

Attachment E
Asbestos Air Monitoring and Mitigation Plan



**Asbestos Air Monitoring
and Mitigation Plan
at
Specialty Granules LLC**

Project No: LLH808740

Date: December 10, 2019

Prepared for:

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1.0 Introduction

This Asbestos Air Monitoring and Mitigation Plan ("Plan") has been prepared on behalf of the Specialty Granules LLC (SGI) to sample and test ambient air quality conditions for potential airborne asbestos fibers related to the operation of a non-metallic mineral quarry and processing plant at the existing site located near Blue Ridge Summit, PA (southwestern Adams County).

The primary business of the site is to mine a meta-basalt rock that is processed into roofing granules. SGI operates a permitted mine at this location and has applied for an additional permit to extend the life of the operation by expanding into the "Northern Tract" of the property. The Charmian property is bounded by Old Waynesboro Road (south), Iron Springs Road (east), Lower Gum Springs Road (north), Gum Springs Road (west) and Furnace Road (west).

Data Quality Objectives

The purpose of the asbestos fiber air monitoring is to monitor for asbestos fibers at the site property lines. Details of the required asbestos air monitoring plan can be found in Sections 3 to 7 below.

2.0 Description of Facility

The Charmian Site is located in Hamiltonban Township, Adams County, PA. See attached Site Location Map. Currently, the Charmian Site generally consists of an active quarry (Pitts Quarry – SMP 01930302), an inactive quarry (West Ridge Quarry – SMP 6477SM5), stockpile storage areas, rock crushers, manufacturing plants, and related erosion and sediment control/stormwater control features (e.g. sediment ponds and traps, collection ditches, and other best management practices features). SGI extracts meta-basalt and related lithologies at the Charmian Site to produce multiple rock products for SGI customers. The main product is manufactured roofing granules that are used to cover asphalt roofing shingles. The SGI site is 856± acres, including 620± acres which are authorized under the two above-referenced surface mine permits. The 112-acre Northern Tract permit area is contiguous to the active Pitts Quarry and will essentially serve as an extension of it.

Although daily hours of operation may vary, the plant is expected to operate each week Monday through Friday and occasionally on a Saturday. Air sampling events will coincide with days the facility is operating and will not be conducted on closed days.

3.0 Perimeter Air Sampling Locations

There are a number of locations along the perimeter of the property at which samplers can be located. These locations will encompass both upwind and downwind locations without the need to relocate due to possible shifting winds.

The general locations of the samplers have been selected based on a number of factors including existing equipment operating locations, historic prevailing winds at the Quarry, site-specific activities connected with quarrying and processing of aggregate products, and locations of potential offsite receptors. Based on the historic Wind Rose plots from nearby NOAA stations at Hagerstown, Gettysburg, Greencastle, Waynesboro, and York (climate data can be obtained from: <https://www.ncei.noaa.gov>), the wind generally blows from the southwest along the ridgeline-direction. Based on this, the proposed sampling locations are shown in Figure 1. The selected locations may change over time based on changes in operational locations.

