COMPLIANCE PLUS SERVICES, INC.

May 17, 2019

Via UPS Ground Delivery

James Rebarchak
Regional Program Manager
Pennsylvania Department of Environmental Protection
Division of Air Quality
Southeast Regional Office
2 E. Main Street
Norristown, PA 19401

RE: Response to the Department's Comments Dated January 4, 2019 and Verbal Comments Received May 6, 2019, Regarding the Draft Asbestos Air Monitoring and Draft Fugitive Dust and Asbestos Mitigation Plans for the R. E. Pierson Rockhill Quarry Located at 2055 N. Rockhill Road Sellersville PA; Plan Approval No. 09-0241

Dear Mr. Rebarchak:

Compliance Plus Services, Inc. ("CPS") is pleased to provide this response, on behalf of our client R. E. Pierson, Inc. ("REP"), to your comments, sent via electronic mail January 4, 2019 and verbal comments discussed May 6, 2019, regarding both the Draft Asbestos Air Monitoring Plan and the Draft Fugitive and Asbestos Dust Mitigation Plan referred to as (collectively, "Final Plans") that CPS submitted for the Rockhill Quarry Facility.

These Final Plans, along with your comments, were also reviewed by additional third-party independent experts in the field. Specifically, The Draft Plans were reviewed by both Mr. Kelly Baily of Kelly Baily Consulting LLC., and Mr. Drew Van Orden P.E. of R.J. Lee Group Inc. Any applicable comments provided by the third-party reviewers have also been incorporated into the revised Final Plans along with the revisions that were made in response to the comments provided by the Department.

A detailed description of the responses to each of the comments you provided in your January 4, 2019 permit is attached for your review. For the sake of clarity, the Department's comments noted in the January 4, 2019 e-mail are restated in **bold** text with the responses immediately following in *italicized* text. We have also included full updated copies of each of the Final Plans. Per your request the Final Plans do not show the edits or updates made in response to your written and verbal comments or comments from the two third-party reviewers referenced above.

We believe the enclosed information fully addresses your comments. Should you have any additional questions or comments, please feel free to contact me at 215.734.1414 or via e-mail at sgarner@cps-2comply.com.

Sincerely,

Robert Garner
Division Manager, Environmental Permitting
Compliance Plus Services, Inc.

Enclosure

cc: Mr. Curt Mitchell, R. E. Pierson (electronic copy only)
Mr. Andrew Gutshall, Hanson (electronic copy only)

N:\LETTERS\6600-6699\6695 - RE Pierson response to comments .doc

Response to January 4, 2019 PADEP Comments Regarding the Draft Asbestos Air Monitoring Plan and Draft Fugitive Dust and Asbestos Mitigation Plan

R.E. Pierson Construction Company, Inc.
Hanson Quarry
2055 North Rockhill Road
Sellersville, PA 18960

May 2019
Project 0272.1218.16

Prepared By:
Compliance Plus Services, Inc.
455 Business Center Drive, Suite 250
Horsham, PA 19044
215.734.1414

Response to January 4, 2019 PADEP Comments to the R.E. Pierson Draft Asbestos Air Monitoring Plan and Draft Fugitive and Asbestos Dust Mitigation Plan

Provided below is the response to the comments received via electronic mail (e-mail) on January 4, 2019 from the Pennsylvania Department of Environmental Protection ("PADEP" or "Department") related to the Draft Asbestos Air Monitoring Plan and Draft Fugitive and Asbestos Dust Mitigation Plan for R.E. Pierson, in addition to a phone conversation with Shawn Mountain (PADEP) on May 6, 2019. For the sake of clarity, the response provided below restates the issues cited in the Department's January 4, 2019 e-mail. The Department's comments are indicated in **bold** text, with our responses immediately following in *italicized* text.

Asbestos Air Monitoring Plan

1. **Section 1.2 Site Mining Permit and Asbestos Monitoring Plan**

   The activities outlined in this section are not covered under the AQ permitting for this site as they are directly related to plans submitted to and approved by the PDMO. You may leave this information in the plan, but as mentioned above, the Air Quality Program will only review and approve those activities that are required under the Air Quality rules and regulations and the requirements of Plan Approval 09-0241.

   Response:

   R.E. Pierson agrees with the Department's comments and has removed the details of the Rock Hill Quarry Qualitative Geologic Survey Sampling (QGSS) Plan from the information in Section 1.2. The section has been updated to indicate that if any information developed pursuant to the implementation of the QGSS Plan that may require changes to the Asbestos Air Monitoring Plan, this information will be reported to PADEP along with the appropriate revisions to the Asbestos Air Monitoring Plan.

2. **2.1 Location**

   There are more residences near the site than are marked on the Receptor Location Map in Attachment 1. Please clearly indicate all the nearby potential receptor locations, or more clearly describe why you are only highlighting some of them.

   Response:

   Section 2.1 has been updated to clarify that the list provided above referencing the Receptor Location Map, shows only the closest residences and sensitive receptor locations including schools and the airport. These are highlighted to address possible

sensitive receptor locations in the vicinity and to give examples of possible nearby concerns, not to list all locations within a certain distance.

This section indicates that the wooded areas will serve as a natural buffer. It appears that at least some of these wooded areas are outside of your property and not under your control. The purpose of this plan, and the Asbestos Dust Mitigation Plan, is to keep the levels at the property line in compliance with all limitations. We ask that you either remove this reference from the plan or more clearly explain why it is there.

Response:

We acknowledge that, while a significant portion of the property is wooded, not all of the wooded area are under the control of the property owner. Accordingly, this reference related to the wooded areas serving as a natural barrier has been removed.

3. **2.4 Permanent Crusher Plant Area Activities**

Processing washed aggregate can still cause fugitive emissions, depending on the circumstances. Please elaborate what equipment following the surge pile can be used that would not create fugitive emissions while processing washed aggregate.

Response:

We agree with the Department's statement that processing washed aggregate can still cause fugitive emissions depending on the circumstances. Therefore, this statement has been removed from the Plan.

4. **3.0 Asbestos Air Sampling Locations**

On Page 8, the draft plan indicates that wind direction and speed will be monitored during each sampling event. Since these events will probably be extended, we would like specific indication of how often. It seems reasonable to do this at least every hour.

Response:

Section 3 has been updated to indicate that wind direction and wind speed will be monitored at a frequency of no less than one time per hour during each sampling event.

What is considered an "extreme" change of wind direction? Could the final proposal be more specific about what circumstances would necessitate a change in sampling location?

Response:

The language in this section has been amended to clarify what "extreme" change in wind direction is. The section now reads as follows: "If the wind direction change is greater than 45^0 in either direction frequency of monitoring wind speed and wind direction will increase to every 15 to 30 minutes to determine if the change is a sustained change in direction. If it is determined that the wind direction change has created a situation where the downwind samples are no longer downwind of the active operational areas, the sample will be terminated or relocated to a downwind location.

5. **4.0 Field Sample Collection Methodology**

Personnel monitoring for on-site workers, working near dust-generating conditions, may be regulated by other governmental agencies involving worker safety. Our review of any data collected from this monitoring will be used solely to determine if fibers are being generated at a closer proximity to the actual on-site activity and to determine if additional dust mitigation may be needed to prevent potential off-site migration.

Response:

We acknowledge and agree with the Department's comment. This information has been removed. R.E. Pierson understands that personnel monitoring for on-site workers is regulated by MSHA and that the Departments review of data will be associated with the Pennsylvania air quality rules and regulations and the Plan Approval No. 09-0241.

The 4th paragraph of the plan discusses the personal sample pump but not the perimeter pumps. Please include details about the type and specifications of the pumps used for perimeter monitoring.

Response:

The reference to the personal sample pump has been removed and the pumps are now appropriately identified as low flow air sampling pumps. Specifications for the type of low flow air sampling pumps that will be used to conduct the sampling is provided in Attachment 5 of the Remedial Plan. Please note air sampling pumps being used are universal type low flow air sampling pumps and may be exchanged or substituted for an equivalent unit based on availability. Additional, following the implementation of the background sampling, and the experience gained at the site, the option to use a high-volume flow air sampling pump has been removed from the Plan.

What will the turn-around time be for sample results?

Response:

As noted in section 6.1 Analytical Laboratory the sample turn-around time for the initial sample results for each analytical test will be 24 hours or less.

Will the site cease operations if there is a positive result for asbestos, either from personnel monitors or perimeter monitoring? If so, what will you do to ensure safe operation, prior to restarting?

Response:

The corrective actions that will be taken in response to an exceedance of the 0.01 fibers/cc level established in the Air Permit being detected during sampling is outlined. This section includes revisions to address the various response actions that will be taken, up to and including cessation of operations, as well as the processes that will be implemented to resume operating at the site.

6. **4.1 Data Sheets**

We ask that the data sheet include meteorological information (wind direction, wind speed, temperatures, etc.)

Response:

The Data Sheet has been updated to include meteorological information including wind direction, wind speed, and temperature.

The sample analytical results do not seem to belong on the field data sheet. We prefer the sheet only include data taken in the field, at the time of the sampling.

Response:

R.E. Pierson concurs with the Department and the field data sheets will only include data collected in the field at the time of the sampling. Section 4.1 has been revised accordingly.

We request to add a check box for each sample taken to indicate if picture was taken for that sample location.

We ask that you include a map with each sampling event with the approximate sampling locations clearly marked, not just the general area.

Response:

Section 4.1 has been updated to include requiring notation for photographs and that the field notes will include a drawing that depicts the specific sample locations for each individual sampling event. A note was also added to the Field Data Sheet and Sampling Log indicating that each sample location is to be documented on a copy of the site plan.

7. **4.5 Weather and Wind Direction Data**

Please describe in detail the different monitoring procedures planned before and after the permanent weather station is operational.

Response:

Section 4.5 has been updated to include the statement that the Anemometer will be used before and after the installation of the permanent weather station to record wind speed and direction in the designated sampling areas for each specific sampling event. The permanent weather station will continually record weather data that will be reviewed prior to and following each sampling event, and the data will be provided as part of the final report at the completion of the project.

We request that you add a compass to the needed equipment for determining wind direction during sampling, unless other equipment is available to provide that information. If so, please indicate what that equipment would be.

Response:

Section 4.5 has been updated to include the use of a compass, or similar equipment, for determining the degree range of the wind. Section 6.3 has been updated to include a compass in the listed Field Equipment.

8. **How often will you be recording the weather data, both before and after the permeant weather station is operational?**

Response:

As mentioned above Section 3.0 has been updated to indicate that wind direction and wind speed will be monitored at a frequency of no less than one time per hour during each sampling event. This will be done regardless of the installation of the permanent weather station. It is expected that the permanent weather station will be able to record data for wind speed and direction at 30-60 second intervals. This data will be reviewed prior to and following each sampling event.

9. **6.0 Analytical Methods**

The last paragraph references background "limit". Since there is no background limit, we believe it is more appropriate to call this the background level.

Response:

Section 6.0 has been updated to replace the reference to a "background limit".

Please be advised background levels cannot be subtracted from any results.

Response:

R. E. Pierson understands that background levels cannot be subtracted from the results.

10. 6.1 Analytical Laboratory

Please ensure that any laboratory used is PA accredited.

Please ensure the lab can provide a 24-hour turn-around time on results.

Response:

Section 6.1 has been revised to ensure any laboratory used for analysis of the air samples is a PA accredited laboratory and is capable of providing 24-hour turn-around time for relevant test results.

11. 6.2.2 Duplicate Samples

The last two sentences in this section seem to describe a re-sampling event, not duplicate samples. Duplicate samples must be taken at the same time, same location. If the intention is to do duplicate sampling as a QA/QC check, please revise this methodology. Please describe resampling procedures when a positive asbestos result occurs in its own section.

Response:

Section 6.2.2 has been revised to address the collection of duplicate samples as a Quality Assurance and Quality Control checks as required by the sampling method. Section 8.0 describes the resampling procedures if a positive result above the exceedance limit would occur.

12. 6.3 Field Equipment

Please include wind and wind direction measurement equipment in this list and/or the permanent wind monitor station (after it is constructed).

Response:

Section 6.3 has been updated to address this comment.

13. 7.1 Recordkeeping and Reporting

Please keep all records for 5 years (regardless of permit terms) to match with the permit requirements.

Response:

Section 7.1 has been revised to address this comment.

14. 7.2 Reporting

Please indicate who the lab will be sending results to at RE Pierson. We ask that you commit to notifying DEP within 24 hours of the laboratory reported results. This should mirror the permit language currently in Plan Approval 09-0241, Section C, Condition #032(d)(2).

Response:

As stated in Section 7.2.1 the results will be reported to the R. E. Pierson Facilities Director. Mr. Curt Mitchel is the Facilities Director. In addition, the Section was updated to clarify that the reporting would be in accordance with the Plan Approval 09-0241, Section C, Condition #032(d)(2).

Please provide DEP a minimum of two working day notice prior to the start of each sampling event and notify DEP as soon as possible if any sampling event has been cancelled. We ask that you contact us at 484-250-5920.

Response:

Section 5.0 has been updated to assure that a minimum of two working day notice will be provided to the Department prior to the start of each sampling event and that DEP will be notified as soon as possible if any sampling event has been cancelled and to add the requested phone number for the notification.

15. 7.2.2 Weekly Summary Monitoring Reports

Air monitoring results for the previous week should be submitted via e-mail to: RA-EPSEROAQREPORTS@pa.gov by the close of business on Monday of the following week.

Response:

Section 7.2.2 has been revised to state that: "all air monitoring lab results will be submitted via e-mail to: RA-EPSEROAQREPORTS@pa.gov by the close of business on Monday of the following week."

Since we don't know of the planned end to this procedure at this time, we request you change the wording from "final report" to "weekly report" and from "completion of the project" to "completion of the week".

Response:

The Plan addresses both the weekly and monthly monitoring summary reports which will be provided to the Department within 10 days of receiving all the sample analysis from the laboratory for the relevant weekly or monthly monitoring period. The language referencing the "final completion report" has been removed from the document.

16. **7.2.3 Monthly Summary Monitoring Reports**

Air monitoring results for the previous month should be submitted via e-mail to: RA-EPSEROAQREPORTS@pa.gov within three working days following the receipt of the sample results for that month.

Response:

Section 7.2.2 has been updated to state; all air monitoring results will be submitted to the email referenced above within three working days following the receipt of the sample results for that month

17. **8.0 Corrective Actions**

We believe that corrective actions should include the possibility of shutting down the site if necessary. Please describe what would trigger this corrective action and what will be done prior to restarting operations to ensure the safety and wellbeing of those off-site.

Response:

Section 8 has been revised to include the possibility of shutting down all or portions of the operations as deemed appropriate based on the findings of the investigation to be undertaken following a detected exceedance.

This section includes a statement that corrective action will only remain in place until 3 consecutive sampling events. Conditions impacting the sampling results will be highly variable (site activities, material processed, wind conditions, etc.). Due to this, 3 sample events alone may not be sufficient demonstration that corrective measures can be removed. Since there could be a need to continue corrective actions long term to ensure you stay below the action level, we ask that you remove this sentence and/or modify it allow for some input from DEP prior to ceasing any dust or asbestos abatement activities.

Response:

The statement on corrective actions has been updated to state that "In no instance will R. E. Pierson resume normal operations without providing notice to the Department of the plan to cease corrective measures and approval from the Department before resuming normal operations."

18. **Water Suppression - Water Sources**

Since the water used for dust control is coming from a surface source, and you are currently sampling the water under PDMO request. Please include in this section how often you intend to sample the water. Also, what action will be taken if a water sample comes back with a positive result for asbestos.

Response:

Section 8 of the Asbestos Air Monitoring Plan has been updated to reference the quarry pit water sampling, and associated corrective actions as outlined in the Rock Hill Quarry Qualitative Geologic Survey Sampling (QGSS) Plan that will be reviewed, approved and administered by the PADEP Bureau of Mining.

19. **Exhibit 1 – Attachment 2 – Wind Rose Plots**

Is there more current wind rose data? This appears to indicate that it is from the 1960s.

Response:

The wind rose data was obtained from the Natural Resources Conservation Service and National Water and Climate Center. The dataset for the wind rise provided was a compilation of hourly readings taken over a period of 30 years from 1961 through 1990. This data is released in these 30-year spans to provide a statistically valid sample measurement. This data is more of an indicator of climate conditions and not weather events. This historical data serves as an excellent indicator of the prevailing wind direction and speed in the project area and provides sufficient information to support the determination in the plan of the historical wind direction at the site.

Fugitive and Asbestos Dust Mitigation Plan

1. **3.0 Fugitive Dust Emissions Sources/Factors**

Please address emission from drill rigs. We suggest that you indicate your commitment to maintain and use the following while drilling: water controls, particulate capture systems (like hoods, skirts and ducts) and/or particulate filters.

Response:

The measures to address the potential for fugitive particulate matter emissions from drilling operations is referenced in Section 4.4 of the Plan. Specifically, R.E Pierson will control the emissions through the use of skirting and a water injection system during the drilling process to control the fugitive dust emissions.

2. **4.0 Fugitive Dues and Asbestos Mitigation Efforts**

Please describe what will qualify as a 'high wind day' and what extra efforts will be made.

Response:

The National Weather Service defines "breezy" and "windy" differently. Winds 15 to 25 mph are considered "breezy" and above 25 mph are considered "windy." On each day of operation, R.E. Pierson will monitor and record the wind speed at least twice during the day. On dry days and/or when the sustained winds are 15 mph and above, R.E. Pierson will apply water to roads, stockpiles and other areas within the facility where dust can be generated more frequently. In addition, on days of higher winds ≥ 25 mph, blasting of stone will be curtailed in order to limit the distance particulate matter may travel off the property. R.E. Pierson will also comply with the updated Module 17 Air Pollution and Dust Control Plan, recently submitted to the Pottstown District Mining Office (PDMO) and provided as Attachment 10 to the Fugitive and Asbestos Dust Mitigation Plan.

3. **4.1 Roadway Emissions**

Please indicate how many water trucks are permanently at the site. If they break down, is there an ability to call in another one? What will you do if all water trucks break down?

Response:

R.E. Pierson will have one full time water truck operating at the site. R.E. Pierson can rent any additional truck(s), as necessary, if the onsite truck breaks down or if another water truck is needed to further control any fugitive dust. In addition, water may also be placed in the bucket of the front-end loaders which can be used as an interim replacement in the case where a water truck breaks down and before it is put back into service.

We recommend that street sweepers always be run with water controls.

Response:

R.E. Pierson will always use street sweepers equipped with a water spray system control that will remain in operation when in use.

The second bullet in the list could be interpreted to mean that water suppression might not be used on days when it is too cold to use water. If this is not the case,

please clarify this portion. If a water truck cannot be used due to icing, what will be done? Surfactant? Recordkeeping of water truck use? Mileage? Please be aware, that weather conditions do not provide an exemption to fugitive emission regulations.

Response:

As mentioned above, R.E. Pierson will use a water truck to control dust from both paved and unpaved roads on dry operating days. The application of water to the roadways would be unnecessary when precipitation (rain and/or snow) levels are high enough to control dust emissions a log of water truck and sweeper usage will be maintained. The logs will document the number of loads of water and/or additives used in the water truck while the sweeper log will document hours of operation. In the case of very cold weather, water will be applied to the paved roads in quantities to control any dust, but not in higher quantities where ice may develop on the roads causing an unsafe condition for plant vehicles. Conditioners or freezing-point depressants (e.g., calcium chloride) may be added to the roadway water used for dust suppression during cold weather. R.E. Pierson will monitor the weather conditions during each operating day and will ensure that any fugitive dust from roadways is well controlled.

Can you provide information on how much of the roads you are planning to pave, even if it is an estimate?

Response:

Currently, a portion of the entrance road to the quarry is paved. At this time, there are no plans to pave any more roads on the property.

Spillage of stone cleaned up "as soon as practical". Please elaborate on this, it would be preferable if drivers leaving the site were advised to notify site personnel of material on the roadway to ensure the cleanup is "as soon as practical".

Response:

Any spillage of material onto North Rockhill Road will be cleaned up as soon as plant personnel are available for the task. During the cleanup of spilled material, the safety of all drivers, plant personnel and members of the public operating their vehicles on North Rockhill Road, will be of the highest priority.

Please consider the options of using amended water or other dust suppressants on unpaved roads if necessary. It does not seem to be mentioned in this section.

Response:

If necessary, R.E. Pierson will use water containing wetting agents and/or hydroscopic compounds to control fugitive dust emissions. A list of approved compounds is provided in the PADEP Bureau of Mining Module 17, provided in Attachment 10.

4. **4.2 Crushing and Screening Operation**

We suggest you model your discussion of the daily water system inspection on the requirements in Plan Approval 09-0241, Section D, Source C101, Condition #001(b).

Response:

Revisions to the Plan have been made to ensure daily inspections of the wet dust suppression system (WDSS) and the requirement to keep records of the results of the inspections in a manner consistent with the Plan Approval 09-0241 has been added to the plan.

If they find a problem and repairs are needed, please reference Plan Approval 09-0241, Section D, Source C101, Condition #004, instead of "repairs will be made as needed".

Response:

Section 4.2 has been revised to indicate that, as specified in the Plan Approval conditions, the crushing and screening plant will not operate if any component of the WDSS fails to work, malfunctions, or operates with reduced efficiency.

5. **4.3 Stone Handling and Stone Storage Area**

Please be aware that using amended water may be an option for unused areas of the property to control dust. You may want to add that to the last bullet point.

Response:

R.E. Pierson will use, where needed, on unused areas of the facility where there is fugitive dust, water containing surfactants (crusting agents) to control fugitive dust, as outlined in the PADEP Bureau of Mining Module 17 provided as Attachment 9 to the Fugitive and asbestos Dust Mitigation Plan.

6. **4.4 Blasting of Stone**

If dust is always created, then we would like to see you commit to always using the mister during blasting.

Response:

During normal blasting, there is no effective dust control method. Misters will only reach a distance of 50 feet vertically and 125 feet horizontally under optimum conditions where the wind speeds are 3-5 miles per hour. Therefore, misters will be used as often as practical. There are, however, ways to reduce dust during blasting which include watering the shot site prior to the blast and decreasing the size of the blast. These methods are further described in the PADEP Bureau of Mining Module 16 Large Noncoal Blast Plan provided in Attachment 10 to the Fugitive and Asbestos Dust Mitigation Plan.

7. **4.7 Employee Training**

A syllabus or training plan should be created for DEP review.

Response:

A synopsis of the training program is shown in Attachment 7 of the Plan.

We would like records to be kept of the employees who took the training (with dates).

Response:

Training records will be maintained on the site.

8. **5.0 Recordkeeping**

Please describe the procedures and frequency that there will be supervisor review of daily records to ensure compliance with all monitoring requirements.

Response:

The daily recordkeeping log sheets will be given to the plant manager, or his designated alternate, at the end of each operating shift for his review and approval. If the daily inspection shows an equipment malfunction, the plant manager, or his designated alternate will be notified immediately and any necessary corrective actions will be implemented as soon as possible. If any component of the WDSS fails in a section of the crushing and screening plant that is operating, the plant manager, or his designated alternate will notify the plant operator to shut down the crushing and screening plant.

9. **Attachment 7: Daily Operation Log - Water Spray inspection**

The description of what is to be checked here is not sufficient and does not contain what is required in Plan Approval 09-0241, Section D, Source C101, Condition #004. Please put the appropriate detail on these field inspection forms.

Response:

Please note that Attachment 7 has been moved and renamed as Attachment 8. The daily operation log forms for the portable crushing and screening plant and the 1000 tph crushing and screening plant have been updated and included in the Plan.

Attachment 7: Daily Operation Log - Water Spray inspection – We would like to see a more detailed list of equipment that breaks out individual components that will be inspected (conveyor, crusher, screener) in more detail. This should help ensure that all water sprays are examined each time and make it clearer where problems are, if they are found.

Response:

A daily operation log for the 1000 tph crushing and screening plant has been created and has been included in the Plan in Attachment 8.

We would suggest separate sheets for separate equipment, especially the current portable crushers, since the plan is that they will eventually be removed from the site.

Response:

Separate daily recordkeeping forms have been developed for both the portable crushing equipment and the 1000 tph crushing and screening plant.

Asbestos Air Monitoring Plan

East Rockhill Quarry Site

April 2019

Richard E. Pierson Materials Corporation
Hanson Quarry
2055 North Rockhill Road
Sellersville, PA 18960

Prepared by:

Compliance Plus Services, Inc.
455 Business Center Drive, Suite 250
Horsham, PA 19044
Ph: (215) 734-1414
Fax: (215) 734-1424

Project Number: 0272.1218.16

Table of Contents

Exhibits

Exhibit 1 Fugitive and Asbestos Dust Mitigation Plan

Attachments

Attachment 1 – Maps and Drawings

Site Location Map

Site Aerial Map

Air Sampling Location Map

Receptor Location Map

Attachment 2 – Wind Rose Plots from Station #14737

Attachment 3 – Sample Methods

Method 7400

Method 7402

Attachment 4 – Field Sampling Documents

Project Summary Sheets

Field Data Sheets

Laboratory Chain of Custody

Attachment 5 – Universal Low Flow Air Sampling Pump Specification Sheet

1.0 INTRODUCTION

Compliance Plus Services, Inc. ("CPS") has prepared this Asbestos Air Monitoring Plan ("Plan"), on behalf of the Richard E. Pierson Materials Corporation ("R.E. Pierson"), to sample and test ambient air quality conditions for potential airborne asbestos fibers related to the operation of a non-metallic mineral processing plant (including crushers, screens and related equipment) at the existing Hansen Quarry site located at 2055 North Rockhill Road, East Rockhill Township, Bucks County.

R.E. Pierson is currently operating portable crusher equipment at the site pursuant to General Air Quality Permits previously issued for the site. On December 5, 2018, the Pennsylvania Department of Environmental Protection ("PADEP" or the "Department") issued a new Plan Approval to install and operate a permanent crusher plant and related equipment (Plan Approval No. 09-0241). This Plan is intended to meet, and be conducted in accordance with, the air monitoring program requirements specified in Condition 32, Section C, of the December 5, 2018 Plan Approval issued to R.E. Pierson. This Plan also includes and Fugitive and Asbestos Dust Mitigation Plan (see Exhibit 1) which is incorporated by reference and is intended to meet the provisions specified in Condition 33, Section C, of the Plan Approval.

1.1 Background

The site in question is the Hanson Rockhill Quarry located at 2055 North Rockhill Road, Sellersville, PA 18960, East Rockhill Township, Bucks County, PA. The property is owned by Hanson Aggregates Pennsylvania, LLC ("Hanson"). The site is an existing permitted mine with the southern portion of the mine being prepared for additional mining and processing of the diabase bedrock by R.E. Pierson through the use of both portable and stationary (permanent) crushing and screening equipment. R.E. Pierson has applied for and obtained air quality permits which will allow the processing of the mined stone to produce aggregate products.

1.2 Site Mining Permit and Asbestos Monitoring Plan

Under the current mining permit, Hanson is required to perform ongoing geological evaluations, under the supervision of a Pennsylvania Licensed Professional Geologist ("PG"), through public review, on site mapping and sampling and analysis of the rock in planned active mining areas to determine the potential presence of naturally occurring asbestos ("NOA").

The Plan provided to the PADEP Bureau of Mining to determine the presence of NOA is the Rockhill Quarry Qualitative Geologic Survey Sampling (QGSS) Plan. If any information is developed as part of the implementation of the QGSS Plan that could require changes to the Asbestos Air Monitoring Plan, the Department will be notified, and an amended plan will be provided.

1.3 Air Quality Permits and Air Monitoring Plan for Asbestos

R.E. Pierson has applied for an obtained the following air quality permits:

- General Permits (Permit Nos. GP3-09-0157 and GP9-09-0083), issued on March 14, 2018, for the operation of the following portable crushing and screening equipment and their associated diesel engines:

  - One (1) Sandvik UJ440i jaw crusher;
  - One (1) Mellott MC300HPCC closed-circuit crusher/screener;
  - One (1) Sandvik QS331 cone crusher; and
  - One (1) Sandvik scalper screen.

- Plan Approval (Permit No. 09-0241), issued on December 5, 2018, for the construction and operation of a 1,000 ton per hour stone crushing and screening plant equipped with a wet suppression system used to control particulate matter emissions. The plant consists of the following equipment:

- Phase I – One (1) primary jaw crusher, one (1) screen and eight (8) conveyors; and
- Phase II – Four (4) crushers, five (5) screens and thirty (30) conveyors.

Under the Section C, Condition #32 of the Plan Approval, R.E. Pierson is required to establish an asbestos air monitoring plan prior to the operation of the 1,000 ton per hour crushing and screening plant in order to monitor ambient air quality conditions at the site and to detect potential airborne asbestos fibers around the perimeter of the quarry. Condition 33 of the Plan Approval also requires that a Fugitive and Asbestos Dust Mitigation Plan be designed, approved by the Department and implemented by R.E. Pierson when naturally-occurring asbestos is detected in the rock at the active mining sites. The Fugitive and Asbestos Dust Mitigation Plan is provided in Exhibit 1 of this Plan.

1.4 Data Quality Objectives

The purpose of the asbestos fiber air monitoring plan is to produce data that demonstrates that the site operations and mitigation/control procedures employed by R.E. Pierson achieve the asbestos clearance limits/criteria specified in the Plan Approval of ensuring airborne asbestos fibers do not exceed 0.01 fibers/cc at the site property lines. Details of the required asbestos air monitoring plan can be found in Sections 3.0 to 6.0 below.

2.0 DESCRIPTION OF FACILITY

The site is an existing permitted surface mine located on the western side of Rockhill owned by Hanson Aggregates Pennsylvania, LLC. With respect to the Bucks County Tax Map, Parcel No. 12-9-102 – approximately 123 acres are zoned E- Extraction and the balance of 96 acres is zoned RP-Resource Protection. The area of mining activity is toward the southern end of the property (see **Attachment 1 - Maps and Drawings**). The permitted non-metallic mineral processing plant is being used to process rock from the existing quarry to be used as construction material for a large PennDOT project. The Quarry entrance is from N. Rockhill Road.

2.1 Location

The site is bordered on the West and South West by N. Rockhill Road and bordered on the North, East and South by wooded areas (see **Attachment 1– Maps and Drawings**). The site address is 2055 North Rockhill Road, Sellersville PA 18960 in East Rockhill Township, Bucks County. The site is located 75 degrees 17 minutes 56 seconds West latitude and 40 degrees 24 minutes 15 seconds North longitude.

The approximate proximity to nearby residences, schools, landmarks from nearest property line (see Receptor Location Map in **Attachment 1 – Maps and Drawings**) to the site's property line, as well as to the actual crushing and screening (C & S) operations is provided below:

		Property Line	C & S Operations
1.	Nearest residence to the North of Site	740 Feet	900 Feet
2.	Nearest residence to the East of Site	360 Feet	0.47 Miles
3.	Nearest residence to the Southwest of Site	520 Feet	800 Feet
4.	Nearest residence to the West of Site	65 Feet	0.19 Miles
5.	Upper Bucks Christian School and Bethel Baptist Church	0.45 Miles	0.66 Miles
6.	WM. H Markey Centennial Park	0.77 Miles	0.87 Miles
7.	Pennridge Middle School	1.30 Miles	1.42 Miles
8.	Deibler Elementary School	0.80 Miles	1.14 Miles

The list provided above referencing the Potential Sensitive Receptor Location Map, shows only the nearest residences to each side of the property and sensitive receptor locations including schools and the parks. These are highlighted to address potential sensitive receptor locations in the vicinity and to give examples of possible nearby concerns, not to list all locations within a certain distance. A significant portion of the property is wooded, additionally, a larger portion of the property located downwind of the prevailing wind direction has substantial tree cover..

2.2 Quarry Operations

The crusher plant is projected to operate approximately 8 to 16 hours during each operating day, however, the actual schedule will vary depending upon demand for aggregates. Rock and crushed stone products are generally loosened by drilling and blasting and then loaded by power shovel or frontend loaders into large haul trucks that transport the material to the processing operations. Processing operation may include crushing, screening, size classification, material handling and storage operations. Dust mitigation wet suppression equipment will be maintained and in operation as required by the applicable regulations and in accordance with Air Plan Approval No. 09-0241.

Although daily hours of operation may vary, the plant is expected to operate each week Monday through Friday and occasionally on a Saturday. The maximum projected hours of operation during any 12- month rolling period will not exceed 2800 hours.

2.3 Portable Crusher Area Activities

The location of the portable crusher operation is depicted in **Attachment 1** - Maps and Drawings/Site Layout Plan.

The operation consists of the following pieces of equipment for crushing and screening:

- Portable Sandvik UJ440i Jaw Crusher with a Volvo D13 Tier 4, 422 HP Diesel engine;
- Portable Sandvik QS331 Hydrocone Crusher with a Caterpillar C-9 Tier 4, 350 HP Diesel engine;
- Portable Sandvik QE441 Scalper Screen with a Caterpillar C4.4 Tier 4 , 129 HP diesel engine;
- Portable Sandvik QH331 Hydrocone Crusher with a Caterpillar C-9 Tier 4, 350 HP Diesel engine;
- Portable Sandvik QA450 Screen with a Deutz BF4M2012 Tier 3, 100 HP diesel engine; and

- Six (6) Stacking Conveyors;
- Water dust suppression equipment located throughout the processing areas.

Once the permanent crushing and screening equipment is fully operational, the temporary portable crushers, screeners, stacking conveyors and their associated diesel engines will cease operation and will be removed from the property.

2.4 Permanent Crusher Plant Area Activities

The Permanent Crusher Plan Area Activities include the operation of a 1000 ton per hour crushing and screening plant. The plant will be powered by electricity with no emissions other than particulate matter (PM). A wet suppression system (water sprays) will be used on the plant at several dozen locations throughout the plant to control the PM emissions

3.0 ASBESTOS AIR SAMPLING LOCATIONS

The asbestos air sampling is to be done in four (4) sequenced phases based on transitioning operations as follows: pre-operation, portable crusher operations, combined crusher operations (portable & permanent), and permanent crusher operations. During the pre-operation/background, portable crusher, and permanent crusher phases, there will be a minimum of four (4) samples collected during each sampling event including: one (1) upwind and three (3) downwind sampling locations. Typically, there will be a maximum of seven (7) samples collected per sampling event, particularly during the combined crusher operations, which would routinely include one (1) upwind and three (3) downwind locations relative to the operating locations of the portable crusher equipment and the permanent crusher plant (for a total of six (6) downwind samples. Crusher operating locations are shown in **Attachment 1 - Maps and Drawings**.

General asbestos air monitoring locations have been relocated and selected based primarily on proposed 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 Station #14737 Allentown-

Bethlehem (see **Attachment 2 - Wind Rose Plots from Station #14737**), winds from December to May generally blow from the Westerly direction with concentration from the Northwest or Southwest based on the month. The proposed sample areas can be seen in **Attachment 1 - Maps and Drawings**. The site was divided into four (4) sampling sector locations based on the above referenced criteria; East, West, South, and Mid. The sample sector locations will be the general area where sample collections will occur, however, the actual sampling locations inside the sector area will be chosen based on wind direction and site-specific weather conditions at the time the samples are being collected.

Wind direction and wind speed will be monitored at least one (1) time per hour during each sampling event (see Section 4.5 below). Monitoring for wind direction and wind speed will be completed at or near the sampling locations and will be performed regardless if the facility has installed its permanent weather station. It is noted that the permanent weather station will be capable of recording weather data including wind speed and direction continuously at 30-60 second intervals. 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 the wind direction change is greater than 45^{0} in either direction the frequency of monitoring wind speed and wind direction will increase to every 15 to 30 minutes to determine if the change is a sustained change in direction. If it is determined that the wind direction change has created a situation where the downwind samples are no longer downwind of the active operational areas, the sample will be terminated or relocated to a downwind location.

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.

3.1 Pre-Operation Monitoring

The pre-operation sampling event will be performed prior to startup of the temporary crusher operations. Sampling will be done in accordance with the analytical methods discussed in Section 4.0 of this document. During the pre-operation sampling, each section of the site referenced above

will be sampled at least once to provide baseline data for the site and edges of the accessible property. All sampling locations and meteorological data will be documented.

3.2 Portable Crusher Operations Monitoring

The portable crusher operations will be temporary. The sampling will be performed upon the commencement of operations. Sample locations will be chosen based on daily site conditions, location of the temporary crushing operation, and other site activities with at least one (1) upwind location and three (3) downwind locations in relation to the temporary crusher operation. All sampling locations, site activities and wind directions will be documented.

3.3 Combined Crusher Operations (Portable & Permanent) Monitoring

The combined crusher operations sampling event will take place during the transition between phasing out the temporary crusher and commencement of the permanent crusher operations. Sample locations will be chosen based on site conditions. Based on the phase of the temporary crusher sampling event, site conditions and judgment of site personnel, there could be a maximum of seven sample locations chosen in one day with one (1) upwind location and three (3) downwind locations in relation to each crusher operation. All sampling locations and wind directions will be documented (See Section 5.0 below).

3.4 Permanent Crusher Operations Monitoring

When site operations proceed to the permanent crusher operations, sampling locations will be chosen in the same manner as discussed above. Based on prevailing winds in relation to the permanent crusher location and daily site conditions a minimum of four (4) samples will be taken, one (1) upwind and three (3) downwind.

4.0 FIELD SAMPLE COLLECTION METHODOLOGY

The perimeter air samples will be collected at the selected locations as indicated in Section 3.0 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 GilAir Plus Universal air

sampling pumps by Sensidyne or an equivalent unit. A specification sheet for these pumps are provided in **Attachment 5**.

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 in what is typically referred to as the breathing zone. This is an area approximately 5-6 ft. above the ground surface and is designed to approximate the breathing area of a worker to assess exposure. 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 for Asbestos and other Fibers by Phase Contrast Microscopy (PCM). If the PCM fiber concentration exceeds 0.01 fiber/cc, then Method 7402, analysis by Transitional Electron Microscope (TEM) will be employed to ascertain the mineralogy of the elongated particles. Additional analyses may be employed to clarify any ambiguities of the results. 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 one for each sampling event.

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 crushing and screening operations to provide a representative sample of any asbestos emissions from the operations. 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)**

4.1 Data Sheets and Field Notes

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;
- 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, stripping activities, etc.).

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

4.2 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.

4.3 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.

4.4 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

4.5 Weather and Wind Direction Data

Under Condition #31 of the Air Quality Program Plan Approval (Permit No. 09-0241), R.E. Pierson will be installing an automated weather station to track wind speed, wind direction, temperature, and humidity during each operating day of the permanent crusher operations. Prior to installation of the automated weather station, site personnel will utilize an EXTECH Instruments Mini Thermo-Anemometer to record and document temperature, wind speed, and wind direction during each sampling event. A compass (or similar equivalent device) will be used to record approximate degree range of the wind determined by the direction from the Anemometer.

During all field monitoring events, wind speed and wind direction will be monitored in each area of the designated sampling locations. Field monitoring of wind speed and wind direction at each sample location will be recorded using an Anemometer. The Anemometer will be used both before and after the installation of the permanent weather station. Upon installation of the permanent automated weather station, the data will be collected as referenced in Section 3.0. The weather station data 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

Sampling frequency will be performed according to condition #32 of the Air Quality Program Plan Approval (Permit No. 09-0241), issued on December 5, 2018. Condition #32 states:

- The permittee shall conduct daily air samples for the week prior to the commencement of operation of the crusher and during the first week of the operation.
- After two (2) weeks of daily monitoring with airborne fiber levels less than the action level (0.01f/cc), and upon the permittee's request, DEP will determine the feasibility of decreasing the monitoring frequency to weekly on operating days.
- After one (1) month of weekly monitoring with airborne fiber levels less than the action level (0.01f/cc), and upon the permittee's request, DEP will determine the feasibility of decreasing the monitoring frequency to monthly on operating days.
- After six (6) months of monthly monitoring with airborne asbestos fiber levels less than the action level (0.01f/cc), upon the permittee's request, DEP will determine if the monitoring may cease.

The air sampling plan will begin in the pre-operations phase discussed in **Section 3.1** and will resume upon the commencement of the combined (portable & permanent) crusher operations discussed in **Section 3.2**. When the permanent crusher begins operations air sampling will begin again as required by the Air Quality Program Condition #32 for permanent crusher operations. The permanent crusher sampling will run simultaneously with the weekly or monthly sampling associated with the temporary crusher operations.

The PADEP will be notified at least two (2) working days prior to initiating the air sampling at the site. Once regular daily monitoring is underway, the Department will be notified of any unusual changes in the daily sampling via electronic mail. When periodic sampling (e.g., weekly, monthly) at the site has commenced, PADEP will begin receiving prior notification of scheduled sampling at least two (2) day working days before sampling. R.E. Pierson or their representative will provide this notice by contacting the Department at 484-250-5920. In addition, the Department will be

notified as soon as possible if any sampling event has been cancelled, and the reason for 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 4.0. Both methods can achieve the required detection limits to ensure the action level criteria or ensuring the airborne asbestos fibers at the property line do not exceed 0.01 fibers/cc at the property line as specified in the Plan Approval. 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 fibers 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) is able to identify and differentiate asbestos fibers from non-asbestos fibers and will be used if any PCM results indicate a potential exceedance of the action level specified in the Plan Approval. A potential exceedance will be considered when a ***total fiber*** result exceeds 0.01 fibers/cc for a sample result using the PCM Method---thus triggering the need of analyze the sample using the TEM Method.

During the pre-operation background sampling, to be completed prior to crushing operations, each sample will be analyzed using TEM methodology with selected samples being tested by both TEM and PCM methods. This will help establish a known background level for both analytical methods and assure that PCM results unique to the area of the operations are indicative of the same level of fibers in the air as the TEM results. The initial sampling will be undertaken to establish background levels at the site and to fully demonstrate whether PCM results may be used to adequately provide sufficient information to make informed decisions related to the future test results taken during start-up and operation of the crushing equipment.

6.1 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 will be accredited by the Department of Environmental Protection Bureau of Laboratories. The primary laboratory that is expected to be used for this project is EMSL laboratory. EMSL's corporate offices are located in Cinnaminson, New Jersey and the Company has a laboratory location in Plymouth Meeting, Pennsylvania. It is anticipated that during the extent of the project both locations may be utilized to provide sample results with each being a backup for the other in the event either laboratory cannot accommodate the required analysis or meet the required sample turnaround times. EMSL provides a 24-hour turnaround time on results. Any accredited laboratory that meets the requirements listed above may be used for sample analysis.

6.2 Quality Control

A field quality control (QC) program will be implemented to assure conformance with data quality protocols established by the EPA. The field QC program will include the use of field blanks.

6.2.1 Field Blanks

A field blank is a filter cassette that has been taken to the sampling site, opened, and then closed. Such a filter is analyzed to determine the background asbestos structure count for the measurement. As required for NMAM Method 7400 and 7402, one field blank will be sampled for every five samples or on a daily basis whichever is more frequent.

6.2.2 Duplicate Samples

Duplicate samples may be collected when required, 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 and collected during the same sampling interval.

6.3 Field Equipment

Field equipment and supplies will include, but are not limited to, the following:

- Air sampling pumps (personal or low volume pumps and area or high-volume pumps).
- Asbestos sample filter cassettes with filters.
- 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.
- Permanent Weather Station (when constructed).
- Handheld Thermo-Anemometer.
- Compass (or similar equivalent device).

7.0 RECORDKEEPING AND REPORTING

7.1 Recordkeeping

All records and documents related to the airborne asbestos monitoring program will be maintained by R.E. Pierson for at least five (5) years and will be made readily available to PADEP 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 Plan Approval 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.

7.2 Reporting

7.2.1 Reporting of Exceedances of the Action Level

In accordance with Plan Approval 09-0241, Section C, Condition #32(d)(2), any confirmed airborne asbestos exceedance of the specified action level will be immediately reported to the R. E. Pierson Facilities Director to ensure that the appropriate investigation and corrective measures are initiated as described in Section 8.0 below. In addition, this information must also be reported to PADEP, at 484-250-5900, within 24 hours of the reported result.

7.2.2 Weekly Summary Monitoring Reports

During daily and weekly asbestos monitoring , all air monitoring lab results will be submitted via e-mail to: RA-EPSEROAQREPORTS@pa.gov by the close of business on Monday of the following week. Weekly summary monitoring reports will be prepared and submitted to the Department within ten (10) days following receipt of the sample analysis from the laboratory. Weekly summary monitoring reports will include a summary of the analytical results for all samples collected and analyzed during the reporting week; 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 an exceedance of action level.

7.2.3 Monthly Summary Monitoring Reports

Upon approval by the Department asbestos sampling maybe reduced to monthly sampling, all air monitoring results will be submitted to the RA-EPSEROAQREPORTS@pa.gov e-mail address within three working days following the receipt of the sample results for that month. Monthly summary monitoring reports will also be prepared and submitted to the Department. Monthly summary reports will include the same information as contained in the weekly reports described in 7.2.2 above. These reports will be submitted within ten (10) days following receipt of the relevant sampling data from the laboratory.

8.0 CORRECTIVE ACTIONS

This Asbestos Air Monitoring Plan has been developed to monitor conditions at the site to ensure that routine operations of the site as a stone and rock crushing quarry does not result in offsite conditions that may pose any harm to the general public. A key objective of the monitoring program is that the Plan includes defined action level where an exceedance or airborne asbestos fibers detection above the 0.01 fibers/cc in the outdoor air will trigger a number of corrective measures that will be taken by R.E. Pierson to abate any potential harmful migration of asbestos fibers and return the site to a condition where continued monitoring will show that the air samples collected no longer exceed the site action levels.

Pursuant to the conditions of the R.E. Pierson Plan Approval, in the event that a sample is exceeds the airborne asbestos fiber concentration of 0.01 fibers/cc, as outlined above in section 6.0 Analytical Methods the facility will do the following:

1) Report the results immediately to the site operations manager, as indicated in 7.2.1 above, R.E. Pierson will also notify the PADEP within 24 hours of discovery of a confirmed result by calling 484.250.5900 and via e-mail to EPSEROAQREPORTS@pa.gov

2) Investigate the cause of the exceedance. The investigation will include, but not limited to:

    a. Review of operational activities that were occurring during sampling,
    b. Confirmation that dust suppression systems or fully operational,
    c. Quality Assurance and Quality Control review of all sampling and laboratory equipment and procedures.

3) R.E. Pierson will take immediate corrective measures to address any exceedances. 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 exceedance is discovered and will be completed in an expedited manner. The corrective actions will range from cessation of specific or all operations down to repairs or modifications to dust suppression systems and controls.

4) In all instances any corrective actions will require a review and update of the Fugitive Asbestos Dust Mitigation Plan as provided in Exhibit 1 of the Plan; and

5) R.E. Pierson will record the results and the all corrective measures taken at the site in a permanent written log.

Following an exceedance and implementation of a corrective action R. E. Pierson will not resume normal operations and/or a reduction of additional measures employed until such time as the Department has reviewed the corrective actions and the site has completed a minimum of three (3) consecutive sampling events to demonstrate that the site conditions will no longer exceed the action level. In no instance will R. E. Pierson resume normal operations without providing notice to the Department of the plan to cease corrective measures and approval from the Department prior to resuming normal operations.

In addition to the air monitoring R. E. Pierson will also be sampling the water from the quarry pit. Sampling will be completed as outlined in the Rockhill Quarry Qualitative Geologic Survey

Sampling (QGSS) Plan. The QGSS Plan will be reviewed and approved by the PADEP Bureau of Mining.

N:\#0272 - R.E. Pierson Construction Company\Asbestos Testing Requirements\Asbestos Air Monitoring Plan final clean 5-11.docx

Exhibits

Exhibit 1

Fugitive and Asbestos Dust Mitigation Plan

FUGITIVE DUST AND ASBESTOS MITIGATION PLAN

Richard E. Pierson Materials Corporation
Hanson Quarry
2055 North Rockhill Road
Sellersville, PA 18960

Revised - May 2019

Prepared by:

Compliance Plus Services, Inc.
455 Business Center Drive, Suite 250
Horsham, PA 19044
(215) 734-1414

TABLE OF CONTENTS

ATTACHMENTS

1.0 INTRODUCTION

This Fugitive and Asbestos Dust Mitigation Plan (the "Plan") has been prepared, as required under Section C, Condition #33 and of Richard E. Pierson Materials Corporation's ("R.E. Pierson") Plan Approval (No. 09-0241) for use at R.E. Pierson's stone crushing and screening operation located at the Hanson Quarry, 2055 North Rockhill Road, Sellersville, PA 18960, East Rockhill Township, Bucks County, PA. The Plan describes the dust management practices that will be implemented to control potential fugitive particulate matter emissions, as well as any potential asbestos, that may be generated as a result of the facility's operations involving the crushing and screening of stone, as well as, potential fugitive dust emissions from unpaved and paved roads on the plant property.

The R.E. Pierson facility currently has air quality General Permits (Permit Nos. GP3-09-0157 and GP9-09-0083) which allows the operation of portable crushing and screening equipment. The General Permits expire on March 14, 2023. Copies of the permits are in **Attachment 1**.

R.E. Pierson has also obtained a Plan Approval (No. 09-0241) for the installation and temporary operation of a 1,000 ton/hour permanent stone crushing and screening plant. The Plan Approval (see **Attachment 2**) was issued on December 5, 2018. This is a temporary site permit to construct which allows for the crushing and screening of stone obtained from the quarry. Once the permanent plant has been constructed and is able to produce the required amounts and types of stone, the portable crushing and screening equipment will be removed from the site.

The Plan includes the following:

- Dust management procedures that are used to minimize fugitive dust;
- Use of a visual inspection program to monitor stone handling areas and process equipment;

- Procedures for the implementation of corrective action measures to be taken in the event of excessive fugitive dust emissions; and

- A list of sources and areas to be monitored for visible emissions and accumulation of stone in open areas

2.0 GENERAL OVERVIEW OF OPERATIONS

A general overview of the R.E. Pierson facility operations and facility features and equipment that are relevant to this plan is provided below.

2.1 Facility Description

R.E. Pierson's stone crushing and screening facility is located at the Hanson Quarry, 2055 North Rockhill Road, Sellersville, PA 18960. A map showing the location of the site and an aerial photo showing the site are included in **Attachment 3**.

The facility is located in a rural area of Bucks County. The portable crushing and screening equipment is located approximately 1,200 feet from North Rockhill Road on the northwest part of the property. The equipment is surrounded by trees to the west and north with the quarry lake to the east. Once constructed, the permanent crushing and screening plant will be located on the south/southwest portion of the property. The nearest crusher associated with the plant will be approximately 1,000 feet from North Rockhill Road. A site plan showing the location of portable equipment and the 1,000 ton/hour plant is included in **Attachment 4**. Areas where the land has been disturbed and that are not used for the crushing and screening equipment are used for internal roadways for truck and equipment movements and for the stockpiling of unprocessed and processed stone.

2.2 Description of Operations

For both the portable and permanent crushing and screening plants, unprocessed stone from the quarry is placed into the hoppers which feed the primary crushers. Other crushers and screens downstream of the primary crushers reduce the size of the aggregates further and produce various sized aggregates which are then stockpiled. The stockpiled aggregate products are then sold for construction jobs throughout the region.

The portable crushing and screening equipment operates 1,850 hours/year while the proposed permanent crushing and screening plant, once operational, will operate up to 2,800 hours/year.

