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March 4, 2021

Mr. Gary Latsha, Inspector Supervisor
Department of Environmental Protection
Pottsville District Mining Office
5 West Laurel Boulevard
Pottsville, PA 17901

Re: Rock Hill Quarry
Erskine of Erskine Environmental Consulting, Inc. comments
Technical Deficiencies for the Rockhill Quarry.

Dear Mr. Latsha:

Attached please find comments from Dr. Bradley Erskine of Erskine Environmental Consulting, Inc. (EEC) on PA DEP's letter dated November 18, 2020 and Hanson Aggregates' response of January 15, 2021 re: Technical Deficiencies for the Rockhill Quarry.

As EEC's comments highlight, Hanson continues to fail to address many critical questions posed by the Department. Among other things, Hanson avoided addressing the Department's requested plan for the special handling of toxic materials by declaring the topic "non-applicable". The special handling of naturally occurring asbestos (NOA), a toxic material by any definition, is relevant and needs to be folded into in the operations. In addition to procedures for handling NOA on the project site, the plan needs to address how the handling of NOA will occur offsite once it is processed and sold. In addition, the air monitoring plan is vague, non-prescriptive in many aspects, and not implementable by a third-party consultant. One major flaw is the use of test methodology that is designed for OSHA compliance rather than EPA methodology designed for protection of the public. As described more fully in the attached EEC response, the operation plan, dust mitigation plan, and air monitoring plan are inadequate and, on this basis alone, should not be approved.

REPA and others have provided the Department with more than sufficient cause to close the quarry. Instead, we understand that despite the clear confirmation of NOA at the site, and the undisputed fact that no one has removed 500 tons of material from the site in over the past year, PA DEP is still considering whether to allow Hanson to continue to remove material from the site. Such a result would be unwarranted and unacceptable.

REPA once again calls on PA DEP to take expedient and necessary actions to protect the community by permanently shutting down all operations at the Rockhill Quarry.

Very truly yours,

Mark L. Freed, Esquire
For CURTIN & HEEFNER LLP

Enclosure

cc: The Honorable Thomas Wolf, Governor of Pennsylvania
The Honorable Patrick McDonnell, Secretary, PA-DEP
The Honorable Brian Fitzpatrick, U.S. Representative PA-01
The Honorable Steven Santarsiero, 10th Senatorial District
The Honorable Craig Staats, PA's 145th Legislative District
The Honorable Diane Ellis-Marseglia, Chair, Bucks County Board of Commissioners
The Honorable Robert Harvie, Jr., Vice Chair, Bucks County Board of Commissioners
The Honorable Gene DiGirolamo, Bucks County Board of Commissioners
Steven Baluh, P.E
Marianne Morano, East Rockhill Township Manager
Megan Banis-Clemens, Pennridge School District, School Board Member
Amiee Bollinger PADEP
Virginia Cain, PADEP
Robert Fogel, PADEP
Erika Furlong, PADEP
Craig Lambeth, PADEP
Shawn Mountain, PADEP
Patrick Patterson, PADEP
James Rebarchak, PADEP
Daniel Sammarco, PADEP
Sachin Shankar, PADEP
Richard Tallman PADEP
Doug White, PADEP
Michael Kutney, PADEP
John Stefanko, PADEP
REPA

Erskine Environmental Consulting

Geologic Investigations Hazardous Materials Naturally Occurring Asbestos

Technical Memorandum

March 3, 2021

Subject: Rock Hill Quarry Response to Letter from Hanson Aggregates Pennsylvania LLC (January 15, 2021)

Erskine Environmental Consulting (EEC) reviewed Hanson's response to DEP's comments from in their letter dated November 18, 2020. Attached is a reproduction of Hanson's submittal with DEP's comments in *italics*, Hanson's responses in **bold**, and EEC's comments in red. Most comments pertain to Modules 10 and 17, and not all of Hanson's responses received comments by EEC.

EEC offers the following general conclusions based on the review. Details that support these conclusions may be found within the attached document.

1. Hanson was not responsive to many of DEP's requests for information. DEP requested that Hanson prepare documents that reflect current and intended operations, but Hanson chose to define only the 500-ton per year removal as a future operation. Absent is the actual mining operation, including operations such as drilling, blasting, sorting and sizing, excavation, loading, hauling, and processing. The operation plan, dust mitigation plan, and air monitoring plan are inadequate and, on this basis alone, should not be approved in their present forms.