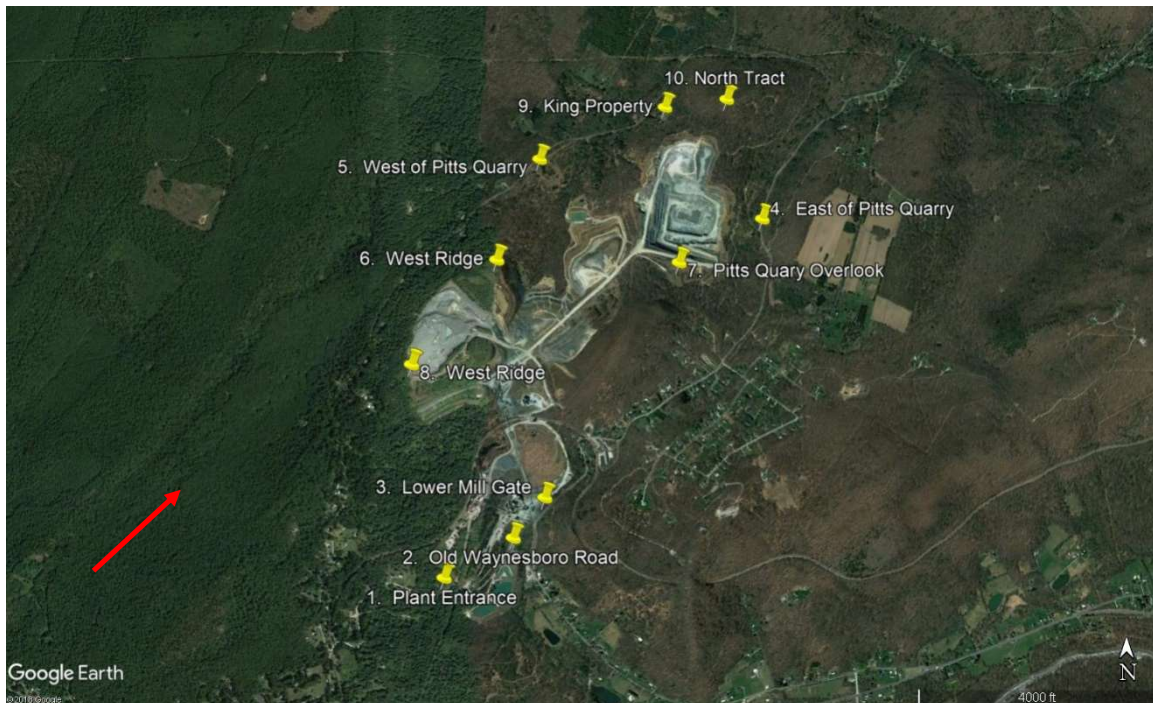


Figure 1. Proposed locations of up to 10 samplers along the general perimeter of the Specialty Granules property at Charmian, PA. The red arrow indicates the direction in which the wind typically flows.

Wind direction and wind speed will be monitored at least one (1) time per hour during each sampling event. Monitoring for wind direction and wind speed will be conducted using a weather station permanently installed at the SGI facility. If wind direction changes during a sampling event in any one sampling phase, the time and change in direction will be documented to reflect the change and provide data for review of analytical data. If it is determined that the wind direction has changed, creating a situation where the designated downwind samples are no longer downwind of the active operational areas, this fact will be noted on the sample data forms and the appropriate “new” downwind samples will be identified.

In all cases, based on professional judgment and knowledge of offsite concerns, sampling areas may be adjusted to provide more representative data and consideration of spatial

conditions. All adjustment will be documented properly to show the change and the reason for the change.

4.0 Field Sample Collection Methodology

The perimeter air samples will be collected at the selected locations as indicated in Section 3 above. Samples will be collected at selected locations using low flow air sampling pumps. The perimeter air sampling pumps used for the sample collection will be the Escort Elf air pumps by Zefon International (or equivalent).

Each perimeter pump will be affixed with a cassette (and cowl) that contains a 25-millimeter (mm) diameter Mixed Cellulose Ester (MCE) filter with a pore size of 0.8 (μm). All samples will be collected at an elevation above ground that is typically referred to as the breathing zone. This is an area approximately 5-6 ft. above the ground surface. The sampling cassette and filter be affixed to a sampling post station or tripod that will be used to set the sampling height.

Sampling will be in accordance with the National Institute for Occupational Safety and Health (NIOSH) Manual for Analytical Methods (NMAM), Method 7400, Asbestos and other Fibers by Phase Contrast Microscopy (PCM). If the PCM fiber concentration exceeds 0.01 fiber/cc, then Method 7402, analysis by Transmission Electron Microscope (TEM) will be employed to ascertain the mineralogy of the PCM fibers. The field sample procedures are the same for each method. A copy of each of the methods is provided in Attachment 3 – Sample Methods. In accordance with the methods, one field blank will be obtained for every five samples or at a minimum of two for each sampling event (assuming 10 sampling sites).