3.0 FUGITIVE DUST EMISSIONS SOURCES/FACTORS

Potential dust emission sources and the factors that can influence dust emissions at the facility are presented in this section. Sources of dust are outdoor emissions only. Outdoor fugitive dust emissions are defined as those emissions occurring outside the buildings and not associated with a stack (point) discharge. The potential dust emission sources/factors that are addressed for this facility include:

1. On-Site and Off-Site Paved and Unpaved Roadways
2. Crushing and Screening Operation
3. Stone Handling and Stone Storage Areas
4. Drilling and Blasting of Stone
5. Weather Conditions

3.1 On-Site and Off-Site Paved and Unpaved Roadways

Paved roadways can generate fugitive dust from vehicle traffic that disturbs fine particulate matter deposited on the paved surface, causing the particles to become airborne. Sources of dust from paved and unpaved surfaces at the facility include: (1) tracking of mud, dirt, and aggregates from unpaved surfaces; (2) spillage of stone and aggregates on road surfaces; and (3) deposition of dust from other sources, on- and off-site. Sources of dust from paved and unpaved surfaces are mainly due to truck traffic and equipment movements on internal roadways and shared roadway/vehicle routes. Dust can be generated by aggregates that fall off the trucks entering and exiting the facility as well as dirt entrained on tires of equipment used to load trucks or move stones around the facility.

Due to the location of the facility, it is anticipated that the trucks entering the facility will not be tracking mud or dirt onto the site. Additionally, R.E. Pierson's interior traffic management controls are intended to minimize the truck and equipment cross traffic and avoid drag-out from areas where aggregates and stones are stored.

Variables that influence dust emissions from the roads and trucks are weather conditions and vehicular traffic, including the volume of traffic and speed of truck traffic while on-site. Dry, windy conditions will intensify the amount of potential dust emissions from roads. The number of trucks entering the facility and the truck travel speed while on-site will influence the amount of dust generated at the site.

3.2 Crushing and Screening Operation

Dust emissions may be generated from the operation of the crushers, screens and associated conveyors which will operate at least 1,000 feet from North Rockhill Road. As described above, stone is transferred from the blasted stone storage locations into the feed hoppers servicing the primary crushers where they are crushed, screened and conveyed to storage piles. This process has the potential to create fugitive dust emissions.

3.3 Stone Handling and Stone Storage Areas

R.E. Pierson handles and stores unprocessed and processed stone on the property. Stone handling and mobile stone handling equipment employed at the site (e.g., front-end loaders, etc.) can potentially be sources of fugitive dusts as stones are unloaded from trucks, loaded into trucks, and the transfer of stones are potential sources of fugitive dusts at the facility.

As stones are stored on site in stockpiles, there is a potential for fugitive dusts to be generated as wind blows across the piles especially if there are fines in the stockpiles.

3.4 Drilling and Blasting of Stone

Prior to processing in the crushing and screening equipment, stone must be obtained from the quarry. The in-situ stone in the quarry wall being worked is obtained by explosive blasts which loosen the stone and fracture it into manageable pieces. The drilling of the holes for the blast and the blast itself produces dust. However, dust is controlled during drilling by a dust collector or use of wet drilling methods and skirts around the hole being drilled. The fractured stone pieces can then be either sent directly to stockpiles near the crushing and screening equipment for processing or, for larger sized pieces of stone, can be further broken by physical means.

3.5 Weather Conditions

R.E. Pierson monitors weather conditions and pays particular attention to those conditions which may increase the potential for fugitive dust emissions. The potential for fugitive dust emissions can vary based on humidity, air and ground temperatures and wind direction and speed.

R.E. Pierson will implement the dust control measures, based on weather conditions, as discussed in Section 4.0 below to reduce the potential for fugitive dust emissions exiting the property.

4.0 FUGITIVE DUST MITIGATION MEASURES

R.E. Pierson employs several fugitive dust mitigation measures to control its generation and dispersion from the facility. On those days when higher speed winds (i.e., sustained winds greater than 25 mph) and/or dry conditions occur, extra efforts will be made to ensure that all the control measures are implemented and strictly enforced by facility management. The following practices are employed by R.E. Pierson to minimize dust emissions:

4.1 Roadway Emissions

The following measures are employed by R.E. Pierson at the facility to control the fugitive dust from facility roadways:

- The beds of all trucks exiting the facility are tarped to reduce the dispersion of fugitive dust from the loaded trucks and to limit the potential for unintended spillage of stone onto on-site and off-site roads. A sign will be posted at the entrance/exit gate to the facility to remind drivers of RE Pierson's truck tarping requirements. In addition, a station will be set up where drivers can stop and tarp the loads in their trucks.

- Any internal paved roadways are cleaned (as needed), using a water truck permanently assigned to the facility and/or wet street sweeper to control the generation of fugitive dust or to collect accumulated dust and mud on dry days. In addition, on dry days, the water truck will apply water to the unpaved roads as needed to control fugitive dust. The logs documenting water trucks and sweeper usage will be completed for each day of use. Examples of these logs are provided

in **Attachment 9**. An additional water truck(s) will be brought on site if additional dust suppression is required. In the case where a water truck breaks down, an alternative measure may be used where water is placed in the bucket(s) of front-end loaders so water can be applied to roadways and surfaces until the water truck is back in operation. The application of water to the roadways would be unnecessary when precipitation (rain and/or snow) levels are high enough to control dust emissions. In the case of very cold weather, the plants may not operate. If they do operate, water will be applied to the paved roads in quantities to control any dust, but not in higher quantities where ice may form on the roads causing an unsafe condition for plant vehicles. Conditioners or freezing-point depressants (e.g., calcium chloride) may be added to the water to enhance use during cold weather. R.E. Pierson will monitor the weather conditions. For a list of approved dust suppression compounds, please refer to **Attachment 10** which includes the PADEP Bureau of Mining Module 17 Air Pollution and Noise Control Plan During each operating day, R.E. Pierson will ensure that any potential fugitive dust from roadways is well controlled.

- A facility-wide vehicle speed limit of 15 miles/hour is posted and enforced to reduce associated dust emissions. Stone or asphalt paving will be applied to the roadway near the entrance/exit to the facility to help reduce particulate matter emissions.

- Trucks leaving the facility use North Rockhill Road. R.E. Pierson personnel will check for any spillage on North Rockhill Road each operating day. Records of any spillage observed will be kept. Any spillage of material reported by facility personnel, truck drivers, the public or PADEP personnel will be cleaned up as soon as plant personnel are available for the task. During the cleanup of spilled material, the safety of all drivers, plant personnel and members of the public operating their vehicles on North Rockhill Road, will be of the highest priority.

4.2 Crushing and Screening Operation

Whenever the crushing and screening plants are operating, R.E. Pierson will use a wet suppression system to minimize fugitive dust emissions and to maintain compliance with visible emissions limits specified in the permit. Water for the systems is drawn from the large quarry pond near the middle of the property. The systems will be inspected each operating day to ensure that they are operating properly and that enough water is being applied to the stone to reduce the potential for the generation of fugitive dust. Repairs on the wet suppression systems will be made as needed. Records of the daily inspections and all repairs and maintenance performed on the wet suppression systems will be kept at the facility.

The new permanent crushing and screening plant will employ a sophisticated water spray system to control the emissions of fugitive dust and the potential emissions of asbestos. A water spray system has been shown to be the best available technology to control emissions from crushing and screening plants. For this plant, over 150 gallons of water per minute will be applied to the stone as it is processed in the plant. At 150 gallons per minute, approximately 90,000 gallons per 10-hour operating day will be used to control emissions of particulate matter. No runoff is expected from the application of water to the stone as it is being processed as most of the water will either adhere to the stone or evaporate. Tables and drawings showing the details of the water sprays on the plant and the amount of water applied at each of the 51 separate sprays are shown in **Attachment 5**. If there are any excess emissions after the plant is operational, additional water sprays will be added where needed. As required by the Plan Approval, daily inspections of the wet dust suppression system and observations for the presence or absence of visible dust emissions from the crushing and screening equipment will be performed and records of the results of the inspections will be kept at the facility. If during the required inspections, any WDSS equipment is not working properly, then the plant manager, or his designated alternate will be notified immediately, and the operation crushing and screening plant will be suspended.

4.3 Stone Handling and Stone Storage Areas

In order to control emissions of particulate matter from stone that has been processed and from stone handling operations, the following methods are used.

- Stone that has accumulated near or under process equipment is cleaned up and removed on a regular basis.

- For areas at the facility that are inactive, but could produce dust from winds, hygroscopic compounds, such as calcium chloride, can be used to control the dust. Please refer to the PADEP Bureau of Mining Air Pollution Control and Noise Control Plan provided in **Attachment 10**.

- As needed, hoses on the water truck operating at the facility are used to spray water onto stockpiles and any other area where stone is being handled to wet the stone and, thereby limit the potential for fugitive dust. If needed, portable water misters, similar to that pictured in **Attachment 6**, will be used to control emissions from specific areas where excess emissions have been observed.

- The height of each stockpile will be maintained so that the top of each pile is accessible to the water sprays from the water truck.

- The drop heights of stone onto stockpiles or during stones handling operations are kept to a minimum.

- Loaders and hoppers are not overfilled to prevent spillage of stone.

- If any excess particulate matter emissions are coming from unused area(s) on the property, dust suppressant additives (crusting agents) will be applied to the area(s) to reduce the potential for particulate matter emissions.

4.4 Drilling and Blasting of Stone

Prior to blasting of stone at the quarry, the area is subject to the pre-inspection and sampling procedures specified by the site's Surface Mining Permit and authorization to minimize the potential that any portion of the blast area has naturally occurring asbestos serpentine and/or ultramafic rock.

To minimize the dust and its possible offsite migration, water will be applied to the drilling holes and blast site to reduce the release of surface dust and fines. In addition, other measures will be implemented in accordance with PADEP Bureau of Mining Modules 16 and 17 provided in **Attachment 10**. Skirting will be placed around the drill holes to help control any dust generated. Prior to drilling and blasting, R.E. Pierson will check to ensure that an adequate supply of water is available, for use during drilling or blasting, to control any emissions of fugitive dust. Water supply tanks, water trucks, and other sources of water will be checked. No drilling or blasting will be performed by either R.E. Pierson or an authorized contractor if it is determined that an adequate supply of water is not available. R.E. Pierson will keep records of the inspections of water tanks, water truck(s) and other sources of water to ensure an adequate supply of water is available for use.

If the average daily wind speed is considered calm (<5 mph), portable fugitive dust spray misters (see **Attachment 6**) will be used, where practical, downwind of the blast area to mitigate/reduce dust cloud and minimize the potential offsite impacts. Under optimum (low) wind conditions, the misters can reach an area of 50 feet vertically and 125 feet horizontally. Otherwise, the size of the blast can be reduced to lower dust emissions. On

days of higher winds, blasting of stone will be curtailed in order to limit the distance particulate matter may travel off the property.

4.5 Preventative Maintenance Program

All equipment is regularly inspected and maintained in accordance with manufacturer recommended guidelines or specifications.

4.6 Good Housekeeping Practices

Good housekeeping practices are followed as a preventive measure to minimize the potential for the creation of fugitive dust. Good housekeeping is essentially the maintenance of a clean, orderly work environment in order to reduce the possibility of accidents and dust emissions.

Elements of good housekeeping practices include:

- Maintaining neat and orderly work areas both indoors and outdoors;
- Maintaining neat and orderly storage of stones, chemicals, containers and drums;
- Routine and regular cleanup of any spilled unprocessed and processed stone;
- Use of the street sweeper and/or water spray truck, daily or more frequently as necessary to collect dust that accumulates on paved roads; and
- Providing training to employees about good housekeeping practices.

4.7 Employee Training

Employee training is provided to all RE Pierson operations personnel. Training consists of a review of facility procedures and operations, including review of this Plan, evaluation

of control measures, and adoption of new control measures as needed. Training is conducted on an annual basis and as needed when facility procedures and operations are changed. New employees are made aware of the details of the Plan as part of their initial orientation.

The objective of the training is to ensure that the facility is under constant observation by knowledgeable personnel. Employees are trained to inspect and identify fugitive dust emissions from potential sources and to be able to implement corrective procedures as quickly as practical to mitigate fugitive dust emissions. **Attachment 7** shows a synopsis of the employee training. A record of all training will be kept on site. Training records will include the name and date of all employees attending the training class.

4.8 Routine Inspection Programs

Daily inspections will be conducted throughout the facility to identify fugitive particulate matter emissions and potential dust generating situations as part of the facility's regular daily inspection program (see **Attachment 8**).

5.0 RECORDKEEPING

A copy of this Plan will be maintained at the facility at all times. Completed copies of the Daily Operations Logs (See **Attachment 8**) will be maintained at the facility for a minimum of five years and will be made immediately available to the Department personnel upon request.

6.0 FACILITY CONTACT INFORMATION

The following individual can be contacted in the event that fugitive dust control issues are identified at the R.E. Pierson facility.

Contact Information
Jim Allen
R.E. Pierson Materials, Corp.
2055 North Rockhill Road
Sellersville, PA 18960
Phone: (609) 743-0350

\N:\#0272 - R.E. Pierson Construction Company\PA - Rockhill Quarry - Permanent C+S Plant\FUGITIVE DUST CONTROL PLAN\April 2019 Fugitive Dust Control Plan\Fugitive Dust Control Plan 05-2019.docx

Attachment 1

Copies of General Permits

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
FIELD OPERATIONS - BUREAU OF AIR QUALITY

GENERAL PLAN APPROVAL AND GENERAL OPERATING PERMIT (BAQ-GPA/GP-3)

In accordance with provisions of the Air Pollution Control Act, the act of January 8, 1960, P.L. 2119, as amended, and after due consideration of an application received under Chapter 127 of the Rules and Regulations of the Department of Environmental Protection, the Department hereby issues this permit for the operation of the air contamination source(s) described below:

Permit No. GP3-09-0157

Source(s) 1-Sandvik UJ440i Jaw Crusher
1-Mellotts MC300HPCC closed-circuit crusher/screener
1-Sandvik QS331Cone Crusher
1-Sandvik Scalper Screen

Owner Richard E. Pierson Materials Corporation

Air Cleaning Device

Address PO Box 714
Bridgeport, NJ 08014

Attention Curt Mitchell
Facility Director

Location East Rockhill Quarry
2055 N. Rockhill Road
Sellersville (E. Rockhill Twp.), Bucks County

This general Plan Approval and general permit is subject to the attached conditions for Portable Nonmetallic Mineral Processing Plants (BAQ-GPA/GP-3):

This General Permit supersedes GP3-09-0153

(SEE CONDITIONS ATTACHED)

Failure to comply with the conditions placed on this permit is a violation of Section 127.444. Violation of this or any other provision of Article III of the Rules and Regulations of the Department of Environmental Protection will result in suspension or revocation of this permit and/or prosecution under Section 9 of the Air Pollution Control Act.

Issued March 14th, 2018

Expires March 14th, 2023

James D. Rebarchak
Regional Manager
Air Quality

cc: Central Office
Administration
SERO
Re 30

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
FIELD OPERATIONS - BUREAU OF AIR QUALITY

GENERAL PLAN APPROVAL AND GENERAL OPERATING PERMIT (BAQ-GPA/GP-9)

In accordance with provisions of the Air Pollution Control Act, the act of January 8, 1960, P.L. 2119, as amended, and after due consideration of an application received under Chapter 127 of the Rules and Regulations of the Department of Environmental Protection, the Department hereby issues this permit for the operation of the air contamination source(s) described below:

Permit No. GP9-09-0083

Source(s) 1-Volvo D13, diesel engine, 422-bhp
1-Caterpillar C9, diesel engine, 350-bhp
1-Caterpillar C27, diesel engine, 1093-bhp
1-Caterpillar C4.4, diesel engine, 129-bhp

Owner Richard E. Pierson Materials Corporation

Air

Address PO Box 714

Cleaning

Bridgeport, NJ 08014

Device

Attention Curt Mitchell

Location East Rockhill Quarry

Facility Director

2055 N. Rockhill Road

Sellersville (E. Rockhill Twp.), Bucks County

This general Plan Approval and general permit is subject to the attached conditions for Diesel or No. 2 Fuel-Fired Combustion Engine(s) (BAQ-GPA/GP-9):

(1) This General Permit supersedes GP9-09-0080.

(SEE CONDITIONS ATTACHED)

Failure to comply with the conditions placed on this permit is a violation of Section 127.444. Violation of this or any other provision of Article III of the Rules and Regulations of the Department of Environmental Protection will result in suspension or revocation of this permit and/or prosecution under Section 9 of the Air Pollution Control Act.

Issued March 14th, 2018

Expires March 14th, 2023

James D. Rebarchak
Regional Manager
Air Quality

cc: Central Office
Administration
SERO
Re 30

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
AIR QUALITY PROGRAM

PLAN APPROVAL

Issue Date: December 5, 2018 Effective Date: December 5, 2018
Expiration Date: May 30, 2020

In accordance with the provisions of the Air Pollution Control Act, the Act of January 8, 1960, P.L. 2119, as amended, and 25 Pa. Code Chapter 127, the Owner, [and Operator if noted] (hereinafter referred to as permittee) identified below is authorized by the Department of Environmental Protection (Department) to construct, install, modify or reactivate the air emission source(s) more fully described in the site inventory list. This Facility is subject to all terms and conditions specified in this plan approval. Nothing in this plan approval relieves the permittee from its obligations to comply with all applicable Federal, State and Local laws and regulations.

The regulatory or statutory authority for each plan approval condition is set forth in brackets. All terms and conditions in this permit are federally enforceable unless otherwise designated as "State-Only" requirements.

Plan Approval No. 09-0241

Federal Tax Id - Plant Code: 22-2975097-3

Owner Information

Name: RICHARD E PIERSON MATERIALS CORP
Mailing Address: PO BOX 714
BRIDGEPORT, NJ 08014-0714

Plant Information

Plant: HANSON AGGREGATES RICHARD E PIERSON OPR
Location: 09 Bucks County 09922 East Rockhill Township
SIC Code: 1422 Mining - Crushed And Broken Limestone

Responsible Official

Name: JIM ALLEN
Title: QUARRY GENERAL MANAGER
Phone: (856) 467 - 1421

Plan Approval Contact Person

Name: JIM ALLEN
Title: QUARRY GENERAL MANAGER
Phone: (856) 467 - 1421

[Signature] James D. Rebarchak
JAMES D. REBARCHAK, SOUTHEAST REGION AIR PROGRAM MANAGER

Plan Approval Description

Plan Approval for the construction of a 1,000-ton per hour non-metallic mineral processing plant equipped with a wet suppression system.

SECTION A. Table of Contents

Section A. Facility/Source Identification

Section B. General Plan Approval Requirements

Section C. Site Level Plan Approval Requirements

Section D. Source Level Plan Approval Requirements

Note: These same sub-sections are repeated for each source!

Section E. Alternative Operating Scenario(s)

ction F. Emission Restriction Summary

Section G. Miscellaneous

SECTION A Plan Approval Inventory List

Source ID	Source Name	Capacity/Throughput	Fuel/Material
P101	1,000-TPH NON-METALLIC MINERAL PROCESSING PLANT	1,000.000 Tons/HR	DIABASE STONE
C101	WET DUST SUPPRESSION SYSTEM	N/A	
Z101	FUGITIVE PARTICULATE MATTER		

PERMIT MAPS

PROC 101 → CNTL C101 → STAC Z101

CNTL C101 → STAC Z101

SECTION B. General Plan Approval Requirements

#001 [25 Pa. Code § 121.1]

Definitions

Words and terms that are not otherwise defined in this plan approval shall have the meanings set forth in Section 3 of the Air Pollution Control Act (35 P.S. § 4003) and 25 Pa. Code § 121.1.

#002 [25 Pa. Code § 127.12b (a) (b)]

Future Adoption of Requirements

The issuance of this plan approval does not prevent the future adoption by the Department of any rules, regulations or standards, or the issuance of orders necessary to comply with the requirements of the Federal Clean Air Act or the Pennsylvania Air Pollution Control Act, or to achieve or maintain ambient air quality standards. The issuance of this plan approval shall not be construed to limit the Department's enforcement authority.

#003 [25 Pa. Code § 127.12b]

Plan Approval Temporary Operation

This plan approval authorizes temporary operation of the source(s) covered by this plan approval provided the following conditions are met.

(a) When construction, installation, modification, or reactivation is being conducted, the permittee shall provide written notice to the Department of the completion of the activity approved by this plan approval and the permittee's intent to commence operation at least five (5) working days prior to the completion of said activity. The notice shall state when the activity will be completed and when the permittee expects to commence operation. When the activity involves multiple sources on different time schedules, notice is required for the commencement of operation of each source.

(b) Pursuant to 25 Pa. Code § 127.12b (d), temporary operation of the source(s) is authorized to facilitate the shakedown of sources and air cleaning devices, to permit operations pending the issuance of a permit under 25 Pa. Code Chapter 127, Subchapter F (relating to operating permits) or Subchapter G (relating to Title V operating permits) or to permit the evaluation of the air contaminant aspects of the source.

(c) This plan approval authorizes a temporary operation period not to exceed 180 days from the date of commencement of operation, provided the Department receives notice from the permittee pursuant to paragraph (a), above.

(d) The permittee may request an extension of the 180-day shakedown period if further evaluation of the air contamination aspects of the source(s) is necessary. The request for an extension shall be submitted, in writing, to the Department at least 15 days prior to the end of the initial 180-day shakedown period and shall provide a description of the compliance status of the source, a detailed schedule for establishing compliance, and the reasons compliance has not been established. This temporary operation period will be valid for a limited time and may be extended for additional limited periods, each not to exceed 180 days.

(e) The notice submitted by the permittee pursuant to subpart (a) above, prior to the expiration of the plan approval, shall modify the plan approval expiration date on Page 1 of this plan approval. The new plan approval expiration date shall be 180 days from the date of commencement of operation.

#004 [25 Pa. Code § 127.12(a) (10)]

Content of Applications

The permittee shall maintain and operate the sources and associated air cleaning devices in accordance with good engineering practice as described in the plan approval application submitted to the Department.

#005 [25 Pa. Code §§ 127.12(c) and (d) & 35 P.S. § 4013.2]

Public Records and Confidential Information

(a) The records, reports or information obtained by the Department or referred to at public hearings shall be available to the public, except as provided in paragraph (b) of this condition.

(b) Upon cause shown by the permittee that the records, reports or information, or a particular portion thereof, but not emission data, to which the Department has access under the act, if made public, would divulge production or sales figures or methods, processes or production unique to that person or would otherwise tend to affect adversely the

competitive position of that person by revealing trade secrets, including intellectual property rights, the Department will consider the record, report or information, or particular portion thereof confidential in the administration of the act. The Department will implement this section consistent with sections 112(d) and 114(c) of the Clean Air Act (42 U.S.C.A. § § 7412(d) and 7414(c)). Nothing in this section prevents disclosure of the report, record or information to Federal, State or local representatives as necessary for purposes of administration of Federal, State or local air pollution control laws, or when relevant in a proceeding under the act.

#006 [25 Pa. Code § 127.12b]

Plan Approval terms and conditions.

[Additional authority for this condition is derived from 25 Pa. Code Section 127.13]

(a) This plan approval will be valid for a limited time, as specified by the expiration date contained on Page 1 of this plan approval. Except as provided in § § 127.11a and 127.215 (relating to reactivation of sources; and reactivation), at the end of the time, if the construction, modification, reactivation or installation has not been completed, a new plan approval application or an extension of the previous approval will be required.

(b) If construction has commenced, but cannot be completed before the expiration of this plan approval, an extension of the plan approval must be obtained to continue construction. To allow adequate time for departmental action, a request for the extension shall be postmarked at least thirty (30) days prior to the expiration date. The request for an extension shall include the following:

(i) A justification for the extension,
(ii) A schedule for the completion of the construction

If construction has not commenced before the expiration of this plan approval, then a new plan approval application must be submitted and approval obtained before construction can commence.

(c) If the construction, modification or installation is not commenced within 18 months of the issuance of this plan approval or if there is more than an 18-month lapse in construction, modification or installation, a new plan approval application that meets the requirements of 25 Pa. Code Chapter 127, Subchapter B (related to plan approval requirements), Subchapter D (related to prevention of significant deterioration of air quality), and Subchapter E (related to new source review) shall be submitted. The Department may extend the 18-month period upon a satisfactory showing that an extension is justified.

#007 [25 Pa. Code § 127.32]

Transfer of Plan Approvals

(a) This plan approval may not be transferred from one person to another except when a change of ownership is demonstrated to the satisfaction of the Department and the Department approves the transfer of the plan approval in writing.

(b) Section 127.12a (relating to compliance review) applies to a request for transfer of a plan approval. A compliance review form shall accompany the request.

(c) This plan approval is valid only for the specific source and the specific location of the source as described in the application.

#008 [25 Pa. Code § 127.12(4) & 35 P.S. § 4008 & § 114 of the CAA]

Inspection and Entry

(a) Pursuant to 35 P.S. § 4008, no person shall hinder, obstruct, prevent or interfere with the Department or its personnel in the performance of any duty authorized under the Air Pollution Control Act.

(b) The permittee shall also allow the Department to have access at reasonable times to said sources and associated air cleaning devices with such measuring and recording equipment, including equipment recording visual observations, as the Department deems necessary and proper for performing its duties and for the effective enforcement of the Air Pollution Control Act and regulations adopted under the act.

(c) Nothing in this plan approval condition shall limit the ability of the Environmental Protection Agency to inspect or enter the premises of the permittee in accordance with Section 114 or other applicable provisions of the Clean Air Act.

#009 [25 Pa. Code 127.13a]

Plan Approval Changes for Cause

This plan approval may be terminated, modified, suspended or revoked and reissued if one or more of the following applies:

(a) The permittee constructs or operates the source subject to the plan approval in violation of the act, the Clean Air Act, the regulations promulgated under the act or the Clean Air Act, a plan approval or permit or in a manner that causes air pollution.

(b) The permittee fails to properly or adequately maintain or repair an air pollution control device or equipment attached to or otherwise made a part of the source.

(c) The permittee fails to submit a report required by this plan approval.

(d) The Environmental Protection Agency determines that this plan approval is not in compliance with the Clean Air Act or the regulations thereunder.

#010 [25 Pa. Code §§ 121.9 & 127.216]

Circumvention

(a) The permittee, or any other person, may not circumvent the new source review requirements of 25 Pa. Code Chapter 127, Subchapter E by causing or allowing a pattern of ownership or development, including the phasing, staging, delaying or engaging in incremental construction, over a geographic area of a facility which, except for the pattern of ownership or development, would otherwise require a permit or submission of a plan approval application.

(b) No person may permit the use of a device, stack height which exceeds good engineering practice stack height, dispersion technique or other technique which, without resulting in reduction of the total amount of air contaminants emitted, conceals or dilutes an emission of air contaminants which would otherwise be in violation of this plan approval, the Air Pollution Control Act or the regulations promulgated thereunder, except that with prior approval of the Department, the device or technique may be used for control of malodors.

#011 [25 Pa. Code § 127.12c]

Submissions

Reports, test data, monitoring data, notifications shall be submitted to the:

Regional Air Program Manager
PA Department of Environmental Protection
(At the address given on the plan approval transmittal letter or otherwise notified)

#012 [25 Pa. Code § 127.12(9) & 40 CFR Part 68]

Risk Management

(a) If required by Section 112(r) of the Clean Air Act, the permittee shall develop and implement an accidental release program consistent with requirements of the Clean Air Act, 40 CFR Part 68 (relating to chemical accident prevention provisions) and the Federal Chemical Safety Information, Site Security and Fuels Regulatory Relief Act (P.L. 106-40).

(b) The permittee shall prepare and implement a Risk Management Plan (RMP) which meets the requirements of Section 112(r) of the Clean Air Act, 40 CFR Part 68 and the Federal Chemical Safety Information, Site Security and Fuels Regulatory Relief Act when a regulated substance listed in 40 CFR § 68.130 is present in a process in more than the listed threshold quantity at the facility. The permittee shall submit the RMP to the Environmental Protection Agency according to the following schedule and requirements:

(1) The permittee shall submit the first RMP to a central point specified by the Environmental Protection Agency no later than the latest of the following:

SECTION B. General Plan Approval Requirements

(i) Three years after the date on which a regulated substance is first listed under § 68.130; or,
(ii) The date on which a regulated substance is first present above a threshold quantity in a process.

(2) The permittee shall submit any additional relevant information requested by the Department or the Environmental Protection Agency concerning the RMP and shall make subsequent submissions of RMPs in accordance with 40 CFR § 68.190.

(3) The permittee shall certify that the RMP is accurate and complete in accordance with the requirements of 40 CFR Part 68, including a checklist addressing the required elements of a complete RMP.

(c) As used in this plan approval condition, the term "process" shall be as defined in 40 CFR § 68.3. The term "process" means any activity involving a regulated substance including any use, storage, manufacturing, handling, or on-site movement of such substances or any combination of these activities. For purposes of this definition, any group of vessels that are interconnected, or separate vessels that are located such that a regulated substance could be involved in a potential release, shall be considered a single process.

#013 [25 Pa. Code § 127.25]

Compliance Requirement

A person may not cause or permit the operation of a source subject to § 127.11 (relating to plan approval requirements), unless the source and air cleaning devices identified in the application for the plan approval and the plan approval issued to the source, are operated and maintained in accordance with specifications in the application and conditions in the plan approval issued by the Department. A person may not cause or permit the operation of an air contamination source subject to this chapter in a manner inconsistent with good operating practices.

SECTION C. Site Level Plan Approval Requirements

I. RESTRICTIONS.

Emission Restriction(s).

 # 001 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
The total particulate matter emissions from the facility shall not exceed 7.8 tons per year as particulate matter (PM) and/or PM10.

[Note: Particulate Matter (PM) means any finely divided solid or liquid material, other than uncombined water. PM10 refers to the aggregate of solid or liquid matter in air with aerodynamic diameters less than 10 micrometers.]

 # 002 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
No person may permit the emission into the outdoor atmosphere of a fugitive air contaminant from a source other than the following:

(a) Construction or demolition of buildings or structures.

(b) Grading, paving and maintenance of roads and streets.

(c) Use of roads and streets. Emissions from material in or on trucks, railroad cars and other vehicular equipment are not considered as emissions from use of roads and streets.

(d) Clearing of land.

(e) Stockpiling of materials.

(f) Open burning operations, as specified in 25 Pa. Code § 129.14.

(g) Blasting in open pit mines. Emissions from drilling are not considered as emissions from blasting.

(h) Coke oven batteries, provided the fugitive air contaminants emitted from any coke oven battery comply with the standards for visible fugitive emissions in 25 Pa. Code §§ 123.44 and 129.15 (relating to limitations of visible fugitive air contaminants from operation of any coke oven battery; and coke pushing operations).

(i) Sources and classes of sources other than those identified in (a) – (h) above, for which the operator has obtained a determination from the Department, in accordance with 25 Pa. Code §123.1(b), that fugitive emissions from the source, after appropriate control, meet the following requirements:

(1) The emissions are of minor significance with respect to causing air pollution; and

(2) The emissions are not preventing or interfering with the attainment or maintenance of any ambient air quality standard.

 # 003 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
No person may permit air pollution as that term is defined in the Air Pollution Control Act (35 P.S. Section 4003).

 # 004 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
The opacity limitations as per 25 Pa. Code § 123.41 shall not apply to a visible emission in either of the following instances:

(a) when the presence of uncombined water is the only reason for failure to meet the limitations; or

(b) when the emission results from the operation of equipment used solely to train and test persons in observing the opacity of visible emissions.

(c) when the emission results from the sources specified in 25 Pa. Code § 123.1(a)(1)-(9) (relating to prohibition of certain

fugitive emissions).

005 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
A person may not permit the emission into the outdoor atmosphere of visible air contaminants in such a manner that the opacity of the emission is either of the following:

(a) Equal to or greater than 20% for a period or periods aggregating more than three (3) minutes in any one (1) hour.

(b) Equal to or greater than 60% at any time.

006 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
A person may not permit fugitive particulate matter to be emitted into the outdoor atmosphere from a source specified in 25 Pa. Code § 123.1(a)(1)-(9) (relating to prohibition of certain fugitive emissions) if such emissions are visible at the point the emissions pass outside the person's property.

007 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
A person may not permit the emission into the outdoor atmosphere of any malodorous air contaminants from any source in such a manner that the malodors are detectable outside the property of the person on whose land the source is being operated.

008 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
No person may permit the open burning of material in the Southeast Air Basin except when the open burning operations results from:

(a) A fire set to prevent or abate a fire hazard, when approved by the Department and set by or under the supervision of a public officer.

(b) Any fire set for the purpose of instructing personnel in fire fighting, when approved by the Department.

(c) A fire set for the prevention and control of disease or pests, when approved by the Department.

(d) a fire set in conjunction with the production of agricultural commodities in their unmanufactured state on the premises of the farm operation.

(e) a fire set for the purpose of burning domestic refuse, when the fire is on the premises of a structure occupied solely as a dwelling by two families or less and when the refuse results from the normal occupancy of the structure.

(f) A fire set solely for recreational or ceremonial purposes.

(g) A fire set solely for cooking food.

Throughput Restriction(s).

009 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
(a) Only nonmetallic mineral may be processed at this facility. Nonmetallic mineral means any of the following minerals or any mixture of which the majority is any of the following minerals: diabase stone.

(b) Nonmetallic minerals do not include coals of any type.

II. TESTING REQUIREMENTS.

#010 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

(a) If at any time the Department has cause to believe that air contaminant emissions from any source(s) listed in Section A, of this Permit, may be in excess of the limitations specified in this Permit, or established pursuant to, any applicable rule or regulation contained in 25 Pa. Code Article III, the permittee shall be required to conduct whatever tests are deemed necessary by the Department to determine the actual emission rate(s).

(b) Such testing shall be conducted in accordance with the provisions of 25 Pa. Code Chapter 139, and the most current version of the DEP Source Testing Manual, when applicable, and in accordance with any restrictions or limitations established by the Department at such time as it notifies the permittee that testing is required.

#011 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

(a) The permittee shall submit one paper copy plus one electronic copy of all source test submissions (notifications, protocols, reports, supplemental information, etc.) to both the AQ Program Manager for the Southeast Regional Office and the PSIMS Administrator in Central Office (mail and email addresses are provided below). Any questions or concerns about source testing submissions can be sent to RA-EPstacktesting@pa.gov and the PSIMS Administrator will address them.

(b) The following pertinent information shall be listed on the title page.

1. Test Date(s)

a. For protocols, provide the proposed date on which testing will commence or "TBD"
b. For reports, provide the first and last day of testing

2. Facility Identification Number (Facility - ID): For test programs that were conducted under a multi-site protocol, also include the PF Id under which the protocol was stored in PSIMS, as indicated in the protocol response letter.

3. Source ID(s) for the applicable source(s) and air pollution control device(s): The term Source ID is used in the permit but "Other Id" is used in DEP electronic systems. They are the same number and must also be listed for control equipment

4. Testing Requirements (all that apply)

a. Plan approval number(s)
b. Operating permit number
c. Applicable federal subpart(s) (i.e. 40 CFR 60, Subpart JJJJ)
d. Special purpose(s) (Consent Order, RFD, RACT II, Tier II, etc.)

(c) Mail all paper submissions to both the PSIMS Administrator and the Air Quality Program Manager for the Southeast Regional Office. Mailing addresses are provided below.

Central Office
Pennsylvania Department of Environmental Protection
Attn: PSIMS Administrator
P.O. Box 8468
Harrisburg, PA 17105-8468

Southeast Region
Pennsylvania Department of Environmental Protection
Attn: Air Quality Program Manager
2 East Main Street
Norristown, PA 19401

(d) Eliminate shading, color ink for data emphasis, small font size, and color saturation as the scanning to create an electronic file is done in black and white. Shading and color emphasis do not scan well and make the electronic copies difficult to read.

SECTION C Site Level Plan Approval Requirements

(e) Email all electronic submissions to both the PSIMS Administrator in Central Office and the Air Quality Program Manager for the Southeast Regional Office. Email addresses are provided below.

Central Office
RA-EPstacktesting@pa.gov

Southeast Region
RA-EPSEstacktesting@pa.gov

(f) The Department limits emails to 15 MB and PSIMS has a file size limitation of 100 MB for electronic files. Submit just one electronic file (convert any Microsoft Word or Excel files to an Adobe PDF format and combine them with the report or protocol), unless the submission contains CONFIDENTIAL information.

(g) If confidential information must be submitted, submit both a public copy, which has been redacted, and a confidential copy. The cover page of each submittal should state whether it is a "Public Copy" or "Confidential Copy" and each page of the latter must be marked "CONFIDENTIAL".

III. MONITORING REQUIREMENTS.

 # 012 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
[Additional authority for this permit condition is also derived from 25 Pa. Code § 127.511.]

(a) The permittee shall monitor the facility, once per operating day, for the following:

(1) odors which may be objectionable (as per 25 Pa. Code §123.31);
(2) visible emissions (as per 25 Pa. Code §§123.41 and 123.42).; and
(3) fugitive particulate matter (as per 25 Pa. Code §§ 123.1 and 123.2).

(b) Objectionable odors, which may cause annoyance or discomfort to the public noticed at the site property boundaries that are caused or may be caused by operations at the site, as well as fugitive particulate emissions that originated on-site and cross the property line, and visible emissions that originated on site shall:

(1) be investigated;
(2) be reported to the facility management, or individual(s) designated by the permittee;
(3) have appropriate corrective action taken (for emissions that originate on-site); and
(4) be recorded in a permanent written log.

 # 013 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
Visible emissions may be measured using either of the following:

(1) A device approved by the Department and maintained to provide accurate opacity measurements.

(2) Observers, trained and qualified to measure plume opacity with the naked eye or with the aid of any devices approved by the Department.

IV. RECORDKEEPING REQUIREMENTS.

 # 014 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
Within thirty (30) days after permit issuance the permittee shall submit, to the Department for approval, the proposed recordkeeping formats required in this plan approval.

 # 015 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
The permittee shall maintain records of all the facility's increases of emissions from the following categories:

(a) emissions increase of minor significance without notification to the Department.
(b) de minimis increases with notification to the Department, via letter.
(c) increases resulting from a Request for Determination (RFD) to the Department.
(d) increases resulting from the issuance of a plan approval and subsequent operating permit.

 # 016 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

The permittee shall maintain a record of all monitoring of fugitive emissions, visible emissions and odors, including those that deviate from the conditions found in this permit. The record of deviations shall contain, at a minimum, the following items:

(a) date, time, and location of the incident(s);
(b) the cause of the event; and
(c) the corrective action taken, if necessary, to abate the situation and prevent future occurrences.

 # 017 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

Source owners or operators shall maintain and make available upon request by the Department records including computerized records that may be necessary to comply with 25 Pa. Code §§ 135.3 and 135.21 (relating to reporting; and emission statements). These may include records of production, fuel usage, maintenance of production or pollution control equipment or other information determined by the Department to be necessary for identification and quantification of potential and actual air contaminant emissions. If direct recordkeeping is not possible or practical, sufficient records shall be kept to provide the needed information by indirect means.

 # 018 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

(a) The permittee shall maintain a record of the monitoring conducted to determine the presence of malodors, fugitive particulate emissions and visible emissions.

(b) This recordkeeping shall contain a listing or notation of any and all sources of fugitive and visible emissions; the cause of the fugitive or visible emissions; duration of the emission; and the corrective action taken to abate the deviation and prevent future occurrences.

 # 019 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

The permittee shall keep a log of the dates and time of application of water to the roadways.

 # 020 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

The permittee shall record particulate matter emissions for the facility, as PM and PM10, on a monthly basis and as a 12-month rolling sum.

 # 021 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

(a) The permittee shall calculate and record the following on a daily basis:

(1) The amount of material processed by the 1,000-tph non-metallic mineral processing plant (Source ID: 101).

(2) The hours of operation of the 1,000-tph non-metallic mineral processing plant (Source ID: 101).

(b) The permittee shall calculate and record following on a monthly basis and as a 12-month rolling sum:

(1) The total amount of material processed by the 1,000-tph non-metallic mineral processing plant (Source ID: 101).

(2) The hours of operation for the 1,000-tph nonmetallic mineral processing plant (Source ID: 101).

V. REPORTING REQUIREMENTS.

022 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

[Additional authority for this permit condition is also derived from §40 CFR Part 68.]

(a) If required by Section 112(r) of the Clean Air Act, the permittee shall develop and implement an accidental release program consistent with requirements of the Clean Air Act, §40 CFR Part 68 (relating to chemical accident prevention provisions) and the Federal Chemical Safety Information, Site Security and Fuels Regulatory Relief Act (P.L. 106-40).

(b) The permittee shall prepare and implement a Risk Management Plan (RMP) which meets the requirements of Section 112(r) of the Clean Air Act, §40 CFR Part 68 and the Federal Chemical Safety Information, Site Security and Fuels Regulatory Relief Act when a regulated substance listed in §40 CFR 68.130 is present in a process in more than the threshold quantity at a facility. The permittee shall submit the RMP to the federal Environmental Protection Agency according to the following schedule and requirements:

(1) The permittee shall submit the first RMP to a central point specified by EPA no later than the latest of the following:

(i) Three years after the date on which a regulated substance is first listed under §40 CFR 68.130; or,

(ii) The date on which a regulated substance is first present above a threshold quantity in a process.

(2) The permittee shall submit any additional relevant information requested by the Department or EPA concerning the RMP and shall make subsequent submissions of RMPs in accordance with §40 CFR 68.190.

(3) The permittee shall certify that the RMP is accurate and complete in accordance with the requirements of §40 CFR Part 68, including a checklist addressing the required elements of a complete RMP.

(c) As used in this permit condition, the term "process" shall be as defined in §40 CFR 68.3. The term "process" means any activity involving a regulated substance including any use, storage, manufacturing, handling, or on-site movement of such substances or any combination of these activities. For purposes of this definition, any group of vessels that are interconnected, or separate vessels that are located such that a regulated substance could be involved in a potential release, shall be considered a single process.

(d) If this facility is subject to §40 CFR Part 68, as part of the certification required under this permit, the permittee shall:

(1) Submit a compliance schedule for satisfying the requirements of §40 CFR Part 68 by the date specified in §40 CFR 68.10(a); or,

(2) Certify that this facility is in compliance with all requirements of §40 CFR Part 68 including the registration and submission of the RMP.

(e) If this facility is subject to §40 CFR Part 68, the permittee shall maintain records supporting the implementation of an accidental release program for five (5) years in accordance with §40 CFR 68.200.

(f) When this facility is subject to the accidental release program requirements of Section 112(r) of the Clean Air Act and §40 CFR Part 68, appropriate enforcement action will be taken by the Department if the permittee fails to register and submit the RMP or a revised plan pursuant to §40 CFR Part 68.

023 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

The permittee shall submit all requests, reports, applications, submittals, and other communications to the Regional Office of the Department. The copies shall be forwarded to:

Regional Air Quality Manager
PA Department of Environmental Protection
2 East Main Street
Norristown, PA 19401-4915

024 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

(a) The permittee shall, within two (2) hours, of becoming knowledgeable, of any occurrence, notify the Department, at (484) 250-5920, of any malfunction of the source(s) or associated air pollution control devices listed in Section A, of this permit, which results in, or may possibly result in, the emission of air contaminants in excess of the limitations specified in this permit, or regulation contained in 25 Pa. Code Article III.

(b) Malfunction(s) which occur at this facility, and pose(s) an imminent danger to public health, safety, welfare and the environment, and would violate permit conditions if the source were to continue to operate after the malfunction, shall immediately be reported to the Department by telephone at the above number.

(c) A written report shall be submitted to the Department within two (2) working days following the notification of the incident, and shall describe, at a minimum, the following:

(1) The malfunction(s).
(2) The emission(s).
(3) The duration.
(4) Any corrective action taken.

025 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

If the permittee has been previously advised by the Department to submit a source report, the permittee shall submit by March 1, of each year, a source report for the preceding calendar year. The report shall include information from all previously reported sources, new sources which were first operated during the preceding calendar year, and sources modified during the same period which were not previously reported, including those sources listed in the Miscellaneous Section of this permit.

The permittee may request an extension of time from the Department for the filing of a source report, and the Department may grant the extension for reasonable cause.

VI. WORK PRACTICE REQUIREMENTS.

026 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

The permittee shall ensure that the source(s) and air pollution control device(s), listed in Section A and Section G, where applicable, of this permit, are operated and maintained in a manner consistent with good operating and maintenance practices, and in accordance with manufacturer's specifications.

027 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

A person responsible for any source specified in specified 25 Pa. Code § 123.1 shall take all reasonable actions to prevent particulate matter from becoming airborne. These actions shall include, but not be limited to, the following:

(1) Use, where possible, of water or chemicals for control of dust in the demolition of buildings or structures, construction operations, the grading of roads, or the clearing of land.

(2) Application of asphalt, oil, water or suitable chemicals on dirt roads, material stockpiles and other surfaces which may give rise to airborne dusts.

(3) Paving and maintenance of roadways.

(4) Prompt removal of earth or other material from paved streets onto which earth or other material has been transported by trucking or earth moving equipment, erosion by water, or other means.

028 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

The permittee shall immediately, upon discovery, implement measures, which may include the application for the

installation of an air cleaning device(s), if necessary, to reduce the air contaminant emissions to within applicable limitations, if at any time the operation of the source(s) identified in Section A of this permit, is causing the emission of air contaminants in excess of the limitations specified in, or established pursuant to, 25 Pa. Code Article III, or any other applicable rule promulgated under the Clean Air Act.

029 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
All trucks carrying product from the site must tarp their loads.

VII. ADDITIONAL REQUIREMENTS.

030 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
(a) If construction has not commenced before the expiration of this Plan Approval, then a new Plan Approval application must be submitted and approval obtained before construction can commence.

(b) If the construction has commenced, but cannot be completed before the expiration of this Plan Approval, an extension of the expiration date must be obtained to continue construction. To assure acceptance, a request for an extension must be postmarked at least (30) days prior to the expiration date. The Department cannot issue an extension after the expiration date. The request shall include:

(1) A justification for the extension,
(2) A schedule for completion of construction, and, when required by the Department,
(3) Are-analysis if Best Available Technology (BAT) as required by 25 Pa. Code §127.12 (a)(5).

031 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
The permittee shall ensure the following:

(a) the wind speed and wind direction shall be monitored continuously each operating day, in maximum increments of 30-60 seconds, by means of an automated weather station.

(b) If at any time the automated weather station does not monitor either wind speed or wind direction, then monitoring of wind speed and/or wind direction shall be performed manually and recorded at least twice each operating day until the weather station has been repaired or replaced and has resumed monitoring the wind speed and wind direction.

(c) If the automated weather station stops monitoring or recording the wind speed or wind direction as a result of a malfunction, within two (2) hours of discovery of the malfunction, the permittee shall take steps to have the automated weather station repaired or replaced; this may involve, but not be limited to, calling a service technician or submitting an order to have the automated weather station repaired or replaced.

032 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

(a) The permittee shall design and implement an air monitoring program prior to the operation of the crusher, for Department approval, to detect airborne asbestos fibers around the perimeter of the quarry prior to the operation of the crusher. The air monitoring program shall include, but not be limited to, a corrective action plan in the event airborne asbestos fibers are detected above the action level. This air monitoring will supplement, not replace, physical and visual inspection that is done in accordance with the Mining Permit.

(b) The action level are readings or calculated airborne asbestos fiber concentrations that exceed 0.01 fibers/cc.

(c) The permittee shall conduct daily air samples for the week prior to the commencement of operation of the crusher and during the first week of the operation of the crusher.

(d) Any airborne asbestos fiber levels that are found at and around the perimeter of the site, which exceed the action level expressed in paragraph (b) above, shall:

(1) be investigated;
(2) be reported to the facility management, or individual(s) designated by the permittee and DEP within 24 hours at 484.250.5900
(3) have appropriate corrective action taken; and
(4) be recorded in a permanent written log.

(e) After two (2) weeks of daily monitoring with airborne asbestos fiber levels less than the action level, and upon the permittee's request, DEP will determine the feasibility of decreasing the monitoring frequency to weekly on operating days.

(f) After one (1) month of weekly monitoring with airborne asbestos fiber levels less than the action level, and upon the permittee's request, DEP will determine the feasibility of decreasing the frequency of monitoring to monthly on operating days.

(g) After six (6) months of monthly monitoring with airborne asbestos fiber levels less than the action level, and upon the permittee's request, DEP will determine if the monitoring may cease.

(h) The Department reserves the right to change the above monitoring requirements at any time, based on but not limited to: the review of the physical and visual inspections, asbestos sampling and testing and/or calculated asbestos airborne fiber concentrations.

Note: The permit shall calculate the estimated airborne asbestos fiber concentration on the filter sample using the following OSHA formula as per 1910 Subpart Z, Appendix B:

Where:

$$AC = ((FB/FL) - (BFB/BFL)) \times ECA / FR \times MFA \times T \times 1000$$

AC = Airborne fiber concentration
FB = Total number of fibers greater than 5 µm counted
FL = Total number of fields counted on the filter
BFB = Total number of fibers greater than 5 µm counted in the blank
BFL = Total number of fields counted on the blank
ECA = Effective collecting area of filter (385 mm2 nominal for a 25-mm filter.)
FR = Pump flow rate (L/min)
MFA = Microscope count field area (mm2). This is 0.00785 mm2 for a Walton-Beckett Graticule.
T = Sample collection time (min)
1,000 = Conversion of L to cc

033 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

(a) This section shall apply to any person who produces, sell, supplies, offers for sale or supply, uses, applies or transports any of the following materials:

(1) Aggregate material extracted from property where any portion of the area is located in a geographic ultramafic rock unit; or

(2) Any portion of the area has naturally-occurring asbestos, serpentine, or ultramafic rock as determined by the owner/operator, or

(3) The naturally-occurring asbestos, serpentine, or ultramafic rock is discovered by the owner/operator, a registered geologist, in the area to be disturbed after the start of any construction, grading, quarrying, or surface mining operation.

(b) The permittee must ensure that an Asbestos Dust Mitigation Plan for the operation has been:

(1) Submitted to and approved by DEP before the start of any construction or grading activity; and

(2) The provisions of that dust mitigation plan are implemented at the beginning and maintained throughout the duration of the construction or grading activity.

(c) All parties involved in the collection, processing, and analysis of potential asbestos containing aggregate shall implement the following guidelines specified in EPA's Method 435 to ensure more accurate and repeatable M435 asbestos content measurements which ultimately lead to better-informed decisions regarding naturally occurring asbestos related projects.

(1) Increase the number of random (grab) samples for each test in situations of observed heterogeneity. (M435 requires a minimum of three grab samples).

(2) If sampling from piles, use insertion tubes instead of round point shovels or use a front loader to obtain a smaller sample from various levels and locations of the larger pile before subsampling.

(3) Choose to sample aggregates on conveyor belts closest to the final product rather than piles if at all possible.

(4) Aim for a field sample volume of approximately two to three liters.

 # 034 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.670]
Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants
Applicability and designation of affected facility.

The sources and equipment (i.e., crushers, feeders, conveyors, etc.) comprising the 1,00-tph non-metallic mineral processing plant (Source ID: 101) at the Richard E. Pierson Material Corp - Hanson Quarry are subject to 40 C.F.R. 60, Subpart OOO - Standards of Performance for Nonmetallic Processing Plants.