2. DEP requested a plan for the special handling of toxic material (often referred to as a Hazardous Material and Waste Management Plan). Hanson declared this topic as "not applicable" and did not address this comment. The special handling of NOA, a toxic material by any definition, is relevant and needs to be folded into in the operations. In addition to procedures for handling NOA on the project site, the plan needs to address how the handling of NOA will occur offsite once it is processed and sold. NOA will be sold to project owners, contractors, and even residents, which will create numerous NOA emission sources requiring OSHA compliance and creating potential liability to those who accept this material. Township residents will be particularly impacted because the Rock Hill Quarry will be the closest, and therefore least expensive, source of aggregate and fill for local projects.

3. The dust suppression methods and track out prevention measures specified in the Air Pollution and Noise Control Plan are inadequate to prevent fugitive emissions and track out. The procedures to apply water on unpaved roads do not specify a compliance standard, allowing arbitrary decisions to be made. The aggregate piles are assumed to be wet, and only "standard sprinklers" are specified on an as needed basis; however, the plan fails to acknowledge that rock cannot be wetted, and does not address how dust generated from the crushing and grinding of rock will be mitigated. The paved road is assumed to be fully effective and the only method of track out prevention. No vehicle and equipment decontamination procedures are specified.

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4. The Air Monitoring Plan is vague, non-prescriptive in many aspects, and not implementable by a third-party consultant. One major flaw is the use of test methodology that is designed for OSHA compliance rather than EPA methodology designed for protection of the public. The application of these least-restrictive methods will severely under report the concentrations of asbestos. Hanson also specified a modification of the test method that undermines the basis for the test and may further under report asbestos.

In conclusion, the responses by Hanson did not adequately address DEP's comments and requests: requests for information were either not addressed or fell short of the requests; the Operation Plan is deficient; the dust mitigation plan is deficient, and the air monitoring plan is deficient. In many cases, the responses were inaccurate or not factual.

Please refer to the EEC comments illustrated in Red for information that supports these conclusions.

Please contact me if you have any questions.

Bradley G. Erskine, Ph.D., PG, CEG, CHG, CAC
Erskine Environmental Consulting

1. Module 3: Ownership/Compliance Information

a. Please update Module 3.2: Contractor §77.162 (a)(1)(iii)

Hanson Response: **A revised Module 3 is included at the end of this letter as Attachment 1(a). All references to contractors have been removed.**

2. Module 9: Operations Map

a. Please provide an updated Operations Map showing the aerial extent of affected lands on the Rock Hill Permit, the length(s) of affected pre-act highwalls and newly created highwalls.§77.454

Hanson Response: **A revised Exhibit 9 – Operations Map is included in Attachment 2(a). The topography has been updated with an aerial drone survey, completed on December 7, 2020, to identify the affected pre-act highwalls and newly created highwalls.**

b. Please delineate or identify the areas that would be affected and the way (active, reclaimed, revegetated) they would be affected through current and intended operations. §77.454, §77.452

Hanson Response: **An Existing Site Plan has been included in Attachment 2(b) that includes the recent December 7, 2020 aerial image. The plan delineates areas within the surface mine permit area that have been affected by support activity and mining activity. For the immediate future Hanson intends to conduct only limited site activities. Those activities include: 1) removal of the requisite 500 tons annually from the site to maintain the Large Noncoal Surface Mine Permit active status; 2) monthly collection of NPDES water discharge sample; 3) routine site inspection and security detail; 4) non-scheduled site maintenance; and 5) potential background air monitoring events. The annual 500 tons would be removed from the four (4) aggregate product stockpiles as delineated on the Existing Site Plan in the northwest corner of the permit area. Hanson, or its subcontractors, may need to access other areas within the support and mining portions of the SMP for the activities listed above.**

3. Module 10: Operational Information

a. Please updated Module 10.1: Equipment and Operation Plan to reflect current and intended operations at the Rock Hill Quarry. §77.452 (2)(iii)

Hanson Response: **See Attachment 3(a). Module 10.1 has been revised to reflect current and intended operations activities at the site. Reference to R.E. Pierson's planned aggregate processing operation and hot-mix asphalt (HMA) plant have been removed.**

Comments on Module 10 are provided in the Module 10 section, below.

b. Please update Module 10.8: Special Handling of Toxic Material c. Please present a comprehensive and detailed plan to safely handle Naturally Occurring Asbestos wherever it may be encountered in the diabase host rock, in the produced aggregate, or in the overburden at the Rock Hill Quarry.