Each perimeter air sampling pump will be operated at approximately 1 to 4 liters per minute (lpm). Sampling times will vary however; all sample durations will be established to assure an adequate sample volume to achieve the desired laboratory reporting limits. Samples will be collected during the routine operations to provide a representative sample. Pumps will be calibrated, prior to and following use, each day using a cassette reserved for calibration (from the same lot of the sample cassettes to be used in the field).

The sample collector will record the pump serial number, sample number, initial flow rate, sample start/end times, sample locations, and final flow rate on the Field Data Sheets (see Attachment 4 – Field Sampling Documents). Sampling Field Data Sheets will be used to record sample collection information, field measurement and field observations obtained during each sampling event. Information in the datasheets will include, at a minimum, the following:

- Location of the sample, crushing and other site activities being conducted during sample collection;
- Date and time of collection;
- Sampling flow rate and volume;

- Description of temperature, wind direction, wind speed and general weather conditions; and
- The unique sample identification number for each air sample.

Field notes will also be maintained during all sampling events. The notes will include general information, weather conditions, wind direction, etc. (see Attachment 4 – Field Sampling Documents for examples of both the Field Data Sheets and the Field Notes).

Field notes will include a site map with approximate sample locations for each sampling event clearly marked on the map, and references to photographs as needed to document site sampling activities. Any non-routine site activities will also be noted in the field notes (e.g. lawn mowing, grading, etc.).

Data sheets and field notes will be completed, signed, and dated by the field technician.

Photographs of Air Sampling Activities

Photographs will be taken during selected air sampling activities. The photographs will be used to provide backup documentation of sampling activities. A log of the photographs will be recorded and will include the sampling activity and approximate location for each photograph.

Chain of Custody Records

Chain of custody procedures will be used to maintain and document sample collection and possession. During the sampling process, a laboratory Asbestos Chain-of-Custody form provided by the Laboratory will be completed (see Attachment 4 – Field Sampling Documents). The completed Chain-of-Custody Record will accompany all samples and be signed as required as each sample package recipient receives and relinquishes possession of the sample package.

Sample Packaging and Shipment

The air sample filter cassettes will be carefully packaged and delivered to the analytical laboratory using standard methodology. Plastic bags and other acceptable packaging containers will be used for sample shipment and convenience. Shipment tracking information will be provided for each sample shipment.

Weather and Wind Direction Data

During all field monitoring events, wind speed and wind direction will be monitored from the permanent weather station. The data will be collected as referenced in Section 3 and will be reviewed prior to and following each sampling event. The weather station data will be provided as part of the final report at the completion of the project.

5.0 Sampling Frequency

Samples will be collected twice per month for an initial period of 6 months. The actual day on which the samples are collected can vary to minimize the possibility of precipitation, which could affect the overall airborne particulates. After the initial six-month period, SGI may request permission from PA DEP to decrease the frequency of sampling or to cease

asbestos air monitoring, provided that airborne asbestos fiber levels are consistently less than the target level of 0.01 f/cc.

The PA DEP will be notified at least two (2) working days prior to initiating the air sampling at the site. Once regular monitoring is underway, the Department will be notified of any unusual changes in the sampling via electronic mail. In addition, PA DEP will be notified as soon as possible if any sampling event has been cancelled along with the reason for the cancellation.

6.0 Analytical Methods

The analytical methods and laboratory analysis for asbestos in air analysis to be utilized as part of this plan will include both PCM and TEM methodology, as referenced above in Section 4. Methods 7400 and 7402 have sample volumes and flow rates that are specified and consistent with the field sampling procedures described in Section 4.0 above.

The PCM method (Method 7400) is used to count all visible fibers longer than 5 μm , including non-asbestos fibers. This test may over predict the actual potential asbestos in the air, consequently, the PCM method will provide a worst-case indication of the number of fibers in the sample areas. TEM analysis (Method 7402) can identify and differentiate asbestos fibers from non-asbestos fibers and will be used if any PCM results indicate more than 0.01 fibers/cc.