VIII. COMPLIANCE CERTIFICATION.

No additional compliance certifications exist except as provided in other sections of this plan approval including Section B (relating to Plan Approval General Requirements).

IX. COMPLIANCE SCHEDULE.

No compliance milestones exist.

SECTION D. Source Level Plan Approval Requirements

Source ID: 101 Source Name: 1,000-TPH NON-METALLIC MINERAL PROCESSING PLANT

Source Capacity/Throughput: 1,000.000 Tons/HR DIABASE STONE

I. RESTRICTIONS.

Operation Hours Restriction(s).

001 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
The total hours of operation for the 1,000-tph non-metallic mineral processing plant (Source ID: 101) shall not exceed 2,800 hours per year as a 12-month rolling sum.

Throughput Restriction(s).

002 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
(a) The maximum rated capacity of the 1,000-tph non-metallic mineral processing plant (Source ID: 101) is 1,006 tons per hour (TPH).

(b) The hourly throughput of stone through the 1,000-tph non-metallic mineral processing plant (Source ID: 101) shall not exceed the rated capacity.

II. TESTING REQUIREMENTS.

003 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

(a) The permittee shall perform a stack test using the Department-approved procedures, to show compliance with the emission limits set for the source. The Source testing shall be performed within 180 days after the completion of Phase I. Source testing shall be performed for the following pollutants: visible emissions/opacity. Performance tests shall be conducted while the source is operating at maximum routine operating conditions or under such other conditions, within the capacity of the equipment, as may be requested by the Department.

(b) At least thirty (30) days prior to the test, the permittee shall submit to the Department for approval the procedures for the test and a sketch with dimensions indicating the location of sampling ports and other data to ensure the collection of epresentative samples.

(c) The test shall, at a minimum, test for visible emissions/opacity. Tests shall be conducted in accordance with the provisions of 40 CFR § 60.675 and Method 9 (Visual Opacity) or other Department approved methodology and 25 Pa. Code Chapter 139.

(d) At least thirty (30) days prior to the test, the Regional Air Quality Manager, shall be informed of the date and time of the test.

(e) Within sixty (60) days after the source test(s), two copies of the complete test report, including all operating conditions, shall be submitted to the Regional Air Quality Manager for approval.

(f) In the event that any of the above deadlines cannot be met, the permittee may request an extension for the due date(s) in writing and include a justification for the extension. The Department may grant an extension for a reasonable cause.

III. MONITORING REQUIREMENTS.

004 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

The permittee shall monitor the hours of operation of the 1,000-tph non-metallic mineral processing plant (Source ID: 101) on a daily basis.

 # 005 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

The permittee shall monitor the PM/PM10* emissions from the 1,000-tph non-metallic mineral processing plant (Source ID: 101) on a monthly basis.

[Note: *total particulate matter (PM) and particulate matter less than 10 microns (PM10).]

 # 006 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

The permittee shall monitor the visible and fugitive particulate emissions from the plant on a daily basis, when the plant is in operation.

 # 007 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

On a daily basis, the permittee shall monitor the throughput of stone through the 1,000-tph non-metallic mineral processing plant (Source ID: 101).

IV. RECORDKEEPING REQUIREMENTS.

 # 008 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

The permittee shall record the PM/PM10* emissions from the 1,000-tph non-metallic mineral processing plant (Source ID: 101) on a monthly basis.

[Note: *total particulate matter (PM) and particulate matter less than 10 microns (PM10).]

 # 009 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

The permittee shall record the hours of operation of the 1,000-tph non-metallic mineral processing plant (Source ID: 101) on a daily basis.

 # 010 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

The permittee shall keep records of the daily visible and fugitive particulate emissions readings from the non-metallic mineral processing plant when in operation.

 # 011 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

On a daily basis, the permittee shall calculate and record the throughput of stone through the 1,000-tph non-metallic mineral processing plant (Source ID: 101) on an average hourly basis.

V. REPORTING REQUIREMENTS.

No additional reporting requirements exist except as provided in other sections of this plan approval including Section B (Plan Approval General Requirements).

VI. WORK PRACTICE REQUIREMENTS.

 # 012 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

(a) The wet dust suppression system (WDSS) (Source ID: C101) associated with the 1,000-tph non-metallic mineral processing plant (Source ID: 101) shall be operated on any and all occasions that the 1,000-tph non-metallic mineral processing plant (Source ID: 101) is operated, except in those unusual circumstances where processed materials contain

sufficient moisture such that operation of the 1,000-tph non-metallic processing plant (Source ID: 101) without the simultaneous operation of the WDSS (Source ID: C101) can take place without creating fugitive emissions in excess of the limitations specified in this permit. If, however, the WDSS (Source ID: C101) associated with the 1,000-tph non-metallic mineral processing plant (Source ID: 101) is incapable of operation due to weather conditions or any other reason, the associated sources may not be operated at all.

(b) The WDSS (Source ID: C101) shall be operated efficiently and shall not at any time cause the emission of fugitive air contaminants from the controlled sources in excess of the limitations specified in 25 Pa. Code § 123.1.

 # 013 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

Prior to any addition of sources to or modification of the 1,000-tph non-metallic mineral processing plant (Source ID: 101), except as provided for in 40 C.F.R. Section 60.670(d), the permittee shall either submit a Request for Determination of Requirement for Plan Approval/Operating Permit (RFD) or submit a Plan Approval application, whichever is appropriate.

 # 014 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

Particulate matter emissions from the 1,000-tph non-metallic mineral processing plant (Source ID: 101) shall be controlled by the wet dust suppression system (WDSS) (Source ID: C101) that shall equipped with two (2) dust suppression tanks.

(1) The dust suppression tank 1 will be employed in Zone 1 and Zone 2 during construction Phase I and the WDSS shall be equipped with forty-eight (48) nozzles and a gauge to monitor the water flow rate. During Phase I, the water flow rate for the WDSS shall be in the range 1.0 to 41.53 gallons per minute.

(2) The dust suppression tank 2 will be employed in Zone 3 and Zone 4 during construction Phase II and the WDSS shall be equipped with one hundred thirty-six (136) nozzles and a gauge to monitor the water flow rate. During Phase II, the water flow rate for the WDSS shall be in the range 1.0 to 113.09 gallons per minute.

VII. ADDITIONAL REQUIREMENTS.

 # 015 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

Source and equipment associated with the 1,000-tph non-metallic mineral processing plant (Source ID: 101) will be installed in two phases.

(a) Sources and equipment to be constructed during Phase I and permitted under this plan approval include the following:

(1) Metso C140 jaw crusher (primary)
(2) C1 Conveyor
(3) C2 Conveyor
(4) 7' x 16' 3-deck scalping screen
(5) C3 Conveyor
(6) C5 Conveyor
(7) C6 Conveyor
(8) C4 Conveyor
(9) C7 Conveyor
(10) C8 Conveyor

(b) Sources and equipment to be constructed during Phase II and permitted under this plan approval include the following:

(1) 36" x 32' C14 Conveyor
(2) 36" x 92' C15 Conveyor
(3) 36" x 70' C16 Conveyor
(4) Metso HP400 cone crusher (secondary)
(5) 48' x 256' C13 Conveyor
(6) two (2) 8' x 24' 4-deck screens

(7) 30" x 120' C24 Conveyor
(8) two (2) 42" x 180' C12A and C12B Conveyors
(9) 30" x 50' C26 Conveyor
(10) Metso HP400 cone crusher (tertiary) (std. fines)
(11) Metso HP400 cone crusher (quaternary) (sh. medium)
(12) two (2) 8' x 24' 4-deck sizing screens
(13) two (2) 48" x 30' fines C25A and C25B Conveyors
(14) 48" x 256' C13 Conveyor
(15) 48" x 100' C11 Conveyor
(16) Metso GP300S cone crusher (extra course)
(17) 5' x 14' 2-deck screen
(18) 48" x 140' C10 Conveyor
(19) 36" x 32' C14 Conveyor
(20) 36" x 92' C15 Conveyor
(21) 36" x 70' C16 Conveyor
(22) 36" x 42' C17 Conveyor
(23) 36" x 116' C18 Conveyer
(24) 36" x 70" C19 Conveyor
(25) 30" x 51' C20 Conveyor
(26) 30" x 100' C21 Conveyor
(27) 30" x 32" C22 Conveyor
(28) 30" x 340' C23 Conveyor
(29) 30" x 136' C24 Conveyor
(30) 30" x 50' C27 (bypass) Conveyor
(31) 30" x 100' C28 Radial Stacker Conveyor
(32) 30" x 100' C29 Radial Stacker Conveyor
(33) 30" x 100' C30 Radial Stacker Conveyor
(34) 30" x 100' C31 Radial Stacker Conveyor

 # 016 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.670]
Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants
Applicability and designation of affected facility.

(a) The provisions of Subpart OOO are applicable to the following affected facilities in fixed or portable nonmetallic mineral processing plants: each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station.

(b) The owner or operator shall comply with all conditions of 40 CFR 60, Subpart OOO where applicable. Whenever a conflict occurs, with any of the regulations listed below, the owner or operator shall, in all cases, meet the more stringent requirement of 25 Pa. Code §§ 123.1, 123.2, and 123.13(c).

 # 017 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.670]
Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants
Applicability and designation of affected facility.

(a) When an existing facility is replaced by a piece of equipment of equal or smaller size, as defined in 40 CFR § 60.671, having the same function as the existing facility, and there is no increase in the amount of emissions, the new facility is exempt from the provisions of 40 CFR §§ 60.672, 60.674, and 60.675 except as provided for in paragraph (c).

(b) An owner or operator complying with paragraph (a) shall submit the information required in 40 CFR § 60.676(a).

(c) An owner or operator replacing all existing facilities in a production line with new facilities does not qualify for the exemption described in paragraph (a) and must comply with the provisions of 40 CFR §§ 60.672, 60.674 and 60.675.

 # 018 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.672]
Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants
Standard for particulate matter.

(a) Affected facilities must meet the fugitive emission limits and compliance requirements in Table 3 of Subpart OOO within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup as required under 40 CFR § 60.11. The requirements in Table 3 of Subpart OOO apply for fugitive emissions from affected facilities without capture systems and for fugitive emissions escaping capture systems.

(b) Truck dumping of nonmetallic minerals into any screening operation, feed hopper, or crusher is exempt from the requirements of Subpart OOO.

(c) If any transfer point on a conveyor belt or any other affected facility is enclosed in a building, then each enclosed affected facility must comply with the emission limits in paragraphs (a) and (b), or the building enclosing the affected facility or facilities must comply with the following emission limits:

(1) Fugitive emissions from the building openings (except for vents as defined in 40 CFR § 60.671) must not exceed 7 percent opacity; and

(2) Vents (as defined in 40 CFR § 60.671) in the building must meet the applicable stack emission limits and compliance requirements in Table 2 of Subpart OOO.

 # 019 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.674]
Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants
Monitoring of operations.

(a) The owner or operator of any affected facility for which construction, modification, or reconstruction commenced on or after April 22, 2008, that uses wet suppression to control emissions from the affected facility must perform monthly periodic inspections to check that water is flowing to discharge spray nozzles in the wet suppression system. The owner or operator must initiate corrective action within 24 hours and complete corrective action as expediently as practical if the owner or operator finds that water is not flowing properly during an inspection of the water spray nozzles. The owner or operator must record each inspection of the water spray nozzles, including the date of each inspection and any corrective actions taken, in the logbook required under 40 CFR § 60.676(b).

[Compliance with the daily monitoring required under Source C101 assures compliance with paragraph (a) of this condition.]

(1) If an affected facility relies on water carryover from upstream water sprays to control fugitive emissions, then that affected facility is exempt from the 5-year repeat testing requirement specified in Table 3 of this subpart provided that the affected facility meets the criteria in paragraphs (1)(i) and (ii):

(i) The owner or operator of the affected facility conducts periodic inspections of the upstream water spray(s) that are responsible for controlling fugitive emissions from the affected facility. These inspections are conducted according to paragraph (a) and 40 CFR § 60.676(b), and

(ii) The owner or operator of the affected facility designates which upstream water spray(s) will be periodically inspected at the time of the initial performance test required under 40 CFR § 60.11 and 40 CFR § 60.675.

(2) If an affected facility that routinely uses wet suppression water sprays ceases operation of the water sprays or is using a control mechanism to reduce fugitive emissions other than water sprays during the monthly inspection (for example, water from recent rainfall), the logbook entry required under 40 CFR § 60.676(b) must specify the control mechanism being used instead of the water sprays.

 # 020 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.675]
Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants
Test methods and procedures.

(a) Method 9 of appendix A-4 of this part and the procedures in 40 CFR § 60.11 shall be used to determine opacity.

(b) When determining compliance with the fugitive emissions standard for any affected facility described under 40 CFR §§ 60.672(b) or 60.672(e)(1), the duration of the Method 9 (40 CFR part 60, appendix A-4) observations must be 30 minutes (five 6-minute averages). Compliance with the applicable fugitive emission limits in Table 3 of Subpart OOO must be based

on the average of the five 6-minute averages.

(c) To demonstrate compliance with the fugitive emission limits for buildings specified in 40 CFR § 60.672(e)(1), the owner or operator must complete the testing specified in paragraph (c)(1). Performance tests must be conducted while all affected facilities inside the building are operating.

(1) If the building encloses any affected facility that commences construction, modification, or reconstruction on or after April 22, 2008, the owner or operator of the affected facility must conduct an initial Method 9 (40 CFR part 60, appendix A-4) performance test according to Subpart OOO and 40 CFR § 60.11.

(d) The owner or operator may use the following as alternatives to the reference methods and procedures specified in Subpart OOO:

(1) If emissions from two or more facilities continuously interfere so that the opacity of fugitive emissions from an individual affected facility cannot be read, either of the following procedures may be used:

(i) Use for the combined emission stream the highest fugitive opacity standard applicable to any of the individual affected facilities contributing to the emissions stream.

(ii) Separate the emissions so that the opacity of emissions from each affected facility can be read.

(2) A single visible emission observer may conduct visible emission observations for up to three fugitive, stack, or vent emission points within a 15-second interval if the following conditions are met:

(i) No more than three emission points may be read concurrently.

(ii) All three emission points must be within a 70 degree viewing sector or angle in front of the observer such that the proper sun position can be maintained for all three points.

(iii) If an opacity reading for any one of the three emission points equals or exceeds the applicable standard, then the observer must stop taking readings for the other two points and continue reading just that single point.

 # 021 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.676]
Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants
Reporting and recordkeeping.

The owner or operator of any affected facility shall submit written reports of the results of all performance tests conducted to demonstrate compliance with the standards set forth in 40 CFR § 60.672, including reports of opacity observations made using Method 9 (40 CFR part 60, appendix A-4) to demonstrate compliance with 40 CFR § 60.672(b).

 # 022 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.676]
Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants
Reporting and recordkeeping.

(a) Each owner or operator seeking to comply with 40 CFR § 60.670(d) shall submit to the Administrator the following information about the existing facility being replaced and the replacement piece of equipment.

(1) For a crusher, grinding mill, bucket elevator, bagging operation, or enclosed truck or railcar loading station:

(i) The rated capacity in megagrams or tons per hour of the existing facility being replaced and

(ii) The rated capacity in tons per hour of the replacement equipment.

(2) For a screening operation:

(i) The total surface area of the top screen of the existing screening operation being replaced and

(ii) The total surface area of the top screen of the replacement screening operation.

(3) For a conveyor belt:

(i) The width of the existing belt being replaced and

(ii) The width of the replacement conveyor belt.

(4) For a storage bin:

(i) The rated capacity in megagrams or tons of the existing storage bin being replaced and

(ii) The rated capacity in megagrams or tons of replacement storage bins.

(b) Owners or operators of affected facilities, as defined in 40 CFR § 60.670 and 40 CFR § 60.671, for which construction, modification, or reconstruction commenced on or after April 22, 2008, must record each periodic inspection required under 40 CFR § 60.674(b) or (c), including dates and any corrective actions taken, in a logbook (in written or electronic format). The owner or operator must keep the logbook onsite and make hard or electronic copies (whichever is requested) of the logbook available to the Administrator upon request.

(c) A notification of the actual date of initial startup of each affected facility shall be submitted to the Administrator.

 # 023 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR Part 60 Subpart 000 Table 3] Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants
Fugitive Emission Limits

(a) For affected facilities (as defined in 40 CFR § 60.670 and 40 CFR § 60.671) that commence construction, modification, or reconstruction on or after April 22, 2008, the owner or operator must meet the fugitive emissions limit of 7 percent opacity for the following: grinding mills, screening operations, bucket elevators, transfer points on belt conveyors, bagging operations, storage bins, enclosed truck or railcar loading stations or from any other affected facility (as defined in 40 CFR § 60.670 and 40 CFR § 60.671).

(b) The owner or operator must meet the fugitive emissions limit of 12 percent opacity for crushers at which a capture system is not used.

(c) The owner or operator must demonstrate compliance with these limits by conducting an initial performance test according to 40 CFR § 60.11 and 40 CFR § 60.675; and periodic inspections of water sprays according to 40 CFR § 60.674(b) and 40 CFR § 60.676(b).

SECTION D. Source Level Plan Approval Requirements

Source ID: C101 Source Name: WET DUST SUPPRESSION SYSTEM

Source Capacity/Throughput: N/A

CNTL C101 ⇒ STAC Z101

I. RESTRICTIONS.

No additional requirements exist except as provided in other sections of this plan approval including Section B (Plan Approval General Requirements).

II. TESTING REQUIREMENTS.

No additional testing requirements exist except as provided in other sections of this plan approval including Section B (Plan Approval General Requirements).

III. MONITORING REQUIREMENTS.

#001 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

(a) The water flow rate shall be monitored daily.

(b) The wet dust suppression system (WDSS) (Source ID: C101) shall be inspected daily, when the 1,000-tph non-metallic mineral processing plant (Source ID: 101) is operating, to include but not limited to, the following:

(1) spray nozzles for plugging, alignment and physical condition (i.e., broken nozzles).
(2) hoses for condition (i.e., cracks or holes), leaks and loose hose clamps.

IV. RECORDKEEPING REQUIREMENTS.

 # 002 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

The permittee shall record the following on a daily basis when the 1,000-tph non-metallic mineral processing plant (Source ID: 101) is operating:

(a) the results of the inspection of the wet dust suppression system (WDSS) (Source ID: C101), as required in Condition #001.

(b) the results of the gauge readings of the water flow rate from the Dust Suppression Tanks 1 and 2, as appropriate and as required in Condition #006.

(c) the following records shall be kept if any components of the WDSS malfunction:

(1) the date, time, and type of malfunction
(2) the cause of the malfunction
(3) the corrective actions taken to correct the malfunction
(4) date, time and component replaced as a result of this inspection

V. REPORTING REQUIREMENTS.

No additional reporting requirements exist except as provided in other sections of this plan approval including Section B (Plan Approval General Requirements).

SECTION D. Source Level Plan Approval Requirements.

VI. WORK PRACTICE REQUIREMENTS.

 # 003 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

(a) The permittee shall keep spare parts for the wet dust suppression system (WDSS) (Source ID: C101) on site.

(b) Malfunctioning components of the WDSS (Source ID: C101), identified during the daily inspection, shall be replaced immediately.

 # 004 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

The 1,000-tph non-metallic mineral crushing plant (Source ID: 101), including any individual source within the 1,000-tph non-metallic mineral crushing plant (Source ID: 101), shall not be operated if any component of the wet dust suppression system (WDSS) (Source ID: C101) fails to work, malfunctions, or operates with reduced control efficiency.

 # 005 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

(a) The wet dust suppression system (WDSS) (Source ID: C101) associated with the 1,000-tph non-metallic mineral processing plant (Source ID: 101) shall be operated on any and all occasions that the 1,000-tph non-metallic mineral processing plant (Source ID: 101) is operated, except in those unusual circumstances where processed materials contain sufficient moisture such that operation of the 1,000-tph non-metallic processing plant (Source ID: 101) without the simultaneous operation of the WDSS (Source ID: C101) can take place without creating fugitive emissions in excess of the limitations specified in this permit. If, however, the WDSS (Source ID: C101) associated with the 1,000-tph non-metallic mineral processing plant (Source ID: 101) is incapable of operation due to weather conditions or any other reason, the associated sources may not be operated at all.

(b) The wet dust suppression system (WDSS) (Source ID: C101) shall be operated efficiently and shall not at any time cause the emission of fugitive air contaminants from the controlled sources in excess of the limitations specified in 25 Pa. Code § 123.1

VII. ADDITIONAL REQUIREMENTS.

 # 006 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

The wet dust suppression system (WDSS) (Source ID: C101) will be equipped with two (2) dust suppression tanks.

(1) Dust suppression tank 1 will be employed in Zone 1 and Zone 2 during construction Phase I and the WDSS shall be equipped forty-eight (48) nozzles and a gauge to monitor the water flow rate. During Phase I, the water flow rate for the WDSS shall be in the range 1.0 to 41.53 gallons per minute.

(2) Dust suppression tank 2 will be employed in Zone 3 and Zone 4 during construction Phase II and the WDSS shall be equipped one hundred thirty-six (136) nozzles and a gauge to monitor the water flow rate. During Phase II, the water flow rate for the WDSS shall be in the range 1.0 to 113.09 gallons per minute.

SECTION E. Alternative Operation Requirements.

No Alternative Operations exist for this Plan Approval facility.

SECTION F. Emission Restriction Summary

Source Id	Source Description

Site Emission Restriction Summary

Emission Limit		Pollutant
7.800 Tons/Yr	particulate matter	TSP

****** End of Report ******

Attachment 2

Copy of Plan Approval No. 09-0241
1000 tph Crushing and Screening Plant

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
AIR QUALITY PROGRAM

PLAN APPROVAL

Issue Date: December 5, 2018
Expiration Date: May 30, 2020 Effective Date: December 5, 2018

In accordance with the provisions of the Air Pollution Control Act, the Act of January 8, 1960, P.L. 2119, as amended, and 25 Pa. Code Chapter 127, the Owner, [and Operator if noted] (hereinafter referred to as permittee) identified below is authorized by the Department of Environmental Protection (Department) to construct, install, modify or reactivate the air emission source(s) more fully described in the site inventory list. This Facility is subject to all terms and conditions specified in this plan approval. Nothing in this plan approval relieves the permittee from its obligations to comply with all applicable Federal, State and Local laws and regulations.

The regulatory or statutory authority for each plan approval condition is set forth in brackets. All terms and conditions in this permit are federally enforceable unless otherwise designated as "State-Only" requirements.

Plan Approval No. 09-0241

Federal Tax Id - Plant Code: 22-2975097-3

Owner Information

Name: RICHARD E PIERSON MATERIALS CORP
Mailing Address: PO BOX 714
BRIDGEPORT, NJ 08014-0714

Plant Information

Plant: HANSON AGGREGATES RICHARD E PIERSON OPR
Location: 09 Bucks County 09922 East Rockhill Township
SIC Code: 1422 Mining - Crushed And Broken Limestone

Responsible Official

Name: JIM ALLEN
Title: QUARRY GENERAL MANAGER
Phone: (856) 467 - 1421

Plan Approval Contact Person

Name: JIM ALLEN
Title: QUARRY GENERAL MANAGER
Phone: (856) 467 - 1421

[Signature] James D. Rebarchak
JAMES D. REBARCHAK, SOUTHEAST REGION AIR PROGRAM MANAGER

Plan Approval Description

Plan Approval for the construction of a 1,000-ton per hour non-metallic mineral processing plant equipped with a wet suppression system.

SECTION A. Table of Contents

Section G. Miscellaneous

SECTION A Plan Approval Inventory List

Source ID	Source Name	Capacity/Throughput	Fuel/Material
101	1,000-TPH NON-METALLIC MINERAL PROCESSING PLANT	1,000.000 Tons/HR	DIABASE STONE
C101	WET DUST SUPPRESSION SYSTEM	N/A	
Z101	FUGITIVE PARTICULATE MATTER		

PERMIT MAPS

PROC 101 → CNTL C101 → STAC Z101

CNTL C101 → STAC Z101

SECTION B. General Plan Approval Requirements

#001 [25 Pa. Code § 121.1]

Definitions

Words and terms that are not otherwise defined in this plan approval shall have the meanings set forth in Section 3 of the Air Pollution Control Act (35 P.S. § 4003) and 25 Pa. Code § 121.1.

#002 [25 Pa. Code § 127.12b (a) (b)]

Future Adoption of Requirements

The issuance of this plan approval does not prevent the future adoption by the Department of any rules, regulations or standards, or the issuance of orders necessary to comply with the requirements of the Federal Clean Air Act or the Pennsylvania Air Pollution Control Act, or to achieve or maintain ambient air quality standards. The issuance of this plan approval shall not be construed to limit the Department's enforcement authority.

#003 [25 Pa. Code § 127.12b]

Plan Approval Temporary Operation

This plan approval authorizes temporary operation of the source(s) covered by this plan approval provided the following conditions are met.

(a) When construction, installation, modification, or reactivation is being conducted, the permittee shall provide written notice to the Department of the completion of the activity approved by this plan approval and the permittee's intent to commence operation at least five (5) working days prior to the completion of said activity. The notice shall state when the activity will be completed and when the permittee expects to commence operation. When the activity involves multiple sources on different time schedules, notice is required for the commencement of operation of each source.

(b) Pursuant to 25 Pa. Code § 127.12b (d), temporary operation of the source(s) is authorized to facilitate the shakedown of sources and air cleaning devices, to permit operations pending the issuance of a permit under 25 Pa. Code Chapter 127, Subchapter F (relating to operating permits) or Subchapter G (relating to Title V operating permits) or to permit the evaluation of the air contaminant aspects of the source.

(c) This plan approval authorizes a temporary operation period not to exceed 180 days from the date of commencement of operation, provided the Department receives notice from the permittee pursuant to paragraph (a), above.

(d) The permittee may request an extension of the 180-day shakedown period if further evaluation of the air contamination aspects of the source(s) is necessary. The request for an extension shall be submitted, in writing, to the Department at least 15 days prior to the end of the initial 180-day shakedown period and shall provide a description of the compliance status of the source, a detailed schedule for establishing compliance, and the reasons compliance has not been established. This temporary operation period will be valid for a limited time and may be extended for additional limited periods, each not to exceed 180 days.

(e) The notice submitted by the permittee pursuant to subpart (a) above, prior to the expiration of the plan approval, shall modify the plan approval expiration date on Page 1 of this plan approval. The new plan approval expiration date shall be 180 days from the date of commencement of operation.

#004 [25 Pa. Code § 127.12(a) (10)]

Content of Applications

The permittee shall maintain and operate the sources and associated air cleaning devices in accordance with good engineering practice as described in the plan approval application submitted to the Department.

#005 [25 Pa. Code §§ 127.12(c) and (d) & 35 P.S. § 4013.2]

Public Records and Confidential Information

(a) The records, reports or information obtained by the Department or referred to at public hearings shall be available to the public, except as provided in paragraph (b) of this condition.

(b) Upon cause shown by the permittee that the records, reports or information, or a particular portion thereof, but not emission data, to which the Department has access under the act, if made public, would divulge production or sales figures or methods, processes or production unique to that person or would otherwise tend to affect adversely the

competitive position of that person by revealing trade secrets, including intellectual property rights, the Department will consider the record, report or information, or particular portion thereof confidential in the administration of the act. The Department will implement this section consistent with sections 112(d) and 114(c) of the Clean Air Act (42 U.S.C.A § § 7412(d) and 7414(c)). Nothing in this section prevents disclosure of the report, record or information to Federal, State or local representatives as necessary for purposes of administration of Federal, State or local air pollution control laws, or when relevant in a proceeding under the act.

#006 [25 Pa. Code § 127.12b]

Plan Approval terms and conditions.

[Additional authority for this condition is derived from 25 Pa. Code Section 127.13]

(a) This plan approval will be valid for a limited time, as specified by the expiration date contained on Page 1 of this plan approval. Except as provided in § § 127.11a and 127.215 (relating to reactivation of sources; and reactivation), at the end of the time, if the construction, modification, reactivation or installation has not been completed, a new plan approval application or an extension of the previous approval will be required.

(b) If construction has commenced, but cannot be completed before the expiration of this plan approval, an extension of the plan approval must be obtained to continue construction. To allow adequate time for departmental action, a request for the extension shall be postmarked at least thirty (30) days prior to the expiration date. The request for an extension shall include the following:

(i) A justification for the extension,
(ii) A schedule for the completion of the construction

If construction has not commenced before the expiration of this plan approval, then a new plan approval application must be submitted and approval obtained before construction can commence.

(c) If the construction, modification or installation is not commenced within 18 months of the issuance of this plan approval or if there is more than an 18-month lapse in construction, modification or installation, a new plan approval application that meets the requirements of 25 Pa. Code Chapter 127, Subchapter B (related to plan approval requirements), Subchapter D (related to prevention of significant deterioration of air quality), and Subchapter E (related to new source review) shall be submitted. The Department may extend the 18-month period upon a satisfactory showing that an extension is justified.

#007 [25 Pa. Code § 127.32]

Transfer of Plan Approvals

(a) This plan approval may not be transferred from one person to another except when a change of ownership is demonstrated to the satisfaction of the Department and the Department approves the transfer of the plan approval in writing.

(b) Section 127.12a (relating to compliance review) applies to a request for transfer of a plan approval. A compliance review form shall accompany the request.

(c) This plan approval is valid only for the specific source and the specific location of the source as described in the application.

#008 [25 Pa. Code § 127.12(4) & 35 P.S. § 4008 & § 114 of the CAA]

Inspection and Entry

(a) Pursuant to 35 P.S. § 4008, no person shall hinder, obstruct, prevent or interfere with the Department or its personnel in the performance of any duty authorized under the Air Pollution Control Act.

(b) The permittee shall also allow the Department to have access at reasonable times to said sources and associated air cleaning devices with such measuring and recording equipment, including equipment recording visual observations, as the Department deems necessary and proper for performing its duties and for the effective enforcement of the Air Pollution Control Act and regulations adopted under the act.

(c) Nothing in this plan approval condition shall limit the ability of the Environmental Protection Agency to inspect or enter the premises of the permittee in accordance with Section 114 or other applicable provisions of the Clean Air Act.

#009 [25 Pa. Code 127.13a]

Plan Approval Changes for Cause

This plan approval may be terminated, modified, suspended or revoked and reissued if one or more of the following applies:

(a) The permittee constructs or operates the source subject to the plan approval in violation of the act, the Clean Air Act, the regulations promulgated under the act or the Clean Air Act, a plan approval or permit or in a manner that causes air pollution.

(b) The permittee fails to properly or adequately maintain or repair an air pollution control device or equipment attached to or otherwise made a part of the source.

(c) The permittee fails to submit a report required by this plan approval.

(d) The Environmental Protection Agency determines that this plan approval is not in compliance with the Clean Air Act or the regulations thereunder.

#010 [25 Pa. Code §§ 121.9 & 127.216]

Circumvention

(a) The permittee, or any other person, may not circumvent the new source review requirements of 25 Pa. Code Chapter 127, Subchapter E by causing or allowing a pattern of ownership or development, including the phasing, staging, delaying or engaging in incremental construction, over a geographic area of a facility which, except for the pattern of ownership or development, would otherwise require a permit or submission of a plan approval application.

(b) No person may permit the use of a device, stack height which exceeds good engineering practice stack height, dispersion technique or other technique which, without resulting in reduction of the total amount of air contaminants emitted, conceals or dilutes an emission of air contaminants which would otherwise be in violation of this plan approval, the Air Pollution Control Act or the regulations promulgated thereunder, except that with prior approval of the Department, the device or technique may be used for control of malodors.

#011 [25 Pa. Code § 127.12c]

Submissions

Reports, test data, monitoring data, notifications shall be submitted to the:

Regional Air Program Manager
PA Department of Environmental Protection
(At the address given on the plan approval transmittal letter or otherwise notified)

#012 [25 Pa. Code § 127.12(9) & 40 CFR Part 68]

Risk Management

(a) If required by Section 112(r) of the Clean Air Act, the permittee shall develop and implement an accidental release program consistent with requirements of the Clean Air Act, 40 CFR Part 68 (relating to chemical accident prevention provisions) and the Federal Chemical Safety Information, Site Security and Fuels Regulatory Relief Act (P.L. 106-40).

(b) The permittee shall prepare and implement a Risk Management Plan (RMP) which meets the requirements of Section 112(r) of the Clean Air Act, 40 CFR Part 68 and the Federal Chemical Safety Information, Site Security and Fuels Regulatory Relief Act when a regulated substance listed in 40 CFR § 68.130 is present in a process in more than the listed threshold quantity at the facility. The permittee shall submit the RMP to the Environmental Protection Agency according to the following schedule and requirements:

(1) The permittee shall submit the first RMP to a central point specified by the Environmental Protection Agency no later than the latest of the following:

(i) Three years after the date on which a regulated substance is first listed under § 68.130; or,
(ii) The date on which a regulated substance is first present above a threshold quantity in a process.

(2) The permittee shall submit any additional relevant information requested by the Department or the Environmental Protection Agency concerning the RMP and shall make subsequent submissions of RMPs in accordance with 40 CFR § 68.190.

(3) The permittee shall certify that the RMP is accurate and complete in accordance with the requirements of 40 CFR Part 68, including a checklist addressing the required elements of a complete RMP.

(c) As used in this plan approval condition, the term "process" shall be as defined in 40 CFR § 68.3. The term "process" means any activity involving a regulated substance including any use, storage, manufacturing, handling, or on-site movement of such substances or any combination of these activities. For purposes of this definition, any group of vessels that are interconnected, or separate vessels that are located such that a regulated substance could be involved in a potential release, shall be considered a single process.

#013 [25 Pa. Code § 127.25]

Compliance Requirement

A person may not cause or permit the operation of a source subject to § 127.11 (relating to plan approval requirements), unless the source and air cleaning devices identified in the application for the plan approval and the plan approval issued to the source, are operated and maintained in accordance with specifications in the application and conditions in the plan approval issued by the Department. A person may not cause or permit the operation of an air contamination source subject to this chapter in a manner inconsistent with good operating practices.

SECTION C. Site Level Plan Approval Requirements

I. RESTRICTIONS.

Emission Restriction(s).

 # 001 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
The total particulate matter emissions from the facility shall not exceed 7.8 tons per year as particulate matter (PM) and/or PM10.

[Note: Particulate Matter (PM) means any finely divided solid or liquid material, other than uncombined water. PM10 refers to the aggregate of solid or liquid matter in air with aerodynamic diameters less than 10 micrometers.]

 # 002 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
No person may permit the emission into the outdoor atmosphere of a fugitive air contaminant from a source other than the following:

(a) Construction or demolition of buildings or structures.

(b) Grading, paving and maintenance of roads and streets.

(c) Use of roads and streets. Emissions from material in or on trucks, railroad cars and other vehicular equipment are not considered as emissions from use of roads and streets.

(d) Clearing of land.

(e) Stockpiling of materials.

(f) Open burning operations, as specified in 25 Pa. Code § 129.14.

(g) Blasting in open pit mines. Emissions from drilling are not considered as emissions from blasting.

(h) Coke oven batteries, provided the fugitive air contaminants emitted from any coke oven battery comply with the standards for visible fugitive emissions in 25 Pa. Code §§ 123.44 and 129.15 (relating to limitations of visible fugitive air contaminants from operation of any coke oven battery; and coke pushing operations).

(i) Sources and classes of sources other than those identified in (a) -- (h) above, for which the operator has obtained a determination from the Department, in accordance with 25 Pa. Code §123.1(b), that fugitive emissions from the source, after appropriate control, meet the following requirements:

(1) The emissions are of minor significance with respect to causing air pollution; and

(2) The emissions are not preventing or interfering with the attainment or maintenance of any ambient air quality standard.

 # 003 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
No person may permit air pollution as that term is defined in the Air Pollution Control Act (35 P.S. Section 4003).

 # 004 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
The opacity limitations as per 25 Pa. Code § 123.41 shall not apply to a visible emission in either of the following instances:

(a) when the presence of uncombined water is the only reason for failure to meet the limitations; or

(b) when the emission results from the operation of equipment used solely to train and test persons in observing the opacity of visible emissions.

(c) when the emission results from the sources specified in 25 Pa. Code § 123.1(a)(1)-(9) (relating to prohibition of certain

fugitive emissions).

005 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
A person may not permit the emission into the outdoor atmosphere of visible air contaminants in such a manner that the opacity of the emission is either of the following:

(a) Equal to or greater than 20% for a period or periods aggregating more than three (3) minutes in any one (1) hour.

(b) Equal to or greater than 60% at any time.

006 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
A person may not permit fugitive particulate matter to be emitted into the outdoor atmosphere from a source specified in 25 Pa. Code § 123.1(a)(1)-(9) (relating to prohibition of certain fugitive emissions) if such emissions are visible at the point the emissions pass outside the person's property.

007 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
A person may not permit the emission into the outdoor atmosphere of any malodorous air contaminants from any source in such a manner that the malodors are detectable outside the property of the person on whose land the source is being operated.

008 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
No person may permit the open burning of material in the Southeast Air Basin except when the open burning operations results from:

(a) A fire set to prevent or abate a fire hazard, when approved by the Department and set by or under the supervision of a public officer.

(b) Any fire set for the purpose of instructing personnel in fire fighting, when approved by the Department.

(c) A fire set for the prevention and control of disease or pests, when approved by the Department.

(d) a fire set in conjunction with the production of agricultural commodities in their unmanufactured state on the premises of the farm operation.

(e) a fire set for the purpose of burning domestic refuse, when the fire is on the premises of a structure occupied solely as a dwelling by two families or less and when the refuse results from the normal occupancy of the structure.

(f) A fire set solely for recreational or ceremonial purposes.

(g) A fire set solely for cooking food.

Throughput Restriction(s).

009 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
(a) Only nonmetallic mineral may be processed at this facility. Nonmetallic mineral means any of the following minerals or any mixture of which the majority is any of the following minerals: diabase stone.

(b) Nonmetallic minerals do not include coals of any type.

SECTION C. Site Level Plan Approval Requirements

II. TESTING REQUIREMENTS.

010 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

(a) If at any time the Department has cause to believe that air contaminant emissions from any source(s) listed in Section A, of this Permit, may be in excess of the limitations specified in this Permit, or established pursuant to, any applicable rule or regulation contained in 25 Pa. Code Article III, the permittee shall be required to conduct whatever tests are deemed necessary by the Department to determine the actual emission rate(s).

(b) Such testing shall be conducted in accordance with the provisions of 25 Pa. Code Chapter 139, and the most current version of the DEP Source Testing Manual, when applicable, and in accordance with any restrictions or limitations established by the Department at such time as it notifies the permittee that testing is required.

011 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

(a) The permittee shall submit one paper copy plus one electronic copy of all source test submissions (notifications, protocols, reports, supplemental information, etc.) to both the AQ Program Manager for the Southeast Regional Office and the PSIMS Administrator in Central Office (mail and email addresses are provided below). Any questions or concerns about source testing submissions can be sent to RA-EPstacktesting@pa.gov and the PSIMS Administrator will address them.

(b) The following pertinent information shall be listed on the title page.

1. Test Date(s)

a. For protocols, provide the proposed date on which testing will commence or "TBD"
b. For reports, provide the first and last day of testing

2. Facility Identification Number (Facility - ID): For test programs that were conducted under a multi-site protocol, also include the PF Id under which the protocol was stored in PSIMS, as indicated in the protocol response letter.

3. Source ID(s) for the applicable source(s) and air pollution control device(s): The term Source ID is used in the permit but "Other Id" is used in DEP electronic systems. They are the same number and must also be listed for control equipment

4. Testing Requirements (all that apply)

a. Plan approval number(s)
b. Operating permit number
c. Applicable federal subpart(s) (i.e. 40 CFR 60, Subpart JJJJ)
d. Special purpose(s) (Consent Order, RFD, RACT II, Tier II, etc.)

(c) Mail all paper submissions to both the PSIMS Administrator and the Air Quality Program Manager for the Southeast Regional Office. Mailing addresses are provided below.

Central Office
Pennsylvania Department of Environmental Protection
Attn: PSIMS Administrator
P.O. Box 8468
Harrisburg, PA 17105-8468

Southeast Region
Pennsylvania Department of Environmental Protection
Attn: Air Quality Program Manager
2 East Main Street
Norristown, PA 19401

(d) Eliminate shading, color ink for data emphasis, small font size, and color saturation as the scanning to create an electronic file is done in black and white. Shading and color emphasis do not scan well and make the electronic copies difficult to read.

(e) Email all electronic submissions to both the PSIMS Administrator in Central Office and the Air Quality Program Manager for the Southeast Regional Office. Email addresses are provided below.

Central Office
RA-EPstacktesting@pa.gov

Southeast Region
RA-EPSEstacktesting@pa.gov

(f) The Department limits emails to 15 MB and PSIMS has a file size limitation of 100 MB for electronic files. Submit just one electronic file (convert any Microsoft Word or Excel files to an Adobe PDF format and combine them with the report or protocol), unless the submission contains CONFIDENTIAL information.

(g) If confidential information must be submitted, submit both a public copy, which has been redacted, and a confidential copy. The cover page of each submittal should state whether it is a "Public Copy" or "Confidential Copy" and each page of the latter must be marked "CONFIDENTIAL".

III. MONITORING REQUIREMENTS.

 # 012 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
[Additional authority for this permit condition is also derived from 25 Pa. Code § 127.511.]

(a) The permittee shall monitor the facility, once per operating day, for the following:

(1) odors which may be objectionable (as per 25 Pa. Code §123.31);
(2) visible emissions (as per 25 Pa. Code §§123.41 and 123.42).; and
(3) fugitive particulate matter (as per 25 Pa. Code §§ 123.1 and 123.2).

(b) Objectionable odors, which may cause annoyance or discomfort to the public noticed at the site property boundaries that are caused or may be caused by operations at the site, as well as fugitive particulate emissions that originated on-site and cross the property line, and visible emissions that originated on site shall:

(1) be investigated;
(2) be reported to the facility management, or individual(s) designated by the permittee;
(3) have appropriate corrective action taken (for emissions that originate on-site); and
(4) be recorded in a permanent written log.

 # 013 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
Visible emissions may be measured using either of the following:

(1) A device approved by the Department and maintained to provide accurate opacity measurements.

(2) Observers, trained and qualified to measure plume opacity with the naked eye or with the aid of any devices approved by the Department.

IV. RECORDKEEPING REQUIREMENTS.

 # 014 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
Within thirty (30) days after permit issuance the permittee shall submit, to the Department for approval, the proposed recordkeeping formats required in this plan approval.

 # 015 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
The permittee shall maintain records of all the facility's increases of emissions from the following categories:

(a) emissions increase of minor significance without notification to the Department.
(b) de minimis increases with notification to the Department, via letter.
(c) increases resulting from a Request for Determination (RFD) to the Department.
(d) Increases resulting from the issuance of a plan approval and subsequent operating permit.

 # 016 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

The permittee shall maintain a record of all monitoring of fugitive emissions, visible emissions and odors, including those that deviate from the conditions found in this permit. The record of deviations shall contain, at a minimum, the following items:

(a) date, time, and location of the incident(s);
(b) the cause of the event; and
(c) the corrective action taken, if necessary, to abate the situation and prevent future occurrences.

 # 017 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

Source owners or operators shall maintain and make available upon request by the Department records including computerized records that may be necessary to comply with 25 Pa. Code §§ 135.3 and 135.21 (relating to reporting; and emission statements). These may include records of production, fuel usage, maintenance of production or pollution control equipment or other information determined by the Department to be necessary for identification and quantification of potential and actual air contaminant emissions. If direct recordkeeping is not possible or practical, sufficient records shall be kept to provide the needed information by indirect means.

 # 018 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

(a) The permittee shall maintain a record of the monitoring conducted to determine the presence of malodors, fugitive particulate emissions and visible emissions.

(b) This recordkeeping shall contain a listing or notation of any and all sources of fugitive and visible emissions; the cause of the fugitive or visible emissions; duration of the emission; and the corrective action taken to abate the deviation and prevent future occurrences.

 # 019 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

The permittee shall keep a log of the dates and time of application of water to the roadways.

 # 020 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

The permittee shall record particulate matter emissions for the facility, as PM and PM10, on a monthly basis and as a 12-month rolling sum.

 # 021 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

(a) The permittee shall calculate and record the following on a daily basis:

(1) The amount of material processed by the 1,000-tph non-metallic mineral processing plant (Source ID: 101).

(2) The hours of operation of the 1,000-tph non-metallic mineral processing plant (Source ID: 101).

(b) The permittee shall calculate and record following on a monthly basis and as a 12-month rolling sum:

(1) The total amount of material processed by the 1,000-tph non-metallic mineral processing plant (Source ID: 101).

(2) The hours of operation for the 1,000-tph nonmetallic mineral processing plant (Source ID: 101).

SECTION G. Site Level Plan Approval Requirements

V. REPORTING REQUIREMENTS.

022 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

[Additional authority for this permit condition is also derived from §40 CFR Part 68.]

(a) If required by Section 112(r) of the Clean Air Act, the permittee shall develop and implement an accidental release program consistent with requirements of the Clean Air Act, §40 CFR Part 68 (relating to chemical-accident prevention provisions) and the Federal Chemical Safety Information, Site Security and Fuels Regulatory Relief Act (P.L. 106-40).

(b) The permittee shall prepare and implement a Risk Management Plan (RMP) which meets the requirements of Section 112(r) of the Clean Air Act, §40 CFR Part 68 and the Federal Chemical Safety Information, Site Security and Fuels Regulatory Relief Act when a regulated substance listed in §40 CFR 68.130 is present in a process in more than the threshold quantity at a facility. The permittee shall submit the RMP to the federal Environmental Protection Agency according to the following schedule and requirements:

(1) The permittee shall submit the first RMP to a central point specified by EPA no later than the latest of the following:

(i) Three years after the date on which a regulated substance is first listed under §40 CFR 68.130; or,

(ii) The date on which a regulated substance is first present above a threshold quantity in a process.

(2) The permittee shall submit any additional relevant information requested by the Department or EPA concerning the RMP and shall make subsequent submissions of RMPs in accordance with §40 CFR 68.190.

(3) The permittee shall certify that the RMP is accurate and complete in accordance with the requirements of §40 CFR Part 68, including a checklist addressing the required elements of a complete RMP.

(c) As used in this permit condition, the term "process" shall be as defined in §40 CFR 68.3. The term "process" means any activity involving a regulated substance including any use, storage, manufacturing, handling, or on-site movement of such substances or any combination of these activities. For purposes of this definition, any group of vessels that are interconnected, or separate vessels that are located such that a regulated substance could be involved in a potential release, shall be considered a single process.

(d) If this facility is subject to §40 CFR Part 68, as part of the certification required under this permit, the permittee shall:

(1) Submit a compliance schedule for satisfying the requirements of §40 CFR Part 68 by the date specified in §40 CFR 68.10(a); or,

(2) Certify that this facility is in compliance with all requirements of §40 CFR Part 68 including the registration and submission of the RMP.

(e) If this facility is subject to §40 CFR Part 68, the permittee shall maintain records supporting the implementation of an accidental release program for five (5) years in accordance with §40 CFR 68.200.

(f) When this facility is subject to the accidental release program requirements of Section 112(r) of the Clean Air Act and §40 CFR Part 68, appropriate enforcement action will be taken by the Department if the permittee fails to register and submit the RMP or a revised plan pursuant to §40 CFR Part 68.

023 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

The permittee shall submit all requests, reports, applications, submittals, and other communications to the Regional Office of the Department. The copies shall be forwarded to:

Regional Air Quality Manager
PA Department of Environmental Protection
2 East Main Street
Norristown, PA 19401-4915

024 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

(a) The permittee shall, within two (2) hours, of becoming knowledgeable, of any occurrence, notify the Department, at (484) 250-5920, of any malfunction of the source(s) or associated air pollution control devices listed in Section A of this permit, which results in, or may possibly result in, the emission of air contaminants in excess of the limitations specified in this permit, or regulation contained in 25 Pa. Code Article III.

(b) Malfunction(s) which occur at this facility, and pose(s) an imminent danger to public health, safety, welfare and the environment, and would violate permit conditions if the source were to continue to operate after the malfunction, shall immediately be reported to the Department by telephone at the above number.

(c) A written report shall be submitted to the Department within two (2) working days following the notification of the incident, and shall describe, at a minimum, the following:

(1) The malfunction(s).
(2) The emission(s).
(3) The duration.
(4) Any corrective action taken.

025 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

If the permittee has been previously advised by the Department to submit a source report, the permittee shall submit by March 1, of each year, a source report for the preceding calendar year. The report shall include information from all previously reported sources, new sources which were first operated during the preceding calendar year, and sources modified during the same period which were not previously reported, including those sources listed in the Miscellaneous Section of this permit.

The permittee may request an extension of time from the Department for the filing of a source report, and the Department may grant the extension for reasonable cause.

VI. WORK PRACTICE REQUIREMENTS.

026 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

The permittee shall ensure that the source(s) and air pollution control device(s), listed in Section A and Section G, where applicable, of this permit, are operated and maintained in a manner consistent with good operating and maintenance practices, and in accordance with manufacturer's specifications.

027 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

A person responsible for any source specified in specified 25 Pa. Code § 123.1 shall take all reasonable actions to prevent particulate matter from becoming airborne. These actions shall include, but not be limited to, the following:

(1) Use, where possible, of water or chemicals for control of dust in the demolition of buildings or structures, construction operations, the grading of roads, or the clearing of land.

(2) Application of asphalt, oil, water or suitable chemicals on dirt roads, material stockpiles and other surfaces which may give rise to airborne dusts.

(3) Paving and maintenance of roadways.

(4) Prompt removal of earth or other material from paved streets onto which earth or other material has been transported by trucking or earth moving equipment, erosion by water, or other means.

028 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

The permittee shall immediately, upon discovery, implement measures, which may include the application for the

installation of an air cleaning device(s), if necessary, to reduce the air contaminant emissions to within applicable limitations, if at any time the operation of the source(s) identified in Section A of this permit, is causing the emission of air contaminants in excess of the limitations specified in, or established pursuant to, 25 Pa. Code Article III, or any other applicable rule promulgated under the Clean Air Act.

029 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
All trucks carrying product from the site must tarp their loads.

VII. ADDITIONAL REQUIREMENTS.

030 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
(a) If construction has not commenced before the expiration of this Plan Approval, then a new Plan Approval application must be submitted and approval obtained before construction can commence.

(b) If the construction has commenced, but cannot be completed before the expiration of this Plan Approval, an extension of the expiration date must be obtained to continue construction. To assure acceptance, a request for an extension must be postmarked at least (30) days prior to the expiration date. The Department cannot issue an extension after the expiration date. The request shall include:

(1) A justification for the extension,
(2) A schedule for completion of construction, and, when required by the Department,
(3) A re-analysis if Best Available Technology (BAT) as required by 25 Pa. Code §127.12 (a)(5).

031 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
The permittee shall ensure the following:

(a) the wind speed and wind direction shall be monitored continuously each operating day, in maximum increments of 30-60 seconds, by means of an automated weather station.

(b) If at any time the automated weather station does not monitor either wind speed or wind direction, then monitoring of wind speed and/or wind direction shall be performed manually and recorded at least twice each operating day until the weather station has been repaired or replaced and has resumed monitoring the wind speed and wind direction.