Hanson Response: **Plans to safely handle diabase aggregate at the site are included in the revised Module 10.1 and associated documents.**

Comments on Module 10 are provided in the Module 10 section, below.

b. Please update Module 10.15: Bonding Calculations

c. Please provide a detailed plan to accomplish reclamation of the current reclamation obligations at the Rock Hill Quarry. Specifically, describe the selected method(s) that would be used to reclaim affected pre-act or newly created highwalls. §77.456

Hanson Response: **Currently, a significant portion of the existing highwalls at the site have been delineated as Pre-Act (see existing SMP Exhibits) and therefore, per Department regulations reclamation of those highwalls are not required. A limited portion of the Pre-Act highwall was affected by recent mining activities conducted by R.E. Pierson in 2017-2018. Please see Attachment 3(c)(i) for a conceptual reclamation plan of the newly created highwall area. This concept was prepared as requested by the Department; however, a significant amount of aggregate reserves remain beneath this conceptual reclamation area. Reclamation will occur only after aggregate reserves are mined and removed as per Exhibit 9 – Operations Map.**

d. Please provide an addendum to the bonding calculations reflecting the current reclamation obligations at the Rock Hill Quarry. §77.202, §77.456 (2)

Hanson Response: **The Conceptual Reclamation calculations and Conceptual Bonding Map are provided in Attachment 3(c)(ii).**

4. Module 17: Air Pollution and Noise Control Plan

a. Please update Module 17 to reflect current and intended operations at the Rock Hill Quarry. Specifically, describe in detail measures that will be taken to prevent dust and Naturally Occurring Asbestos from crossing the permit boundary. §77.455 (1)

Hanson Response: **See Attachment 4(a). Module 17 has been revised to reflect current and intended operations activities at the site.**

Comments on Module 17 are provided in the Module 17 section, below.

b. Please provide a comprehensive Naturally Occurring Asbestos Monitoring and Mitigation Plan covering all present and potential operations at the Rock Hill Quarry. §77.455 (1), §77.575 (2)

Hanson Response: **See the revised Module 10.1 included in Attachment 3(a). As stated earlier, at some point in the future when Hanson desires to resume production of crushed aggregate at the Rock Hill Quarry, a minor amendment application will be submitted to the Department including detailed methods and type of mining, engineering techniques, major equipment to be used and anticipated sequencing.**

Comments on Module 10 are provided in the Module 10 section, below.

c. Please address all concerns expressed by the Pennsylvania Department of Health in its September 16, 2020 letter to the Pennsylvania Department of Environmental Protection. §77.122 (b)

Hanson Response: **The September 16, 2020 letter referenced above is not addressed to Hanson, nor was Hanson included on the distribution by the Pennsylvania Department of Health (PADOH). Hanson is only able to address the specific instances where the Rock Hill Quarry is mentioned in the letter (see below).**

PADOH Letter – Page 2: "As it pertains to the health of citizens who live near the Rockhill Quarry, NOA is best to be avoided and left alone."

Hanson Response: **The PADOH statement fails to acknowledge that the Rock Hill Quarry is a lawfully permitted Large Noncoal Surface Mine. NOA exposure related to citizens who live near the Rock Hill Quarry has not been documented or observed at any time as evidenced by air sample analysis or any other means. Hanson has previously detailed engineering controls and practices that will mitigate exposure of NOA to employees and any off-site receptors.**

Hanson has not produced any air sample test results in spite of a claim (as reported in a newspaper article) that test results show that the community has not been exposed. The response by Hanson, however, indicates that no significant air monitoring has occurred. Equating a lack of exposure data to no exposure is a poor argument, and certainly should not be used to support resumption of NOA disturbance activities. Prior EEC submittals, supported by the DOH memo, provide methodology to asses potential exposures to offsite residents prior to operations, and Hanson has declined to investigate.