Analytical Laboratory

All samples will be analyzed by an analytical laboratory selected from the list of asbestos analytical laboratories that are part of the National Voluntary Laboratory Approval Program (NVLAP) and are accredited by the American Industrial Hygiene Association (AIHA) and by the Department of Environmental Protection – Bureau of Laboratories. Any accredited laboratory that meets the requirements listed above may be used for sample analysis.

Quality Control

A quality control (QC) program will be implemented to assure data quality. The field program includes the use of blanks and duplicate samples. Should any sample fail at a particular location, that sample at that location will be resampled within two weeks.

Field Blanks

NIOSH 7400 and 7402 require that at least 2 field blanks (or 10% of the total number of samples collected, whichever is greater) be submitted with each set of samples. For the SGI site, this will be 2 field blanks. A field blank is a new sampling cassette that is opened on site during the sampling period, kept uncovered for at least 30 seconds, and then is closed and sealed for transport to the laboratory. The purpose of the field blank is to document the possible contamination of the filter media that could occur as a result of handling the samples in the field.

Duplicate Samples

Duplicate samples may be collected to evaluate the reproducibility of sampling and analysis. Duplicate samples will be collected, stored and transported in the same manner as the

actual samples. A separate number will be assigned to each duplicate, and all duplicates will be submitted blind to the laboratory. For this monitoring program, duplicate sampling will be conducted through the collection of co-located samples collected during the same sampling interval.

Field Equipment

The following equipment will be utilized for this sampling:

- Air sampling pumps (personal or low volume pumps).
- Asbestos sample filter cassettes with filters (25 mm, 0.8 µm pore, MCE).
- Air pump calibration equipment.
- Quart and gallon size resealable bags.
- Sample transport containers and packing material.
- Additional supplies as needed including health and safety equipment.
- SGI Permanent Weather Station.

7.0 Record Keeping and Reporting

All records and documents related to the airborne asbestos monitoring program will be maintained by SGI for at least five (5) years and will be made readily available to PA DEP upon request. Field Data Sheets and Field Notes will be completed, signed, and dated by the recorder. All logs will be written with waterproof ink. Corrections to data entered will be made by crossing out the error with a single horizontal line, initialing and dating the correction, and entering the correct information. Crossed-out information shall be readable.

Photographs will be taken during selected air sampling activities. The photographs will be used to provide documentation of sample locations, site activities, etc. that are pertinent to the asbestos monitoring task. A log of the photographs will be recorded and will include the sampling activity and approximate location for each photograph.

All laboratory reports and associated data sheets, as well as progress reports and other documentation related to this project will be properly maintained in accordance with the applicable requirements. All samples analyzed under Method 7400 (PCM) will be retained by the laboratory for at least 30 days to allow for follow-up testing using Method 7402 (TEM), should the need arise.

Reporting

Any confirmed airborne asbestos detection in excess of 0.01 fibers/cc will be immediately reported to the SGI Executive Director of Operations to ensure that the appropriate investigation and corrective measures are initiated. In addition, this information will be reported to PA DEP within 24 hours of SGI's receipt of the reported result.

Monitoring reports will include a summary of the analytical results for all samples collected and analyzed during the reporting period; copies of applicable chain of custody sheets and

applicable field sampling logs; and a written report detailing any investigative actions or corrective measures that may have been taken during the reporting period in response to a result exceeding 0.01 fibers/cc.

8.0 Corrective Actions

An airborne asbestos fibers detection above 0.01 fibers/cc in the outdoor air will trigger a number of corrective measures that will be taken by SGI to abate any potential harmful migration of asbestos fibers.