(c) If the automated weather station stops monitoring or recording the wind speed or wind direction as a result of a malfunction, within two (2) hours of discovery of the malfunction, the permittee shall take steps to have the automated weather station repaired or replaced; this may involve, but not be limited to, calling a service technician or submitting an order to have the automated weather station repaired or replaced.

032 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

(a) The permittee shall design and implement an air monitoring program prior to the operation of the crusher, for Department approval, to detect airborne asbestos fibers around the perimeter of the quarry prior to the operation of the crusher. The air monitoring program shall include, but not be limited to, a corrective action plan in the event airborne asbestos fibers are detected above the action level. This air monitoring will supplement, not replace, physical and visual inspection that is done in accordance with the Mining Permit.

(b) The action level are readings or calculated airborne asbestos fiber concentrations that exceed 0.01 fibers/cc.

(c) The permittee shall conduct daily air samples for the week prior to the commencement of operation of the crusher and during the first week of the operation of the crusher.

(d) Any airborne asbestos fiber levels that are found at and around the perimeter of the site, which exceed the action level expressed in paragraph (b) above, shall:

(1) be investigated;
(2) be reported to the facility management, or individual(s) designated by the permittee and DEP within 24 hours at 484.250.5900
(3) have appropriate corrective action taken; and
(4) be recorded in a permanent written log.

(e) After two (2) weeks of daily monitoring with airborne asbestos fiber levels less than the action level, and upon the permittee's request, DEP will determine the feasibility of decreasing the monitoring frequency to weekly on operating days.

(f) After one (1) month of weekly monitoring with airborne asbestos fiber levels less than the action level, and upon the permittee's request, DEP will determine the feasibility of decreasing the frequency of monitoring to monthly on operating days.

(g) After six (6) months of monthly monitoring with airborne asbestos fiber levels less than the action level, and upon the permittee's request, DEP will determine if the monitoring may cease.

(h) The Department reserves the right to change the above monitoring requirements at any time, based on but not limited to: the review of the physical and visual inspections, asbestos sampling and testing and/or calculated asbestos airborne fiber concentrations.

Note: The permit shall calculate the estimated airborne asbestos fiber concentration on the filter sample using the following OSHA formula as per 1910 Subpart Z, Appendix B:

Where:

$$AC = ((FB/FL) - (BFB/BFL)) \times ECA / FR \times MFA \times T \times 1000$$

AC = Airborne fiber concentration
FB = Total number of fibers greater than 5 µm counted
FL = Total number of fields counted on the filter
BFB = Total number of fibers greater than 5 µm counted in the blank
BFL = Total number of fields counted on the blank
ECA = Effective collecting area of filter (385 mm2 nominal for a 25-mm filter.)
FR = Pump flow rate (L/min)
MFA = Microscope count field area (mm2). This is 0.00785 mm2 for a Walton-Beckett Graticule.
T = Sample collection time (min)
1,000 = Conversion of L to cc

 # 033 **[25 Pa. Code §127.12b]**
Plan approval terms and conditions.

(a) This section shall apply to any person who produces, sell, supplies, offers for sale or supply, uses, applies or transports any of the following materials:

(1) Aggregate material extracted from property where any portion of the area is located in a geographic ultramafic rock unit; or

(2) Any portion of the area has naturally-occurring asbestos, serpentine, or ultramafic rock as determined by the owner/operator, or

(3) The naturally-occurring asbestos, serpentine, or ultramafic rock is discovered by the owner/operator, a registered geologist, in the area to be disturbed after the start of any construction, grading, quarrying, or surface mining operation.

(b) The permittee must ensure that an Asbestos Dust Mitigation Plan for the operation has been:

(1) Submitted to and approved by DEP before the start of any construction or grading activity; and

(2) The provisions of that dust mitigation plan are implemented at the beginning and maintained throughout the duration of the construction or grading activity.

(c) All parties involved in the collection, processing, and analysis of potential asbestos containing aggregate shall implement the following guidelines specified in EPA's Method 435 to ensure more accurate and repeatable M435 asbestos content measurements which ultimately lead to better-informed decisions regarding naturally occuring asbestos related projects.

(1) Increase the number of random (grab) samples for each test in situations of observed heterogeneity. (M435 requires a minimum of three grab samples).

(2) If sampling from piles, use insertion tubes instead of round point shovels or use a front loader to obtain a smaller sample from various levels and locations of the larger pile before subsampling.

(3) Choose to sample aggregates on conveyor belts closest to the final product rather than piles if at all possible..

(4) Aim for a field sample volume of approximately two to three liters.

 # 034 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.670]
Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants
Applicability and designation of affected facility.

The sources and equipment (i.e., crushers, feeders, conveyors, etc.) comprising the 1,00-tph non-metallic mineral processing plant (Source ID: 101) at the Richard E. Pierson Material Corp - Hanson Quarry are subject to 40 C.F.R. 60, Subpart OOO - Standards of Performance for Nonmetallic Processing Plants.

VIII. COMPLIANCE CERTIFICATION.

No additional compliance certifications exist except as provided in other sections of this plan approval including Section B (relating to Plan Approval General Requirements).

IX. COMPLIANCE SCHEDULE.

No compliance milestones exist.

SECTION D. Source Level Plan Approval Requirements

Source ID: 101 Source Name: 1,000-TPH NON-METALLIC MINERAL PROCESSING PLANT

Source Capacity/Throughput: 1,000.000 Tons/HR DIABASE STONE

PROC 101 → CNTL C101 → STAC Z101

I. RESTRICTIONS.

Operation Hours Restriction(s).

001 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
The total hours of operation for the 1,000-tph non-metallic mineral processing plant (Source ID: 101) shall not exceed 2,800 hours per year as a 12-month rolling sum.

Throughput Restriction(s).

002 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
(a) The maximum rated capacity of the 1,000-tph non-metallic mineral processing plant (Source ID: 101) is 1,000 tons per hour (TPH).

(b) The hourly throughput of stone through the 1,000-tph non-metallic mineral processing plant (Source ID: 101) shall not exceed the rated capacity.

II. TESTING REQUIREMENTS.

003 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

(a) The permittee shall perform a stack test using the Department-approved procedures, to show compliance with the emission limits set for the source. The Source testing shall be performed within 180 days after the completion of Phase I. Source testing shall be performed for the following pollutants: visible emissions/opacity. Performance tests shall be conducted while the source is operating at maximum routine operating conditions or under such other conditions, within the capacity of the equipment, as may be requested by the Department.

(b) At least thirty (30) days prior to the test, the permittee shall submit to the Department for approval the procedures for the test and a sketch with dimensions indicating the location of sampling ports and other data to ensure the collection of epresentative samples.

(c) The test shall, at a minimum, test for visible emissions/opacity. Tests shall be conducted in accordance with the provisions of 40 CFR § 60.675 and Method 9 (Visual Opacity) or other Department approved methodology and 25 Pa. Code Chapter 139.

(d) At least thirty (30) days prior to the test, the Regional Air Quality Manager, shall be informed of the date and time of the test.

(e) Within sixty (60) days after the source test(s), two copies of the complete test report, including all operating conditions, shall be submitted to the Regional Air Quality Manager for approval.

(f) In the event that any of the above deadlines cannot be met, the permittee may request an extension for the due date(s) in writing and include a justification for the extension. The Department may grant an extension for a reasonable cause.

MONITORING REQUIREMENTS.

004 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

The permittee shall monitor the hours of operation of the 1,000-tph non-metallic mineral processing plant (Source ID: 101) on a daily basis.

 # 005 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

The permittee shall monitor the PM/PM10* emissions from the 1,000-tph non-metallic mineral processing plant (Source ID: 101) on a monthly basis.

[Note: *total particulate matter (PM) and particulate matter less than 10 microns (PM10).]

 # 006 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

The permittee shall monitor the visible and fugitive particulate emissions from the plant on a daily basis, when the plant is in operation.

 # 007 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

On a daily basis, the permittee shall monitor the throughput of stone through the 1,000-tph non-metallic mineral processing plant (Source ID: 101).

IV. RECORDKEEPING REQUIREMENTS.

 # 008 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

The permittee shall record the PM/PM10* emissions from the 1,000-tph non-metallic mineral processing plant (Source ID: 101) on a monthly basis.

[Note: *total particulate matter (PM) and particulate matter less than 10 microns (PM10).]

 # 009 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

The permittee shall record the hours of operation of the 1,000-tph non-metallic mineral processing plant (Source ID: 101) on a daily basis.

 # 010 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

The permittee shall keep records of the daily visible and fugitive particulate emissions readings from the non-metallic mineral processing plant when in operation.

 # 011 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

On a daily basis, the permittee shall calculate and record the throughput of stone through the 1,000-tph non-metallic mineral processing plant (Source ID: 101) on an average hourly basis.

V. REPORTING REQUIREMENTS.

No additional reporting requirements exist except as provided in other sections of this plan approval including Section B (Plan Approval General Requirements).

VI. WORK PRACTICE REQUIREMENTS.

 # 012 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

(a) The wet dust suppression system (WDSS) (Source ID: C101) associated with the 1,000-tph non-metallic mineral processing plant (Source ID: 101) shall be operated on any and all occasions that the 1,000-tph non-metallic mineral processing plant (Source ID: 101) is operated, except in those unusual circumstances where processed materials contain

sufficient moisture such that operation of the 1,000-tph non-metallic processing plant (Source ID: 101) without the simultaneous operation of the WDSS (Source ID: C101) can take place without creating fugitive emissions in excess of the limitations specified in this permit. If, however, the WDSS (Source ID: C101) associated with the 1,000-tph non-metallic mineral processing plant (Source ID: 101) is incapable of operation due to weather conditions or any other reason, the associated sources may not be operated at all.

(b) The WDSS (Source ID: C101) shall be operated efficiently and shall not at any time cause the emission of fugitive air contaminants from the controlled sources in excess of the limitations specified in 25 Pa. Code § 123.1.

 # 013 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

Prior to any addition of sources to or modification of the 1,000-tph non-metallic mineral processing plant (Source ID: 101), except as provided for in 40 C.F.R. Section 60.670(d), the permittee shall either submit a Request for Determination of Requirement for Plan Approval/Operating Permit (RFD) or submit a Plan Approval application, whichever is appropriate.

 # 014 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

Particulate matter emissions from the 1,000-tph non-metallic mineral processing plant (Source ID: 101) shall be controlled by the wet dust suppression system (WDSS) (Source ID: C101) that shall equipped with two (2) dust suppression tanks.

(1) The dust suppression tank 1 will be employed in Zone 1 and Zone 2 during construction Phase I and the WDSS shall be equipped with forty-eight (48) nozzles and a gauge to monitor the water flow rate. During Phase I, the water flow rate for the WDSS shall be in the range 1.0 to 41.53 gallons per minute.

(2) The dust suppression tank 2 will be employed in Zone 3 and Zone 4 during construction Phase II and the WDSS shall be equipped with one hundred thirty-six (136) nozzles and a gauge to monitor the water flow rate. During Phase II, the water flow rate for the WDSS shall be in the range 1.0 to 113.09 gallons per minute.

VII. ADDITIONAL REQUIREMENTS.

 # 015 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

Source and equipment associated with the 1,000-tph non-metallic mineral processing plant (Source ID: 101) will be installed in two phases.

(a) Sources and equipment to be constructed during Phase I and permitted under this plan approval include the following:

(1) Metso C140 jaw crusher (primary)
(2) C1 Conveyor
(3) C2 Conveyor
(4) 7' x 16' 3-deck scalping screen
(5) C3 Conveyor
(6) C5 Conveyor
(7) C6 Conveyor
(8) C4 Conveyor
(9) C7 Conveyor
(10) C8 Conveyor

(b) Sources and equipment to be constructed during Phase II and permitted under this plan approval include the following:

(1) 36" x 32' C14 Conveyor
(2) 36" x 92' C15 Conveyor
(3) 36" x 70' C16 Conveyor
(4) Metso HP400 cone crusher (secondary)
(5) 48' x 256' C13 Conveyor
(6) two (2) 8' x 24' 4-deck screens

(7) 30" x 120' C24 Conveyor
(8) two (2) 42" x 180' C12A and C12B Conveyors
(9) 30" x 50' C26 Conveyor
(10) Metso HP400 cone crusher (tertiary) (std. fines)
(11) Metso HP400 cone crusher (quaternary) (sh. medium)
(12) two (2) 8' x 24' 4-deck sizing screens
(13) two (2) 48" x 30' fines C25A and C25B Conveyors
(14) 48" x 256' C13 Conveyor
(15) 48" x 100' C11 Conveyor
(16) Metso GP300S cone crusher (extra course)
(17) 5' x 14' 2-deck screen
(18) 48" x 140' C10 Conveyor
(19) 36" x 32' C14 Conveyor
(20) 36" x 92' C15 Conveyor
(21) 36" x 70' C16 Conveyor
(22) 36" x 42' C17 Conveyor
(23) 36" x 116' C18 Conveyer
(24) 36" x 70" C19 Conveyor
(25) 30" x 51' C20 Conveyor
(26) 30" x 100' C21 Conveyor
(27) 30" x 32" C22 Conveyor
(28) 30" x 340' C23 Conveyor
(29) 30" x 136' C24 Conveyor
(30) 30" x 50' C27 (bypass) Conveyor
(31) 30" x 100' C28 Radial Stacker Conveyor
(32) 30" x 100' C29 Radial Stacker Conveyor
(33) 30" x 100' C30 Radial Stacker Conveyor
(34) 30" x 100' C31 Radial Stacker Conveyor

 # 016 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.670]
Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants
Applicability and designation of affected facility.

(a) The provisions of Subpart OOO are applicable to the following affected facilities in fixed or portable nonmetallic mineral processing plants: each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station.

(b) The owner or operator shall comply with all conditions of 40 CFR 60, Subpart OOO where applicable. Whenever a conflict occurs, with any of the regulations listed below, the owner or operator shall, in all cases, meet the more stringent requirement of 25 Pa. Code §§ 123.1, 123.2, and 123.13(c).

 # 017 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.670]
Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants
Applicability and designation of affected facility.

(a) When an existing facility is replaced by a piece of equipment of equal or smaller size, as defined in 40 CFR § 60.671, having the same function as the existing facility, and there is no increase in the amount of emissions, the new facility is exempt from the provisions of 40 CFR §§ 60.672, 60.674, and 60.675 except as provided for in paragraph (c).

(b) An owner or operator complying with paragraph (a) shall submit the information required in 40 CFR § 60.676(a).

(c) An owner or operator replacing all existing facilities in a production line with new facilities does not qualify for the exemption described in paragraph (a) and must comply with the provisions of 40 CFR §§ 60.672, 60.674 and 60.675.

 # 018 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.672]
Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants
Standard for particulate matter.

(a) Affected facilities must meet the fugitive emission limits and compliance requirements in Table 3 of Subpart OOO within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup as required under 40 CFR § 60.11. The requirements in Table 3 of Subpart OOO apply for fugitive emissions from affected facilities without capture systems and for fugitive emissions escaping capture systems.

(b) Truck dumping of nonmetallic minerals into any screening operation, feed hopper, or crusher is exempt from the requirements of Subpart OOO.

(c) If any transfer point on a conveyor belt or any other affected facility is enclosed in a building, then each enclosed affected facility must comply with the emission limits in paragraphs (a) and (b), or the building enclosing the affected facility or facilities must comply with the following emission limits:

(1) Fugitive emissions from the building openings (except for vents as defined in 40 CFR § 60.671) must not exceed 7 percent opacity; and

(2) Vents (as defined in 40 CFR § 60.671) in the building must meet the applicable stack emission limits and compliance requirements in Table 2 of Subpart OOO.

 # 019 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.674]
Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants
Monitoring of operations.

(a) The owner or operator of any affected facility for which construction, modification, or reconstruction commenced on or after April 22, 2008, that uses wet suppression to control emissions from the affected facility must perform monthly periodic inspections to check that water is flowing to discharge spray nozzles in the wet suppression system. The owner or operator must initiate corrective action within 24 hours and complete corrective action as expediently as practical if the owner or operator finds that water is not flowing properly during an inspection of the water spray nozzles. The owner or operator must record each inspection of the water spray nozzles, including the date of each inspection and any corrective actions taken, in the logbook required under 40 CFR § 60.676(b).

[Compliance with the daily monitoring required under Source C101 assures compliance with paragraph (a) of this condition.]

(1) If an affected facility relies on water carryover from upstream water sprays to control fugitive emissions, then that affected facility is exempt from the 5-year repeat testing requirement specified in Table 3 of this subpart provided that the affected facility meets the criteria in paragraphs (1)(i) and (ii):

(i) The owner or operator of the affected facility conducts periodic inspections of the upstream water spray(s) that are responsible for controlling fugitive emissions from the affected facility. These inspections are conducted according to paragraph (a) and 40 CFR § 60.676(b), and

(ii) The owner or operator of the affected facility designates which upstream water spray(s) will be periodically inspected at the time of the initial performance test required under 40 CFR § 60.11 and 40 CFR § 60.675.

(2) If an affected facility that routinely uses wet suppression water sprays ceases operation of the water sprays or is using a control mechanism to reduce fugitive emissions other than water sprays during the monthly inspection (for example, water from recent rainfall), the logbook entry required under 40 CFR § 60.676(b) must specify the control mechanism being used instead of the water sprays.

 # 020 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.675]
Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants
Test methods and procedures.

(a) Method 9 of appendix A-4 of this part and the procedures in 40 CFR § 60.11 shall be used to determine opacity.

(b) When determining compliance with the fugitive emissions standard for any affected facility described under 40 CFR §§ 60.672(b) or 60.672(e)(1), the duration of the Method 9 (40 CFR part 60, appendix A-4) observations must be 30 minutes (five 6-minute averages). Compliance with the applicable fugitive emission limits in Table 3 of Subpart OOO must be based

on the average of the five 6-minute averages.

(c) To demonstrate compliance with the fugitive emission limits for buildings specified in 40 CFR § 60.672(e)(1), the owner or operator must complete the testing specified in paragraph (c)(1). Performance tests must be conducted while all affected facilities inside the building are operating.

(1) If the building encloses any affected facility that commences construction, modification, or reconstruction on or after April 22, 2008, the owner or operator of the affected facility must conduct an initial Method 9 (40 CFR part 60, appendix A-4) performance test according to Subpart OOO and 40 CFR § 60.11.

(d) The owner or operator may use the following as alternatives to the reference methods and procedures specified in Subpart OOO:

(1) If emissions from two or more facilities continuously interfere so that the opacity of fugitive emissions from an individual affected facility cannot be read, either of the following procedures may be used:

(i) Use for the combined emission stream the highest fugitive opacity standard applicable to any of the individual affected facilities contributing to the emissions stream.

(ii) Separate the emissions so that the opacity of emissions from each affected facility can be read.

(2) A single visible emission observer may conduct visible emission observations for up to three fugitive, stack, or vent emission points within a 15-second interval if the following conditions are met:

(i) No more than three emission points may be read concurrently.

(ii) All three emission points must be within a 70 degree viewing sector or angle in front of the observer such that the proper sun position can be maintained for all three points.

(iii) If an opacity reading for any one of the three emission points equals or exceeds the applicable standard, then the observer must stop taking readings for the other two points and continue reading just that single point.

 # 021 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.676]
Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants
Reporting and recordkeeping.

The owner or operator of any affected facility shall submit written reports of the results of all performance tests conducted to demonstrate compliance with the standards set forth in 40 CFR § 60.672, including reports of opacity observations made using Method 9 (40 CFR part 60, appendix A-4) to demonstrate compliance with 40 CFR § 60.672(b).

 # 022 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.676]
Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants
Reporting and recordkeeping.

(a) Each owner or operator seeking to comply with 40 CFR § 60.670(d) shall submit to the Administrator the following information about the existing facility being replaced and the replacement piece of equipment.

(1) For a crusher, grinding mill, bucket elevator, bagging operation, or enclosed truck or railcar loading station:

(i) The rated capacity in megagrams or tons per hour of the existing facility being replaced and

(ii) The rated capacity in tons per hour of the replacement equipment.

(2) For a screening operation:

(i) The total surface area of the top screen of the existing screening operation being replaced and

(ii) The total surface area of the top screen of the replacement screening operation.

(3) For a conveyor belt:

(i) The width of the existing belt being replaced and

(ii) The width of the replacement conveyor belt.

(4) For a storage bin:

(i) The rated capacity in megagrams or tons of the existing storage bin being replaced and

(ii) The rated capacity in megagrams or tons of replacement storage bins.

(b) Owners or operators of affected facilities, as defined in 40 CFR § 60.670 and 40 CFR § 60.671, for which construction, modification, or reconstruction commenced on or after April 22, 2008, must record each periodic inspection required under 40 CFR § 60.674(b) or (c), including dates and any corrective actions taken, in a logbook (in written or electronic format). The owner or operator must keep the logbook onsite and make hard or electronic copies (whichever is requested) of the logbook available to the Administrator upon request.

(c) A notification of the actual date of initial startup of each affected facility shall be submitted to the Administrator.

 # 023 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR Part 60 Subpart OOO Table 3] Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants

Fugitive Emission Limits

(a) For affected facilities (as defined in 40 CFR § 60.670 and 40 CFR § 60.671) that commence construction, modification, or reconstruction on or after April 22, 2008, the owner or operator must meet the fugitive emissions limit of 7 percent opacity for the following: grinding mills, screening operations, bucket elevators, transfer points on belt conveyors, bagging operations, storage bins, enclosed truck or railcar loading stations or from any other affected facility (as defined in 40 CFR § 60.670 and 40 CFR § 60.671).

(b) The owner or operator must meet the fugitive emissions limit of 12 percent opacity for crushers at which a capture system is not used.

(c) The owner or operator must demonstrate compliance with these limits by conducting an initial performance test according to 40 CFR § 60.11 and 40 CFR § 60.675; and periodic inspections of water sprays according to 40 CFR § 60.674(b) and 40 CFR § 60.676(b).

SECTION D. Source Level Plan Approval Requirements

Source ID: C101 Source Name: WET DUST SUPPRESSION SYSTEM

Source Capacity/Throughput: N/A

CNTL C101 ⇒ STAC Z101

I. RESTRICTIONS.

No additional requirements exist except as provided in other sections of this plan approval including Section B (Plan Approval General Requirements).

II. TESTING REQUIREMENTS.

No additional testing requirements exist except as provided in other sections of this plan approval including Section B (Plan Approval General Requirements).

III. MONITORING REQUIREMENTS.

#001 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

(a) The water flow rate shall be monitored daily.

(b) The wet dust suppression system (WDSS) (Source ID: C101) shall be inspected daily, when the 1,000-tph non-metallic mineral processing plant (Source ID: 101) is operating, to include but not limited to, the following:

(1) spray nozzles for plugging, alignment and physical condition (i.e., broken nozzles).
(2) hoses for condition (i.e., cracks or holes), leaks and loose hose clamps.

IV. RECORDKEEPING REQUIREMENTS.

#002 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

The permittee shall record the following on a daily basis when the 1,000-tph non-metallic mineral processing plant (Source ID: 101) is operating:

(a) the results of the inspection of the wet dust suppression system (WDSS) (Source ID: C101), as required in Condition #001.

(b) the results of the gauge readings of the water flow rate from the Dust Suppression Tanks 1 and 2, as appropriate and as required in Condition #006.

(c) the following records shall be kept if any components of the WDSS malfunction:

(1) the date, time, and type of malfunction
(2) the cause of the malfunction
(3) the corrective actions taken to correct the malfunction
(4) date, time and component replaced as a result of this inspection

V. REPORTING REQUIREMENTS.

No additional reporting requirements exist except as provided in other sections of this plan approval including Section B (Plan Approval General Requirements).

VI. WORK PRACTICE REQUIREMENTS.

003 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

(a) The permittee shall keep spare parts for the wet dust suppression system (WDSS) (Source ID: C101) on site.

(b) Malfunctioning components of the WDSS (Source ID: C101), identified during the daily inspection, shall be replaced immediately.

004 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

The 1,000-tph non-metallic mineral crushing plant (Source ID: 101), including any individual source within the 1,000-tph non-metallic mineral crushing plant (Source ID: 101), shall not be operated if any component of the wet dust suppression system (WDSS) (Source ID: C101) fails to work, malfunctions, or operates with reduced control efficiency.

005 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

(a) The wet dust suppression system (WDSS) (Source ID: C101) associated with the 1,000-tph non-metallic mineral processing plant (Source ID: 101) shall be operated on any and all occasions that the 1,000-tph non-metallic mineral processing plant (Source ID: 101) is operated, except in those unusual circumstances where processed materials contain sufficient moisture such that operation of the 1,000-tph non-metallic processing plant (Source ID: 101) without the simultaneous operation of the WDSS (Source ID: C101) can take place without creating fugitive emissions in excess of the limitations specified in this permit. If, however, the WDSS (Source ID: C101) associated with the 1,000-tph non-metallic mineral processing plant (Source ID: 101) is incapable of operation due to weather conditions or any other reason, the associated sources may not be operated at all.

(b) The wet dust suppression system (WDSS) (Source ID: C101) shall be operated efficiently and shall not at any time cause the emission of fugitive air contaminants from the controlled sources in excess of the limitations specified in 25 Pa. Code § 123.1

VII. ADDITIONAL REQUIREMENTS.

006 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

The wet dust suppression system (WDSS) (Source ID: C101) will be equipped with two (2) dust suppression tanks.

(1) Dust suppression tank 1 will be employed in Zone 1 and Zone 2 during construction Phase I and the WDSS shall be equipped forty-eight (48) nozzles and a gauge to monitor the water flow rate. During Phase I, the water flow rate for the WDSS shall be in the range 1.0 to 41.53 gallons per minute.

(2) Dust suppression tank 2 will be employed in Zone 3 and Zone 4 during construction Phase II and the WDSS shall be equipped one hundred thirty-six (136) nozzles and a gauge to monitor the water flow rate. During Phase II, the water flow rate for the WDSS shall be in the range 1.0 to 113.09 gallons per minute.

SECTION E. Alternative Operation Requirements.

No Alternative Operations exist for this Plan Approval facility.

SECTION F. Emission Restriction Summary

Source Id	Source Description

Site Emission Restriction Summary

Emission Limit		Pollutant
7,800 Tons/Yr	particulate matter	TSP

SECTION G - Miscellaneous

****** End of Report ******

Attachment 3

Site Location Map and Aerial Photos

R.E. PIERSON CONSTRUCTION COMPANY
2205 N Rockhill Road
Sellersville, Pennsylvania 18960

LOCATION MAP

GRAPHIC SCALE

3000 2400 1800 1200 600 0 1000 2000 3000 6000
2700 2100 1500 900 300 (IN FEET)
1 inch = 3000 ft.

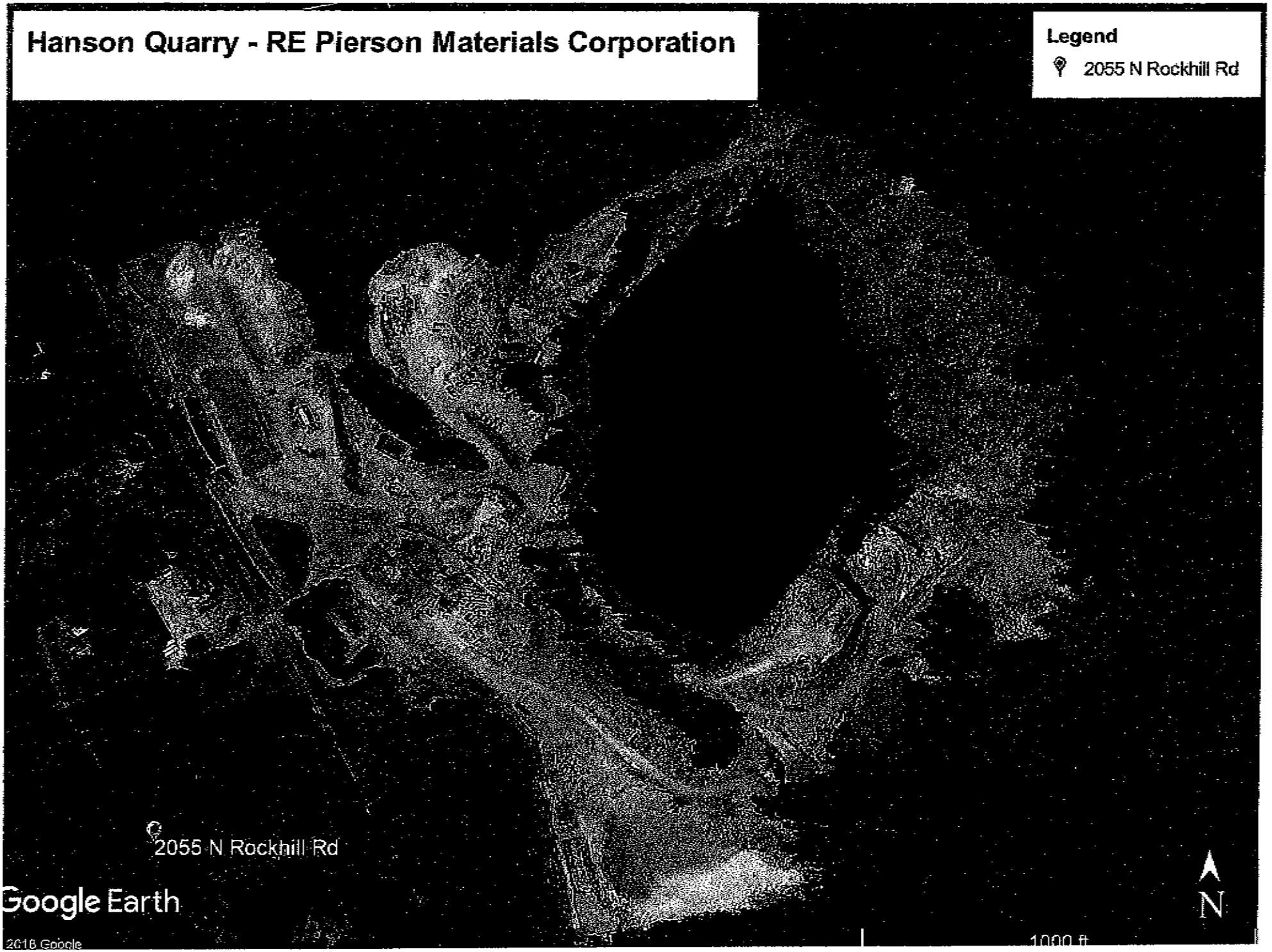
Source: Google earth Imagery Dated: 05/16/2018	Scale: As Noted	Approved By: Bradley J. Cunningham, P.E.	Date: 05/16/2018
	Project No: 0272.13	Drawn By: Rick Gradwell	

COMPLIANCE PLUS SERVICES, INC.

COMPLIANCE PLUS SERVICES, INC.
455 BUSINESS CENTER DRIVE
SUITE 250
HORSHAM, PA 19044
PHONE: (215) 734-1414 * FAX: (215) 734-1424
www.CPS-2Comply.com

Drawing No: L-01

N:\#0272 - R.E. Pierson Construction Company\Drawings\CPS Drawings\L-01 2205 N Rockhill Rd Loc Map.dwg, 5/16/2018 2:27:33 PM


Hanson Quarry - RE Pierson Materials Corporation
Legend
2055 N Rockhill Rd
2055 N Rockhill Rd
Google Earth
2018 Google
N
1000 ft


Hanson Quarry - RE Pierson Material Corporation
Legend
2055 N Rockhill Rd
2055 N Rockhill Rd
Google Earth
2018 Google
N
2000 ft

Attachment 4

Site Plan Drawing

RP DISTRICT - RESOURCE PROTECTION

E DISTRICT - EXTRACTION DISTRICT

MAC

EXISTING RAILWAY SPUR & PROPOSED GATE

STONE STAGING AREA

TEMPORARY CRUSHING OPERATIONS

APPROXIMATE LIMITS OF STONE PROCESSING, TRUCK STAGING, SCALE HOUSE AND OFFICES.

ASPHALT PLANT

QUARRY ENTRANCE GATE

EXISTING GATE TO BE REPLACED

RR SIGNAL

ROAD (T-366)

RR SIGNAL

EXISTING GATE/FENCE

APPROXIMATE LIMITS OF EXISTING HOT MIX ASPHALT PLANT OPERATION AREA. NEW EQUIPMENT TO REPLACE PREVIOUS EQUIPMENT AND TO OPERATE WITHIN SAME AREA.

EXISTING SCALE EQUIPMENT TO BE REPLACED AND RELOCATED.

EXTRACTIVE OPERATIONS SETBACK

RUN STONE PILE

#57 STONE PILE

PLANT-SECTION B

#2 AGGREGATE STONE PILE

#8 STONE PILE

START OF PROPOSED CHAINLINK FENCE (SEE DETAIL)

APPROXIMATE LIMIT OF EXISTING STONE PROCESSING OPERATION. EXISTING EQUIPMENT TO BE REPLACED WITH NEW EQUIPMENT AND LOCATED WITHIN SAME AREA.

SLUDGE STONE PILE

#8 STONE PILE

PLANT-SECTION A

#8 STONE PILE

TRUCK SCALE (TYP.)

QUARRY PIT

E DISTRICT

RP DISTRICT

LEGEND

- EXISTING 25' CONTOUR
- EXISTING 5' CONTOUR
- EXISTING SPOT ELEVATION
- EXISTING FENCE
- EXISTING PROPERTY LINE
- EXISTING ADJACENT PROPERTY LINE
- EXISTING LEGAL RIGHT OF WAY
- EXISTING EASEMENT
- EXISTING ROAD CENTERLINE
- EXISTING ROAD
- EXISTING CURB
- EXISTING EDGE OF DRIVE
- EXISTING SETBACK LINE
- EXISTING ZONING/MUNICIPALITY LINE
- EXISTING SIGN
- EXISTING SOILS LIMIT AND SOILS TYPE
- EXISTING WATER / EDGE OF QUARRY
- EXISTING BRUSH LINE
- EXISTING TREES
- EXISTING TREE LINE
- EXISTING UTILITY POLES
- EXISTING OVERHEAD ELECTRIC
- EXISTING STORM SEWER
- PROPOSED BUILDING SETBACK
- PROPOSED BUFFER
- SUPPORT AREA
- MINING AREA
- MINING SETBACK
- CIRCULATION PATH
- PROPOSED FENCE

PLAN NOTATION

ONLY THOSE PLANS WHICH CONTAIN AN IMPRESSED SEAL OR A RED INK SEAL OF THE RESPONSIBLE PROFESSIONAL SHALL BE CONSIDERED THE SEAL OF THE RESPONSIBLE PROFESSIONAL PREPARED FOR THE OWNER NAMED. THIS PLAN HAS BEEN SPECIFICALLY PREPARED FOR THE OWNER DESIGNATED HEREON. ANY MODIFICATION, REVISION, DUPLICATION OR USE WITHOUT THE WRITTEN CONSENT OF VAN CLEEF ENGINEERING ASSOCIATES IS PROHIBITED. RELIANCE ON THIS PLAN FOR ANY PURPOSE OTHER THAN THAT WHICH IS INTENDED SHALL BE AT THE SOLE DISCRETION AND LIABILITY OF THE APPLICABLE PARTY.

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)

1 inch = 100 ft.

GENERAL NOTES

1. THIS PLAN SHEET UPDATES, SUPERSEDES AND REPLACES THE ZONING PERMIT PLAN ZONING PERMIT PLAN (DETAIL AREA), SHEET 2 OF 2, DATED DECEMBER 28, 2017, PREPARED BY VAN CLEEF ENGINEERING ASSOCIATES, SUBMITTED WITH ZONING PERMIT NUMBER 17-2-5551.
2. REFER TO SHEET #1 FOR ADDITIONAL NOTES.

OPERATIONS NOTES

1. NO DISTURBANCE IS PROPOSED TO ANY FLOODPLAIN, STREAMS, WATERCOURSES, LAKES, PONDS, LAKE/POND SHORELINES, WETLANDS, WETLAND MARGINS AND/OR RIPARIAN BUFFERS. LIMITED WOODLAND AND STEEP SLOPE DISTURBANCE IS PROPOSED OUTSIDE OF THE PERMITTED MINING AREA AND IS SUBSTANTIALLY LESS THAN THE MAXIMUM PERMITTED DISTURBANCE AMOUNTS UNDER THE ZONING ORDINANCE. THE WOODLAND AND STEEP SLOPE DISTURBANCE WITHIN THE PERMITTED MINING AREA IS NOT SUBJECT TO THE WOODLAND AND STEEP SLOPE DISTURBANCE REQUIREMENTS. NO WETLANDS HAVE BEEN IDENTIFIED ONSITE THROUGH NATIONAL WETLAND INVENTORY (NWI) MAPPING.
2. PEARSON ESTIMATES THAT IT WILL ANNUALLY REQUIRE APPROXIMATELY 300,000 TO 500,000 TONS OF AGGREGATE FROM THE QUARRY OVER THE NEXT 10 YEAR PERIOD. REGIONAL IS BASED ON DEMAND IN THE AREA. PEARSON IS NOT PROPOSING TO MARKET OVERBURDEN AND INTENDS TO ONLY EXTRACT AND STOCKPILE OVERBURDEN NECESSARY TO GET TO THE ROCK. ALL OVERBURDEN TO REMAIN ON SITE FOR THE PURPOSE OF RECLAMATION.
3. ULTIMATE USE AND OWNERSHIP OF THE PROPERTY AFTER CONCLUSION OF THE QUARRY OPERATION WILL BE DETERMINED AT A LATER DATE, AS THE OWNER OF THE PROPERTY HAS PROJECTED THAT EXTRACTION WORK WILL CONTINUE ON THE PROPERTY FOR AT LEAST ANOTHER 30 YEARS. SEE SHEETS 5 OF 6 (GEOLOGIC MAP & RECLAMATION PLAN) AND 6 OF 6 (CROSS SECTION), PREPARED BY CLEAR GEOLOGIC CORPORATION, DATED JANUARY 29, 1975, FOR FURTHER INFORMATION AS TO FUTURE RECLAMATION OF THE PROPERTY. IN ADDITION, A REVISED MODULE 18, LAND USE AND RECLAMATION MAP, WILL BE PREPARED AND SUBMITTED TO THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION – POTTSVILLE DISTRICT MINING OFFICE AS DIRECTED IN THE DEPARTMENTS JANUARY 22, 2018 LETTER.
4. THE EXISTING WATER IN THE QUARRY PIT IS PROPOSED TO BE DRAINED AND DISCHARGED IN ACCORDANCE WITH NPDES PERMIT NO. PA0594121, AS AMENDED.
5. ALL EXTRACTION WORK SHALL BE COMPLETED IN ACCORDANCE WITH DEP MINING PERMIT NO. 7974SMR, DATED 11/30/2010, SUBJECT TO:
   - A. RECLAMATION SHALL BE ACCOMPLISHED AS SET FORTH IN REVISED RECLAMATION PLAN (SHEETS 5&6 OF 6) DATED JANUARY 29, 1975.
   - B. MINING ACTIVITY IS PROHIBITED WITHIN 300 FEET OF ANY DESIGNATED WETLAND AREA, UNLESS OTHERWISE AUTHORIZED BY THE DEPARTMENT.
   - C. ALL QUARRY PRODUCTION BLASTS SHALL BE MONITORED BY THE PERMITTEE WITH SEISMOGRAPHIC AND SOUND EQUIPMENT AT THE NEAREST STRUCTURE NEITHER OWNED NOR LEASED BY THE PERMITTEE. A RECORD OF EACH BLAST SHALL BE MAINTAINED BY THE PERMITTEE FOR A PERIOD OF AT LEAST FIVE (5) YEARS.
   - D. THE LIMIT OF MINING AND/OR SUPPORT AREA(S) APPROVED BY THIS PERMIT ARE TO BE FIELD MARKED AND SHALL REMAIN MARKED FOR THE DURATION OF MINING AND RECLAMATION ACTIVITY.
6. TREE SCREEN LOCATIONS: EXISTING TREES LOCATED OUTSIDE OF THE LIMITS OF THE SUPPORT AREA TO REMAIN. SEE AERIAL PLAN FOR LOCATIONS.
7. DUST GENERATED BY THE MINING OPERATION IS HANDLED AS FOLLOWS:
   - A. ACCESS ROADS, HAUL ROADS AND ADJOINING PORTIONS TO PUBLIC ROADS WILL BE CONTROLLED WITH WATER OR CALCIUM CHLORIDE.
   - A. WATER TRUCK WILL BE USED TO WET THE SURFACES AND IF THAT IS NOT EFFECTIVE, THEN CALCIUM CHLORIDE MAY BE APPLIED WITH THE WATER.
   - B. ALL TRUCKS CARRYING PRODUCT FROM THE SITE MUST TARP THEIR LOADS.
   - C. DUST FROM DRILLING IS CONTROLLED BY ADDING WATER WHILE DRILLING AND/OR BY VENTING THE EXHAUST THROUGH THE DRILL RIG'S BAGHOUSE.
   - D. OVERBURDEN WILL BE STABILIZED WITH VEGETATION TO PREVENT WIND AND WATER EROSION.
8. VISUAL BARRIERS: EXISTING TREES AND VEGETATION LOCATED OUTSIDE OF THE SUPPORT AREA AND ON THE OWNERS PROPERTIES WILL REMAIN AND CONTINUE TO SERVE AS A VISUAL BUFFER. SEE AERIAL PLAN FOR LOCATIONS.
9. HEIGHT OF SPOIL MOUNDS/OVERBURDEN SHALL NOT EXCEED 100 FEET IN HEIGHT.
10. METHOD OF DISPOSITION OF EXCESS WATER:
    - A. PER NPDES PERMIT NO. PA0594121, AS AMENDED.
    - B. PER ON-SITE STORMWATER SYSTEM AS DEPICTED ON THIS PLAN SET AND PLANS ON FILE WITH DEP.
    - C. PER AN EROSION & SEDIMENTATION CONTROL PLAN INCLUDED AS PART OF THE DEP MINING PERMIT.
11. BLASTING WILL OCCUR WITHIN THE MINING AREA, SUBJECT TO DEP REGULATIONS, MONDAY THROUGH FRIDAY, BETWEEN THE HOURS OF 8:00 AM AND SUNSET. BLASTING IS PROPOSED TO OCCUR NO MORE THAN TWICE PER WEEK.
12. TYPES OF MACHINERY ANTICIPATED TO BE USED AND ESTIMATED NOISE LEVELS:
    - A. EXCAVATORS
    - B. DOZERS
    - C. DRAWOFFS
    - D. LOADERS
    - E. QUARRY AND DUMP TRUCKS
    - F. CRUSHER/SCREENS
    - G. DRAWOFF/HOT QUARRY EQUIPMENT
    - H. MOST CONSTRUCTION EQUIPMENT OPERATES BETWEEN 75 AND 90dB ON AVERAGE AT 50 FEET (Peurifoy, R.L. (Robert Lewis)(2006). Construction planning, equipment and methods / Robert L. Peurifoy, Clifford J. Schexnayder, Aviad Shapira – 7th Edition. New York, NY, McGraw-Hill.
    - I. ACCORDING TO THE TRAIN HORN RULE (49 CFR 222), THE MAXIMUM VOLUME LEVEL FOR THE TRAIN HORN IS 110dB AND NORMAL LEVEL IS 96dB. THE TRAIN SEPARATES THE QUARRY OPERATIONS FROM THE NEAREST NEIGHBOR.
    - J. THE ESTIMATED NOISE LEVELS, MEASURED AT THE PROPERTY LINES, OF ALL QUARRY EQUIPMENT, IS APPROXIMATELY 65dB.
13. SAFETY MEASURES TO BE EMPLOYED AT THE PROPERTY:
    - ALL MINING OPERATION MUST COMPLY WITH MINE SAFETY HEALTH ADMINISTRATION (MSHA) REGULATIONS LOCATED AT TITLE 30 OF THE CODE OF FEDERAL REGULATIONS, INCLUDING:
      - 40 HOURS OF TRAINING FOR EACH NEW EMPLOYEE.
      - ANNUAL REFRESHER COURSES FOR EACH EMPLOYEE WORKING AT THE SITE.
    - UNANNOUNCED INSPECTIONS ARE CONDUCTED BY MSHA INSPECTORS TO ASSURE COMPLIANCE AND VIOLATIONS INCUR FINES.
    - THE ASPHALT PLANT COMPONENT OF THE EXTRACTIVE OPERATION SHALL ALSO COMPLY WITH THE REQUIREMENTS OF THE DEPARTMENT OF LABOR OCCUPATIONAL HEALTH AND SAFETY ADMINISTRATION (OSHA).
14. COMPLAINTS WILL BE HANDLED ON AN INDIVIDUAL BASIS AS AND WHEN RECEIVED. THE QUARRY MANAGER WILL BE CHARGED WITH THE MONITORING AND RESPONDING TO ANY COMPLAINTS IN A PROMPT MANNER.
15. THE USE WILL CONTINUE TO COMPLY WITH ALL DEVELOPMENT AND PERFORMANCE STANDARDS SET FORTH IN SECTION 27-1900 OF THE ZONING ORDINANCE, SUBJECT TO APPLICANT'S (I) NONCONFORMING RIGHTS UNDER THE ZONING ORDINANCE, AND (II) RIGHTS UNDER THE EXISTING DEP SURFACE MINING PERMIT FOR THE EXISTING QUARRY OPERATIONS, AND (III) PRE-EMPTION RIGHTS UNDER THE PA MINING ACT AND REGULATIONS PROMULGATED THEREUNDER.
16. TRUCK ACCESS SHALL BE ARRANGED SO AS TO MINIMIZE DANGER TO TRAFFIC AND AVOID NUISANCE TO SURROUNDING PROPERTIES. REFER TO CIRCULATION PLAN SHEET 6 FOR ONSITE OPERATIONS. SEE REPORT PREPARED BY HERBERT & GANTER ASSOCIATES, AS TO PROPOSED OFFSITE TRUCK ROUTES.
17. NO GROUND VIBRATION CAUSED BY BLASTING OR MACHINERY SHALL EXCEED THE LIMITS ESTABLISHED BY THE ACT OF JULY 10, 1957, P.L. 685, AS AMENDED, 73 P.S. 164-188.
18. NONE OF THE REQUIREMENTS SET FORTH UNDER SECTION 27-304.1(28.2)(C) ARE APPLICABLE TO STONE QUARRIES WITH A DEPTH GREATER THAN 25 FEET AND, AS SUCH, ARE NOT APPLICABLE TO THIS PROPERTY.