PADOH Letter – Page 3: "There are varying levels of agreement between DEP, Rockhill Environmental Preservation Alliance (REPA) and Pierson Materials/Hanson 6 Aggregates concerning the amount or type of respiratory elongated mineral fibers (EMF) present.

However, environmental and geological sampling commissioned by the aforementioned entities have agreed that actinolite, a type of asbestos fiber, is present in the rock material at the Rockhill Quarry site. Analytical reports also agree that "non-asbestos" mineral material exceeding 3:1 length to width ratio is also present in the geological materials sampled and analyzed from the site."

Hanson Response: **The November 15, 2019 Qualitative Geologic Survey Report and subsequent submittals acknowledge the presence of actinolite within the limited mineral veining that occurs in the diabase host rock. The PADOH statement fails to acknowledge that actinolite occurs in both non-asbestos and asbestos forms. It is important to also realize that the presence of NOA in host rock does not equate to human exposure.**

The claim that actinolite occurs only in limited veining is not factually based. A petrographic analysis by the RJLG showed, unequivocally, that the original non-asbestiform pyroxene in the diabase has been replaced, through a post-emplacement metamorphic event, by asbestiform actinolite. Thus, asbestiform actinolite is pervasive throughout the diabase.

The claim that asbestiform and non-asbestiform morphologies have been identified through testing is not factually based, and the asbestiform / non-asbestiform argument is not relevant. NIOSH states: *"Given the inconclusive epidemiological evidence for lung cancer risk associated with exposure to cleavage fragments, NIOSH took a precautionary approach and ... recommend that the 0.1 f/cm3 REL for airborne asbestos fibers also encompass elongate mineral particles (EMPs) from the non-asbestiform*

analogs of the asbestos minerals. In fact, the 1990 NIOSH testimony included an explicit assertion that the potential risk of lung cancer from exposure to EMPs (of the non-asbestiform asbestos analog minerals) warranted limiting such exposures. However, even if such EMPs were not hazardous, the inability of analytical methods to accurately distinguish countable particles as either asbestos fibers or cleavage fragments (of the non-asbestiform analog minerals) presents a problem in the context of potentially mixed exposures (i.e., asbestos fibers together with EMPs from the non-asbestiform analogs)".

Source: Asbestos Fibers and Other Elongate Mineral Particles: State of the Science and Roadmap for Research. NIOSH Current Intelligence Bulletin 62, 2011, second edition.

PADOH Letter – Page 3: "Both these observations justify pause for further evaluation."

PADOH Letter – Page 3: "Although the presence of these types of minerals have been associated with illness and injury in medical reports, and environmental investigations, the Department does not currently have sufficient data to support 7 the assessment that communities or children who attend schools in close proximity to Rockhill Quarry are in immediate risk of asbestos or EMF-related illness. There is also a paucity of data available to evaluate whether current or proposed activities on the Rockhill Quarry site are protective of the health of workers on site, adults and children who live near the Rockhill Quarry, and children who attend school near the site. To address these gaps in knowledge, additional environmental sampling should be conducted."

Hanson Response: **Hanson has proposed air sampling, as detailed in this submission, that is appropriate for the proposed site activities.**

As pointed out later in this document, the air monitoring program proposed by Hanson is inadequate for the proposed site activities.

PADOH Letter – Page 3: "Comprehensive health-based environmental sampling should at least include air and soil sampling for onsite, source, property/fence line, and offsite locations."

Hanson Response: **Hanson will continue to work with the Department of Environmental Protection regarding any necessary sampling.**

The air monitoring plan proposed by Hanson is neither comprehensive nor health-based. As documented in previous EEC submittals, the geologic investigation is inadequate, and no additional soil sampling has been proposed. DEP and DOH comments asked that these concerns be addressed, and Hanson chose to defer to an unspecified time in the future rather than respond to DEP and DOH concerns in this submittal.

PADOH Letter – Page 4: "Until sufficient data are available to determine the level of onsite and offsite asbestos or hazardous EMF exposure occurs during various activities over more than one season, the risk of asbestos-related illness in the stakeholder population will not be fully understood. As environmental investigations continue at the Rockhill Quarry site, material containing NOA should be addressed with concern."