Pursuant to the conditions of the Plan, in the event that a sample exceeds the airborne asbestos fiber concentration of 0.01 fibers/cc, as outlined above, the facility will do the following:

1. Report the results immediately to the SGI site manager. SGI will also notify the PA DEP within 24 hours of discovery of a confirmed result.
2. Daily air sampling of that location will commence for 7 days.
3. Investigate the potential cause of the results. The investigation will include, but not limited to:
 - a. Review of operational activities that were occurring during sampling,
 - b. Confirmation that dust suppression systems are fully operational, and
 - c. Quality Assurance and Quality Control review of all sampling and laboratory equipment and procedures.
4. SGI will take immediate corrective measures. These corrective measures may vary based on the location of the sample, and findings of the investigation. The investigation will begin as soon as the result is confirmed and will be completed in an expedited manner. The corrective actions may include investigation of the source of any airborne asbestos, extra dust suppression measures, cleanup, repairs or modifications to systems and controls, or temporary cessation of operations.
5. SGI will record the results and all corrective measures taken at the site in a permanent written log.

9.0 Asbestos Avoidance Measures

SGI has established and implemented a Suspect Minerals Identification and Management Guide. This guide defines the company's procedures to properly identify and manage any materials that meet the definition of Suspect Materials. The Guide covers a number of topics, including the following:

- Geologic testing of corehole drill data
- Geologic field inspections by a trained geologist.

- Shot rock (muck) pile inspections for suspect minerals. These are completed upon the initial blast and 1/week until the pile is depleted.
- Training requirements for key site personnel.
- Proper management and disposal of suspect minerals if identified.
- Health and Safety precautions for personnel involved in managing suspect minerals.
- Recordkeeping requirements.

Fugitive Emissions Mitigation Plan

SGL implements a number of practices that are consistent with the industry standards and regulatory requirements in order to control fugitive emissions at the Charmian site. Below are the largest potential sources of dust emissions at the site, as well as the practices utilized at Charmian to control them:

Vehicle Traffic:

- SGL utilizes a street sweeper to clean roads near site entrances as needed. SGL's street sweeper is a state-of-the-art sweeper utilizing a broom system and water sprays to collect debris while minimizing dust generation. This sweeper is used on internal paved roads at Gate 1 and Gate 2, as well as the portion of Old Waynesboro Rd.
- SGL has installed a truck wash utilizing spray nozzles and pressurized water to remove loose or dusty material from loaded trucks leaving the site through Gate 2.
- Open-top trucks exiting either Gate 1 or Gate 2 are required to utilize a tarping system to minimize fugitive or loose material from falling while on public roads.
- Both site entrances are paved to reduce tracking and improve sweeping efficiency.
- SGL operates and maintains 3 large trucks equipped with water sprays to control dust from roadways.
- Water trucks are equipped with water cannons to spray hard to reach areas of stockpiles during times of need.

Haul Roads:

- Application of dust suppressing chemicals during extremely dry or windy conditions and in winter freezing months as needed.
- SGL operates and maintains 3 large trucks equipped with water sprays to control dust from roadways.
- Roads are resurfaced/reggraded as needed to maintain a clear and safe working surface and thereby reducing dust generation.

Plant Stationary Equipment and Stockpiles:

- Air Pollution Control Equipment is installed and operated according to PA DEP performance standards coupled with work practices, inspection, and source monitoring.
- Stockpiles are equipped with water sprays to control emissions.
- SGI occasionally applies surface binders to stockpiles of fines in order to control particulate emissions from areas that will be temporarily inactive and may be subject to dust generation.
- Conveyors and transfer points are generally covered and dust is controlled with wet sprays and/or dust collection systems to prevent fugitive emissions.

Drill Rigs:

- On-board dust collection and/or water sprays on drill rigs will be used to limit dust generation in the Northern Tract.
- A drill shroud is utilized at the ground level to control fugitive emissions from drilling activities in the Northern Tract.

Training and Inspections for Visual Emissions:

- Key plant personnel are trained to conduct visual observations for fugitive emissions as well as opacity readings on emissions sources to ensure they are operating properly.
- SGI conducts preventative maintenance of operational and dust collection equipment to ensure the timely replacement of worn components.