REVISIONS	AUTH.	DATE
FENCE DETAIL	BSH	05/15/18

DATE: APRIL 20, 2018
SCALE: 1" = 100'
DESIGNED BY: (BH/MPG
DRAWN BY: MPG
CHECKED BY: SDC
JOB NO. 17061RT

Van Cleef ENGINEERING ASSOCIATES
Consulting Civil Engineering
Environmental Engineering
Municipal Engineering
Land Surveying
Professional Planning
Landscape Architecture
OFFICES THROUGHOUT N.J. EASTERN PA AND DE
501 NORTH MAIN STREET, DOYLESTOWN, PA 18901
EMAIL: VECEA@VCEA.COM WEB: WWW.VCEA.ORG
PHONE (215) 345-1878 FAX (215) 345-1720

PROPOSED OPERATIONS PLAN (DETAIL AREA)
FOR
HANSON AGGREGATES PENNSYLVANIA, LLC
TMP# 12-09-102
SITUATED IN
EAST ROCKHILL TOWNSHIP, BUCKS COUNTY
COMMONWEALTH OF PENNSYLVANIA

3/10

Attachment 5

Tables and Drawings
Wet Suppression System

PROJECT #3003
R.E. PIERSON MATERIALS - ROCK HILL QUARRY
DUST SUPPRESSION SYSTEM
PHASE I

	LOCATION #	LOCATION DESCRIPTION	# OF NOZZLES	NOZZLE GPM	TOTAL GPM	MAX LINE RUN	MAX LINE RISE
TANK #1		ZONE 1					
	1	DUMP BOX	2	4.00	8.00	350'	60'
	2	CRUSHER FEED BOX	4	0.43	1.73		
	3	BYPASS CHUTE TO C1	4	0.43	1.73		
	4	JAW CRUSHER TO C1	4	0.43	1.73		
	5	C1 TO C2	4	0.43	1.73		
		ZONE 2					
	6	C2 TO S1 SCREEN	4	0.43	1.73	300'	60'
	7	C3 TO C4	4	0.43	1.73		
	8	C4 TO C7	4	0.43	1.73		
	9	C7 HEAD	2	2.70	5.40		
	10	S1 SCREEN TO C8	4	0.43	1.73		
	11	C8 HEAD	2	2.70	5.40		
	12	S1 SCREEN TO C5	4	0.43	1.73		
	13	C5 TO C6	4	0.43	1.73		
	14	C6 HEAD	2	2.70	5.40		

TOTAL GPM @ 40 PSI AT NOZZLE: 41.53

NOTES:

1. 1 1/2" DIAMETER PIPE FROM DUST SUPPRESSION TANK #1 TO MANIFOLD LOCATED ON C140 JAW CRUSHER COLUMN
2. 1 1/2" DIAMETER PIPE FROM DUST SUPPRESSION TANK #1 TO MANIFOLD LOCATED ON S1 SCREEN TOWER COLUMN
3. 1 1/2" DIAMETER RUBBER HOSE FROM MANIFOLD TO NEAR SPRAYBAR. BRANCH FROM MAIN LINE TO EACH SPRAYBAR WITH 1/2" DIAMETER RUBBER HOSE
4. FOLLOWING SPRAY NOZZLES AS INDICATED BY THE GPM WITHIN THE ABOVE LIST
   a.) 0.43GPM (26GPH) @ 40PSI MISTING NOZZLE
   b.) 2.70GPM AT 40PSI NOZZLE
   c.) 4.00GPM @ 40PSI "FOG JET" LARGE CAPACITY WIDE ANGLE MULTIPLE ORIFICE FULL CONE NOZZLES

PROJECT #3003
R.E. PIERSON MATERIALS - ROCK HILL QUARRY
DUST SUPPRESSION SYSTEM
PHASE II, REV. 1

	LOCATION #	LOCATION DESCRIPTION	# OF NOZZLES	NOZZLE GPM	TOTAL GPM	MAX LINE RUN	MAX LINE RISE
TANK #2		ZONE 3					
	15	FEEDER F2 TO C9	4	0.43	1.72	450'	45'
	16	FEEDER F3 TO C9	4	0.43	1.72		
	17	FEEDER F4 TO C9	4	0.43	1.72		
	18	FEEDER F5 TO C9	4	0.43	1.72		
	19	C9 TO C10	4	0.43	1.73		
	20	C10 TO S2 SCREEN	4	0.43	1.73		
	21	S2 SCREEN TO GP300 CRUSHER CR2	4	2.70	10.80		
	22	S2 SCREEN FINES HOPPER TO C11	4	0.43	1.72		
	23	GP300 CRUSHER CR2 TO C11	4	0.43	1.72		
	24	C11 HEAD	4	0.43	1.72		
	25	C13 HEAD	4	0.43	1.72		
	26	TRANSFER CHUTE TO C12A	4	0.43	1.72		
	27	TRANSFER CHUTE TO C12B	4	0.43	1.72		
	28	C23 TO STATIC RINSE SCREEN	4	0.43	1.72		
	29	C29 HEAD (USE WHEN MAKING DRY #8'S)	2	2.70	5.40		
		ZONE 4					
	30	C14 TO C15	4	0.43	1.73	500'	40'
	31	C15 TO C16	4	0.43	1.73		
	32	C16 TO SURGE BIN	2	2.70	5.40		
	33	C17 TO C18 (FUTURE)	4	0.43	1.73		
	34	C18 TO C19 (FUTURE)	4	0.43	1.73		
	35	C19 TO SURGE BIN (FUTURE)	2	2.70	5.40		
	36	C20 TO C21	4	0.43	1.73		
	37	C21 TO STATIC RINSE SCREEN	4	0.43	1.72		
	38	C28 HEAD (USE WHEN MAKING DRY #57'S)	2	2.70	5.40		
	39	C22 TO C23	4	0.43	1.73		
	40	C24 TO STATIC RINSE SCREEN	4	0.43	1.72		
	41	C30 HEAD (USE WHEN MAKING DRY #57'S)	2	2.70	5.40		
	42	C25B TO C26	4	0.43	1.73		
	43	C25A TO C26	4	0.43	1.73		
	44	C26 TO SCREW WASHER FEED/BYPASS CHUTE	4	0.43	1.72		
	45	BYPASS CHUTE TO C27 (USE WHEN MAKING DRY FINES)	4	0.43	1.72		
	46	C27 TO C31 (USE WHEN MAKING DRY FINES)	4	0.43	1.72		
	47	C31 HEAD (USE WHEN MAKING DRY FINES)	2	2.70	5.40		
	48	C12A HEAD	4	0.43	1.72		
	49	C12B HEAD	4	0.43	1.72		
	50	BF1 TO HP400 CRUSHER CR3	4	2.70	10.80		
	51	BF2 TO HP400 CRUSHER CR4 (FUTURE)	4	2.70	10.80		

TOTAL GPM @ 40 PSI AT NOZZLE: 113.09

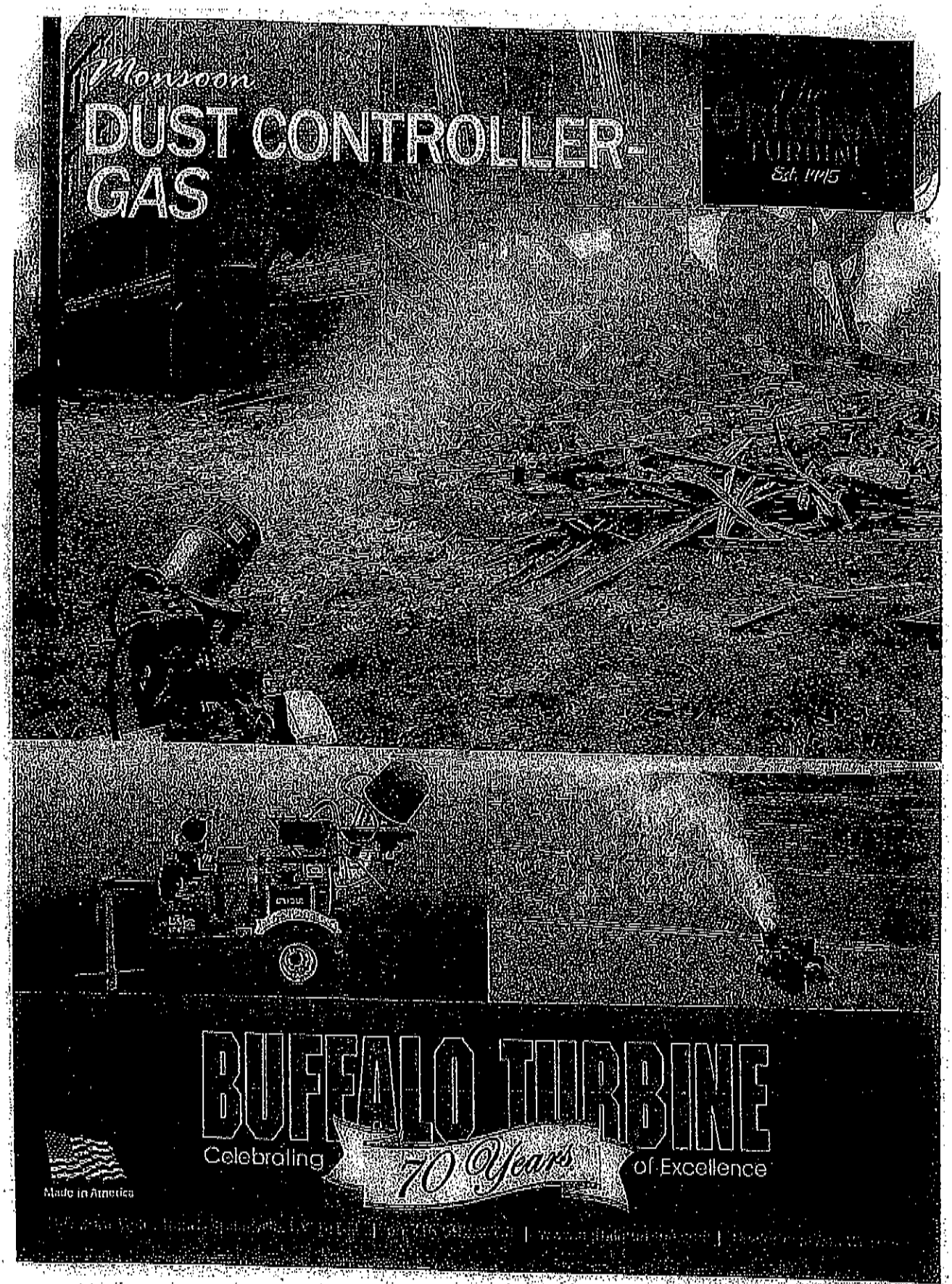
NOTES:

1. 1 1/2" DIAMETER PIPE FROM DUST SUPPRESSION TANK #2 TO MANIFOLD LOCATED ON SECONDARY STATION COLUMN
2. 1 1/2" DIAMETER PIPE FROM DUST SUPPRESSION TANK #2 TO MANIFOLD LOCATED ON FINAL SCREEN & CRUSHER BUILDING
3. 1 1/2" DIAMETER RUBBER HOSE FROM MANIFOLD TO NEAR SPRAYBAR. BRANCH FROM MAIN LINE TO EACH SPRAYBAR WITH 1/2" DIAMETER RUBBER HOSE
4. FOLLOWING SPRAY NOZZLES AS INDICATED BY THE GPM WITHIN THE ABOVE LIST
   a.) 0.43GPM (24GPH) @ 40PSI MISTING NOZZLE
   b.) 2.70GPM AT 40PSI NOZZLE
   c.) 4.00GPM @ 40PSI "FOG JET" LARGE CAPACITY WIDE ANGLE MULTIPLE ORIFICE FULL CONE NOZZLES

5/21/2018

Attachment 6

Example of Dust Control Mister


Monsoon
DUST CONTROLLER-
GAS
THE ORIGINAL
TURBINE
Est. 1915
Made in America
BUFFALO TURBINE
Celebrating
70 Years
of Excellence

BUFFALO TURBINE

MONSOON DUST CONTROLLER - GAS

TOP BENEFITS:

- Powerful and versatile
- Easy to operate and maintain
- Self contained
- Requires only standard water pressure

TOP FEATURES:

- High speed oscillation up to 270°
- 3 wheel off-road trailer package for ease of transport
- 6 gallon fuel capacity
- Standard garden hose hookup

GENERAL INFO:

- Oscillation: 180° (capable of 270° upon request)
- Hand held wireless transmitter (water resistant) with push button control (manual control option available)
- Min/Max water pressure: 40psi - 120psi
- Min/Max water volume: 1/3 gallon - 20 gallons per minute at 120psi
- Throw distance (neutral wind conditions): Vertical up to 50 ft / Horizontal up to 125 ft
- Gyratory atomizing nozzle system
- Outlet size: 12"
- Hose input: 3/4" utility / garden hose
- Droplet size: 50 - 200 microns

ENGINE SPECS:

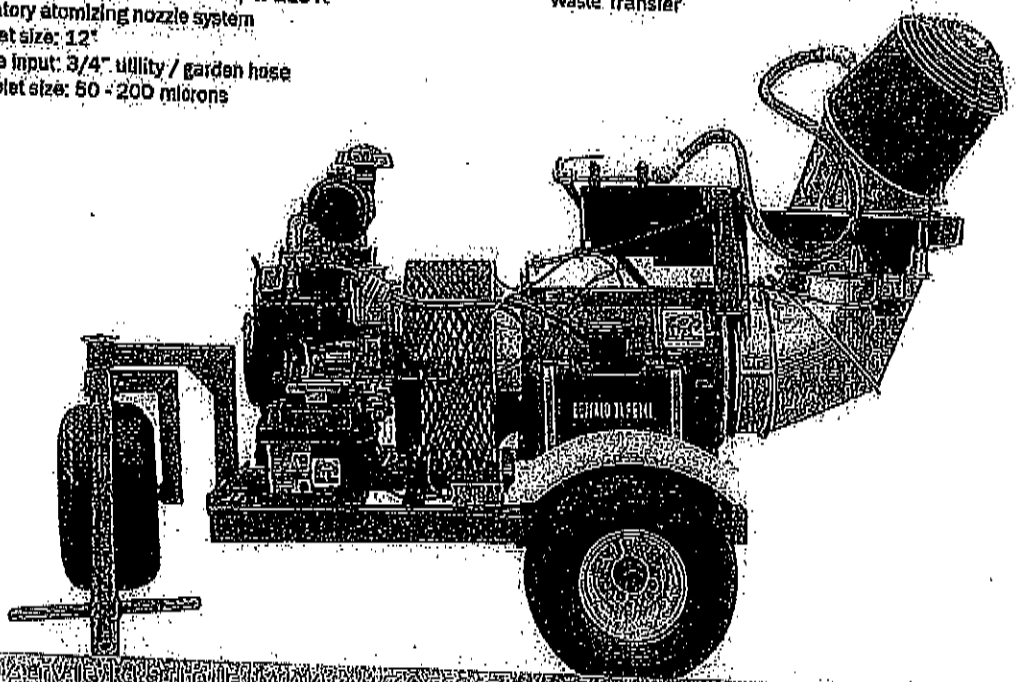
- Engine start/stop function (no choke required)
- ECH749 Kohler Gasoline Engine
- 26.5 HP Fuel Injected Engine
- Adjustable throttle up to 3900 RPM (more fuel economy when ran at 3600 RPM)

PHYSICAL SPECS:

- Frame length: 48"
- Overall length w/nozzle: 126" (105" w/handle turned to the side for transporting)
- Length w/out wheels and handle: 76"
- Max width: 48" (34" w/wheels and handle removed)
- Max height w/nozzle in upright position: 68"
- Weight: 800 lbs.

Applications

Demolition Sites | Landfills | Wood Recycling
Scrap Metal Recycling | Aggregate Processing
Waste Transfer



Attachment 7

Synopsis of Employee Training

R. E. Pierson

Rockhill Quarry Employee Training Synopsis for the Fugitive and Asbestos Dust Mitigation Plan

Requirements:

All operations employees, with the exclusion of administrative office staff will be provided training on the duties and responsibilities of each employee as it applies to the Fugitive Dust and Asbestos Dust Mitigation Plan. This training must be provided once initially for each new employee with 30 days of hire and a refresher training will be provided annually to all current employees. The training will also be required for all third-party contractors working on site.

Training Outline:

- Discussion of regulations, permit and plans associated with dust control
  - Regulations Air Quality 25 Pa. Code 123.1, 123.2, and 127.12b
  - Permits Air quality Plan Approval (Permit No. 09-0241)
  - Fugitive and Asbestos Dust Mitigation Plan Dated May 2019

- Review of Emission Sources
  - Roadways
  - Crushing and Screening
  - Material Handling and Storage
  - Drilling and Blasting

- Dust Control Measures
  - Roadway and heavy equipment speed limits
  - Water truck usage
  - Spray bars and water suppression systems
  - Wetting areas to be blasted etc.
  - Good housekeeping – remove spills form roadways promptly

- Employee Responsibilities: Prevention of dust and is a priority at this site. It is everyone's responsibility to observe site conditions and report issues. All employees must:
  - Report spills or and visible dust from roadways immediately assist with prompt clean-up as needed.
  - Report speeding vehicles to management

- Observe equipment during all operations to assure dust suppression systems are operational and functioning properly
- Practice good housekeeping practices

Attachment 8

Daily Operational Logs
for the Portable Crushing Equipment and
the 1000 tph Crushing and Screening Plant

Richard E. Pierson Material Corporation
Portable Crushing and Screening Equipment
Recordkeeping - Daily Operational Log

Date: _____ **Completed by:** _____

	HOURS OF OPERATION: Directions: Record the hour-meter readings, for each piece of equipment, at the beginning and end of each operating day. Subtract the start of day reading from the end of day reading to determine the daily operating hours.			**WATER SPRAYS:** Directions: Record "YES" or "NO" once per operating day for each piece of equipment. Were the water sprays operating and was water visible? Check appropriate box. Record the water pressure reading on the water spray systems. IF THE WATER SPRAYS WERE NOT OPERATING, IMMEDIATELY SHUT DOWN THE EQUIPMENT AND CONTACT THE PLANT MANAGER.			**MAINTENANCE PERFORMED:** Directions: Record "YES" or "NO". Was any maintenance performed on the water spray system or the equipment today? If "YES", provide details below.		**VISIBLE EMISSIONS:** Directions: Record "YES" or "NO" once per day. Were there any visible emissions present from any piece of equipment, the associated conveyors, or the engines powering the equipment? Check appropriate box. If "YES", provide details below on how the visible emissions were reduced or eliminated.	
Equipment	**Start of Day - Hour-Meter Reading**	**End of Day - Hour-Meter Reading**	**Total Daily Operating Hours**	**YES**	**NO**	**Gauge Reading on Water Sprays**	**YES**	**NO**	**YES**	**NO**
Sandvik UJ440i Jaw Crusher										
Sandvik QH331 Cone Crusher										
Sandvik QS331 Cone Crusher										
Sandvik QE441 Screen				N/A	N/A	N/A				
Sandvik QA450 Screen				N/A	N/A	N/A				

Fugitive Dust Control Measures (Complete the following and provide details, if necessary, in the space below):

Were the beds of trucks exiting the facility covered?	YES: _____	NO: _____
Were facility roadways watered throughout the day to prevent emissions of particulate matter?	YES: _____	NO: _____
If there was spillage of stone onto North Rockhill Road, was it cleaned up?	YES: _____	NO: _____
Were good housekeeping measures employed to keep the facility neat and orderly?	YES: _____	NO: _____
Was any maintenance performed on any piece of proces equipment, engine, or water sprays? If YES, provide details below.	YES: _____	NO: _____
Was water used to spray stockpiles to prevent the emissions of PM?	YES: _____	NO: _____
Were portable water misters used to control emissions of PM? If YES, list location(s) and time used below.	YES: _____	NO: _____
Were drop heights, stockpile heights and size of loads limited to help prevent emissions of PM?	YES: _____	NO: _____
Was any employee training performed? If YES, provide details below.	YES: _____	NO: _____

Weather Conditions (Provide details of the weather conditionsbelwo:)

Wind Speed (mph): _____ Wind Direction: _____ Precipitation: YES _____ NO _____ Type: _____

Maintinance Performed and Details of Other Daily Activities (Use space below for additional information/comments)

Richard E. Pierson Material Corporation - 1000 TPH C/S Plant
Daily Operational Log

Directions: Complete each day the 1000 TPH Crushing/Screening Plant operates.

DATE: _____

MATERIAL PROCESSED: _____ TONS/DAY

HOURS OPERATED: _____ HOURS/DAY

WDSS TANK 1 - WATER FLOW RATE (GAUGE READING) : _____ GALLONS/MINUTE (ZONES 1 & 2)

WDSS TANK 2 - WATER FLOW RATE (GAUGE READING) : _____ GALLONS/MINUTE (ZONES 3 & 4)

Directions: Record whether or not the water sprays at each location in the plant were functioning properly. The location of each water spray is shown on Reference Drawings P3003-065 and P3003-06. Answer the additional questions below the Water Spray Inspection.

IF THERE IS ANY WATER SPRAY THAT IS NOT FUNCTIONING PROPERLY, NOTIFY THE PLANT OPERATOR OR PLANT MANAGER AND STOP OPERATING THE CRUSHING AND SCREENING PLANT IMMEDIATELY.

Water Spray Location	Water spray operating properly?		Water Spray Location	Water spray operating properly?		Water Spray Location	Water spray operating properly?	
	YES	NO		YES	NO		YES	NO
1			18			35		
2			19			36		
3			20			37		
4			21			38		
5			22			39		
6			23			40		
7			24			41		
8			25			42		
9			26			43		
10			27			44		
11			28			45		
12			29			46		
13			30			47		
14			31			48		
15			32			49		
16			33			50		
17			34			51		

Fugitive Dust Control Measures (Complete the following and provide details, if necessary, in the space below):

Were any of the water spray nozzles plugged, out of alignment or broken? (if YES, provide location and any corrective actions below). YES: _____ NO: _____

Were any of the hoses for the water spray nozzles cracked or leaking? (if YES, provide location and any corrective actions below). YES: _____ NO: _____

Were any of the hose clamps for the water spray nozzles loose? (if YES, provide location and any corrective actions below). YES: _____ NO: _____

Was the water flow rate between 1.0 and 41.53 gallons/minute for WDSS Tank 1? (if NO, provide details on any corrective actions below). YES: _____ NO: _____

Was the water flow rate between 1.0 and 113.09 gallons/minute for WDSS Tank 2? (if NO, provide details on any corrective actions below). YES: _____ NO: _____

Were there any other malfunctions of the Wet Dust Suppression System (WDSS)? (if YES, provide date, time, type of malfunction, cause, any corrective actions taken (date, time and any component replaced below). YES: _____ NO: _____

Were there any malfunctions of the Crushers, Screens or Conveyors? (if YES, provide date, time, type of malfunction, cause, any corrective actions taken (date, time and any component replaced below). YES: _____ NO: _____

Were there any malodors (that cause annoyance or discomfort to the public), originating on site, observed at the property line? (if YES, provide date, time, duration, and any corrective actions taken). YES: _____ NO: _____

Were there any fugitive or visible emissions observed at the property line? (if YES, provide date, time, location, cause, and any corrective actions taken (date, time and any component replaced below). YES: _____ NO: _____

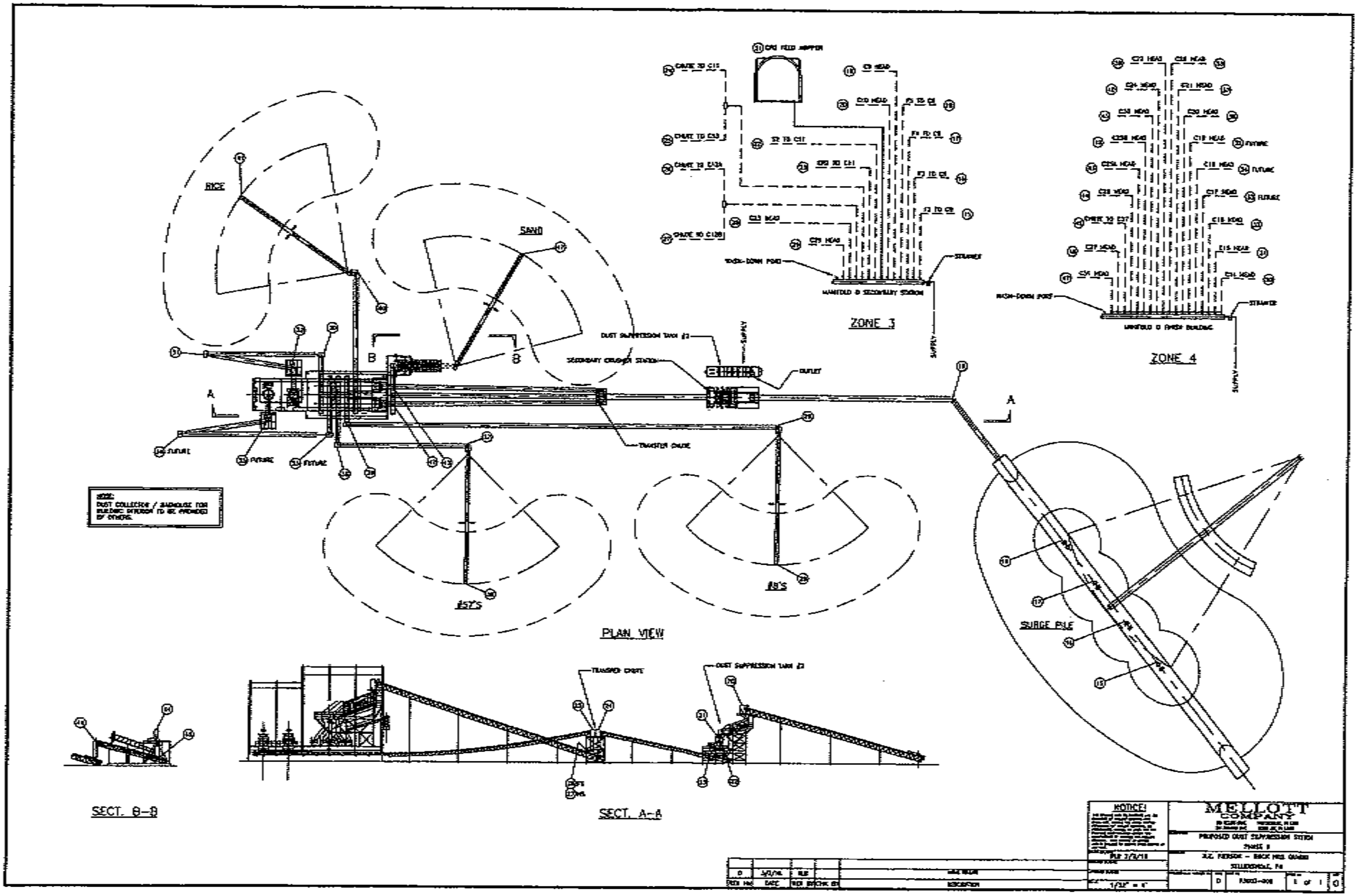
Were the beds of trucks exiting the facility covered? YES: _____ NO: _____

Were facility roadways watered to prevent emissions of particulate matter? (if YES, provide date & time of watering below). YES: _____ NO: _____

Maintenance Performed and Details of Other Daily Activities (Use space below for additional information/comments)

Revised April 2019

SECT. A–A
SECT. B–B
PLAN VIEW
ZONE 1
ZONE 2
SUPPLY
SCALPING SCREEN STATION
DUST SUPPRESSION TANK #1
PRIMARY CRUSHING STATION
BYPASS CHUTE DISCHARGE
CRUSHER DISCHARGE
01 HEAD
02 HEAD
03 HEAD
04 HEAD
05 HEAD
06 HEAD
07 HEAD
08 HEAD
09 HEAD
10 HEAD
11 HEAD
12 HEAD
13 HEAD
14 HEAD
15 HEAD
16 HEAD
17 HEAD
18 HEAD
19 HEAD
20 HEAD
21 HEAD
22 HEAD
23 HEAD
24 HEAD
25 HEAD
26 HEAD
27 HEAD
28 HEAD
29 HEAD
30 HEAD
31 HEAD
32 HEAD
33 HEAD
34 HEAD
35 HEAD
36 HEAD
37 HEAD
38 HEAD
39 HEAD
40 HEAD
41 HEAD
42 HEAD
43 HEAD
44 HEAD
45 HEAD
46 HEAD
47 HEAD
48 HEAD
49 HEAD
50 HEAD
51 HEAD
52 HEAD
53 HEAD
54 HEAD
55 HEAD
56 HEAD
57 HEAD
58 HEAD
59 HEAD
60 HEAD
61 HEAD
62 HEAD
63 HEAD
64 HEAD
65 HEAD
66 HEAD
67 HEAD
68 HEAD
69 HEAD
70 HEAD
71 HEAD
72 HEAD
73 HEAD
74 HEAD
75 HEAD
76 HEAD
77 HEAD
78 HEAD
79 HEAD
80 HEAD
81 HEAD
82 HEAD
83 HEAD
84 HEAD
85 HEAD
86 HEAD
87 HEAD
88 HEAD
89 HEAD
90 HEAD
91 HEAD
92 HEAD
93 HEAD
94 HEAD
95 HEAD
96 HEAD
97 HEAD
98 HEAD
99 HEAD
100 HEAD


RICE
SAND
#57'S
#8'S
SURGE PILE
PLAN VIEW
SECT. A-A
SECT. B-B
ZONE 3
ZONE 4
DUST SUPPRESSION TANK #2
SECONDARY CRUSHER STATION
TRANSFER CHUTE
OUTLET
SUPPLY
STRAINER
WASH-DOWN PORT
MANIFOLD @ SECONDARY STATION
MANIFOLD @ FINISH BUILDING
FUTURE
NOTE:
DUST COLLECTOR / BAGHOUSE FOR BUILDING INTERIOR TO BE PROVIDED BY OTHERS.
NOTICE!
MELLOTT COMPANY
PROPOSED DUST SUPPRESSION SYSTEM
PHASE II
1/32" = 1'
D
1 of 1
0

Attachment 9

Water Truck and Sweeper Usage Logs

Water Truck Usage Log

Daily Fugitive Dust Control Water Truck Log

Date:_____

Instructions:

The facility will use a Water Truck to control fugitive dust generated by truck traffic and general operations at the facility. The following guidelines will be used to determine the frequency of applications:

1. A Water Truck must be used on all paved surfaces to prevent airborne dust.
2. A Water Truck must be used whenever truck traffic generates visible fugitive dust.

This log must be turned into the Operations Supervisor at the end of each day. This record must be maintained by the facility for five (5) years.

Activity (i.e., Ran Water Truck)	Start Time	End Time	Locations Where Applied

COMMENTS/OBSERVATIONS:

☐ Controls not required/limited due to rain/snow or other weather condition.
☐ Controls not required/limited due to reduced truck traffic.
☐ Controls not operating/no trucks accepted.

_____

_____

_____

_____

Operator Signature: _____ Date: _____

Daily Fugitive Dust Control Water Truck Log

SUPERVISOR/MANAGEMENT REVIEW:

☐ Acceptable ☐ Further Action Required (comment below)

Comments/Observations:

_____

_____

_____

_____ _____

Supervisor/Management Signature Date

Sweeper Usage Log

Daily Fugitive Dust Control Street Sweeper Log

Date:_____

Instructions:

The facility will use a Street Sweeper with Water Spray to control fugitive dust generated by truck traffic and general operations at the facility. The following guidelines will be used to determine the frequency of applications:

1. A Street Sweeper must be used on all paved surfaces to prevent airborne dust.
2. A Street Sweeper must be used whenever truck traffic generates visible fugitive dust.

This log must be turned into the Operations Supervisor at the end of each day. This record must be maintained by the facility for five (5) years.

Activity (i.e., Ran Street Sweeper)	Start Time	End Time	Locations Where Applied

COMMENTS/OBSERVATIONS:

☐ Controls not required/limited due to rain/snow or other weather condition.
☐ Controls not required/limited due to reduced truck traffic.
☐ Controls not operating/no trucks accepted.

_____

_____

_____

_____

Operator Signature: _____ Date: _____

Daily Fugitive Dust Control Street Sweeper Log

SUPERVISOR/MANAGEMENT REVIEW:

☐ Acceptable ☐ Further Action Required (comment below)

Comments/Observations:

_____

_____

_____

_____ _____

Supervisor/Management Signature Date

Attachment 10

PADEP Bureau of Mining
Modules 16 and 17

Module 16
Large Noncoal Blast Plan

Hanson
HEIDELBERGCEMENT Group

Hanson Aggregates Pennsylvania LLC
7660 Imperial Way
Allentown, PA 18195-1040
Tel 610-366-4819
Fax 610-871-5994

Sent via Fed-Ex

March 18, 2019

Michael J. Menghini
Pennsylvania Department of Environmental Protection
Pottsville District Mining Office
5 West Laurel Boulevard
Pottsville, PA 17901-2454

Re: Rock Hill Quarry – Revised SMP Modules 16 & 17
SMP No. 7974SM1
East Rockhill Township
Bucks County, Pennsylvania

Dear Mr. Menghini:

Hanson Aggregates Pennsylvania LLC (Hanson) has prepared revised Module 16 – Large Noncoal Blast Plan and revised Module 17 – Air Pollution and Noise Control Plan. The original and two (2) copies of each are attached for your review and approval.

Please feel free to contact me at (610) 366-4819 should you wish to discuss the submission or require additional information.

Sincerely,

Andrew J. Gutshall, P.G.
Area Environmental Manager

encl: Module 16: Large Noncoal Blast Plan
Module 17: Air Pollution and Noise Control Plan

cc: Gary Latsha, PADEP – Pottsville DMO (e-mail only)
Michael P. Kutney, P.G., PADEP – Pottsville DMO (e-mail only)
Richard E. Tallman, E.I.T., PADEP – Pottsville DMO (e-mail only)
Amlee Bollinger, PADEP – Pottsville DMO (e-mail only)
Mark E. Kendrick, Hanson – Allentown (e-mail only)
Timothy J. Poppenberg, Hanson – Allentown (e-mail only)
Matthew S. Burns, Esq., Hanson – Allentown (e-mail only)
Curt Mitchell, R.E. Pierson (e-mail only)
Shane LaGray, Maine Drilling & Blasting (e-mail only)
Marianne Morano, East Rockhill Township (e-mail only)
Environmental File

Module 16: Large Noncoal Blast Plan

[Chapter 211/§ §77.561/77.562/77.563/77.564]

☐ New
☒ Revised

Permittee Hanson Aggregates PA LLC
Permit No. 7974SM1
Mine Name Rock Hill Quarry
County Bucks
Township East Rockhill

An application for proposed blasting shall contain a blasting plan for the proposed permit area, explaining how the applicant intends to comply with §§ 77.561-77.565 (relating to use of explosives) and including the following; drilling patterns, including size, number, depths and spacing of holes, charge and packing of holes, types of initiation and detonation controls, sequence and timing of firing holes, and scaled distance. Persons responsible for blasting operations at a blasting site shall be familiar with the blasting plan and site-specific performance standards (25 Pa. Code Chapter 77.453).

A permit issued under the Noncoal Surface Mining and Conservation and Reclamation Act (52 P. S. §§ 3301-3326), and the regulations promulgated thereunder (25 Pa. Code Chapter 77), authorizing blasting activity shall act as a blasting activity permit issued under 25 Pa. Code Chapter 211. An application for a blasting activity permit shall be prepared by a blaster and shall include information needed by the Department to determine compliance with applicable laws and regulations and conditions necessary to ensure that the proposed blasting activity complies with the applicable statutes and 25 Pa. Code Chapter 211. (25 Pa. Code Chapter 211.121, 25 Pa. Code Chapter 211.124).

Sections 16.1 through 16.11 and Sections 16.13 through 16.17 must be submitted with the permit application. Section 16.12 (relating to public notice of blasting schedule) must be submitted prior to blast plan approval. There shall be no blasting until a blast plan has been approved by the Department.

There is a fee required under 25 PA Code Chapter 77.106 for each blast plan application. The fee is $475. Is the fee being submitted with the application?

☒ Yes ☐ No

16.1a Blast Loading Plan 1 (77.453)

	Hole DIA.	MAX # HOLES	MAX # ROWS	BURDEN		SPACING		HOLE DEPTH		STEMMING	
				MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	TYPE
A	5"	150	10	6	12	6	16	10	65	7	Clean Crushed Stone
B	5.5"	150	10	6	12	6	16	10	65	7	Clean Crushed Stone
C	6"	100	10	6	14	6	18	10	65	7	Clean Crushed Stone
D	6.5"	100	10	6	15	6	18	10	65	7	Clean Crushed Stone
E											

Maximum explosives weight per delay (less than 8ms) 1100 Minimum Scaled Distance 35

Method of blast initiation Electric ☒ Non-Electric ☒ Other ☒
Explain Other Electronic

Comments:

A	Broad parameters are used to include production, overburden, development and secondary blasting. Maximum number of rows (10) respective to burden is requested to include ramp or other development blasting. Holes 10' to 15' deep will be a min. of 6' of stemming. Holes 16' to 35' deep will be a min. of 7' of stemming. Holes 36' to 45' deep will be a min. of 7' of stemming. holes 46' to 65' deep will be a min. of 7" of stemming.
B	Broad parameters are used to include production, overburden, development and secondary blasting. Maximum number of rows (10) respective to burden is requested to include ramp or other development blasting. Holes 10' to 15' deep will be a min. of 6' of stemming. Holes 16' to 35' deep will be a min. of 7' of stemming. Holes 36' to 45' deep will be a min. of 7' of stemming. holes 46' to 65' deep will be a min. of 7' of stemming.
C	Broad parameters are used to include production, overburden, development and secondary blasting. Maximum number of rows (10) respective to burden is requested to include ramp or other development blasting. Holes 10' to 15' deep will be a min. of 6' of stemming. Holes 16' to 35' deep will be a min. of 7' of stemming. Holes 36' to 45' deep will be a min. of 7' of stemming. holes 46' to 65' deep will be a min. of 7' of stemming.
D	Clean Crushed Stone to be used for all stemming. Stemming material should not contain fine material such as drill cuttings or 'fines'. Additionally, any fines or drill cuttings produced shall be removed from the blast area.
E	Prior to loading, shot area (both blast holes and laydown area) must be watered down to limit dust from blast. * See Module 17.2 for additional measures, if deemed necessary by the Department.

16.1b Blast Loading Plan 2 (77.453)

	Hole DIA.	MAX # HOLES	MAX # ROWS	BURDEN		SPACING		HOLE DEPTH		STEMMING	
				MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	TYPE
A	3	150	10	5	10	5	12	10	50	5	Clean Crushed Stone
B	3.5	150	10	5	10	5	12	10	50	6	Clean Crushed Stone
C	4	150	10	5	12	5	15	10	50	6	Clean Crushed Stone
D	4.5	150	10	5	12	5	15	10	50	6	Clean Crushed Stone
E											

Maximum explosives weight per delay (less than 8ms) 500 Minimum Scaled Distance 50

Method of blast initiation Electric ☒ Non-Electric ☒ Other ☒
Explain Other Electronic

Comments:

A	This pattern and bit size will be utilized when blasting for development work. Holes 10' to 15' deep will be a min. of 6' of stemming. Holes 16' to 35' deep will be a min. of 7'of stemming.
B	Hole size and pattern to be implemented as certain development needs arise. This will help with keeping the blast control. Holes 10' to 15' deep will be a min. of 6' of stemming. Holes 16' to 35' deep will be a min. of 7'of stemming.
C	Hole size and pattern to be implemented as certain develoment needs arise. This will aid in control of the blast when blasting shallow holes. Holes 10' to 15' deep will be a min. of 6' of stemming. Holes 16' to 35' deep will be a min. of 7' of stemming.
D	Clean Crushed Stone to be used for all stemming. Stemming material should not contain fine material such as drill cuttings or 'fines'. Additionally, any fines or drill cuttings produced shall be removed from the blast area.
E	Prior to loading, shot area (both blast holes and laydown area) must be watered down to limit dust from blast. * See Module 17.2 for additional measures, if deemed necessary by the Department.

***16.2 Peak Particle Velocity and Airblast Limits* (211.151 (c),(d))**

Blasts shall be designed and conducted to meet the maximum allowable peak particle velocity indicated by Figure 1 of 25 PA Code Chapter 211.151 (c) and not exceed the noise levels specified in Table 1 of 25 PA Code Chapter 211.151 (d) at the closest building not owned or leased by the permittee or its customer.

The Department may establish an alternative peak particle velocity or airblast level if it determines that an alternative standard is appropriate or if the owner and lessee, if leased to another party, of a structure located on the permit area have each signed a waiver releasing the vibration limit. The waiver shall be clear, knowing and specific. (attachment(s) **NOTE:** *Additional review time will be necessary if the applicant submits a waiver for an alternative peak particle or airblast limit at a structure.*

16.3 Will the sequence and timing of hole detonation be determined by considering factors such as geology, direction and proximity of homes or other structures, permit boundaries, or the locations of underground or overhead utilities. ☒ Yes ☐ No

16.4 Will the loading of holes be determined by considering factors such as geology, direction and proximity of homes or other structures, permit boundaries, or the locations of underground or overhead utilities. ☒ Yes ☐ No

***16.5 Blasting near Dwellings, Public Buildings or Schools* (77.564(g)(3))**

Will blasting occur within 1,000 feet of any dwelling, public building or school? ☐ Yes ☒ No

Indicate distance to the nearest dwelling or structure, neither owned nor leased by Permittee, from the area where blasting will occur. 1,100 feet

16.6 If blasting will occur within 1,000 feet of any public building or school, explain how notification required by 25 Pa Code Section 77.564(g)(3) will be made.

N/A

16.7 Will blasting be conducted within 300 feet of an occupied dwelling? **(77.564(g)(4))** ☐ Yes ☒ No

16.7a If blasting is proposed within 300 feet of an occupied dwelling provide a notarized written waiver from the owner each dwelling specifying the distance blasting may occur to the dwelling (**Note:** If the waiver includes an increase in the peak particle velocity limits or in the airblast limits, in 25 Pa Code Section 211.151(c) and (d), the alternative limits must be specified in the waiver). (Attachment) ***(77.564(g)(4))***

16.8 Will blasting will be conducted within 800 feet of any public road? **(77.564(g)(1))** ☐ Yes ☒ No

16.8a If blasting will be conducted within 800 feet of any public road describe the precautions that will be taken to protect the travelling public (can be submitted as an attachment): **(77.564(g)(1))**

N/A

16.9 Blast Area 77.564(d)(1)(77.564(e))

Describe how the blast area as defined in 25 Pa Code Section 211.101 will be determined, the procedures for notification of all persons who may have access to the blast area, and how the blast area will be secured and safeguarded (can be submitted as an attachment):

All access to the blast area will be blocked and guarded at the time of blast. "Warning, Blast Area" signage to be posted at all times during the loading process.

16.10 Underground Mines (77.551)

Will blasting occur within 500 feet to any point over or adjacent to an active or abandoned portion of an active underground mine? ☐ Yes ☒ No

If yes attach completed MSHA form. ***(Attachment)***

16.11 Underground Utility Lines: (211.181-182)

Will blasting be conducted within 200 of feet Underground Utility Lines? ☐ Yes ☒ No

If underground utililities are located within 200 feet of the area where blasting will occur, attach a copy of the notification sent to the owner(s) (submit as an attachment).

If there are any requests for waiver of any of the provisions of 211.182 attach copies of any agreements with the owner(s) of the utilities (submit as an attachment).

16.12 Public Notice of Blasting Schedule (77.563)

Submit the following to the Department prior to the initiation of blasting.

a) A Copy of the public notice of the blasting schedule that is published in a newspaper of general circulation in the locality of the area where blasting will occur (submit as an attachment)

Blasting Public Notice already on file at Pottsville District Mining Office

b) A List of the Local governments and public utilities that are located within 1,000 feet of the area where blasting will occur, who received copies of the blasting schedule. (**Note:** These shall be sent a copy of the blasting schedule.) (submit as an attachment)

16.13 Explosive Purchase (211.123)

Will a blasting contractor conduct blasting at this site? ☒ Yes ☐ No

If no provide the permittee's Explosives Purchase Permit number: PP#_____

16.14 Blast Plan Preparer (211.124(a))

The PA licensed blaster who prepared this application must print and sign name below. (General or Surface Mining Authorization Only)

Licensed Blaster Jeffrey Magnuson
Print

Licensed Blaster *Jeffrey Magnuson* Date 03/14/19 Blaster's license Number BL-9669
Sign (General or Surface Mining Authorization)

16.15 Permittee Authorization Representative **(77.107)**

The permittee or an authorized representative of the permittee must print and sign name below.

Permittee or Authorized Representative Mark E. Kendrick - Vice President
Print

Permittee or Authorized Representative _____ Date 3/12/19
Sign

16.16 Map (attachment-delineates where blasting will occur and the area within 1,000 feet of where blasting will occur.) (If explosives are going to be stored on the mine site, the location of the explosives storage must be included on the map.) **The map should accurately show, at a minimum, permit boundaries, the locations of streams, gas wells and lines, other undrground utilities, overhead utilities and the nearest dewllings and other structures, (211.124(7)), (77.454(a)(9)**

16.17 List of attachments (Check all that apply)

- ☐ Dwelling Waiver
- ☐ Road Precaution Description
- ☐ Blast Area Security Plan
- ☐ MSHA Form
- ☐ Utility Notification
- ☐ Blast Schedule Public Notice
- ☐ Map
- ☐ Other _____
- ☐ Other _____

Department Use Only:

DEP Blasting Inspector _____
Print

DEP Blasting Inspector _____ Date _____
Sign

Recommendation - ☐ Approval ☐ Disapproval

Comments:

Module 17
Air Pollution and Noise Control Plan

Module 17: Air Pollution and Noise Control Plan

[Chapters 121,123,127,129/NSMCRA 3323(a)(3)/§§ 77.455/77.575]

17.1 *Processing Facilities*

a) Indicate whether or not there are any processing facilities in the permit area. (Key to Exhibit 9) and specify the mineral(s) to be processed.

Type of Processing Facility	YES	NO	If YES: DRY	WET	Minerals/Product
Crushing	☒	☐	☒	☐	Diabase
Screening	☒	☐	☒	☐	Diabase
Cleaning	☒	☐	☒	☒	Diabase
Stockpiling	☒	☐	☒	☒	Diabase

b) Describe the processing facilities and the amount of minerals to be processed.

The initial phase of aggregate production will utilize portable non-metallic processing units operating under GP-3/GP-9 authorization from the Pennsylvania Department of Environmental Protection - Southeast Regional Office dated 03/14/2018.

The Plan Approval for a fixed aggregate plant was issued on December 5, 2018 with a maximum production rate of 1,000 tons per hour (tph) and a maximum of 2,800 hours per year. The non-metallic mineral procesing plant will consist of a Metso C140 jaw crusher (primary), a 7-ft by 16-ft triple-deck scalping screen, a Metso HP400 cone crusher (secondary), two (2) 8-ft by 24-ft quad-deck screens, a Metso HP400 cone crusher (tertiary), a Metso HP400 cone crusher (quaternary), two (2) additional 8-ft by 24-ft quad-deck screens, a Metso GP300S cone crusher (extra course), a 5-ft by 14-ft double-deck screen, and 35 conveyors.

c) Provide the date that the DEP Regional Air Quality Office was contacted or, if applicable, provide a copy of the DEP Air Quality Program's determination to grant an exemption from the Air Quality Permit requirements and of any authorizations granted under the Air Quality General Permit for Portable Nonmetallic Mineral Processing Plants (BAQ-GPA/GP-3).

GP3-03-0157 issued on 03/14/2018 - expires 03/14/2023
GP9-09-0083 issued on 03/14/2018 - expires 03/14/2023
GP9-09-0084 issued on 09/07/2018 - expires 09/07/2023 (associated with HMA Plant)
GP13-09-0001 issued on 09/07/2018 - expires 09/07/2023
Plan Approval 09-0241 issued December 5, 2018 - expires May 30, 2020
[DEP Air Quality Permits included in Attachment 17.1(c)]

Note: All crushing and screening of noncoal minerals other than sand and gravel will require a separate Air Quality Permit from the DEP Regional Office Air Quality Program unless that Program makes a determination to grant an exemption. Crushing and/or screening of sand and gravel will require a separate Air Quality Permit from the DEP Regional Office Air Quality Program except for wet sand and gravel operations (screening only) and wet or dry sand and gravel operations (crushing and/or screening) unconsolidated material with a rated capacity of processing less than 150 tons per hour unless that Program makes a determination to grant an exemption. BAQ-GPA/GP-3 may be used for authorizing the construction, operation, and modification of portable nonmetallic mineral processing plants that will be located at the mine site.

d) Is the processing facility to be operated by the mining permittee? Yes ☐ No ☒
If so, will the Air Quality permit be held by the mining permittee or a third party? Permittee ☐ Third Party ☒

17.2 *Air Pollution Control Plan*

Provide a description of the air pollution control plan including what measures will be taken to reduce dust from the following activities:

If necessary, portable water misters will be utilized to control fugitive dust from specific areas/activities (i.e. blasting) at the facility.

a) Access roads, haul roads and adjoining portions of the public road

Fugitive dust will be controlled utilizing the following measures:

- Internal paved roadways are to be cleaned (as needed) using a water truck and/or street sweeper to contol the generation of fugitive dust or to collect accumulated dust and mud, unless weather conditions (e.g. rain/snow) prohibit the use of these control measures.

- As needed, water will be applied to unpaved roads at the facility each operating day through the use of a water truck assigned to the facility unless weather conditions (e.g. rain/snow) prohibit the use of this control measure.

- A facility-wide speed limit of 15 miles per hour (mph) will be posted and enforced to reduce associated fugitive dust emissions. Stone or asphalt paving will be applied to the roadway near the entrance/exit to the facility to reduce fugitive dust emissions.

- Any spillage of stone onto public roads will be removed and the roadway cleaned as soon as practical. All materials will be wetted prior to removal. A street sweeper will be utilized as needed for public roads.

- In addition to water, other dust suppressants approved by the Department may be used to control fugitive dust. Currently, the Department has approved calcium chloride; Ultra Bond 2000 (manufactured by JMG Enterprises - www.jmgemulsions.com); Pennzsuppress D (manufactured by PennzSuppress - www.pennzsuppress.com); Coherex and Dustbond (manufactured by Weavertown Oil (distributed by D&D Emulsions). Operator reserves the right to use any additional dust suppressants approved by the Department in the future. See Attachment 17.2(a) for documentation provided by the Department.

b) Truck traffic (including fugitive particulate material from truck loads).

All trucks carrying products from the site are required to tarp their loads prior to exiting the site. A sign will be posted at the entrance/exit gate to the facility reminding drivers of the tarping requirements.

c) Drilling operation.

To control dust, drill rigs will either add water during the drilling process or vent the exhaust through the drill rig's baghouse to minimize fugitive dust emissions.

d) Overburden removal and mineral extraction

Overburden will be removed using heavy construction equipment and be placed in stockpiles. Upon placement, the material will be stabilized with vegetation to prevent erosion by wind or water.

As needed, water will be applied to mineral extraction area (e.g. area where loading haul trucks with shot rock occurs) using the water truck assigned to the facility unless weather conditions (e.g. rain/snow) prohibit the use of this control.

e) Stockpiles (overburden, topsoil, product).

Overburden materials will be stockpiled and stabilized with vegetation to prevent erosion by wind or water.

In accordance with the Pennsylvania Department of Environmental Protection Air Quality Permits, wet suppression (water sprays, etc.) methods will be used to control dust associated with the production of aggregate products. Sufficient moisture should be applied to the aggregate product during production to control fugitive dust emissions during stockpiling.

The height of each stockpile will be maintained so that the top of the pile is accessible to the water sprays from the water truck.

In order to prevent fugitive dust, aggregate that has accumulated near or under process equipment will be cleaned up on a regular basis.

f) Loading and unloading areas.

Sufficient moisture should exist in the stockpiled aggregate products to control dust emissions during loadout. As needed, water should also be applied to the unpaved surfaces in the loading and unloading areas; stockpiles; and any other area where stone is being handled to prevent fugitive dust.

g) Crushing and other processing equipment.

The processing equipment approved under the GP-3 Air Quality Permit and Plan Approval 09-0241 utilizes wet suppression to reduce fugitive emissions during material processing. The wet suppression systems detailed in Plan Approval 09-0241 consist of high pressure water pumps supplying nozzles and multiple manifold spray bars positioned at transfer points, outlets of crushers and the primary dump hopper.

Loaders and hoppers will not be overfilled in order to prevent the spillage of aggregate.

h) Conveyors.

Conveyors associated with the processing equipment will use wet suppression to control fugitive emissions.

The drop heights of stone onto stockpiles or during stone handling operations will be kept to a minimum to prevent fugutive dust.

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.

Site processing activities of bedrock material are addressed under separate Air Quality Permits. See attached.

17.3 Noise Control

Describe the measures that will be taken to prevent noise from becoming a public nuisance.

The area between the quarry permit area and all surrounding residences is wooded, consisting of mostly deciduous vegetation. The trees and other vegetation assist in defusing sound.

Aggregate product stockpiles and berms may also shield residences from noise.

Potentially utilize acceptable alternative to standard backup alarms (i.e. multi-frequency, white noise, etc.) if allowable under MSHA regulations.

A steel plate shall be installed in the feed box for the primary crusher to baffle the noise when shot rock is dropped in.

Operator shall comply with the East Rockhill Township Noise Ordinance.

Operator shall install structures (i.e. engineering controls, berms, sound walls, etc.) to mitigate noise as deemed necessary by the Department.

Operator shall conduct an independent noise survey and provide the results to the Department within three (3) months of commencing operation of the 1,000-tph non-metallic mineral processing plant.

ATTACHMENT 17.1(c)

Air Quality Permits

ATTACHMENT 17.2(a)

Dust Suppressant Documentation

From: Menghini, Michael
Sent: Friday, July 18, 2008 9:05:33 AM
To: Bollinger, Amiee; Stutzman, Colleen
Subject: FW: Update on Dust Suppressants

-----Original Message-----
From: Hoyle, Susan
Sent: Friday, April 12, 2002 9:23 AM
To: Menghini, Michael; Bish, David; Bonga, David; Bubbenmoyer, David; Disabella, Peter; Foster, Susan; Gee, Karen; Gratzmiller, Keith; Gray, Ronald; Gustafson, Staci; Heagy, Frederick; Mclemore, Kevin; Mordosky, Ronald; Murray, Richard; Orr, James; Rebarchak, James; Roller, Richard; Stroble, William; Archambault, John; Higgins, Francis; Krueger, John; Mendicino, Michael; Ruhl, Richard; Zvirblis, Anthony
Cc: Kepner, Scott; Colbert, Woodrow; Pounds, William; Sloan, Samuel; Shipman, Rick; Hayes, Joe; Socash, Stephen; Michael Silsbee (E-mail)
Subject: Update on Dust Suppressants

I received an update yesterday from Dr. Silsbee of the PSU Dirt and Gravel Road Program about some new dust suppressants that are expected to be added soon to the list of approved chemicals.

The two new products are Coherex and Dustbond. The parent company is Weaverton Oil and the local distributor appears to be D & D Emulsions.

These will be in addition to the Ultrabond, which is currently on the list of approved chemicals.

From: Menghini, Michael
Sent: Wednesday, June 15, 2016 9:31:52 AM
To: Bollinger, Amiee
Cc: Latsha, Gary
Subject: Dust Suppressant Info

Per your request

Michael J. Menghini | District Mining Manager
Department of Environmental Protection
Pottsville District Mining Office
5 West Laurel Boulevard | Pottsville, PA 17901
Phone: 570.621.3118 | Fax: 570.621.3110
http://secure-web.cisco.com/11sekQix0B19MWA7M1kIjdwALBqPFE3KfqkiPdBFqSE8I73pKJBU9Z10Ic4_ILHtCdmVcaBjfRz5TViXu575hvpSOztzulIxFYJ0bkQ1JEOV_Iax1GFqECF027_U1Lw0v3xhqqkJK6h2fmqEOG8ZSN486oOnbyqQT95jwou_jUF-bnQFoeR_m46LA-cWQSd06S4ZnAKOzUYQm5jYVk2dfV731tccHHRUQXcC_ohqxhwqH21J4Choi6EPji2hjBkJBHSS5W2I50ApnkEOP3jA4I1djcMFBMkwHd1sprPXnAA-vFvCOTJA1uWMsdG3sAP52vFV2XIaTsSdbUBKQVi6_wA/http%3A%2F%2Fwww.dep.pa.gov

GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
Business telephone: (215) 355-3300

Material Safety Data Sheet

Issue Date: 29-MAR-2002

EMERGENCY TELEPHONE (Health/Accident): (800) 877-1940

1 PRODUCT IDENTIFICATION

PRODUCT NAME:

DUSTREAT DC9112

PRODUCT APPLICATION AREA:

DUST CONTROL AGENT.