Hanson Response: **Hanson will continue to work with the Department of Environmental Protection regarding any necessary sampling.**

Hanson offers no proposal to assess the potential exposure to offsite receptors resulting from the disturbance of rock and soil from the variety of disturbance activities. One important comment in the DOH comment is: "*material containing NOA should be addressed with concern*." DEP is reminded that the original "Qualitative" QGSSP was biased toward avoidance of locating asbestos, and the results stated that here was no asbestos and only limited cleavage fragments in the veins. It stated that the diabase was not-metamorphosed and is asbestos free. When DEP required additional analysis, asbestos was reported, and Hanson trivialized the concentration of asbestos by averaging the concentration of asbestos in the macroscopic (as can be discerned visually) in the veins with the remainder of the diabase to report a low percentage. When DEP required petrographic analysis, asbestiform actinolite was reported throughout the diabase, contradicting most everything that Hanson was arguing. Further in this submittal, Hanson ignores their own findings and states that cleavage fragments, and not asbestos, is restricted to minor veining. Hanson did not "address NOA with concern", rather it chose to trivialize it and defer to an unspecified time in the future to address the concerns.

ii. Please include a detailed air monitoring and dust suppression plan.

Hanson Response: **See attached Draft Air Monitoring Plan in Attachment 4(b)(ii). Also see the revised Module 17 – Air Pollution & Noise Control Plan included in Attachment 4(a) for dust suppression measures.**

Comments on Module 17 are provided in the Module 17 section, below. The dust suppression plan falls far short any reasonable plan designed to control fugitive dust.

1. Module 18: Land Use and Reclamation Map

a. Please update the Land Use and Reclamation Map to reflect the current status of the Rock Hill Quarry. §77.456

Hanson Response: **A revised Module 18 – Land Use and Reclamation Map is included in Attachment 5(a). Exhibit 18 has been updated with aerial drone topography, completed on December 7, 2020, to identify the affected Pre-Act highwalls and newly created highwalls.**

2. Module 20: Post-Mining Land Use & Reclamation

a. Please update Module 20.3 to reflect the current status of the Rock Hill Quarry and provide an explanation of how reclamation of affected areas would be accomplished including grading of affected pre-act or newly created highwalls to a maximum 35 slope. §77.462 (2), §77.456 (3)

Hanson Response: **The language provided in Module 20.3 is sufficient to describe the conditions included in conceptual reclamation. Additional explanation of conceptual reclamation has been provided in Attachment 3(c)(i). The current Module 20.3 indicates the intention of creating final slopes of a maximum 35- degree slopes and an unmanaged water impoundment.**

ATTACHMENT 3(a)

Module 10: Operational Information
January 15, 2021

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Module 10: Operational Information
[§§77.452/77.456/77.563/77.564]

10.1 Equipment and Operation Plan

For each phase of mining, identify the type and method of mining; engineering techniques; major equipment to be used; starting point; and the anticipated sequence in which the phases are to be mined.

For the immediate future Hanson intends only limited site activity. Those activities include: 1) removal of the requisite 500 tons annually from the site to maintain the Large Noncoal Surface Mine Permit active status; 2) monthly collection of NPDES water discharge sample; 3) routine site inspection and security detail; 4) nonscheduled site maintenance; and 5) potential air monitoring events.

DEP Comment number 3 specified: "Please update Module 10.1: Equipment and Operation Plan to reflect current and intended operations at the Rock Hill Quarry. §77.452 (2)(iii)". Hanson identified activities that are anticipated in "the immediate future", and therefore, did not respond to DEP's request. The acknowledgment of a future permit indicates that drilling and other mining activities such as blasting, sizing, excavation, dozing, loading, and aggregate processing are intended future activities. Note that Attachment 3(c)(i)- Conceptual Reclamation Plan, indicates that drilling, blasting, excavation, loading and grading are specified.

Annual Removal of 500 tons

Hanson will conduct removal of a minimum 500 tons of previously crushed aggregate material on an annual basis. The event will likely last one (1) day; however, some equipment (e.g. loader, water truck, etc.) may be transported to the site ahead of the loadout event. Wet dust suppression (e.g. standard water sprinklers) may be used to control fugitive dust emissions during material loading activities if sufficient moisture is not present in the aggregate piles to prevent generation of fugitive dust. Air monitoring as per the Air Monitoring Plan will be conducted. In addition, all vehicle movement at the site will obey the posted speed limit of 15 mph intended to prevent fugitive dust emissions.

