \text{ dBA}$$

For the example calculation the hypothetical noise level of 90 dBA is assumed at a distance of 10 feet from the operational equipment. So, the predicted noise level at receptor is 90 dBA – 31.5 dBA of reduction, equaling approximately 59 dBA.

Noise Mitigation

Mobile equipment on site will be equipped with mufflers per the manufacturer's standards. In addition, trees surrounding the site will be left in place as an additional noise barrier. The hours of operation will be limited to 6 am to 5 pm, Monday through Saturday. If noise levels from the mobile equipment or the processing area become a nuisance additional mitigation measures can be implemented. Examples include optimizing current equipment, using sound absorbing materials, and adding noise barriers.



LEGEND

- SMT EAST PERMIT LINE
- - - - - 1,000 FOOT OFFSET
- - - - - PROPERTY LINE
- IMPROVED ROAD
- UNIMPROVED ROAD
- OCCUPIED BUILDING
- UNOCCUPIED BUILDING
- MEASURED NOISE LOCATION & METER IDENTIFICATION NUMBER

NOTES:
1. AERIAL IMAGE OBTAINED FROM PASDA DATED 2018.

MEASURED NOISE LOCATION MAP

LIGONIER STONE & LIME COMPANY
SMT EAST SURFACE MINE
DERRY TOWNSHIP
WESTMORELAND COUNTY, PA

FILE NAME:
NOISE STUDY MAP.dwg

SCALE:
1"=1000'

DATE:
DECEMBER 2021

DWN. BY:
AMR

CHK. BY:
BV



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