2 COMPOSITION / INFORMATION ON INGREDIENTS

Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this MSDS for our assessment of the potential hazards of this formulation.

HAZARDOUS INGREDIENTS:

This product is not hazardous as defined by OSHA regulations.

No component is considered to be a carcinogen by the National Toxicology Program, the International Agency for Research on Cancer, or the Occupational Safety and Health Administration at OSHA thresholds for carcinogens.

3 HAZARDS IDENTIFICATION

****

EMERGENCY OVERVIEW

CAUTION

May cause slight irritation to the skin. May cause moderate irritation to the eyes. Mists/aerosols may cause irritation to upper respiratory tract.

DOT hazard is not applicable
Emergency Response Guide is not applicable
Odor: Sweet; Appearance: Dark Brown, Liquid

Menghini, Michael

From: Menghini, Michael
Sent: Tuesday, February 26, 2002 8:41 AM
To: 'druhlin@bellatlantic.net'
Subject: Approved Dust Suppressants

Doug,
Here is the contact info I have on the two dust suppressants I discussed at the PACA mtg.:

Ultra Bond 2000
JMG Enterprises website: http://www.jmgemulsions.com/mainpage.html
Tech rep: John George 1-800-446-6785

Pennzsuppress D
websites: http://www.pennzsuppress.com/index.htm and http://www.pennzsuppress.com/html/ingredients.htm

Please let me know if you need any further info

Drought Information Center
Now Open! Save Water Now!
http://www.dep.state.pa.us (directLINK "drought")

Menghini, Michael

From:	Hoyle, Susan
Sent:	Friday, April 12, 2002 9:23 AM
To:	Menghini, Michael; Bish, David; Bonga, David; Bubbenmoyer, David; Disabella, Peter; Foster, Susan; Gee, Karen; Gratzmiller, Keith; Gray, Ronald; Gustafson, Staci; Heagy, Frederick; Mclemore, Kevin; Mordosky, Ronald; Murray, Richard; Orr, James; Rebarchak, James; Roller, Richard; Stroble, William; Archambault, John; Higgins, Francis; Krueger, John; Mendicino, Michael; Ruhl, Richard; Zvirblis, Anthony
Cc:	Kepner, Scott; Colbert, Woodrow; Pounds, William; Sloan, Samuel; Shipman, Rick; Hayes, Joe; Socash, Stephen; Michael Silsbee (E-mail)
Subject:	Update on Dust Suppressants

I received an update yesterday from Dr. Silsbee of the PSU Dirt and Gravel Road Program about some new dust suppressants that are expected to be added soon to the list of approved chemicals.

The two new products are Coherex and Dustbond. The parent company is Weaverton Oil and the local distributor appears to be D & D Emulsions.

These will be in addition to the Ultrabond, which is currently on the list of approved chemicals.

Peregrine Falcons Start New Family!
Live video/sound from the nest!
http://www.dep.state.pa.us/dep/falcon

Ultra Bond 2000
JMG Enterprises website: http://www.jmgemulsions.com/mainpage.html
Tech rep; John George 1-800-446-6786

Pennzsuppress D
websites: http://www.pennzsuppress.com/index.htm and http://www.pennzsuppress.com/html/ingredients.htm

Please let me know if you need any further info

Drought Information Center
Now Open! Save Water Now!
http://www.dep.state.pa.us (directLINK "drought")

Christina:

Here are the websites for the 2 approved dust suppressants. Please call me if you have any questions.

Michael
(570) 621-3118

D.0.7	Check condition of remote fax.	8215972109

P.1 Mar 11 2002 14:35

** Transmit Conf. Report **

DEP DMO-POTTSVILLE OFC Fax:570-621-3110

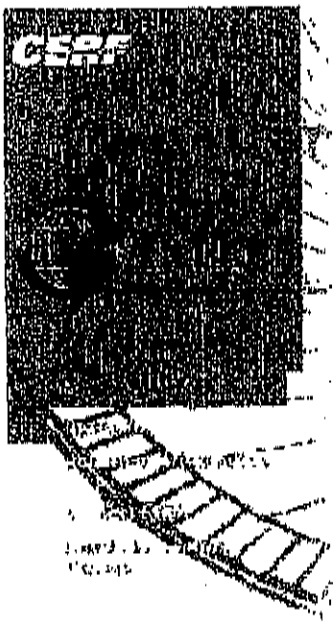
Menghini, Michael

From: Hoyle, Susan
Sent: Tuesday, April 16, 2002 11:46 AM
To: Menghini, Michael; Bish, David; Bonga, David; Bubbenmoyer, David; Disabella, Peter; Foster, Susan; Gee, Karen; Gratzmiller, Keith; Gray, Ronald; Gustafson, Staci; Heagy, Frederick; Mclemore, Kevin; Mordosky, Ronald; Murray, Richard; Orr, James; Rebarchak, James; Roller, Richard; Stroble, William; Archambault, John; Higgins, Francis; Krueger, John; Mendicino, Michael; Ruhl, Richard; Zvirblis, Anthony
Cc: Kepner, Scott
Subject: Contact Information for D&D Emulsions and Weavertown Group

The contact information for the Dustbond and Coherex dust suppressants is as follows:

D&D Emulsions Inc.
Attention: Dave Scott
270 Park Avenue East
PO Box 1706
Mansfield, OH 44901
419-522-9440

Weavertown Group
Donald Fuch, President & CEO
201 South Johnson Road
Houston, PA 15342
724-746-4850 ext. 1111



Evaluations

Dust Control/Road Stabilization Agents

last updated 04/01

Project Description

CERF is seeking vendors to participate in a group evaluation of various dust suppression and roadway stabilization products to assess both performance and potential environmental impacts of their use. HITEC will be evaluating the performance aspect of the products, while EvTEC will oversee the evaluation of environmental impacts. As part of the evaluation, in-service demonstrations will be conducted throughout the country in order to gather a broad range of data on how these products perform in different regions, climates, and soil types.

Evaluation Status

To date, four companies have signed on for the evaluation, with a total of five different dust suppression/stabilization products to be evaluated. Vendors who are interested in participating in this effort are encouraged to contact EvTEC for more details. The Final Evaluation Plan is complete and the project is moving into the testing phase for this verification. A total of six demonstration sites from across the country have been identified.

Product Description

Calcium Chloride from General Chemical Calcium Chloride has long been used in cost-effective road maintenance programs. General Chemical's calcium chloride is provided as a 35% liquid solution, packaged both in bulk and flake form. Calcium chloride absorbs moisture from the air, forming a clear liquid that is extremely resistant to evaporation.

Terra Bond® from Fluid Sciences, LLC TerraBond Poly Seal is a liquid soil-stabilizing chemical formulated to effectively seal surfaces, providing strength to virtually all

soil types. TerraBond Poly Seal is blended using combination of organic polymers.

Soil Sement® from Midwest Industrial Supply Soil Sement is a polymer emulsion that produces effective control of dust and erosion and soil stabilization. Soil Sement generates its effectiveness from the length and strength of its polymer molecules and their ability to bond with surface materials.

Enviro Kleen® from Midwest Industrial Supply
EnviroKleen is a formulated synthetic organic dust control product that is said to be nontoxic, clean, oil-sheen-free, colorless, odorless, and safe for human, animal, and plant life.

Perma-Zyme 11X from RMI/International Enzymes Inc.
Perma-Zyme 11X is an organic, non-toxic multi-enzyme formulation designed to maximize compaction (increasing soil densities). It acts as a catalyst to greatly accelerate cohesive bonding of soil particles, creating a tight, permanent stratum.

Report Plans

The initial panel meeting was held June 2 and 3, 1999, in Washington, DC, with 15 panelists and four vendors present. The evaluation plan was completed in September 2000. The final evaluation report is tentatively scheduled for publication in early 2002 .

Contacts

Todd Hawkins
Midwest Industrial Supply, Inc.
P.O. Box 8431
Canton, OH 44711
phone: 800-321-0699
fax: 330-456-3247
todd@midwestind.com

Mike Grotefend
Product Manager
Fluid Sciences
P.O. Box 81338
Lafayette, LA 70598-1338
phone: 318-261-0796
fax: 318-272-0124
mikeg@terrabond.net

Jim Shepard

General Chemical Corp.
Delaware Development Laboratory
6300 Philadelphia Pike
Claymont, DE 19703
phone: 800-422-7632 or 302-792-8591
(voicemail - 800-631-8050 ext 7211)
fax: 302-792-8610

Mr. Bob Calaway
RMI Marketing, LLC.
PO Box 953
McLean, VA 22102
phone: 703-759-7220
prc.rmi@worldnet.att.net

For further information on EvTEC or this group evaluation, contact Jenise Dunn at 202.785.6454.

EvTEC Home Page · About EvTEC · Getting Involved · News and Publications · Evaluations

ORIGIN ID:ABEA (610) 366-4819
ANDREW GUTSHALL
LEHIGH HANSON, INC.
7660 IMPERIAL WAY
ALLENTOWN, PA 18195
UNITED STATES US

SHIP DATE: 18MAR19
ACTWGT: 2.00 LB
CAD: 2003779/INET4100

BILL SENDER

TO MICHAEL J. MENGHINI
PA DEP - POTTSVILLE DMO
5 W LAUREL BLVD
POTTSVILLE PA 17901
(570) 621-3118
INV:
PO:
REF:
DEPT:

565J1/46D3/23AD

FedEx Express

TUE - 19 MAR 4:30P
STANDARD OVERNIGHT

TRK# 0201 7747 3051 0122

15 RDGA

17901
ABE
PA-US

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits. see current FedEx Service Guide.

Gutshall, Andrew J (Allentown) USA

From: TrackingUpdates@fedex.com
Sent: Tuesday, March 19, 2019 3:18 PM
To: Gutshall, Andrew J (Allentown) USA
Subject: FedEx Shipment 774730510122 Delivered

Your package has been delivered

Tracking # 774730510122

Ship date:
Mon, 3/18/2019

Andrew Gutshall
Lehigh Hanson, Inc.
Allentown, PA 18195
US

Delivery date:
Tue, 3/19/2019 3:12 pm

Michael J. Menghini
PA DEP - Pottsville DMO
5 W LAUREL BLVD
POTTSVILLE, PA 17901
US

Shipment Facts

Our records indicate that the following package has been delivered.

Tracking number:	774730510122
Status:	Delivered: 03/19/2019 3:12 PM Signed for By: J.JONES
Signed for by:	J.JONES
Delivery location:	POTTSVILLE, PA
Delivered to:	Receptionist/Front Desk
Service type:	FedEx Standard Overnight®
Packaging type:	FedEx® Pak
Number of pieces:	1
Weight:	2.00 lb.
Special handling/Services:	Deliver Weekday
Standard transit:	3/19/2019 by 4:30 pm

Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 2:17 PM CDT on 03/19/2019.

All weights are estimated.

To track the latest status of your shipment, click on the tracking number above.

Standard transit is the date and time the package is scheduled to be delivered by, based on the selected service, destination and ship date. Limitations and exceptions may apply. Please see the FedEx Service Guide for terms and conditions of service, including the FedEx Money-Back Guarantee, or contact your FedEx Customer Support representative.

Thank you for your business.

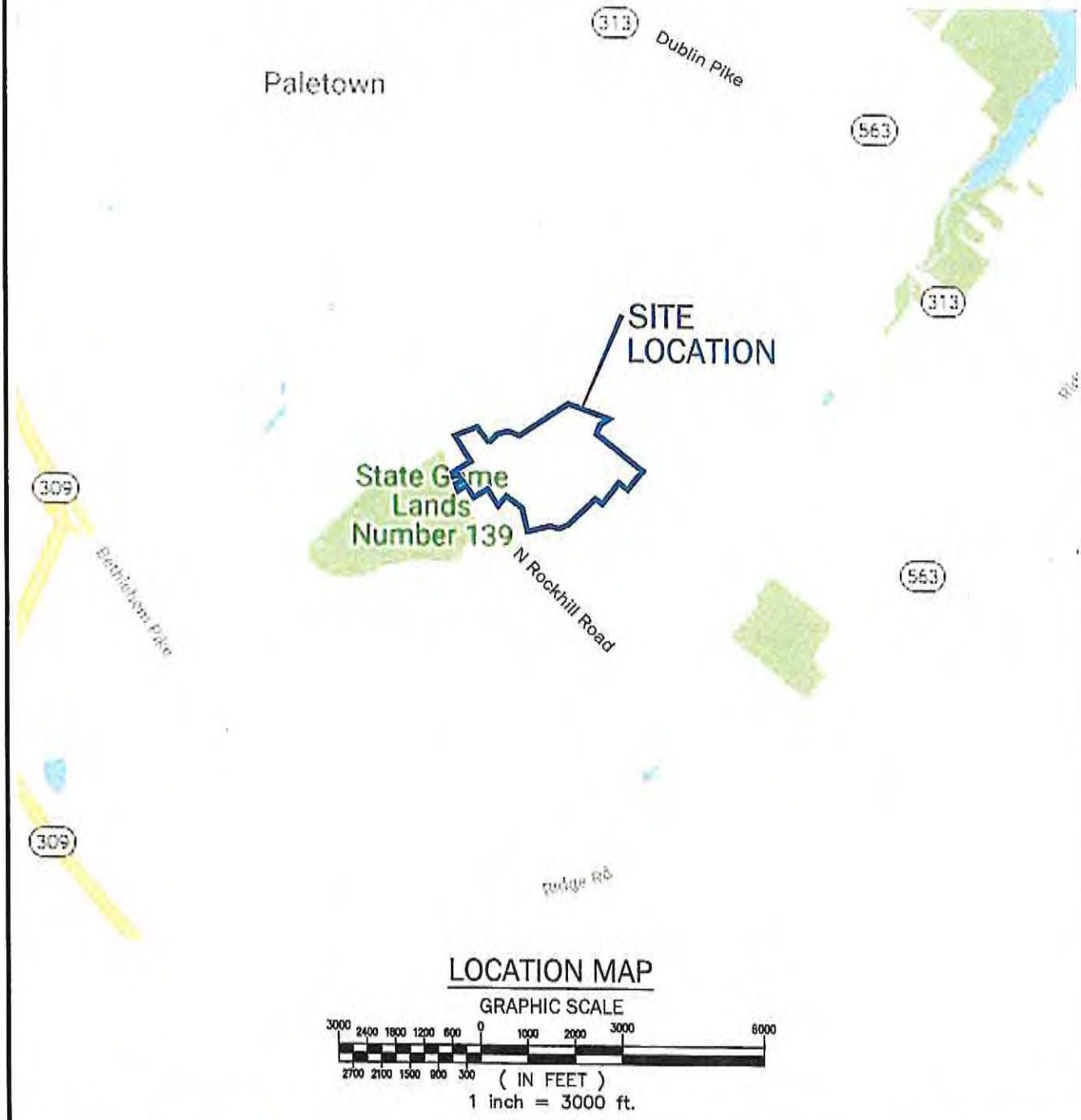
Attachments

Attachment 1

Maps and Drawings

Site Location Map

R.E. PIERSON CONSTRUCTION COMPANY
2055 N Rockhill Road
Sellersville, Pennsylvania 18960



LOCATION MAP

GRAPHIC SCALE

3000 2400 1800 1200 600 0 1000 2000 3000 6000
2700 2100 1500 900 300 (IN FEET)

1 inch = 3000 ft.

Source: Google earth Imagery Dated: 05/16/2018	Scale: As Noted	Approved By: Bradley J. Cunningham, P.E.	Date: 05/16/2018
	Project No: 0272.13	Drawn By: Rick Gradwell	

COMPLIANCE PLUS SERVICES, INC.

COMPLIANCE PLUS SERVICES, INC.
455 BUSINESS CENTER DRIVE
SUITE 250
HORSHAM, PA 19044
PHONE: (215) 734-1414 * FAX: (215) 734-1424
www.CPS-2Comply.com

Drawing No: L-01

N:\#0272 - R.E. Pierson Construction Company\Drawings\CPS Drawings\L-01 2055 N Rockhill Rd Loc Map.dwg, 12/13/2018 11:19:43 AM

Site Aerial Map

R.E. PIERSON CONSTRUCTION COMPANY
2055 N Rockhill Road
Sellersville, Pennsylvania 18960

AERIAL MAP

GRAPHIC SCALE

2000 1600 1200 800 400 0 500 1000 2000 4000
1800 1400 1000 600 200 (IN FEET)

1 inch = 2000 ft.

Source: Google earth Imagery Dated: 05/16/2018	Scale: As Noted	Approved By: Bradley J. Cunningham, P.E.	Date: 05/16/2018
	Project No: 0272.13	Drawn By: Rick Gradwell	

COMPLIANCE PLUS SERVICES, INC.

COMPLIANCE PLUS SERVICES, INC.
455 BUSINESS CENTER DRIVE
SUITE 250
HORSHAM, PA 19044
PHONE: (215) 734-1414 * FAX: (215) 734-1424
www.CPS-2Comply.com

Drawing No: A-01

N:\#0272 - R.E. Pierson Construction Company\Drawings\CPS Drawings\A-01 2055 N Rockhill Rd Aerial Map.dwg, 12/13/2018 11:21:22 AM

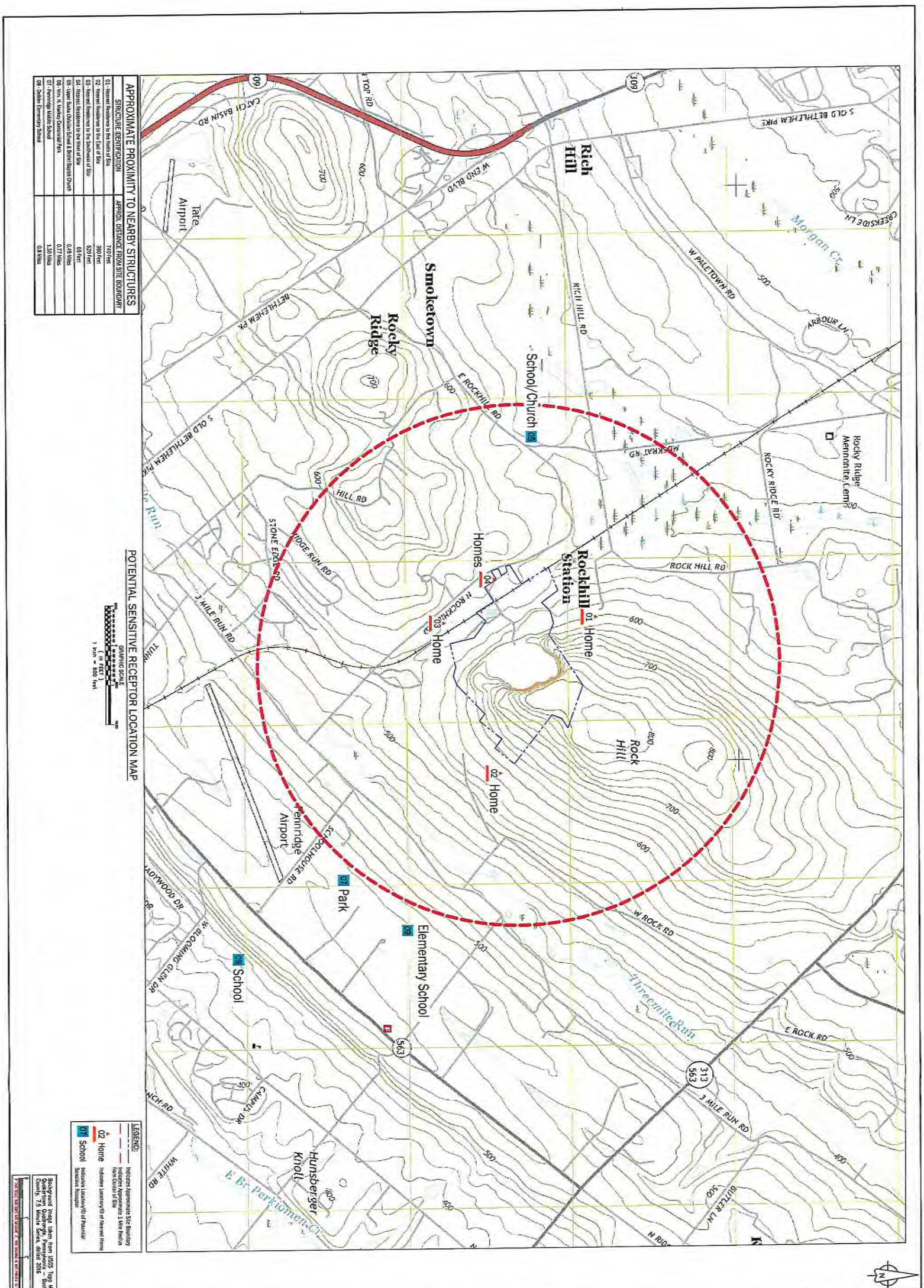
Air Sampling Locations Map

N:\#0272 - R.E. Pierson Construction Company\Drawings\CPS Drawings\AS-01 N Rockhill Rd Air Samp Locs.dwg, 4/11/2019 10:35:17 AM

AIR SAMPLING LOCATIONS R.E. Pierson Construction Company 2055 North Rockhill Road Sellersville, Pennsylvania 18960	COMPLIANCE PLUS SERVICES, INC. 455 BUSINESS CENTER DRIVE SUITE 230 HORSHAM, PA 19044 PHONE (215) 734-1414 • FAX (215) 734-1424 www.CPS-2Comply.com	COMPLIANCE PLUS SERVICES, INC.	Project No. 0272.10 Scale: 1 inch = 100 feet Approved By: Bradley J. Cunningham, P.E. Drawn By: Rick Gladwell	
Dwg. No. AS-01	Date: 12/12/2018			

Receptor Location Map

N:\#0272 - R.E. Pierson Construction Company\Drawings\CPS Drawings\RL-01 Potential Receptor Loc Map.dwg, 4/22/2019 11:43:52 AM



POTENTIAL SENSITIVE RECEPTOR LOCATION MAP

GRAPHIC SCALE
1 inch = 800 feet

APPROXIMATE PROXIMITY TO NEARBY STRUCTURES

STRUCTURE IDENTIFICATION	APPROX. DISTANCE FROM SITE BOUNDARY
01 - Home: Residence to the North of Site	710 feet
02 - Home: Residence to the East of Site	380 feet
03 - Home: Residence to the Southeast of Site	520 feet
04 - Homes: Residence to the West of Site	66 feet
05 - Upper Bucks Christian School & Bethel Baptist Church	0.49 Miles
06 - Wm. H. Markey Memorial Park	0.17 Miles
07 - Pennridge Middle School	1.30 Miles
08 - Sellers Elementary School	0.9 Miles

LEGEND:
- Indicates Approximate Site Boundary
- Indicates Approximate 3 Mile Radius from Center of Site
- 02 Home — Indicates Location/ID of Nearest Home
- 07 School — Indicates Location/ID of Potential Sensitive Receptor

Background Image Taken from USGS Topo Map Quadrangle, Pennsylvania – Bucks County, 7.5 Minute Series, dated 2016

PRINTED AT 100% WHEN 1" = 800' IS SHOWN & NOT WHEN IS NOT

POTENTIAL SENSITIVE RECEPTOR LOCATION MAP
R.E. Pierson Construction Company
2055 North Rockhill Road
Sellersville, Pennsylvania 18960

Dwg. No. RL-01 | Date: 12/12/2018

COMPLIANCE PLUS SERVICES, INC.
455 BUSINESS CENTER DRIVE
SUITE 250
HORSHAM, PA 19044
PHONE: (215) 734-1414 * FAX: (215) 734-1424
www.CPS-2Comply.com

COMPLIANCE PLUS SERVICES, INC.

Project No.	0272.10
Scale:	1 inch = 800 feet
Approved By:	Bradley J. Cunningham, P.E.
Drawn By:	Rick Gradwell

Seal: Bradley J Cunningham, P.E. NJ License No. 24GE04321900

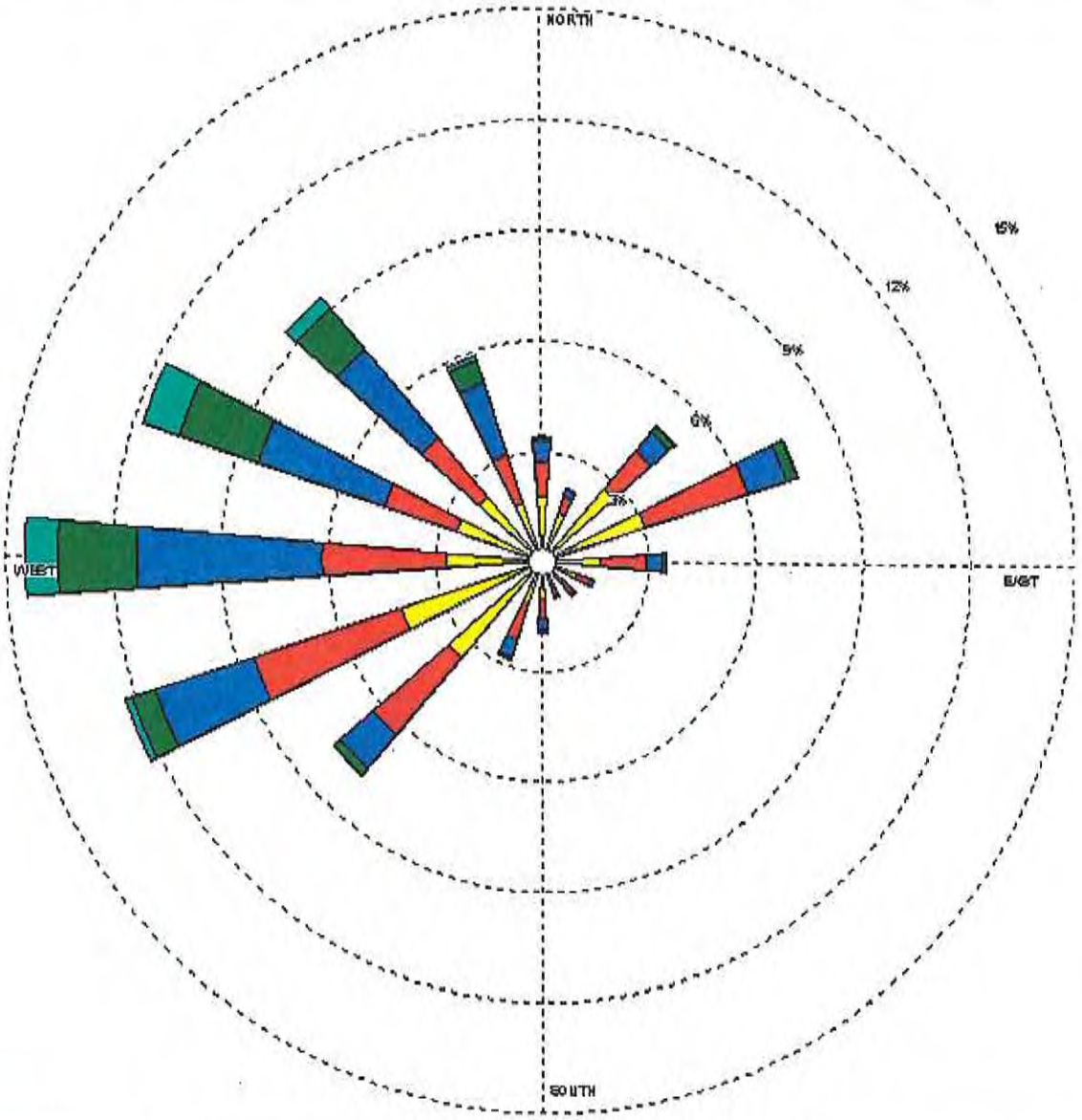
Rev. No.	Date	By	Description

Attachment 2

Wind Rose Plots from Station #14737

WIND ROSE PLOT

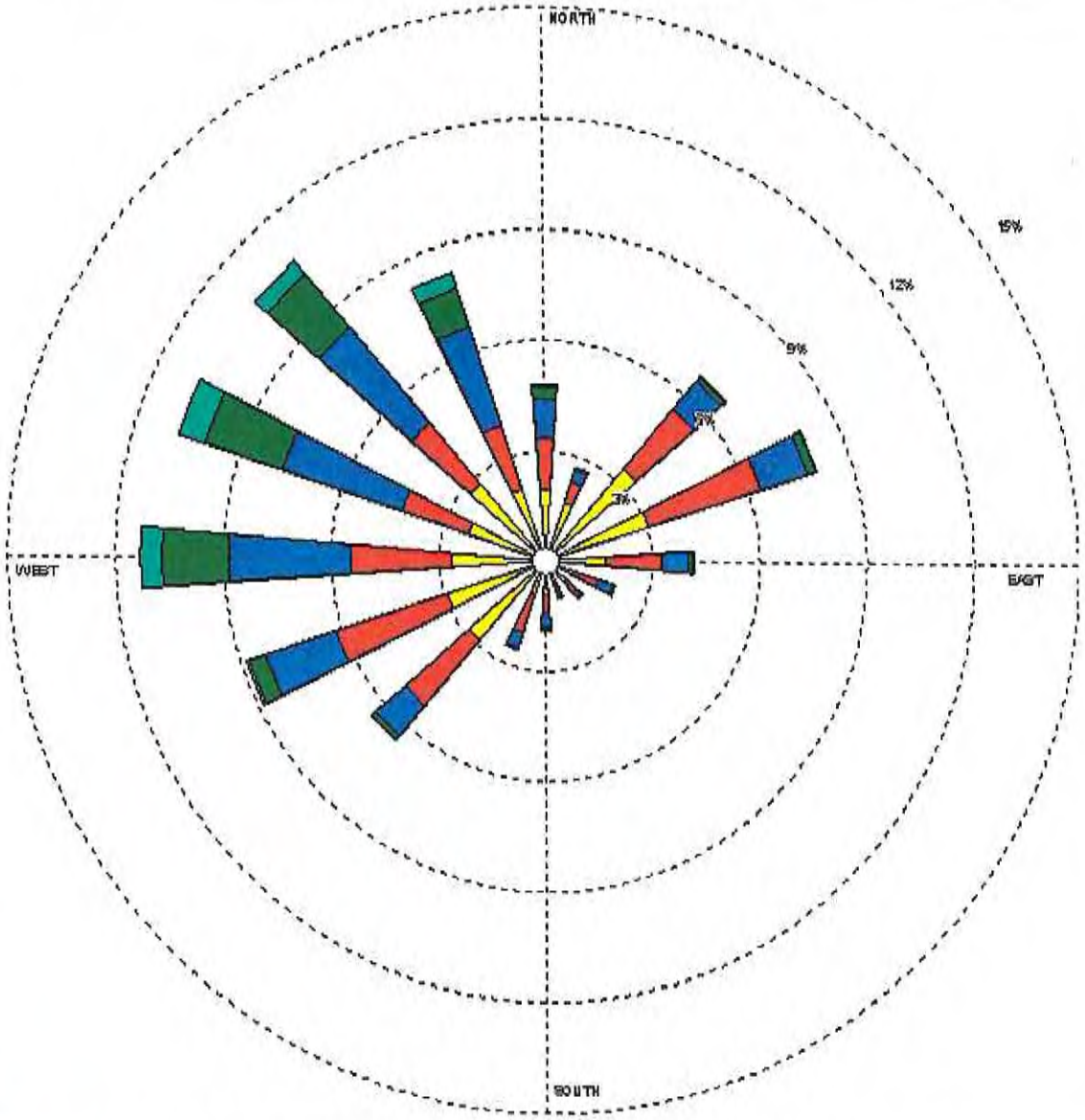
Station #14737 - ALLENTOWN/BETLEHEM-EASTON ARP, PA



Wind Speed (m/s) > 11.06 8.49 - 11.06 5.40 - 8.49 3.34 - 5.40 1.80 - 3.34 0.51 - 1.80	MODELER	DATE 11/1/2002	COMPANY NAME
	DISPLAY Wind Speed	UNIT m/s	COMMENTS
	AVG. WIND SPEED 5.00 m/s	CALM WINDS 8.24%	
	ORIENTATION Direction (blowing from)	PLOT YEAR-DATE/TIME 1961 Jan 1 - Jan 31 Midnight - 11 PM	PROJECT/PLOT NO.

WIND ROSE PLOT

Station #14737 - ALLENTOWN/BETLEHEM-EASTON ARP, PA



Wind Speed (m/s)

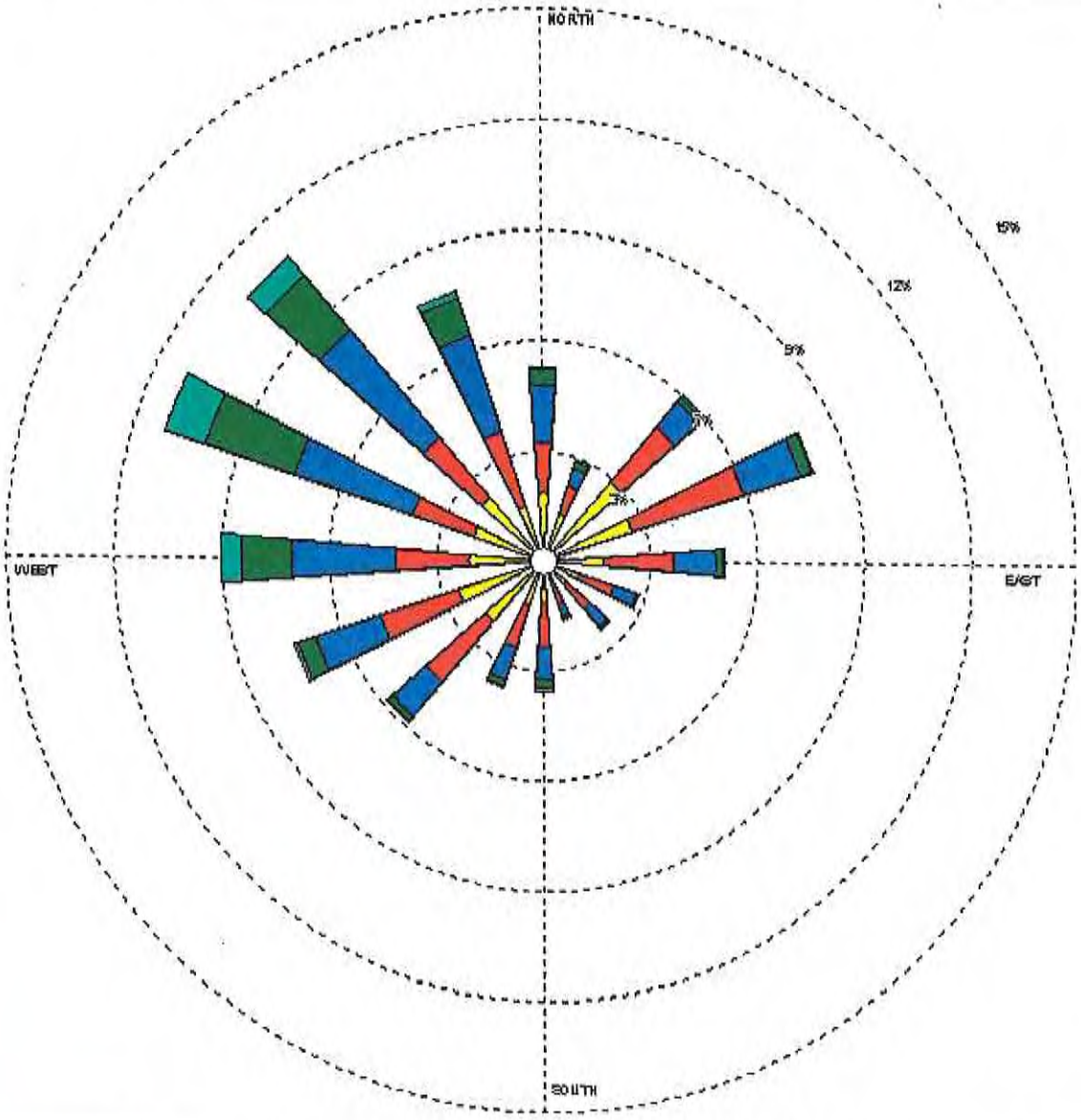
- > 11.06
- 8.49 - 11.06
- 5.40 - 8.49
- 3.34 - 5.40
- 1.80 - 3.34
- 0.51 - 1.80

MODELER	DATE	COMPANY NAME
	11/1/2002	
DISPLAY: Wind Speed	UNIT: m/s	COMMENTS
AVG. WIND SPEED: 5.02 m/s	CALM WINDS: 8.35%	
ORIENTATION: Direction (blowing from)	PLOT YEAR-DATE-TIME: 1961 Feb 1 - Feb 29 Midnight - 11 PM	PROJECT/PLOT NO.

WRPLOT View 3.3 by Lakes Environmental Software - www.lakes-environmental.com

WIND ROSE PLOT

Station #14737 - ALLENTOWN/BETLEHEM-EASTON ARP, PA



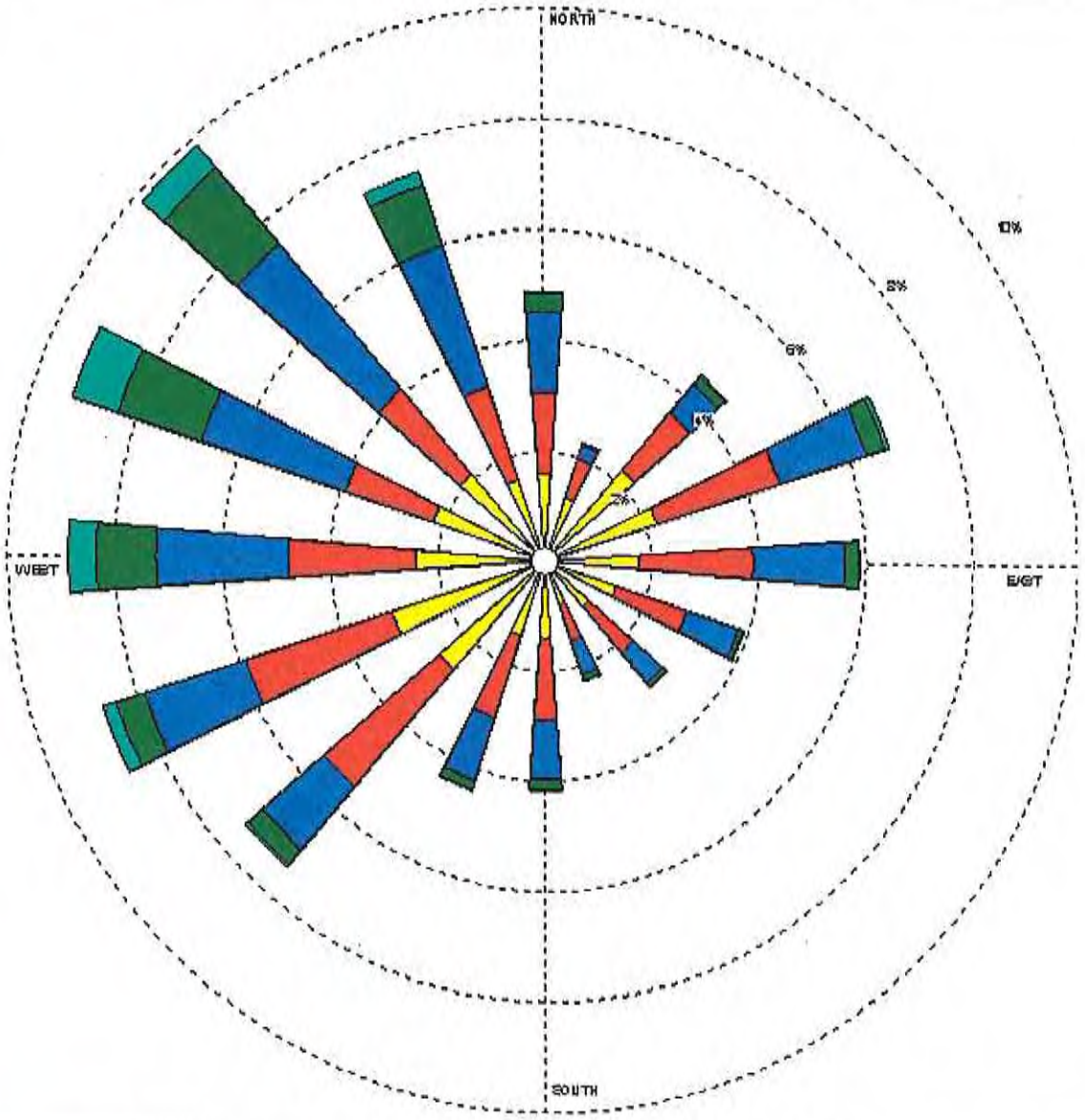
Wind Speed (m/s)

- > 11.06
- 8.49 - 11.06
- 5.40 - 8.49
- 3.34 - 5.40
- 1.80 - 3.34
- 0.51 - 1.80

MODELER		DATE 11/1/2002	COMPANY NAME
DISPLAY Wind Speed		UNIT m/s	COMMENTS
AVG. WIND SPEED 5.27 m/s		CALM WINDS 6.66%	
ORIENTATION Direction (blowing from)		PLOT YEAR-DATE-TIME 1961 Mar 1 - Mar 31 Midnight - 11 PM	PROJECT/PLOT NO.

WIND ROSE PLOT

Station #14737 - ALLENTOWN/BETLEHEM-EASTON ARP, PA

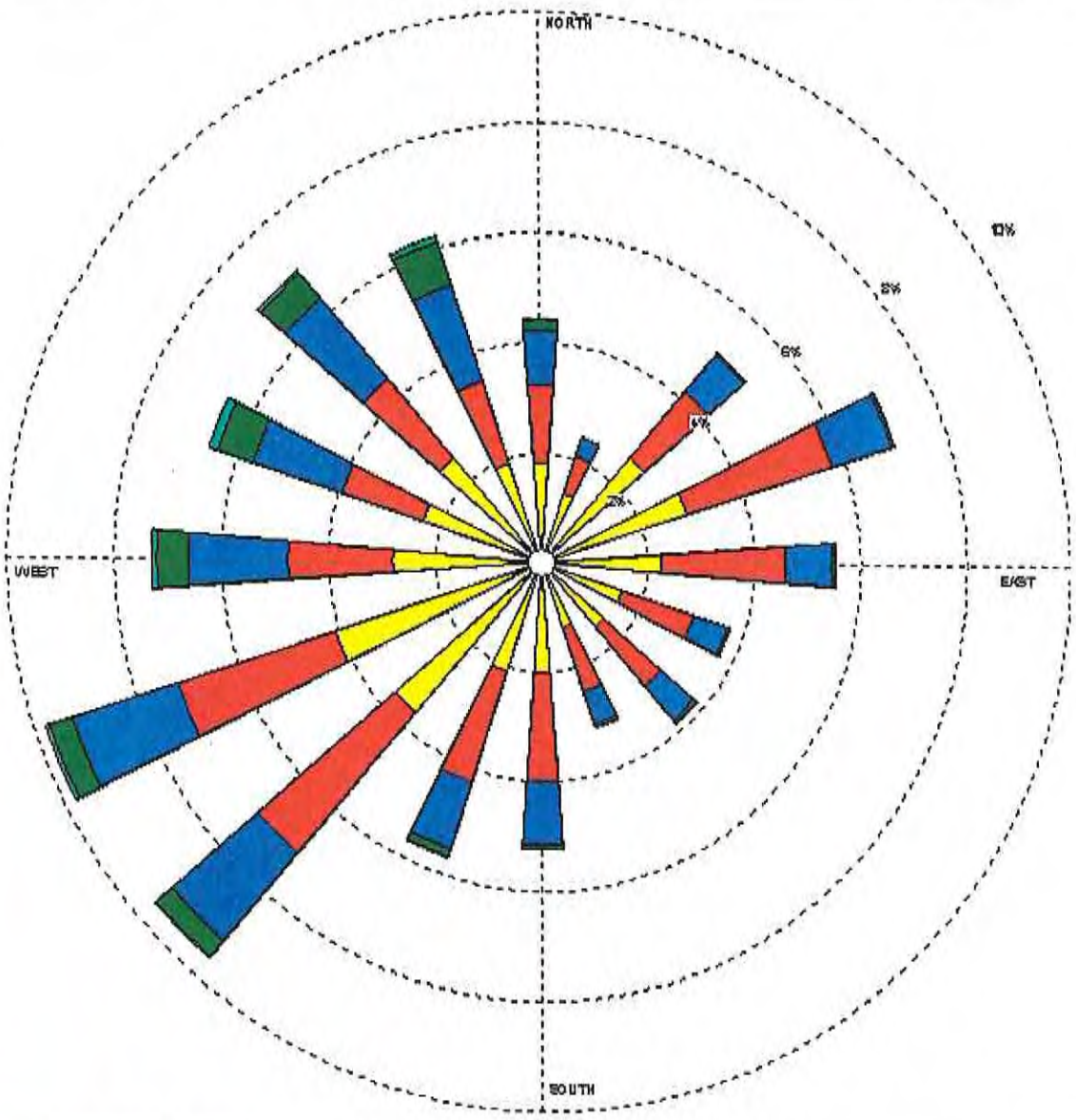


Wind Speed (m/s) > 11.06 8.49 - 11.06 5.40 - 8.49 3.34 - 5.40 1.50 - 3.34 0.51 - 1.50	MODELER	DATE 11/1/2002	COMPANY NAME
	DISPLAY Wind Speed	UNIT m/s	COMMENTS
	AVG. WIND SPEED 5.14 m/s	CALM WINDS 6.46%	
	ORIENTATION Direction (blowing from)	PLOT YEAR-DATE-TIME 1961 Apr 1 - Apr 30 Midnight - 11 PM	PROJECT/PLOT NO.

WRPLOT View 3.3 by Lakes Environmental Software - www.lakes-environmental.com

WIND ROSE PLOT

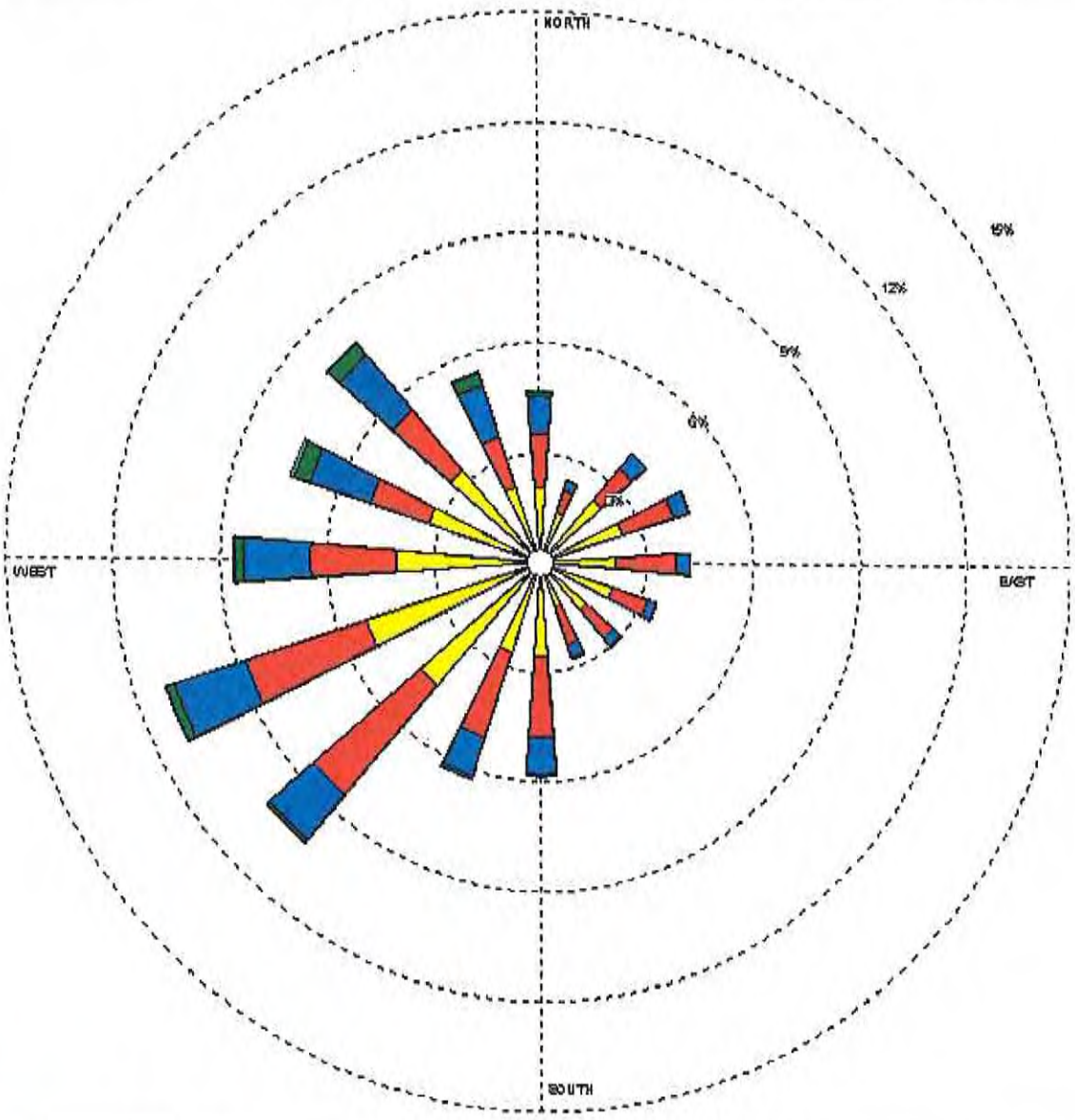
Station #14737 - ALLENTOWN/BETLEHEM-EASTON ARP, PA



Wind Speed (m/s) > 11.06 8.49 - 11.06 5.40 - 8.49 3.34 - 5.40 1.80 - 3.34 0.51 - 1.80	MODELER	DATE 11/1/2002	COMPANY NAME
	DISPLAY Wind Speed	UNIT m/s	COMMENTS
	AVG. WIND SPEED 4.38 m/s	CALM WINDS 7.39%	
	ORIENTATION Direction (blowing from)	PLOT YEAR-DATE-TIME 1961 May 1 - May 31 Midnight - 11 PM	PROJECT/PLOT NO.