Standard water sprinklers in any form will not keep material adequately wet during excavation and loading operations because they can wet only the surface and are not directed at the point of disturbance. Water hoses of a volume and flow that is commensurate with the volume being disturbed should be applied concurrently at the point of disturbance. Also, there is no standard specified that allows a determination of "sufficient moisture", which allows decisions to be made in an arbitrary manner.

Note that the response uses language that allows a response based on an arbitrary determination: Dust suppression MAY be used... IF sufficient moisture is not present... A more appropriate response would be: Dust suppression WILL be conducted and moisture content be verified to assure that fugitive dust is controlled.

Monthly NPDES Water Sample Collection

Hanson personnel or a subcontractor will access the site at least once per month to collect water samples from the NPDES discharge point(s). It is possible that additional trips in a month would be necessary to collect follow up water samples. Since the site visit duration, typically by only one (1) person, would last less than 30 minutes, Hanson does not propose air monitoring to be conducted during these events. Hanson or its subcontractor will obey the posted speed limit of 15 mph intended to prevent fugitive dust emissions.

Routine Site Inspection and Security Detail

Hanson personnel or a subcontractor will access the site to conduct routine inspections for evidence of trespassing, site vandalism or regular checks on the stormwater management controls. Hanson does not propose air monitoring to be conducted during these events. Hanson or it's subcontractor will obey the posted speed limit of 15 mph intended to prevent fugitive dust emissions.

Non-scheduled Site Maintenance

At any time, Hanson or a subcontractor may access the site to conduct maintenance to stormwater ponds or site roads. Should the nature of the work disturb any dry aggregate or earthen material and last more than four (4) continuous hours, air monitoring will be conducted as detailed in the Air Monitoring Plan. If the maintenance event is to last less than four (4) continuous hours, water sprays will be used to prevent fugitive dust emissions that could be generated by the maintenance activities. Natural precipitation should also be considered sufficient to prevent fugitive dust emissions. Hanson or its subcontractor will also obey posted speed limit of 15 mph intended to prevent additional fugitive dust emissions from moving vehicles.

Hanson states that air monitoring will be conducted only when soil and rock disturbance exceeds 4 continuous hours. In this scenario, air monitoring will not be conducted during a normal 8-hour shift when conducted as two 4-hour shifts separated by a lunch break. Thus, according to the rules presented, air monitoring will not be conducted at all unless work extends past 8 hours per day. Air monitoring should be conducted daily and continuously while NOA is being disturbed.

At such time authorized by the Department, mining of the Rock Hill Quarry will commence in a single phase. Bulldozers or track loaders, excavators, and haul trucks will be used to remove and stockpile topsoil and 11 overburden from the mining area. Overburden will be hauled to and stored in the designated overburden material stockpile. The underlying rock will then be drilled and blasted to facilitate its removal. The shot rock will be excavated by front-end loader, track loader, or excavator.

The excavated material will then be loaded into a haul truck and transported to either a portable processing plant or a stationary processing plant that will be located within the Surface Mine Permit boundary. The processed material will be staged for sale in stockpiles. Support area in the northwest corner of the permitted area will likely be used to stockpile material.

DEP required Hanson to include in the operations plan all future operations at the Rock Hill Quarry, yet none of these operations have been addressed (drilling, blasting, sorting and sizing, excavation, loading, hauling, and processing). The document is therefore not responsive to DEP's requests. All operations should be included within the operations plan; the dust mitigation plan should address dust suppression for all activities; and the air monitoring plan should be designed for the full project, and not just the removal of 500 tons.

10.2 Pit Configuration

a) Identify the maximum depth of mining and the elevation of the pit floor at the maximum depth of mining for each mining phase.

The maximum depth of mining is approximately 330 feet at a pit floor elevation of 464' MSL.

b) If mining consolidated rock, identify the maximum highwall height and the benching interval to include the distance between the benches measured vertically (i.e. height of the working face of the bench) and the width of the benches.