WIND ROSE PLOT

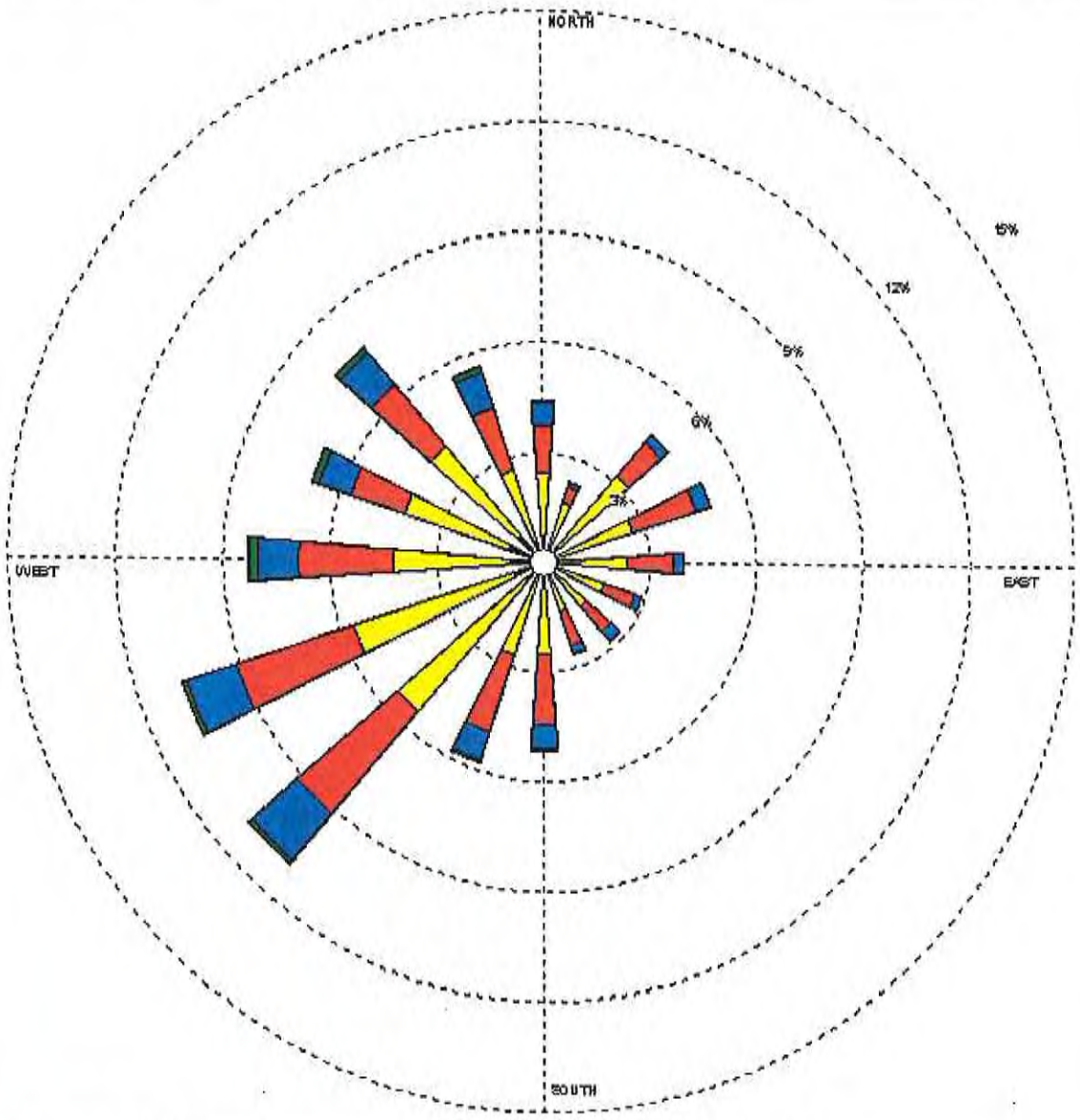
Station #14737 - ALLENTOWN/BETLEHEM-EASTON ARP, PA



Wind Speed (m/s) > 11.06 8.49 - 11.06 5.40 - 8.49 3.34 - 5.40 1.50 - 3.34 0.51 - 1.50	MODELER	DATE 11/1/2002	COMPANY NAME
	DISPLAY Wind Speed	UNIT m/s	COMMENTS
	AVG. WIND SPEED 3.97 m/s	CALM WINDS 8.11%	
	ORIENTATION Direction (blowing from)	PLOT YEAR-DATE-TIME 1961 Jun 1 - Jun 30 Midnight - 11 PM	PROJECT/PLOT NO.

WIND ROSE PLOT

Station #14737 - ALLENTOWN/BETLEHEM-EASTON ARP, PA



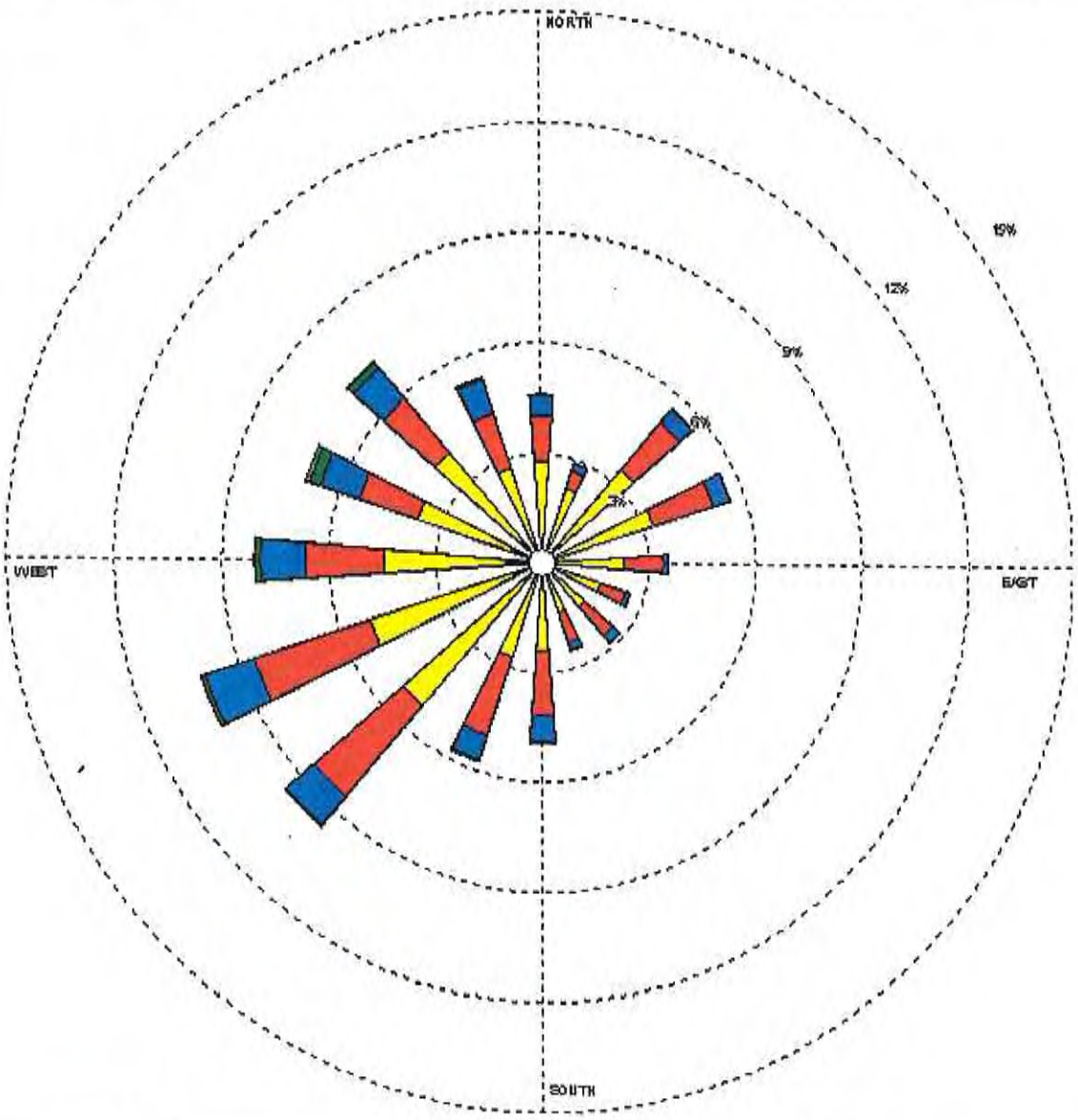
Wind Speed (m/s)

- > 11.06
- 8.49 - 11.06
- 5.40 - 8.49
- 3.34 - 5.40
- 1.80 - 3.34
- 0.51 - 1.80

MODELER		DATE 11/1/2002	COMPANY NAME
DISPLAY Wind Speed		UNIT m/s	COMMENTS
AVG. WIND SPEED 3.61 m/s		CALM WINDS 10.21%	
ORIENTATION Direction (blowing from)		PLOT YEAR-DATE-TIME 1961 Jul 1 - Jul 31 Midnight - 11 PM	PROJECT/PLOT NO.

WIND ROSE PLOT

Station #14737 - ALLENTOWN/BETLEHEM-EASTON ARP, PA



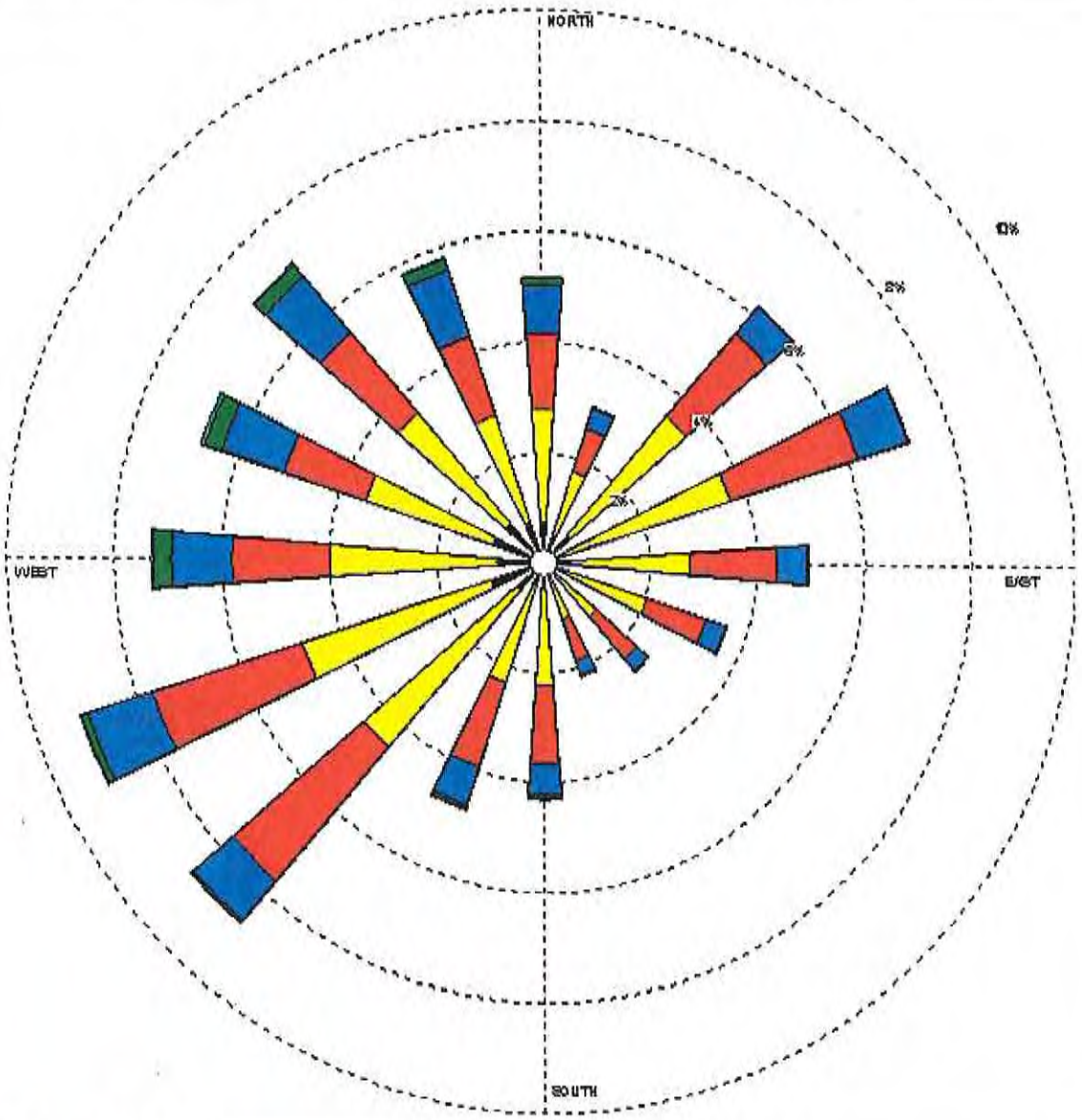
Wind Speed (m/s)

- > 11.06
- 8.49 - 11.06
- 5.40 - 8.49
- 3.34 - 5.40
- 1.80 - 3.34
- 0.51 - 1.80

MODELER		DATE 11/1/2002	COMPANY NAME
DISPLAY Wind Speed		UNIT m/s	COMMENTS
AVG. WIND SPEED 3.56 m/s		CALM WINDS 11.71%	
ORIENTATION Direction (blowing from)		PLOT YEAR-DATE-TIME 1961 Aug 1 - Aug 31 Midnight - 11 PM	PROJECT/PLOT NO.

WIND ROSE PLOT

Station #14737 - ALLENTOWN/BETLEHEM-EASTON ARP, PA



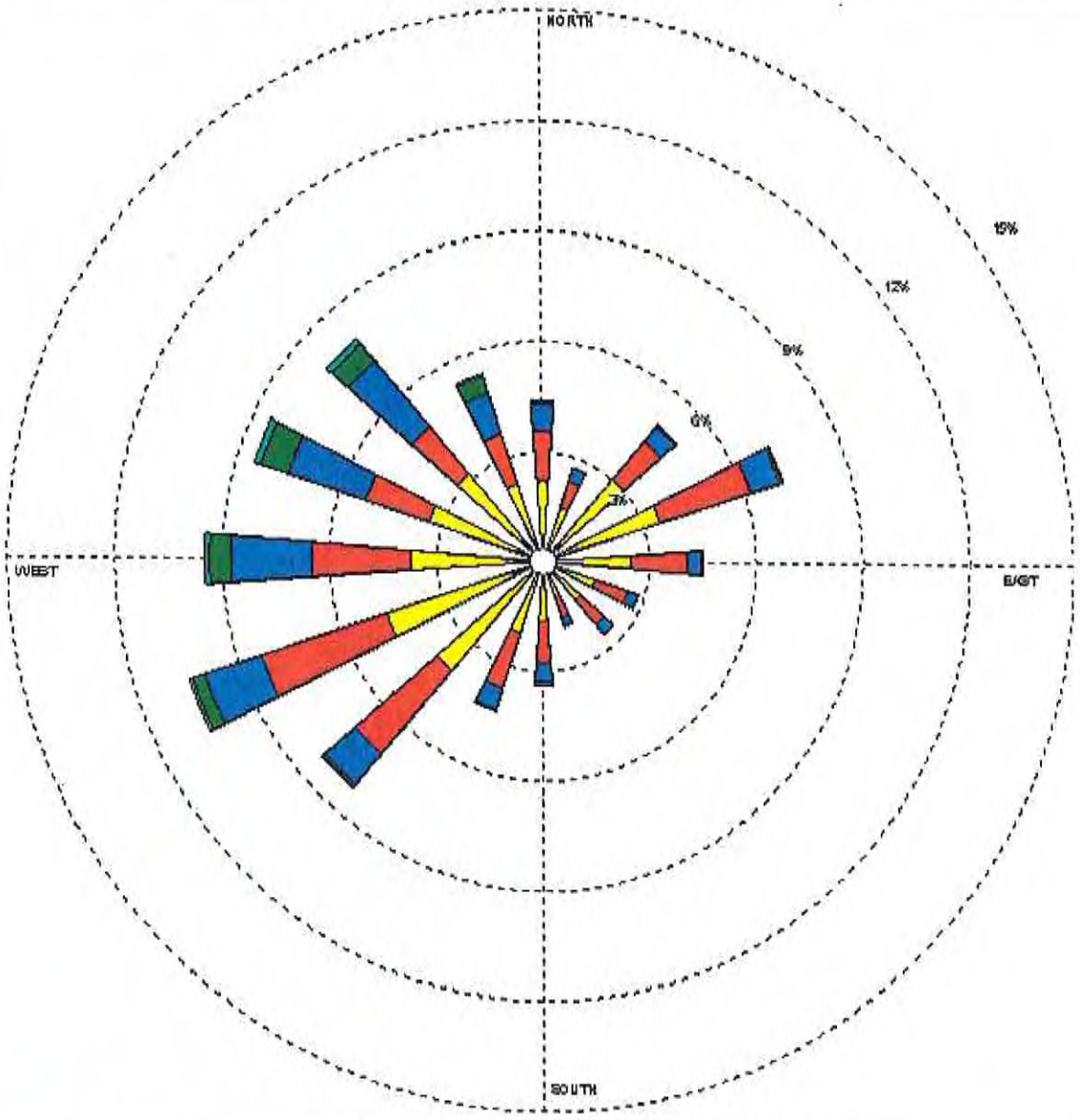
Wind Speed (m/s)

- > 11.06
- 8.49 - 11.06
- 5.40 - 8.49
- 3.34 - 5.40
- 1.80 - 3.34
- 0.51 - 1.80

MODELER		DATE 11/1/2002	COMPANY NAME
DISPLAY Wind Speed		UNIT m/s	COMMENTS
AVG. WIND SPEED 3.71 m/s		CALM WINDS 11.28%	
ORIENTATION Direction (blowing from)		PLOT YEAR-DATE-TIME 1961 Sep 1 - Sep 30 Midnight - 11 PM	PROJECT/PLOT NO.

WIND ROSE PLOT

Station #14737 - ALLENTOWN/BETLEHEM-EASTON ARP, PA

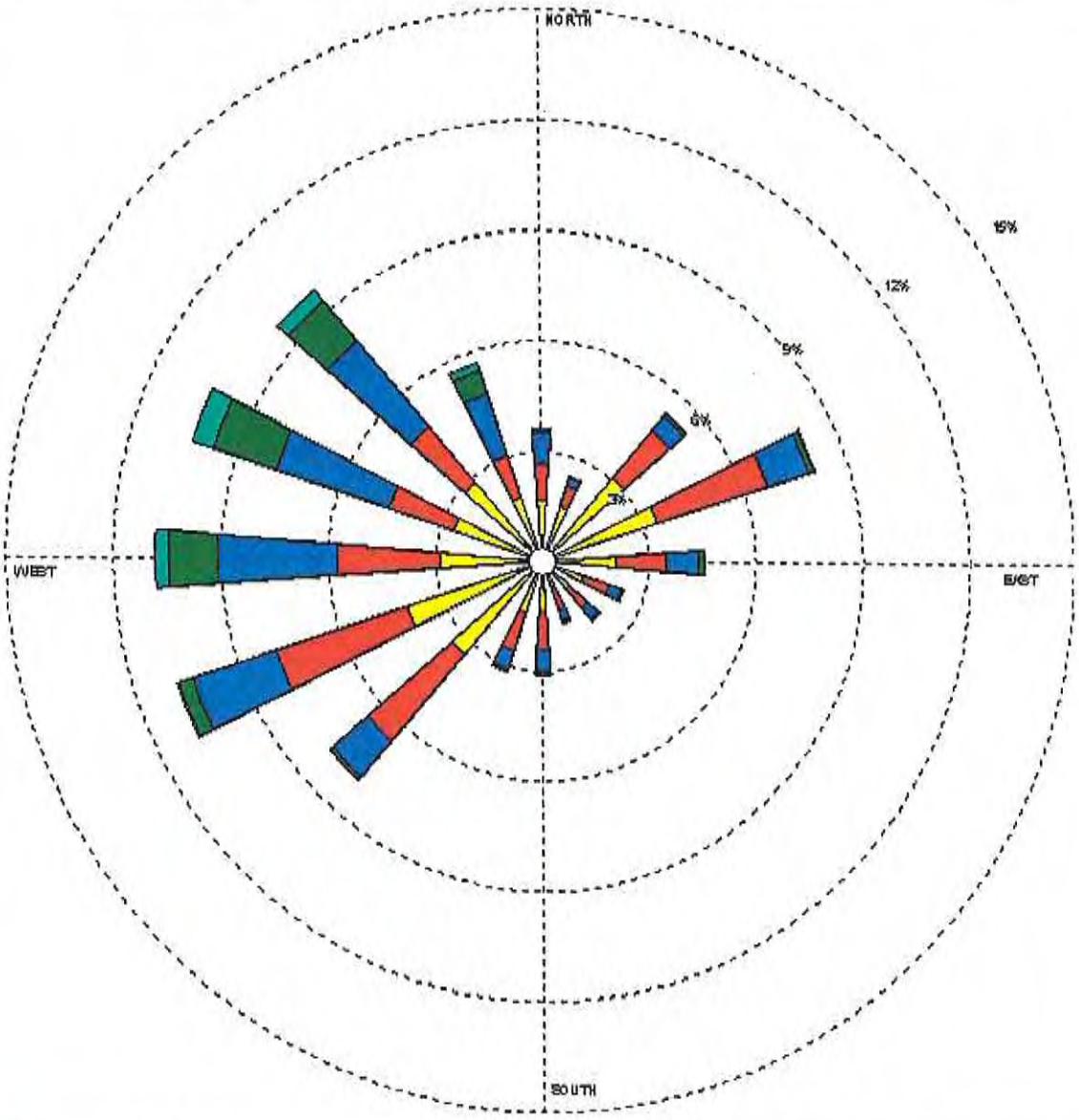


Wind Speed (m/s) > 11.06 8.49 - 11.06 5.40 - 8.49 3.34 - 5.40 1.80 - 3.34 0.51 - 1.80	MODELER	DATE 11/1/2002	COMPANY NAME
	DISPLAY Wind Speed	UNIT m/s	COMMENTS
	AVG. WIND SPEED 4.08 m/s	CALM WINDS 11.25%	
	ORIENTATION Direction (blowing from)	PLOT YEAR-DATE-TIME 1961 Oct 1 - Oct 31 Midnight - 11 PM	PROJECT/PLOT NO.

WRPLOT View 3.3 by Lakes Environmental Software

WIND ROSE PLOT

Station #14737 - ALLENTOWN/BETLEHEM-EASTON ARP, PA



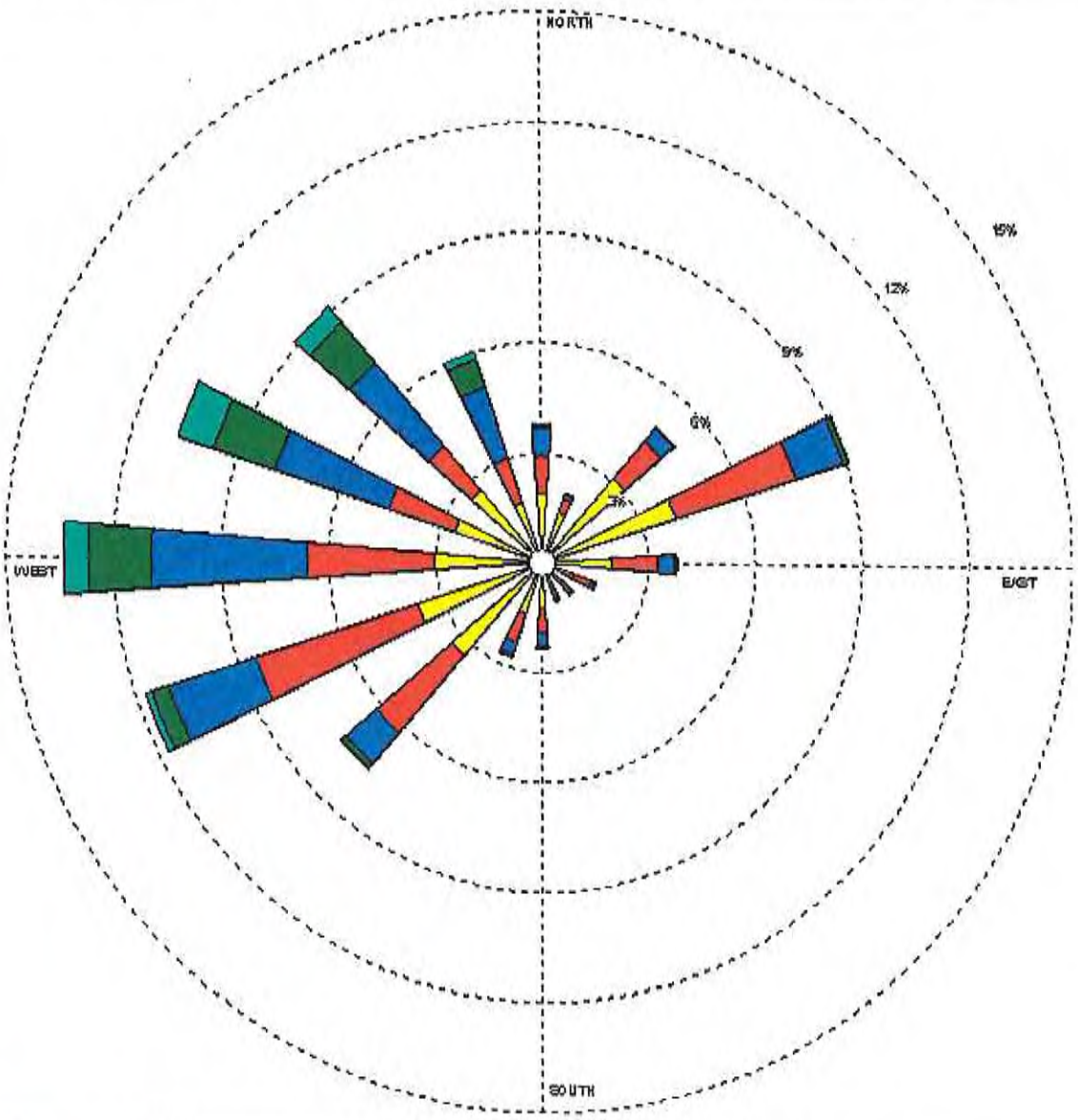
Wind Speed (m/s)

- > 11.06
- 8.49 - 11.06
- 5.40 - 8.49
- 3.34 - 5.40
- 1.80 - 3.34
- 0.51 - 1.80

MODELER		DATE 11/1/2002	COMPANY NAME
DISPLAY Wind Speed		UNIT m/s	COMMENTS
AVG. WIND SPEED 4.69 m/s		CALM WINDS 8.09%	
ORIENTATION Direction (blowing from)		PLOT YEAR-DATE-TIME 1961 Nov 1 - Nov 30 Midnight - 11 PM	PROJECT/PLOT NO.

WIND ROSE PLOT

Station #14737 - ALLENTOWN/BETLEHEM-EASTON ARP, PA



Wind Speed (m/s) > 11.06 8.49 - 11.06 5.40 - 8.49 3.34 - 5.40 1.50 - 3.34 0.51 - 1.50	MODELER	DATE 11/1/2002	COMPANY NAME
	DISPLAY Wind Speed	UNIT m/s	COMMENTS
	AVG. WIND SPEED 4.81 m/s	CALM WINDS 8.81%	
	ORIENTATION Direction (blowing from)	PLOT YEAR-DATE-TIME 1961 Dec 1 - Dec 31 Midnight - 11 PM	PROJECT/PLOT NO.

Attachment 3

Sample Methods

Method 7400

ASBESTOS and OTHER FIBERS by PCM 7400

FORMULA: Various MW: Various CAS: see Synonyms RTECS: Various

METHOD: 7400, Issue 2 EVALUATION: FULL Issue 1: Rev. 3 on 15 May 1989
Issue 2: 15 August 1994

OSHA: 0.1 asbestos fiber (> 5 µm long)/cc; 1 f/cc, 30 min excursion; carcinogen
MSHA: 2 asbestos fibers/cc
NIOSH: 0.1 f/cc (fibers > 5 µm long), 400 L; carcinogen
ACGIH: 0.2 f/cc crocidolite; 0.5 f/cc amosite; 2 f/cc chrysotile and other asbestos; carcinogen

PROPERTIES: solid, fibrous, crystalline, anisotropic

SYNONYMS [CAS #]: actinolite [77536-66-4] or ferroactinolite [15669-07-5]; amosite [12172-73-5]; anthophyllite [77536-67-5]; chrysotile [12001-29-5]; serpentine [18786-24-8]; crocidolite [12001-28-4]; tremolite [77536-68-6]; amphibole asbestos [1332-21-4]; refractory ceramic fibers [142844-00-6]; fibrous glass

SAMPLING

SAMPLER: FILTER (0.45- to 1.2-µm cellulose ester membrane, 25-mm; conductive cowl on cassette)

FLOW RATE*: 0.5 to 16 L/min

VOL-MIN*: 400 L @ 0.1 fiber/cc
-MAX*: (step 4, sampling)

*Adjust to give 100 to 1300 fiber/mm²

SHIPMENT: routine (pack to reduce shock)

SAMPLE STABILITY: stable

BLANKS: 2 to 10 field blanks per set

ACCURACY

RANGE STUDIED: 80 to 100 fibers counted

BIAS: see EVALUATION OF METHOD

OVERALL PRECISION ($\hat{S}_{rT}$): 0.115 to 0.13 [1]

ACCURACY: see EVALUATION OF METHOD

MEASUREMENT

TECHNIQUE: LIGHT MICROSCOPY, PHASE CONTRAST

ANALYTE: fibers (manual count)

SAMPLE PREPARATION: acetone - collapse/triacetin - immersion method [2]

COUNTING RULES: described in previous version of this method as "A" rules [1,3]

EQUIPMENT:
1. positive phase-contrast microscope
2. Walton-Beckett graticule (100-µm field of view) Type G-22
3. phase-shift test slide (HSE/NPL)

CALIBRATION: HSE/NPL test slide

RANGE: 100 to 1300 fibers/mm² filter area

ESTIMATED LOD: 7 fibers/mm² filter area

PRECISION ($\bar{S}_r$): 0.10 to 0.12 [1]; see EVALUATION OF METHOD

APPLICABILITY: The quantitative working range is 0.04 to 0.5 fiber/cc for a 1000-L air sample. The LOD depends on sample volume and quantity of interfering dust, and is <0.01 fiber/cc for atmospheres free of interferences. The method gives an index of airborne fibers. It is primarily used for estimating asbestos concentrations, though PCM does not differentiate between asbestos and other fibers. Use this method in conjunction with electron microscopy (e.g., Method 7402) for assistance in identification of fibers. Fibers < ca. 0.25 µm diameter will not be detected by this method [4]. This method may be used for other materials such as fibrous glass by using alternate counting rules (see Appendix C).

INTERFERENCES: If the method is used to detect a specific type of fiber, any other airborne fiber may interfere since all particles meeting the counting criteria are counted. Chain-like particles may appear fibrous. High levels of non-fibrous dust particles may obscure fibers in the field of view and increase the detection limit.

OTHER METHODS: This revision replaces Method 7400, Revision #3 (dated 5/15/89).

REAGENTS:

1. Acetone,* reagent grade.
2. Triacetin (glycerol triacetate), reagent grade.

*See SPECIAL PRECAUTIONS.

EQUIPMENT:

1. Sampler: field monitor, 25-mm, three-piece cassette with ca. 50-mm electrically conductive extension cowl and cellulose ester filter, 0.45- to 1.2-µm pore size, and backup pad.
   NOTE 1: Analyze representative filters for fiber background before use to check for clarity and background. Discard the filter lot if mean is ≥ 5 fibers per 100 graticule fields. These are defined as laboratory blanks. Manufacturer-provided quality assurance checks on filter blanks are normally adequate as long as field blanks are analyzed as described below.
   NOTE 2: The electrically conductive extension cowl reduces electrostatic effects. Ground the cowl when possible during sampling.
   NOTE 3: Use 0.8-µm pore size filters for personal sampling. The 0.45-µm filters are recommended for sampling when performing TEM analysis on the same samples. However, their higher pressure drop precludes their use with personal sampling pumps.
   NOTE 4: Other cassettes have been proposed that exhibit improved uniformity of fiber deposit on the filter surface, e.g., bellmouthed sampler (Envirometrics, Charleston, SC). These may be used if shown to give measured concentrations equivalent to sampler indicated above for the application.
2. Personal sampling pump, battery or line-powered vacuum, of sufficient capacity to meet flow-rate requirements (see step 4 for flow rate), with flexible connecting tubing.
3. Wire, multi-stranded, 22-gauge; 1" hose clamp to attach wire to cassette.
4. Tape, shrink- or adhesive-.
5. Slides, glass, frosted-end, pre-cleaned, 25- × 75-mm.
6. Cover slips, 22- × 22-mm, No. 1½, unless otherwise specified by microscope manufacturer.
7. Lacquer or nail polish.
8. Knife, #10 surgical steel, curved blade.
9. Tweezers.

EQUIPMENT (continued):

10. Acetone flash vaporization system for clearing filters on glass slides (see ref. [5] for specifications or see manufacturer's instructions for equivalent devices).
11. Micropipets or syringes, 5-µL and 100- to 500-µL.
12. Microscope, positive phase (dark) contrast, with green or blue filter, adjustable field iris, 8 to 10× eyepiece, and 40 to 45× phase objective (total magnification ca. 400×); numerical aperture = 0.65 to 0.75.
13. Graticule, Walton-Beckett type with 100-µm diameter circular field (area = 0.00785 mm^2) at the specimen plane (Type G-22). Available from Optometrics USA, P.O. Box 699, Ayer, MA 01432 [phone (508)-772-1700], and McCrone Accessories and Components, 850 Pasquinelli Drive, Westmont, IL 60559 [phone (312) 887-7100].
    NOTE: The graticule is custom-made for each microscope. (see APPENDIX A for the custom-ordering procedure).
14. HSE/NPL phase contrast test slide, Mark II. Available from Optometrics USA (address above).
15. Telescope, ocular phase-ring centering.
16. Stage micrometer (0.01-mm divisions).

SPECIAL PRECAUTIONS: Acetone is extremely flammable. Take precautions not to ignite it. Heating of acetone in volumes greater than 1 mL must be done in a ventilated laboratory fume hood using a flameless, spark-free heat source.

SAMPLING:

1. Calibrate each personal sampling pump with a representative sampler in line.
2. To reduce contamination and to hold the cassette tightly together, seal the crease between the cassette base and the cowl with a shrink band or light colored adhesive tape. For personal sampling, fasten the (uncapped) open-face cassette to the worker's lapel. The open face should be oriented downward.
    NOTE: The cowl should be electrically grounded during area sampling, especially under conditions of low relative humidity. Use a hose clamp to secure one end of the wire (Equipment, Item 3) to the monitor's cowl. Connect the other end to an earth ground (i.e., cold water pipe).
3. Submit at least two field blanks (or 10% of the total samples, whichever is greater) for each set of samples. Handle field blanks in a manner representative of actual handling of associated samples in the set. Open field blank cassettes at the same time as other cassettes just prior to sampling. Store top covers and cassettes in a clean area (e.g., a closed bag or box) with the top covers from the sampling cassettes during the sampling period.
4. Sample at 0.5 L/min or greater [6]. Adjust sampling flow rate, Q (L/min), and time, t (min), to produce a fiber density, E, of 100 to 1300 fibers/mm^2 (3.85×10^4 to 5×10^5 fibers per 25-mm filter with effective

collection area A_c = 385 mm^2) for optimum accuracy. These variables are related to the action level (one-half the current standard), L (fibers/cc), of the fibrous aerosol being sampled by:

$$t = \frac{A_c \times E}{Q \times L \times 10^3}.$$

NOTE 1: The purpose of adjusting sampling times is to obtain optimum fiber loading on the filter. The collection efficiency does not appear to be a function of flow rate in the range of 0.5 to 16 L/min for asbestos fibers [7]. Relatively large diameter fibers (>3 µm) may exhibit significant aspiration loss and inlet deposition. A sampling rate of 1 to 4 L/min for 8 h is appropriate in atmospheres containing ca. 0.1 fiber/cc in the absence of significant amounts of non-asbestos dust. Dusty atmospheres require smaller sample volumes (≤400 L) to obtain countable samples. In such cases take short, consecutive samples and average the results over the total collection time. For documenting episodic exposures, use high flow rates (7 to 16 L/min) over shorter sampling times. In relatively clean atmospheres, where targeted fiber concentrations are much less than 0.1 fiber/cc, use larger sample volumes (3000 to 10000 L) to achieve quantifiable loadings. Take care, however, not to overload the filter with background dust. If ≥50% of the filter surface is covered with particles, the filter may be too overloaded to count and will bias the measured fiber concentration.

NOTE 2: OSHA regulations specify a minimum sampling volume of 48 L for an excursion measurement, and a maximum sampling rate of 2.5 L/min [3].

5. At the end of sampling, replace top cover and end plugs.
6. Ship samples with conductive cowl attached in a rigid container with packing material to prevent jostling or damage.

   NOTE: Do not use untreated polystyrene foam in shipping container because electrostatic forces may cause fiber loss from sample filter.

SAMPLE PREPARATION:

NOTE 1: The object is to produce samples with a smooth (non-grainy) background in a medium with refractive index ≤ 1.46. This method collapses the filter for easier focusing and produces permanent (1–10 years) mounts which are useful for quality control and interlaboratory comparison. The aluminum "hot block" or similar flash vaporization techniques may be used outside the laboratory [2]. Other mounting techniques meeting the above criteria may also be used (e.g., the laboratory fume hood procedure for generating acetone vapor as described in Method 7400—revision of 5/15/85, or the non-permanent field mounting technique used in P&CAM 239 [3,7–9]). Unless the effective filtration area is known, determine the area and record the information referenced against the sample ID number [1,9–11].

NOTE 2: Excessive water in the acetone may slow the clearing of the filter, causing material to be washed off the surface of the filter. Also, filters that have been exposed to high humidities prior to clearing may have a grainy background.

7. Ensure that the glass slides and cover slips are free of dust and fibers.
8. Adjust the rheostat to heat the "hot block" to ca. 70 °C [2].

   NOTE: If the "hot block" is not used in a fume hood, it must rest on a ceramic plate and be isolated from any surface susceptible to heat damage.

9. Mount a wedge cut from the sample filter on a clean glass slide.
   a. Cut wedges of ca. 25% of the filter area with a curved-blade surgical steel knife using a rocking motion to prevent tearing. Place wedge, dust side up, on slide.

      NOTE: Static electricity will usually keep the wedge on the slide.

   b. Insert slide with wedge into the receiving slot at base of "hot block". Immediately place tip of a micropipet containing ca. 250 µL acetone (use the minimum volume needed to consistently clear the filter sections) into the inlet port of the PTFE cap on top of the "hot block" and inject the

acetone into the vaporization chamber with a slow, steady pressure on the plunger button while holding pipet firmly in place. After waiting 3 to 5 s for the filter to clear, remove pipet and slide from their ports.

CAUTION: Although the volume of acetone used is small, use safety precautions. Work in a well-ventilated area (e.g., laboratory fume hood). Take care not to ignite the acetone. Continuous use of this device in an unventilated space may produce explosive acetone vapor concentrations.

c. Using the 5-µL micropipet, immediately place 3.0 to 3.5 µL triacetin on the wedge. Gently lower a clean cover slip onto the wedge at a slight angle to reduce bubble formation. Avoid excess pressure and movement of the cover glass.

NOTE: If too many bubbles form or the amount of triacetin is insufficient, the cover slip may become detached within a few hours. If excessive triacetin remains at the edge of the filter under the cover slip, fiber migration may occur.

d. Mark the outline of the filter segment with a glass marking pen to aid in microscopic evaluation.

e. Glue the edges of the cover slip to the slide using lacquer or nail polish [12]. Counting may proceed immediately after clearing and mounting are completed.

NOTE: If clearing is slow, warm the slide on a hotplate (surface temperature 50 °C) for up to 15 min to hasten clearing. Heat carefully to prevent gas bubble formation.

CALIBRATION AND QUALITY CONTROL:

10. Microscope adjustments. Follow the manufacturer's instructions. At least once daily use the telescope ocular (or Bertrand lens, for some microscopes) supplied by the manufacturer to ensure that the phase rings (annular diaphragm and phase-shifting elements) are concentric. With each microscope, keep a logbook in which to record the dates of microscope cleanings and major servicing.

a. Each time a sample is examined, do the following:

(1) Adjust the light source for even illumination across the field of view at the condenser iris. Use Kohler illumination, if available. With some microscopes, the illumination may have to be set up with bright field optics rather than phase contract optics.

(2) Focus on the particulate material to be examined.

(3) Make sure that the field iris is in focus, centered on the sample, and open only enough to fully illuminate the field of view.

b. Check the phase-shift detection limit of the microscope periodically for each analyst/microscope combination:

(1) Center the HSE/NPL phase-contrast test slide under the phase objective.

(2) Bring the blocks of grooved lines into focus in the graticule area.

NOTE: The slide contains seven blocks of grooves (ca. 20 grooves per block) in descending order of visibility. For asbestos counting, the microscope optics must completely resolve the grooved lines in block 3 although they may appear somewhat faint, and the grooved lines in blocks 6 and 7 must be invisible when centered in the graticule area. Blocks 4 and 5 must be at least partially visible but may vary slightly in visibility between microscopes. A microscope which fails to meet these requirements has resolution either too low or too high for fiber counting.

(3) If image quality deteriorates, clean the microscope optics. If the problem persists, consult the microscope manufacturer.

11. Document the laboratory's precision for each counter for replicate fiber counts.

a. Maintain as part of the laboratory quality assurance program a set of reference slides to be used on a daily basis [13]. These slides should consist of filter preparations including a range of loadings and background dust levels from a variety of sources including both field and reference samples (e.g., PAT, AAR, commercial samples). The Quality Assurance Officer should maintain custody of the reference slides and should supply each counter with a minimum of one reference

slide per workday. Change the labels on the reference slides periodically so that the counter does not become familiar with the samples.

b. From blind repeat counts on reference slides, estimate the laboratory intra- and intercounter precision. Obtain separate values of relative standard deviation (S_r) for each sample matrix analyzed in each of the following ranges: 5 to 20 fibers in 100 graticule fields, >20 to 50 fibers in 100 graticule fields, and >50 to 100 fibers in 100 graticule fields. Maintain control charts for each of these data files.

NOTE: Certain sample matrices (e.g., asbestos cement) have been shown to give poor precision [9].

12. Prepare and count field blanks along with the field samples. Report counts on each field blank.

NOTE 1: The identity of blank filters should be unknown to the counter until all counts have been completed.

NOTE 2: If a field blank yields greater than 7 fibers per 100 graticule fields, report possible contamination of the samples.

13. Perform blind recounts by the same counter on 10% of filters counted (slides relabeled by a person other than the counter). Use the following test to determine whether a pair of counts by the same counter on the same filter should be rejected because of possible bias: Discard the sample if the absolute value of the difference between the square roots of the two counts (in fiber/mm^2) exceeds $2.77XS_r'$ where X = average of the square roots of the two fiber counts (in fiber/mm^2) and $S_r' = S_r / 2$ where S_r is the intracounter relative standard deviation for the appropriate count range (in fibers) determined in step 11. For more complete discussions see reference [13].

NOTE 1: Since fiber counting is the measurement of randomly placed fibers which may be described by a Poisson distribution, a square root transformation of the fiber count data will result in approximately normally distributed data [13].

NOTE 2: If a pair of counts is rejected by this test, recount the remaining samples in the set and test the new counts against the first counts. Discard all rejected paired counts. It is not necessary to use this statistic on blank counts.

14. The analyst is a critical part of this analytical procedure. Care must be taken to provide a non-stressful and comfortable environment for fiber counting. An ergonomically designed chair should be used, with the microscope eyepiece situated at a comfortable height for viewing. External lighting should be set at a level similar to the illumination level in the microscope to reduce eye fatigue. In addition, counters should take 10- to 20-minute breaks from the microscope every one or two hours to limit fatigue [14]. During these breaks, both eye and upper back/neck exercises should be performed to relieve strain.

15. All laboratories engaged in asbestos counting should participate in a proficiency testing program such as the AIHA-NIOSH Proficiency Analytical Testing (PAT) Program for asbestos and routinely exchange field samples with other laboratories to compare performance of counters.

MEASUREMENT:

16. Center the slide on the stage of the calibrated microscope under the objective lens. Focus the microscope on the plane of the filter.

17. Adjust the microscope (Step 10).

NOTE: Calibration with the HSE/NPL test slide determines the minimum detectable fiber diameter (ca. 0.25 µm) [4].

18. Counting rules: (same as P&CAM 239 rules [1,10,11]: see examples in APPENDIX B).

a. Count any fiber longer than 5 µm which lies entirely within the graticule area.

(1) Count only fibers longer than 5 µm. Measure length of curved fibers along the curve.

(2) Count only fibers with a length-to-width ratio equal to or greater than 3:1.

b. For fibers which cross the boundary of the graticule field:

(1) Count as ½ fiber any fiber with only one end lying within the graticule area, provided that the fiber meets the criteria of rule a above.

(2) Do not count any fiber which crosses the graticule boundary more than once.
(3) Reject and do not count all other fibers.

c. Count bundles of fibers as one fiber unless individual fibers can be identified by observing both ends of a fiber.
d. Count enough graticule fields to yield 100 fibers. Count a minimum of 20 fields. Stop at 100 graticule fields regardless of count.

19. Start counting from the tip of the filter wedge and progress along a radial line to the outer edge. Shift up or down on the filter, and continue in the reverse direction. Select graticule fields randomly by looking away from the eyepiece briefly while advancing the mechanical stage. Ensure that, as a minimum, each analysis covers one radial line from the filter center to the outer edge of the filter. When an agglomerate or bubble covers ca. 1/6 or more of the graticule field, reject the graticule field and select another. Do not report rejected graticule fields in the total number counted.

NOTE 1: When counting a graticule field, continuously scan a range of focal planes by moving the fine focus knob to detect very fine fibers which have become embedded in the filter. The small-diameter fibers will be very faint but are an important contribution to the total count. A minimum counting time of 15 s per field is appropriate for accurate counting.

NOTE 2: This method does not allow for differentiation of fibers based on morphology. Although some experienced counters are capable of selectively counting only fibers which appear to be asbestiform, there is presently no accepted method for ensuring uniformity of judgment between laboratories. It is, therefore, incumbent upon all laboratories using this method to report total fiber counts. If serious contamination from non-asbestos fibers occurs in samples, other techniques such as transmission electron microscopy must be used to identify the asbestos fiber fraction present in the sample (see NIOSH Method 7402). In some cases (i.e., for fibers with diameters >1 µm), polarized light microscopy (as in NIOSH Method 7403) may be used to identify and eliminate interfering non-crystalline fibers [15].

NOTE 3: Do not count at edges where filter was cut. Move in at least 1 mm from the edge.

NOTE 4: Under certain conditions, electrostatic charge may affect the sampling of fibers. These electrostatic effects are most likely to occur when the relative humidity is low (below 20%), and when sampling is performed near the source of aerosol. The result is that deposition of fibers on the filter is reduced, especially near the edge of the filter. If such a pattern is noted during fiber counting, choose fields as close to the center of the filter as possible [5].

NOTE 5: Counts are to be recorded on a data sheet that provides, as a minimum, spaces on which to record the counts for each field, filter identification number, analyst's name, date, total fibers counted, total fields counted, average count, fiber density, and commentary. Average count is calculated by dividing the total fiber count by the number of fields observed. Fiber density (fibers/mm^2) is defined as the average count (fibers/field) divided by the field (graticule) area (mm^2/field).

CALCULATIONS AND REPORTING OF RESULTS

20. Calculate and report fiber density on the filter, E (fibers/mm^2), by dividing the average fiber count per graticule field, F / n_f, minus the mean field blank count per graticule field, B / n_b, by the graticule field area, A_f (approx. 0.00785 mm^2):

$$E = \frac{(F/n_f - B/n_b)}{A_f}, \text{ fibers/mm}^2.$$

NOTE: Fiber counts above 1300 fibers/mm^2 and fiber counts from samples with >50% of filter area covered with particulate should be reported as "uncountable" or "probably biased." Other fiber counts outside the 100–1300 fiber/mm^2 range should be reported as having "greater than optimal variability" and as being "probably biased."

21. Calculate and report the concentration, C (fibers/cc), of fibers in the air volume sampled, V (L), using the effective collection area of the filter, A_c (approx. 385 mm^2 for a 25-mm filter):

$$C = \frac{EA_c}{V \times 10^3}.$$

NOTE: Periodically check and adjust the value of A_c, if necessary.

22. Report intralaboratory and interlaboratory relative standard deviations (from Step 11) with each set of results.

NOTE: Precision depends on the total number of fibers counted [1,16]. Relative standard deviation is documented in references [1,15–17] for fiber counts up to 100 fibers in 100 graticule fields. Comparability of interlaboratory results is discussed below. As a first approximation, use 213% above and 49% below the count as the upper and lower confidence limits for fiber counts greater than 20 (Figure 1).

EVALUATION OF METHOD:

Method Revisions:

This method is a revision of P&CAM 239 [10]. A summary of the revisions is as follows:

1. Sampling:
   The change from a 37-mm to a 25-mm filter improves sensitivity for similar air volumes. The change in flow rates allows for 2-m^3 full-shift samples to be taken, providing that the filter is not overloaded with non-fibrous particulates. The collection efficiency of the sampler is not a function of flow rate in the range 0.5 to 16 L/min [10].
2. Sample preparation technique:
   The acetone vapor-triacetin preparation technique is a faster, more permanent mounting technique than the dimethyl phthalate/diethyl oxalate method of P&CAM 239 [2,4,10]. The aluminum "hot block" technique minimizes the amount of acetone needed to prepare each sample.
3. Measurement:
   a. The Walton-Beckett graticule standardizes the area observed [14,18,19].
   b. The HSE/NPL test slide standardizes microscope optics for sensitivity to fiber diameter [4,14].
   c. Because of past inaccuracies associated with low fiber counts, the minimum recommended loading has been increased to 100 fibers/mm^2 filter area (a total of 78.5 fibers counted in 100 fields, each with field area = 0.00785 mm^2.) Lower levels generally result in an overestimate of the fiber count when compared to results in the recommended analytical range [20]. The recommended loadings should yield intracounter S_r in the range of 0.10 to 0.17 [21–23].

Interlaboratory Comparability:

An international collaborative study involved 16 laboratories using prepared slides from the asbestos cement, milling, mining, textile, and friction material industries [9]. The relative standard deviations (S_r) varied with sample type and laboratory. The ranges were:

Rules	Intralaboratory S_r	Interlaboratory S_r	Overall S_r
AIA (NIOSH A Rules)*	0.12 to 0.40	0.27 to 0.85	0.46
Modified CRS (NIOSH B Rules)†	0.11 to 0.29	0.20 to 0.35	0.25

*Under AIA rules, only fibers having a diameter less than 3 µm are counted and fibers attached to particles larger than 3 µm are not counted. NIOSH A Rules are otherwise similar to the AIA rules.
†See Appendix C.

A NIOSH study conducted using field samples of asbestos gave intralaboratory S_r in the range 0.17 to 0.25 and an interlaboratory S_r of 0.45 [21]. This agrees well with other recent studies [9,14,16].

At this time, there is no independent means for assessing the overall accuracy of this method. One measure of reliability is to estimate how well the count for a single sample agrees with the mean count from a large number of laboratories. The following discussion indicates how this estimation can be carried out based on measurements of the interlaboratory variability, as well as showing how the results of this method relate to the theoretically attainable counting precision and to measured intra- and interlaboratory S_r. (NOTE: The following discussion does not include bias estimates and should not be taken to indicate that lightly loaded samples are as accurate as properly loaded ones).

Theoretically, the process of counting randomly (Poisson) distributed fibers on a filter surface will give an S_r that depends on the number, N, of fibers counted:

$$S_r = 1/N^{1/2}.$$

Thus S_r is 0.1 for 100 fibers and 0.32 for 10 fibers counted. The actual S_r found in a number of studies is greater than these theoretical numbers [17,19–21].

An additional component of variability comes primarily from subjective interlaboratory differences. In a study of ten counters in a continuing sample exchange program, Ogden [15] found this subjective component of intralaboratory S_r to be approximately 0.2 and estimated the overall S_r by the term:

$$\frac{[N+(0.2\times N)^2]^{1/2}}{N}.$$

Ogden found that the 90% confidence interval of the individual intralaboratory counts in relation to the means were +2 S_r and −1.5 S_r. In this program, one sample out of ten was a quality control sample. For laboratories not engaged in an intensive quality assurance program, the subjective component of variability can be higher.

In a study of field sample results in 46 laboratories, the Asbestos Information Association also found that the variability had both a constant component and one that depended on the fiber count [14]. These results gave a subjective interlaboratory component of S_r (on the same basis as Ogden's) for field samples of ca. 0.45. A similar value was obtained for 12 laboratories analyzing a set of 24 field samples [21]. This value falls slightly above the range of S_r (0.25 to 0.42 for 1984–85) found for 80 reference laboratories in the NIOSH PAT program for laboratory-generated samples [17].

A number of factors influence S_r for a given laboratory, such as that laboratory's actual counting performance and the type of samples being analyzed. In the absence of other information, such as from an interlaboratory quality assurance program using field samples, the value for the subjective component of variability is chosen as 0.45. It is hoped that the laboratories will carry out the recommended interlaboratory quality assurance programs to improve their performance and thus reduce the S_r.

The above relative standard deviations apply when the population mean has been determined. It is more useful, however, for laboratories to estimate the 90% confidence interval on the mean count from a single sample fiber count (Figure 1). These curves assume similar shapes of the count distribution for interlaboratory and intralaboratory results [16].

For example, if a sample yields a count of 24 fibers, Figure 1 indicates that the mean interlaboratory count will fall within the range of 227% above and 52% below that value 90% of the time. We can apply these percentages directly to the air concentrations as well. If, for instance, this sample (24 fibers counted) represented a 500-L volume, then the measured concentration is 0.02 fibers/mL (assuming 100 fields counted, 25-mm filter, 0.00785 mm^2 counting field area). If this same sample were counted by

a group of laboratories, there is a 90% probability that the mean would fall between 0.01 and 0.08 fiber/mL. These limits should be reported in any comparison of results between laboratories.

Note that the S_r of 0.45 used to derive Figure 1 is used as an estimate for a random group of laboratories. If several laboratories belonging to a quality assurance group can show that their interlaboratory S_r is smaller, then it is more correct to use that smaller S_r. However, the estimated S_r of 0.45 is to be used in the absence of such information. Note also that it has been found that S_r can be higher for certain types of samples, such as asbestos cement [9].

Quite often the estimated airborne concentration from an asbestos analysis is used to compare to a regulatory standard. For instance, if one is trying to show compliance with an 0.5 fiber/mL standard using a single sample on which 100 fibers have been counted, then Figure 1 indicates that the 0.5 fiber/mL standard must be 213% higher than the measured air concentration. This indicates that if one measures a fiber concentration of 0.16 fiber/mL (100 fibers counted), then the mean fiber count by a group of laboratories (of which the compliance laboratory might be one) has a 95% chance of being less than 0.5 fibers/mL; i.e., $0.16 + 2.13 \times 0.16 = 0.5$.

It can be seen from Figure 1 that the Poisson component of the variability is not very important unless the number of fibers counted is small. Therefore, a further approximation is to simply use +213% and −49% as the upper and lower confidence values of the mean for a 100-fiber count.

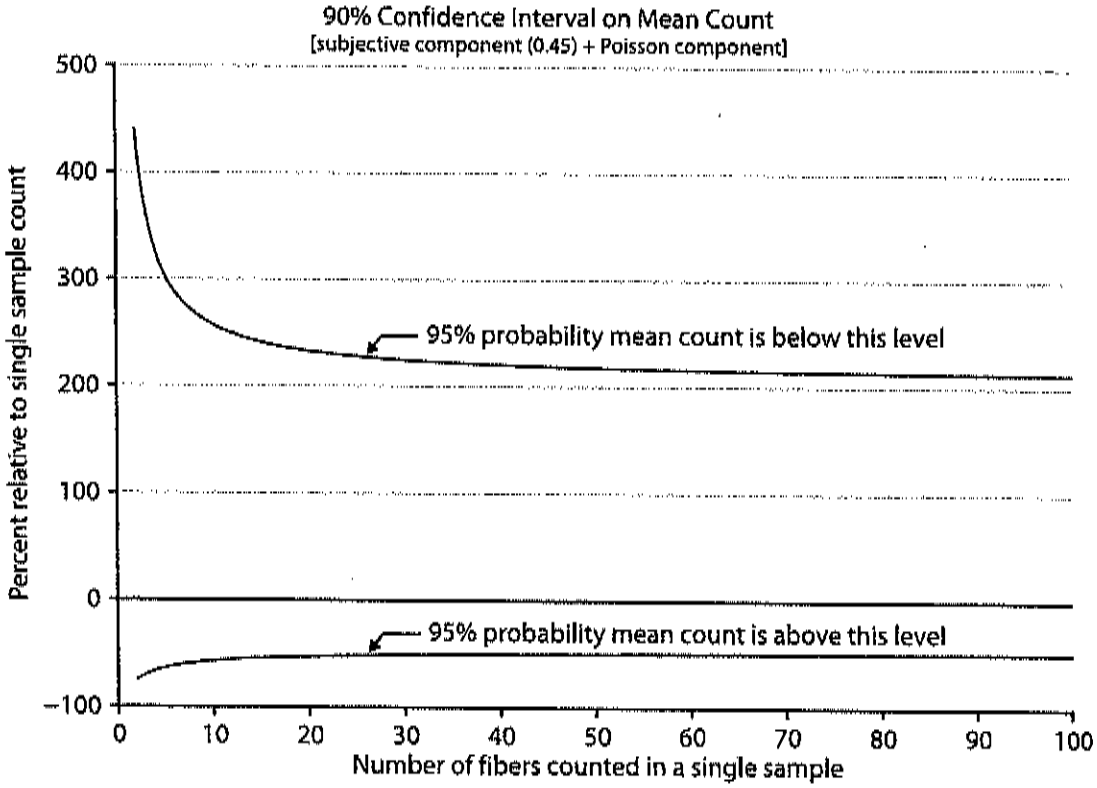


Figure 1. Interlaboratory precision of fiber counts.

The curves in Figure 1 are defined by the following equations:

$$U_{CL} = \frac{2X + 2.25 + [(2.25 + 2X)^2 - 4(1 - 2.25S_r^2)X^2]^{1/2}}{2(1 - 2.25S_r^2)} \text{ and}$$

$$L_{CL} = \frac{2X + 4 - [(4 + 2X)^2 - 4(1 - 4S_r^2)X^2]^{1/2}}{2(1 - 4S_r^2)},$$

where S_r = subjective interlaboratory relative standard deviation, which is close to the total interlaboratory S_r when approximately 100 fibers are counted,
X = total fibers counted on sample,
L_{CL} = lower 95% confidence limit, and
U_{CL} = upper 95% confidence limit.

Note that the range between these two limits represents 90% of the total range.

REFERENCES:

[1] Leidel, N. A., S. G. Bayer, R. D. Zumwalde, and K. A. Busch. USPHS/NIOSH Membrane Filter Method for Evaluating Airborne Asbestos Fibers, U.S. Department of Health, Education, and Welfare, Publ. (NIOSH) 79-127 (1979).

[2] Baron, P. A. and G. C. Pickford. "An Asbestos Sample Filter Clearing Procedure," *Appl. Ind. Hyg., 1*, 169–171, 199 (1986).

[3] Occupational Safety and Health Administration, U.S. Department of Labor, Occupational Exposure to Asbestos, Tremolite, Anthophyllite, and Actinolite Asbestos; Final Rules, 29 CFR Part 1910.1001 Amended June 20, 1986.

[4] Rooker, S. J., N. P. Vaughn, and J. M. LeGuen. "On the Visibility of Fibers by Phase Contrast Microscopy," *Amer. Ind. Hyg. Assoc. J., 43*, 505–515 (1982).

[5] Baron, P. and G. Deye, "Electrostatic Effects in Asbestos Sampling," Parts I and II, *Amer. Ind. Hyg. Assoc. J., 51*, 51–69 (1990).

[6] Johnston, A. M., A. D. Jones, and J. H. Vincent. "The Influence of External Aerodynamic Factors on the Measurement of the Airborne Concentration of Asbestos Fibers by the Membrane Filter Method," *Ann. Occup. Hyg., 25*, 309–316 (1982).

[7] Beckett, S.T., "The Effects of Sampling Practice on the Measured Concentration of Airborne Asbestos," *Ann. Occup. Hyg., 21*, 259–272 (1980).

[8] Jankovic, J. T., W. Jones, and J. Clere. "Field Techniques for Clearing Cellulose Ester Filters Used in Asbestos Sampling," *Appl. Ind. Hyg., 1*, 145–147 (1986).

[9] Crawford, N. P., H. L. Thorpe, and W. Alexander. "A Comparison of the Effects of Different Counting Rules and Aspect Ratios on the Level and Reproducibility of Asbestos Fiber Counts," Part I: Effects on Level (Report No. TM/82/23), Part II: Effects on Reproducibility (Report No. TM/82/24), Institute of Occupational Medicine, Edinburgh, Scotland (December, 1982).

[10] NIOSH Manual of Analytical Methods, 2nd ed., Vol. 1., P&CAM 239, U.S. Department of Health, Education, and Welfare, Publ. (NIOSH) 77-157-A (1977).

[11] Revised Recommended Asbestos Standard, U.S. Department of Health, Education, and Welfare, Publ. (NIOSH) 77-169 (1976); as amended in NIOSH statement at OSHA Public Hearing, June 21, 1984.

[12] Asbestos International Association, AIA Health and Safety Recommended Technical Method #1 (RTMI). "Airborne Asbestos Fiber Concentrations at Workplaces by Light Microscopy" (Membrane Filter Method), London (1979).

[13] Abell, M., S. Shulman and P. Baron. "The Quality of Fiber Count Data," *Appl. Ind. Hyg., 4*, 273–285 (1989).

[14] "A Study of the Empirical Precision of Airborne Asbestos Concentration Measurements in the Workplace by the Membrane Filter Method," Asbestos Information Association, Air Monitoring Committee Report, Arlington, VA (June, 1983).

[15] McCrone, W., L. McCrone and J. Delly, "Polarized Light Microscopy," Ann Arbor Science (1978).
[16] Ogden, T. L. "The Reproducibility of Fiber Counts," Health and Safety Executive Research Paper 18 (1982).
[17] Schlecht, P. C. and S. A. Schulman. "Performance of Asbestos Fiber Counting Laboratories in the NIOSH Proficiency Analytical Testing (PAT) Program," *Am. Ind. Hyg. Assoc. J., 47*, 259–266 (1986).
[18] Chatfield, E. J. Measurement of Asbestos Fiber Concentrations in Workplace Atmospheres, Royal Commission on Matters of Health and Safety Arising from the Use of Asbestos in Ontario, Study No. 9, 180 Dundas Street West, 22nd Floor, Toronto, Ontario, CANADA M5G 1Z8.
[19] Walton, W. H. "The Nature, Hazards, and Assessment of Occupational Exposure to Airborne Asbestos Dust: A Review," *Ann. Occup. Hyg., 25*, 115–247 (1982).
[20] Cherrie, J., A.D. Jones, and A.M. Johnston. "The Influence of Fiber Density on the Assessment of Fiber Concentration Using the membrane filter Method." *Am. Ind. Hyg. Assoc. J., 47*(8), 465–74 (1986).
[21] Baron, P. A. and S. Shulman. "Evaluation of the Magiscan Image Analyzer for Asbestos Fiber Counting." *Am. Ind. Hyg. Assoc. J.*, (in press).
[22] Taylor, D. G., P. A. Baron, S. A. Shulman and J. W. Carter. "Identification and Counting of Asbestos Fibers," *Am. Ind. Hyg. Assoc. J. 45*(2), 84–88 (1984).
[23] "Potential Health Hazards of Video Display Terminals," NIOSH Research Report, June 1981.
[24] "Reference Methods for Measuring Airborne Man-Made Mineral Fibers (MMMF)," WHO/EURO Technical Committee for Monitoring an Evaluating Airborne MMMF, World Health Organization, Copenhagen (1985).
[25] Criteria for a Recommended Standard...Occupational Exposure to Fibrous Glass, U.S. Department of Health, Education, and Welfare, Publ. (NIOSH) 77-152 (1977).

METHOD WRITTEN BY:

Paul A. Baron, Ph.D., NIOSH/DPSE.

APPENDIX A. CALIBRATION OF THE WALTON-BECKETT GRATICULE

Before ordering the Walton-Beckett graticule, the following calibration must be done to obtain a counting area (D) 100 µm in diameter at the image plane. The diameter, d_c (mm), of the circular counting area and the disc diameter must be specified when ordering the graticule.

1. Insert any available graticule into the eyepiece and focus so that the graticule lines are sharp and clear.
2. Set the appropriate interpupillary distance and, if applicable, reset the binocular head adjustment so that the magnification remains constant.
3. Install the 40 to 45× phase objective.
4. Place a stage micrometer on the microscope object stage and focus the microscope on the graduated lines.
5. Measure the magnified grid length of the graticule, L_o (µm), using the stage micrometer.
6. Remove the graticule from the microscope and measure its actual grid length, L_a (mm). This can best be accomplished by using a stage fitted with verniers.
7. Calculate the circle diameter, d_c (mm), for the Walton-Beckett graticule:

$$d_c = \frac{L_a}{L_o} \times D.$$

Example: If $L_o = 112$ µm, $L_a = 4.5$ mm, and $D = 100$ µm, then $d_c = 4.02$ mm.

8. Check the field diameter, D (acceptable range 100 µm ± 2 µm) with a stage micrometer upon receipt of the graticule from the manufacturer. Determine field area (acceptable range 0.00754 mm^2 to 0.00817 mm^2).

APPENDIX B. COMPARISON OF COUNTING RULES

Figure 2 shows a Walton-Beckett graticule as seen through the microscope. The rules will be discussed as they apply to the labeled objects in the figure.

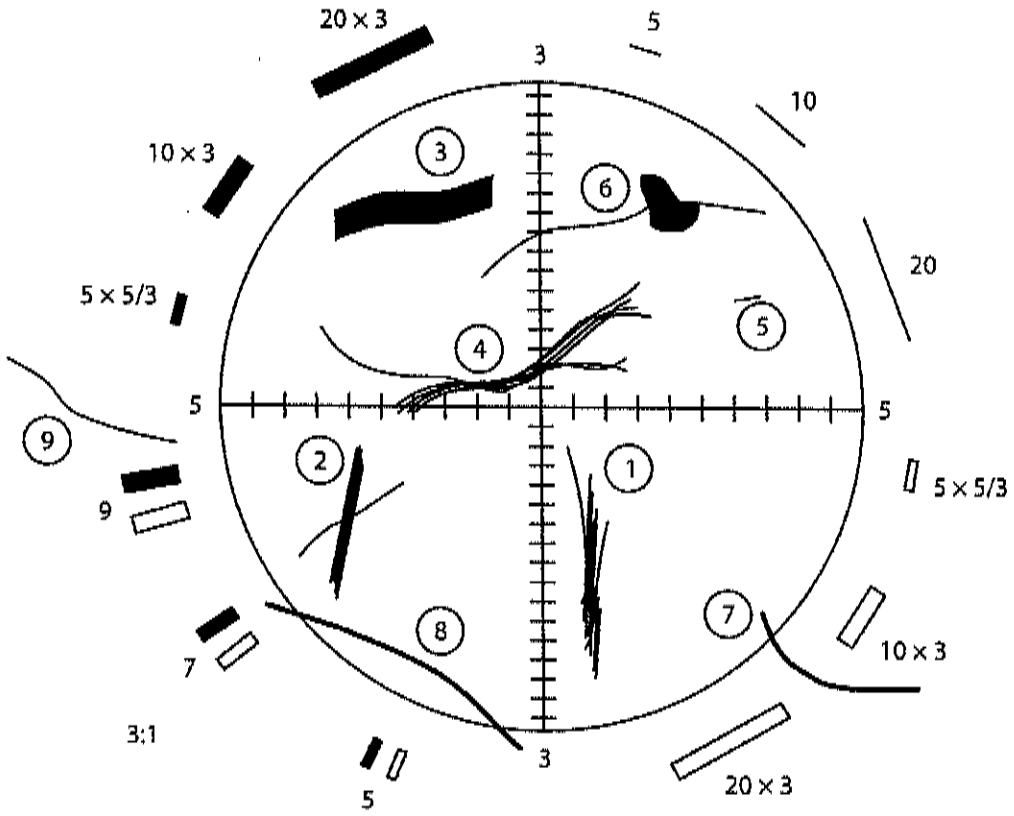


Figure 2. Walton-Beckett graticule with fibers.

These rules are sometimes referred to as the "A" rules:

Object	Count	Discussion
1	1 fiber	Optically observable asbestos fibers are actually bundles of fine fibrils. If the fibrils seem to be from the same bundle, the object is counted as a single fiber. Note, however, that all objects meeting length and aspect ratio criteria are counted whether or not they appear to be asbestos.
2	2 fibers	If fibers meeting the length and aspect ratio criteria (length >5 µm and length-to-width ratio > 3 to 1) overlap, but do not seem to be part of the same bundle, they are counted as separate fibers.
3	1 fiber	Although the object has a relatively large diameter (>3 µm), it is counted as fiber under the rules. There is no upper limit on the fiber diameter in the counting rules. Note that fiber width is measured at the widest compact section of the object.
4	1 fiber	Although long fine fibrils may extend from the body of a fiber, these fibrils are considered part of the fiber if they seem to have originally been part of the bundle.
5	Do not count	If the object is ≤ 5 µm long, it is not counted.
6	1 fiber	A fiber partially obscured by a particle is counted as one fiber. If the fiber ends emanating from a particle do not seem to be from the same fiber and each end meets the length and aspect ratio criteria, they are counted as separate fibers.
7	½ fiber	A fiber which crosses into the graticule area one time is counted as ½ fiber.
8	Do not count	Ignore fibers that cross the graticulate boundary more than once.
9	Do not count	Ignore fibers that lie outside the graticule boundary.

APPENDIX C. ALTERNATE COUNTING RULES FOR NON-ASBESTOS FIBERS

Other counting rules may be more appropriate for measurement of specific non-asbestos fiber types, such as fibrous glass. These include the "B" rules given below (from NIOSH Method 7400, Revision #2, dated 8/15/87), the World Health Organization reference method for man-made mineral fiber [24], and the NIOSH fibrous glass criteria document method [25]. The upper diameter limit in these methods prevents measurements of non-thoracic fibers. It is important to note that the aspect ratio limits included in these methods vary. NIOSH recommends the use of the 3:1 aspect ratio in counting fibers.

It is emphasized that hybridization of different sets of counting rules is not permitted. Report specifically which set of counting rules are used with the analytical results.

"B" Counting Rules

1. Count only *ends* of fibers. Each fiber must be longer than 5 µm and less than 3 µm diameter.
2. Count only ends of fibers with a length-to-width ratio equal to or greater than 5:1.
3. Count each fiber end which falls within the graticule area as one end, provided that the fiber meets rules 1 and 2 above. Add split ends to the count as appropriate if the split fiber segment also meets the criteria of rules 1 and 2 above.
4. Count visibly free ends which meet rules 1 and 2 above when the fiber appears to be attached to another particle, regardless of the size of the other particle. Count the end of a fiber obscured by another particle if the particle covering the fiber end is less than 3 µm in diameter.

5. Count free ends of fibers emanating from large clumps and bundles up to a maximum of 10 ends (5 fibers), provided that each segment meets rules 1 and 2 above.
6. Count enough graticule fields to yield 200 ends. Count a minimum of 20 graticule fields. Stop at 100 graticule fields, regardless of count.
7. Divide total end count by 2 to yield fiber count.

APPENDIX D. EQUIVALENT LIMITS OF DETECTION AND QUANTITATION

	Fiber density on filter*		Fiber concentration in air, f/cc	
	Fibers per 100 fields	Fibers/mm^2	400-L air sample	1000-L air sample
	200	255	0.25	0.10
	100	127	0.125	0.05
LOQ	80.0	102	0.10	0.04
	50	64	0.0625	0.025
	25	32	0.03	0.0125
	20	25	0.025	0.010
	10	12.7	0.0125	0.005
	8	10.2	0.010	0.004
LOD	5.5	7	0.00675	0.0027

*Assumes 385 mm^2 effective filter collection area, and field area = 0.00785 mm^2, for relatively "clean" (little particulate aside from fibers) filters.

Method 7402

ASBESTOS by TEM 7402

FORMULA: Various MW: Various CAS: Various RTECS: Various

METHOD: 7402 EVALUATION: PARTIAL Issue 1: 15 May 1989
Issue 2: 15 August 1994

OSHA : 0.1 asbestos fibers (>5 µm long)/cc; 1 f/cc/30 min excursion; carcinogen
MSHA: 2 asbestos fibers/cc
NIOSH: 0.1 f/cc (fibers > 5 µm long)/400 L; carcinogen
ACGIH: 0.2 crocidolite; 0.5 amosite; 2 chrysotile and other asbestos, fibers/cc; carcinogen

PROPERTIES: solid, fibrous, crystalline, anistropic

SYNONYMS [CAS#]: actinolite [77536-66-4] or ferroactinolite [15669-07-5]; amosite [12172-73-5]; anthophyllite [77536-67-5]; chrysotile [12001-29-5]; serpentine [18786-24-8]; crocidolite [12001-28-4]; tremolite [77536-68-6]; amphibole asbestos [1332-21-4].

SAMPLING

SAMPLER: FILTER (0.45- to 1.2-µm cellulose ester membrane, 25-mm diameter; conductive cassette)

FLOW RATE: 0.5 to 16 L/min

VOL-MIN*: 400 L @ 0.1 fiber/cc
-MAX*: (step 4, sampling)
*Adjust for 100 to 1300 fibers/mm^2

SHIPMENT: routine (pack to reduce shock)

SAMPLE STABILITY: stable

BLANKS: 2 to 10 field blanks per set

ACCURACY

RANGE STUDIED: 80 to 100 fibers counted

BIAS: not determined

OVERALL PRECISION ($\hat{S}_{rt}$): see EVALUATION OF METHOD

ACCURACY: not determined

MEASUREMENT

TECHNIQUE: MICROSCOPY, TRANSMISSION ELECTRON (TEM)

ANALYTE: asbestos fibers

SAMPLE PREPARATION: modified Jaffe wick

EQUIPMENT: transmission electron microscope; energy dispersive X-ray system (EDX) analyzer

CALIBRATION: qualitative electron diffraction; calibration of TEM magnification and EDX system

RANGE: 100 to 1300 fibers/mm^2 filter area [1]

ESTIMATED LOD: 1 confirmed asbestos fiber above 95% of expected mean blank value

PRECISION ($\hat{S}_r$): 0.28 when 65% of fibers are asbestos; 0.20 when adjusted fiber count is applied to PCM count [2].

APPLICABILITY: The quantitative working range is 0.04 to 0.5 fiber/cc for a 1000-L air sample. The LOD depends on sample volume and quantity of interfering dust, and is <0.01 fiber/cc for atmospheres free of interferences. This method is use d to determine asbestos fibers in the optically visible range and is intended to complement the results obtained by phase con trast microscopy (Method 7400).

INTERFERENCES: Other amphibole particles that have aspect ratios greater than 3:1 and elemental compositions similar to the asbestos minerals may interfere in the TEM analysis. Some non-amphibole minerals may give electron diffraction patterns similar to amphiboles. High concentrations of background dust interfere with fiber identification. Some non-asbestos amphibole m inerals may give electron diffraction patterns similar to asbestos amphiboles.

OTHER METHODS: This method is designed for use with Method 7400 (phase contrast microscopy).

REAGENTS:

1. Acetone. (See SPECIAL PRECAUTIONS.)

EQUIPMENT:

1. Sampler: field monitor, 25-mm, three-piece cassette with ca. 50-mm electrically-conductive extension cowl, cellulose ester membrane filter, 0.45- to 1.2-µm pore size, and backup pad.
   NOTE 1: Analyze representative filters for fiber background before use. Discard the filter lot if mean count is >5 fibers/100 fields. These are defined as laboratory blanks.
   NOTE 2: Use an electrically-conductive extension cowl to reduce electrostatic effects on fiber sampling and during sample shipment. Ground the cowl when possible during sampling.
   NOTE 3: 0.8-µm pore size filters are recommended for personal sampling. 0.45-µm filters are recommended for sampling when performing TEM analysis on the samples because the particles deposit closer to the filter surface. However, the higher pressure drop through these filters normally preclude their use with personal sampling pumps.
2. Personal sampling pump, 0.5 to 16 L/min, with flexible connecting tubing.
3. Microscope, transmission electron, operated at ca. 100 kV, with electron diffraction and energy-dispersive X-ray capabilities, and having a fluorescent screen with inscribed or overlaid calibrated scale (Step 16).
   NOTE: The scale is most efficient if it consists of a series of lines inscribed on the screen or partial circles every 2 cm distant from the center.
4. Diffraction grating replica with known number of lines/mm.
5. Slides, glass, pre-cleaned, 25- x 75-mm.
6. Knife, surgical steel, curved-blade.
7. Tweezers.
8. Grids, 200-mesh TEM copper, (optional: carbon-coated).
9. Petri dishes, 15-mm depth. The top and bottom of the petri dish must fit snugly together. To assure a tight fit, grind the top and bottom pieces together with an abrasive such as carborundum to produce a ground-glass contact surface.
10. Foam, clean polyurethane, spongy, 12-mm thick.
11. Filters, Whatman No. 1 qualitative paper or equivalent, or lens paper.
12. Vacuum evaporator.
13. Cork borer, (about 8-mm).
14. Pen, waterproof, marking.
15. Reinforcement, page, gummed.
16. Asbestos standard bulk materials for reference; e.g. SRM #1866, available from the National Institute of Standards and Technology.
17. Carbon rods, sharpened to 1 mm x 8 mm.
18. Microscope, light, phase contrast (PCM), with Walton-Beckett graticule (see method 7400).
19. Grounding wire, 22-gauge, multi-strand.
20. Tape, shrink- or adhesive-.

SPECIAL PRECAUTIONS: Acetone is extremely flammable (flash point = 0 °F). Take precautions not to ignite it. Heating of acetone must be done in a fume hood using a flameless, spark-free heat source. Asbestos is a confirmed human carcinogen. Handle only in a well-ventilated fume hood.

SAMPLING:

1. Calibrate each personal sampling pump with a representative sampler in line.
2. For personal sampling, fasten sampler to worker's lapel near worker's mouth. Remove the top cover from cowl extension ("open-face") and orient sampler face down. Wrap joint between extender and monitor body with tape to help hold the cassette together and provide a marking surface to identify the cassette. Where possible, especially at low %RH, attach sampler to electrical ground to reduce electrostatic effects during sampling.
3. Submit at least two field blanks (or 10% of the total samples, whichever is greater) for each set of samples. Remove top covers from the field blank cassettes and store top covers and cassettes in a clean area (e.g., closed bag or box) during sampling. Replace top covers when sampling is completed.
4. Sample at 0.5 to 16 L/min [3]. Adjust sampling rate, Q (L/min), and time, t (min), to produce fiber density, E, of 100 to 1300 fibers/mm ^{2} [$3.85 \cdot 10^4$ to $5 \cdot 10^5$ fibers per 25-mm filter with effective collection area (A_c = 385 mm^2)] for optimum accuracy. Do not exceed ca. 0.5 mg total dust loading on the filter. These variables are related to the action level (one-half the current standard), L (fibers/cc), of the fibrous aerosol being sampled by:

$$t = \frac{A_c \cdot E}{Q \cdot L \cdot 10^3}, \text{ min.}$$

   NOTE: The purpose of adjusting sampling times is to obtain optimum fiber loading on the filter. A sampling rate of 1 to 4 L/min for 8 h (700 to 2800 L) is appropriate in atmospheres containing ca. 0.1 fiber/cc in the absence of significant amounts of non-asbestos dust. Dusty atmospheres require smaller sample volumes (≤400 L) to obtain countable samples. In such cases take short, consecutive samples and average the results over the total collection time. For documenting episodic exposures, use high rates (7 to 16 L/min) over shorter sampling times. In relatively clean atmospheres, where targeted fiber concentrations are much less than 0.1 fiber/cc, use larger sample volumes (3000 to 10000 L) to achieve quantifiable loadings. Take care, however, not to overload the filter with background dust [3].
5. At the end of sampling, replace top cover and small end caps.
6. Ship samples upright with conductive cowl attached in a rigid container with packing material to prevent jostling or damage.
   NOTE: Do not use untreated polystyrene foam in the shipping container because electrostatic forces may cause fiber loss from sample filter.

SAMPLE PREPARATION:

7. Remove circular sections from any of three quadrants of each sample and blank filter using a cork borer [4]. The use of three grid preparations reduces the effect of local variations in dust deposit on the filter.
8. Affix the circular filter sections to a clean glass slide with a gummed page reinforcement. Label the slide with a waterproof marking pen.
   NOTE: Up to eight filter sections may be attached to the same slide.
9. Place the slide in a petri dish which contains several paper filters soaked with 2 to 3 mL acetone. Cover the dish. Wait 2 to 4 min for the sample filter(s) to fuse and clear.
   NOTE: The "hot block" clearing technique [5] of Method 7400 or the DMF clearing technique [6] may be used instead of steps 8 and 9.
10. Transfer the slide to a rotating stage inside the bell jar of a vacuum evaporator. Evaporate a 1-by 5-mm section of a graphite rod onto the cleared filter(s). Remove the slide to a clean, dry, covered petri dish [4].
11. Prepare a second petri dish as a Jaffe wick washer with the wicking substrate prepared from filter or lens paper placed on top of a 12-mm thick disk of clean, spongy polyurethane foam [7].

Cut a V-notch on the edge of the foam and filter paper. Use the V-notch as a reservoir for adding solvent.

NOTE: The wicking substrate should be thin enough to fit into the petri dish without touching the lid.

12. Place the TEM grid on the filter or lens paper. Label the grids by marking with a pencil on the filter paper or by putting registration marks on the petri dish halves and marking with a waterproof marker on the dish lid. In a fume hood, fill the dish with acetone until the wicking substrate is saturated.

NOTE: The level of acetone should be just high enough to saturate the filter paper without creating puddles.

13. Remove about a quarter section of the carbon-coated filter from the glass slide using a surgical knife and tweezers. Carefully place the excised filter, carbon side down, on the appropriately-labeled grid in the acetone-saturated petri dish. When all filter sections have been transferred, slowly add more solvent to the wedge-shaped trough to raise the acetone level as high as possible without disturbing the sample preparations. Cover the petri dish. Elevate one side of the petri dish by placing a slide under it (allowing drops of condensed acetone to form near the edge rather than in the center where they would drip onto the grid preparation).

CALIBRATION AND QUALITY CONTROL:

14. Determine the TEM magnification on the fluorescent screen:

a. Define a field of view on the fluorescent screen either by markings or physical boundaries.

NOTE: The field of view must be measurable or previously inscribed with a scale or concentric circles (all scales should be metric) [7].

b. Insert a diffraction grating replica into the specimen holder and place into the microscope. Orient the replica so that the grating lines fall perpendicular to the scale on the TEM fluorescent screen. Ensure that goniometer stage tilt is zero.

c. Adjust microscope magnification to 10,000X. Measure the distance (mm) between the same relative positions (e.g., between left edges) of two widely-separated lines on the grating replica. Count the number of spaces between the lines.

NOTE: On most microscopes the magnification is substantially constant only within the central 8- to 10-cm diameter region of the fluorescent screen.

d. Calculate the true magnification (M) on the fluorescent screen:

$$m = \frac{X \cdot G}{Y}$$

where: X = total distance (mm) between the two grating lines;
G = calibration constant of the grating replica (lines/mm);
Y = number of grating replica spaces counted

e. After calibration, note the apparent sizes of 0.25 and 5.0 µm on the fluorescent screen. (These dimensions are the boundary limits for counting asbestos fibers by phase contrast microscopy.)

15. Measure 20 grid openings at random on a 200-mesh copper grid by placing a grid on a glass slide and examining it under the PCM. Use the Walton-Beckett graticule to measure the grid opening dimensions. Calculate an average graticule field dimension from the data and use this number to calculate the graticule field area for an average grid opening.

NOTE: A grid opening is considered as one graticule field.

16. Obtain reference selected area electron diffraction (SAED) or microdiffraction patterns from standard asbestos materials prepared for TEM analysis.

NOTE: This is a visual reference technique. No quantitative SAED analysis is required [7]. Microdiffraction may produce clearer patterns on very small fibers or fibers partially obscured by other material.

a. Set the specimen holder at zero tilt.

b. Center a fiber, focus, and center the smallest field-limiting aperture on the fiber. Obtain a diffraction pattern. Photograph each distinctive pattern and keep the photo for comparison to unknowns.

NOTE: Not all fibers will present diffraction patterns. The objective lens current may need adjustment to give optimum pattern visibility. There are many more amphiboles which give diffraction patterns similar to the analytes named on p. 7402-1. Some, but not all, of these can be eliminated by chemical separations. Also, some non-amphiboles (e.g., pyroxenes, some talc fibers) may interfere.

17. Acquire energy-dispersive X-ray (EDX) spectra on approximately 5 fibers having diameters between 0.25 and 0.5 µm of each asbestos variety obtained from standard reference materials [7].

NOTE: The sample may require tilting to obtain adequate signal. Use same tilt angle for all spectra.

a. Prepare TEM grids of all asbestos varieties.
b. Use acquisition times (at least 100 sec) sufficient to show a silicon peak at least 75% of the monitor screen height at a vertical scale of ≥500 counts per channel.
c. Estimate the elemental peak heights visually as follows:
   (1) Normalize all peaks to silicon (assigned an arbitrary value of 10).
   (2) Visually interpret all other peaks present and assign values relative to the silicon peak.
   (3) Determine an elemental profile for the fiber using the elements Na, Mg, Si, Ca, and Fe. Example: 0-4-10-3-<1 [7].
      NOTE: In fibers other than asbestos, determination of Al, K, Ti, S, P, and F may also be required for fiber characterization.
   (4) Determine a typical range of profiles for each asbestos variety and record the profiles for comparison to unknowns.

MEASUREMENT:

18. Perform a diffraction pattern inspection on all sample fibers counted under the TEM, using the procedures given in step 17. Assign the diffraction pattern to one of the following structures:
   a. chrysotile;
   b. amphibole;
   c. ambiguous;
   d. none.

   NOTE: There are some crystalline substances which exhibit diffraction patterns similar to those of asbestos fibers. Many of these, (brucite, halloysite, etc.) can be elimnated from consideration by chemistry. There are, however, several minerals (e.g., pyroxenes, massive amphiboles, and talc fibers) which are chemically similar to asbestos and can be considered interferences. The presence of these substances may warrant the use of more powerful diffraction pattern analysis before positive identification can be made. If interferences are suspected, morphology can play an important role in making positive identification.

19. Obtain EDX spectra in either the TEM or STEM modes from fibers on field samples using the procedure of step 18. Using the diffraction pattern and EDX spectrum, classify the fiber:
   a. For a chrysotile structure, obtain EDX spectra on the first five fibers and one out of ten thereafter. Label the range profiles from 0-5-10-0-0 to 0-10-10-0-0 as "chrysotile."
   b. For an amphibole structure, obtain EDX spectra on the first 10 fibers and one out of ten thereafter. Label profiles ca. 0-2-10-0-7 as "possible amosite"; profiles ca. 1-1-10-0-6 as "possible crocidolite"; profiles ca. 0-4-10-3-<1 as "possible tremolite"; and profiles ca. 0-3-10-0-1 as "possible anthophyllite."
      NOTE: The range of profiles for the amphiboles will vary up to ± 1 unit for each of the elements present according to the relative detector efficiency of the spectrometer.
   c. For an ambiguous structure, obtain EDX spectra on all fibers. Label profiles similar to the chrysotile profile as "possible chrysotile." Label profiles similar to the various amphiboles as "possible amphiboles." Label all others as "unknown" or "non-asbestos."

20. Counting and Sizing:

a. Insert the sample grid into the specimen grid holder and scan the grid at zero tilt at low magnification (ca. 300 to 500X). Ensure that the carbon film is intact and unbroken over ca. 75% of the grid openings.

b. In order to determine how the grids should be sampled, estimate the number of fibers per grid opening during a low-magnification scan (500 to 1000X). This will allow the analyst to cover most of the area of the grids during the fiber count and analysis. Use the following rules when picking grid openings to count [7,8]:

(1) Light loading (<5 fibers per grid opening): count total of 40 grid openings.

(2) Moderate loading (5 to 25 fibers per grid opening): count minimum of 40 grid openings or 100 fibers.

(3) Heavy loading (>25 fibers per opening): count a minimum of 100 fibers and at least 6 grid openings.

Note that these grid openings should be selected approximately equally among the three grid preparations and as randomly as possible from each grid.

c. Count only grid openings that have the carbon film intact. At 500 to 1000X magnification, begin counting at one end of the grid and systematically traverse the grid by rows, reversing direction at row ends. Select the number of fields per traverse based on the loading indicated in the initial scan. Count at least 2 field blanks per sample set to document possible contamination of the samples. Count fibers using the following rules:

(1) Count all particles with diameter greater than 0.25 µm that meet the definition of a fiber (aspect ratio ≥3:1, longer than 5 µm). Use the guideline of counting all fibers that would have been counted under phase contrast light microscopy (Method 7400). Use higher magnification (10000X) to determine fiber dimensions and countability under the acceptance criteria. Analyze a minimum of 10% of the fibers, and at least 3 asbestos fibers, by EDX and SAED to confirm the presence of asbestos. Fibers of similar morphology under high magnification can be identified as asbestos without SAED. Particles which are of questionable morphology should be analyzed by SAED and EDX to aid in identification.

(2) Count fibers which are partially obscured by the grid as half fibers.
NOTE: If a fiber is partially obscured by the grid bar at the edge of the field of view, count it as a half fiber only if more than 2.5 µm of fiber is visible.

(3) Size each fiber as it is counted and record the diameter and length:

(a) Move the fiber to the center of the screen. Read the length of the fiber directly from the scale on the screen.
NOTE 1: Data can be recorded directly off the screen in µm and later converted to µm by computer.
NOTE 2: For fibers which extend beyond the field of view, the fiber must be moved and superimposed upon the scale until its entire length has been measured.

(b) When a fiber has been sized, return to the lower magnification and continue the traverse of the grid area to the next fiber.

d. Record the following fiber counts:

(1) f_s, f_b = number of asbestos fibers in the grid openings analyzed on the sample filter and corresponding field blank, respectively.

(2) F_s, F_b = number of fibers, regardless of identification, in the grid openings analyzed on the sample filter and corresponding field blank, respectively.

CALCULATIONS:

21. Calculate and report the fraction of optically visible asbestos fibers on the filter, $(f_s - f_b)/(F_s - F_b)$. Apply this fraction to fiber counts obtained by PCM on the same filter or on other filters for which the TEM sample is representative. The final result is an asbestos fiber count. The type of asbestos present should also be reported.
22. As an integral part of the report, give the model and manufacturer of the TEM as well as the model and manufacturer of the EDX system.

EVALUATION OF METHOD:

The TEM method, using the direct count of asbestos fibers, has been shown to have a precision of 0.275 (s_r) in an evaluation of mixed amosite and wollastonite fibers. The estimate of the asbestos fraction, however, had a precision of 0.11 (s_r). When this fraction was applied to the PCM count, the overall precision of the combined analysis was 0.20 [2].

REFERENCES:

[1] Walton, W. H. "The Nature, Hazards, and Assessment of Occupational Exposure to Airborne Asbestos Dust: A Review," Ann. Occup. Hyg., 25, 115-247 (1982).
[2] Taylor, D. G., P. A. Baron, S. A. Shulman and J. W. Carter. "Identification and Counting of Asbestos Fibers," Am. Ind. Hyg. Assoc. J. 45(2), 84-88 (1984).
[3] Johnston, A. M., A. D. Jones, and J. H. Vincent. "The Influence of External Aerodynamic Factors on the Measurement of the Airborne Concentration of Asbestos Fibers by the Membrane Filter Method," Ann. Occup. Hyg., 25, 309-316 (1982).
[4] Zumwalde, R. D. and J. M. Dement. Review and Evaluation of Analytical Methods for Environmental Studies of Fibrous Particulate Exposures, NIOSH Technical Information Bulletin #77-204 (1977).
[5] Baron, P. A. and G. C. Pickford. "An Asbestos Sample Filter Clearing Procedure," Appl. Ind. Hyg., 1:169-171,199 (1986).
[6] LeGuen, J. M. and S. Galvin "Clearing and Mounting Techniques for the Evaluation of Asbestos Fibers by the Membrane Filter Method" Ann. Occup. Hyg. 24, 273-280 (1981).
[7] Yamate, G., S. A. Agarwal, and R. D. Gibbons. "Methodology for the Measurement of Airborne Asbestos by Electron Microscopy," EPA Contract No. 68-02-3266 (in press).
[8] Steel, E. B. and J. A. Small. "Accuracy of Transmission Electron Microcopy for the Analysis of Asbestos in Ambient Environments," Anal. Chem., 57, 209-213 (1985).

METHOD REVISED BY:

Paul A. Baron, Ph.D.; NIOSH/DPSE.

Attachment 4

Field Sampling Documents

Field Data Sheets

R. E. Pierson Asbtestos Sampling Log

Field Data Sheet and Sampling Log

Sample No.	Pump Number	Sample Area and Description	Time On	Time Off	Sampling Flow Rate	Volume (l)	Picture Of Sampling Location (Y/N)	Picture ID

SAMPLED BY: _____ **DATE:** _____ **TIME:**

Date	Time	Sample Area and Description	Wind Speed	Wind Direction	Temperature (F)	Relative Humidity

Field Notes: _____

_____

_____

_____

_____

Note 1 - see pump calibration log
Note 2 - each sample location to be documented a copy of the site plan

Project Summary Sheets

COMPLIANCE PLUS SERVICES, INC.

Project Summary Sheet

Project Name: _____
Project Location: _____

CPS Project No.: _____
Site Contact: _____
Phone Number: _____

Date/Time: _____
Project Length Est.: _____
Vehicle #: _____
Vehicle Mileage: Start: _____
End: _____
Vehicle Mileage Total: _____

CPS Project Representatives:
Name(s): _____
_____
_____

Visit Preparation:

1) Reviewed PPE requirements for site and prepare all required PPE	Y/N
2) CPS Vehicle Required on site/CPS Magnetic Stickers	Y/N
3) Orientation Requirements	Y/N
4) Documents reviewed (Site Plans, HASP, Remedial Action Reports)?	Y/N
5) Required equipment/safety supplies available, charged and ready for use?	Y/N

Project Manager Review: _____ Date: _____

Special Instructions/Project Notes:

Field Report/Notes: **Weather Conditions:** _____

Laboratory Chain of Custody

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody

EMSL Order Number *(Lab Use Only)*:

PHONE:
FAX:

Company Name :		**EMSL Customer ID:**	
Street:		**City:**	**State/Province:**
Zip/Postal Code:	**Country:**	**Telephone #:**	**Fax #:**
Report To (Name):		**Please Provide Results:** ☐ Fax ☐ Email	
Email Address:		**Purchase Order:**	
Project Name/Number:		**EMSL Project ID** *(Internal Use Only)*:	
U.S. State Samples Taken:		**CT Samples:** ☐ Commercial/Taxable ☐ Residential/Tax Exempt	

EMSL-Bill to: ☐ Same ☐ Different - If Bill to Is Different note instructions in Comments**
Third Party Billing requires written authorization from third party

Turnaround Time (TAT) Options* – Please Check

☐ 3 Hour | ☐ 6 Hour | ☐ 24 Hour | ☐ 48 Hour | ☐ 72 Hour | ☐ 96 Hour | ☐ 1 Week | ☐ 2 Week

**For TEM Air 3 hr through 6 hr, please call ahead to schedule. *There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.*

PCM - Air ☐ Check if samples are from NY
- ☐ NIOSH 7400
- ☐ w/ OSHA 8hr. TWA

PLM - Bulk (reporting limit)
- ☐ PLM EPA 600/R-93/116 (<1%)
- ☐ PLM EPA NOB (<1%)

Point Count
- ☐ 400 (<0.25%) ☐ 1000 (<0.1%)

Point Count w/Gravimetric
- ☐ 400 (<0.25%) ☐ 1000 (<0.1%)
- ☐ NYS 198.1 (friable in NY)
- ☐ NYS 198.6 NOB (non-friable-NY)
- ☐ NYS 198.8 SOF-V
- ☐ NIOSH 9002 (<1%)

TEM – Air ☐ **4-4.5hr TAT (AHERA only)**
- ☐ AHERA 40 CFR, Part 763
- ☐ NIOSH 7402
- ☐ EPA Level II
- ☐ ISO 10312

TEM - Bulk
- ☐ TEM EPA NOB
- ☐ NYS NOB 198.4 (non-friable-NY)
- ☐ Chatfield SOP
- ☐ TEM Mass Analysis-EPA 600 sec. 2.5

TEM – Water: EPA 100.2
- Fibers >10µm ☐ Waste ☐ Drinking
- All Fiber Sizes ☐ Waste ☐ Drinking

TEM- Dust
- ☐ Microvac - ASTM D 5755
- ☐ Wipe - ASTM D6480
- ☐ Carpet Sonication (EPA 600/J-93/167)

Soil/Rock/Vermiculite
- ☐ PLM EPA 600/R-93/116 with milling prep (<1%)
- ☐ PLM EPA 600/R-93/116 with milling prep (<0.25%)
- ☐ TEM EPA 600/R-93/116 with milling prep (<0.1%)
- ☐ TEM Qualitative via Filtration Prep
- ☐ TEM Qualitative via Drop Mount Prep
- ☐ Cincinnati Method EPA 600/R-04/004 – PLM/TEM (BC only)

Other:
- ☐

☐ **Check For Positive Stop – Clearly Identify Homogenous Group**

Filter Pore Size (Air Samples): ☐ 0.8µm ☐ 0.45µm

Samplers Name: **Samplers Signature:**

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled

Client Sample # (s): - **Total # of Samples:**

Relinquished (Client): **Date:** **Time:**

Received (Lab): **Date:** **Time:**

Comments/Special Instructions:

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody

EMSL Order Number *(Lab Use Only)*:

PHONE:
FAX:

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled

***Comments/Special Instructions:**

Attachment 5

Universal Low Flow Air Sampling Pump
Specification Sheet

GilAir PLUS

Innovation Delivered

Universal Air Sampling Pump

SENSIDYNE®
Industrial Health & Safety Instrumentation

The Widest Flow Range of Any Air Sampling Pump

The GilAir Plus features wide dynamic flow and pressure ranges to address all personal air sampling methods with flow ranges between 1 and 5,000 cc/min. With patent pending QuadMode℠ air sampling technology, the GilAir Plus can perform both high-flow constant pressure and constant flow (450-5,000 cc/min) and low-flow constant pressure and constant flow (1-499 cc/min) with a single pump without external adaptors. It's like getting two pumps in one.

Unmatched Versatility

Samples particulates, vapors, gases, and metal fumes

Works with all common sampling media

Multi-language capability: English, Spanish, French, Italian, Dutch, Portuguese and German

Outlet port for bag sampling

High Performance

GilAir Plus is a smart pump that provides ambient or standard temperature and pressure corrected display (STP model) and data-logging (STP and Datalog model). The pump has high back pressure capability of up to 40" H2O in high flow and up to 25" H2O in low flow. An automatic self check system ensures sample accuracy. In the event of a fault condition, the pump's selectable automatic fault recovery feature attempts to restart the pump up to 10 times every 3 minutes to determine if the fault condition has been cleared.

Ease of Use

An intuitive menu, keypad interface and large, easy-to-read back-lit display makes adjusting pump settings quick and easy. Once the pump is set up, the keypad can be locked to prevent tampering. Convenient and innovative SmartCal℠ feature provides automatic pump calibration.

Ergonomic Design

One-third smaller than traditional personal air sampling pumps and weighing less than 21 oz. (595 g), the GilAir Plus provides superior operator comfort. An integrated belt clip securely attaches the pump in a horizontal position, allowing workers a full range of motion to perform a wide variety of tasks without interference or discomfort.

Communications

The GilAir Plus dock provides charging and communication functions for the STP and data-logging models. Once docked, the PC application allows users to review datalogs, generate sampling reports, manage sampling programs, and create pump set-up profiles that expedite deployment of large pump fleets. The SmartCal℠ feature uses the dock as a communication link between appropriate calibration devices and the GilAir Plus. SmartCal℠ automates calibration and records pre and post sample calibrations in the pump's datalog.

Charging and communications dock shown with the Gilian Pump Management Software.

Gilian®

GilAir PLUS

Charging and Communications Dock Options

Three and five-station docks are available when ordering multi-pump configurations.

Air Flow Calibrators

Gilian Gilibrator bubble cell calibrator and Gilian Challenger dry calibrator. Visit our website to review our full offering of air sampling pumps, equipment, and accessories.

GilAir Plus Specifications

Flow Range	Constant flow 20-5,000 cc/min. without external adaptors. Constant pressure 1-5,000 cc/min. without external adaptors
Flow Modes	Constant Flow or Constant Pressure (high and low flow modes)
Flow Display Accuracy	± 5% or 3 cc/min. of set flow, whichever is greater
Constant Flow Control Accuracy	± 5% or 3 cc/min. of set flow, whichever is greater
Constant Pressure Mode Accuracy	± 10% of back pressure
Back Pressure Capability (8 hour run time)	5,000 cc/min. up to 12" H_2O back pressure 4,000 cc/min. up to 20" H_2O back pressure 3,000 cc/min. up to 30" H_2O back pressure 2,000 cc/min. up to 30" H_2O back pressure 1,000 cc/min. up to 35" H_2O back pressure 450-1,000 cc/min. up to 40" H_2O back pressure 20-449 cc/min. up to 25" H_2O back pressure
Run Time	8 hour minimum
Charge Time	Less than 3.5 hours
Flow Fault	If flow changes exceed ± 5% within back pressure specifications, fault notification appears. If fault exceeds 30 seconds, pump shuts down. Selectable automatic fault recovery allows the pump to attempt restart every 3 minutes for up to 10 attempts or to hold until manual intervention.
Dimensions	4.3 x 2.4 x 2.4 inches (11.0 x 6.1 x 6.1 cm)
Weight	20.5 oz (580 g)
Warranty	2 years from original shipment, 5 years for pump keypad, and 1 year on rechargeable NiMH battery

See the GilAir Plus datasheet for complete pump specifications and approvals.

SENSIDYNE®
Industrial Health & Safety Instrumentation

Sensidyne, LP
1000 112th Circle North, Suite 100 | St. Petersburg, FL 33716
Tel: 1-800-451-9444 | +1 727-530-3602
info@Sensidyne.com | www.Sensidyne.com

A company of the SCHAUENBURG International Group