A maximum highwall height of 50 feet will be maintained, with the exception of the uppermost level, where the maximum highwall height may reach 65 feet to account for variations in the surface topography. A minimum bench width of 25 feet will be maintained between operating levels at all times. A 71.4-foot bench will be utilized in areas where blast to grade reclamation is proposed. The proposed benching and final highwall positions are shown on Exhibit 9: Operations Map.

c) If mining consolidated rock and the reclamation plan is an alternative to approximate original contour involving restoration of the pit floor and final working face, identify the total acreage of pit floor and final graded slopes.

Reclamation of the proposed mining area will be an alternative to approximate original contour, as grades across the site will be lowered by as much as 330 feet. The final configuration will form a water impoundment area, which will be surrounded by unmanaged natural habitat. The final highwalls along the perimeter edge will be reduced by blasting to achieve the maximum 35º final slopes, merging the surrounding rim elevation with the slope. The proposed water impoundment area will be approximately 39.1 acres, and the final graded perimeter slope areas total approximately 22.4 acres.

10.4 Overburden Piles

Provide a narrative plan for reclamation of overburden piles specifying the timing and extent of overburden piles returned to the pit and final grading of the overburden pile areas for blending into existing contours.

Overburden is proposed to be placed in the overburden storage area. Upon completion of mining activities, overburden will be returned to the mining area for use in final reclamation and for the establishment of vegetative cover. Material will be placed to achieve the desired reclamation subgrade elevation and to blend into the sloped highwalls (blast-to-grade) and existing perimeter grades. Site topsoil will then be spread over the overburden to provide a base for revegetation.

As piles and berms are removed, the areas impacted by topsoil/overburden storage will be scarified and prepared for final revegetation. Materials will be spread in advance of revegetation when it is a suitable time for planting as noted in Module 23.

None of these operations are included within the Operations Plan, Dust Control Plan, or Air Monitoring Plan. Hanson is not responsive to DEP's request that all future operations be included.

10.5 Final Grade and Drainage

Identify the final grading and drainage pattern, including topographic contours on Exhibit 18 and a description of compaction and stabilization techniques. Provide cross-sections or a contour map showing permit line setback(s), final postmining slopes, postmining water table and safety benches.

The final reclamation configuration for the Rock Hill Quarry will be a water impoundment, and the post-mining land use will be unmanaged natural habitat. As mining reaches its vertical and horizontal extent, concurrent reclamation will be undertaken. The final perimeter highwalls will be reduced to a maximum 35-degree reclamation configuration by blasting to grade. Overburden materials will be placed over the shot rock. The surface will drain directly to the water-filled- impoundment. The proposed reclamation grading, drainage pattern, and associated stormwater controls are presented on Exhibit 18: Land Use and Reclamation Map.

10.6 Reclamation Timetable

Provide a sequence of operations for the accomplishment of major stages in the reclamation plan demonstrating compliance with the concurrent reclamation requirements in 25 Pa Code 77.595. Include an estimated timetable for reclamation which is tied to the mining phases and the termination of mineral extraction.

Stages of reclamation will include 1) a reduction of perimeter highwalls; 2) spreading and grading of overburden materials on slopes; 3) final grading; 4) revegetation; and 5) filling of the water impoundment. To the extent practical, reclamation will be completed concurrent with mine development, except where access cannot be eliminated. Reclamation will be completed according to the concurrent reclamation requirements set forth in 25 PA Code § 77.595.

10.8 Special Handling of Toxic Material

When applicable (e.g. noncoal operation in coal measures) provide a detailed description of the methods to be used in the separation and handling of acid and toxic forming materials. Include transportation, storage, treatment and return of the material to the backfill. Identify the amount and source of clean fill to be placed above and below the material and the compaction and other methods to preclude combustion of the material and prevent groundwater contamination. Indicate all disposal areas on Exhibits 9 and 18.

N/A

Procedures for the special handling of toxic materials is very much applicable to the materials that will be mined at the Rock Hill Quarry. Asbestos containing rock and products that use aggregate as a component are, in fact, toxic materials: asbestos is included on a very short list of EPA-listed

carcinogens. In addition to special handling procedures that must be incorporated at the site, the fact that aggregate material will be transported off of the site and sold for use on construction projects create special problems that need to be identified and addressed.

During the 500-ton removal phase of the project, the unprocessed material will likely be transported to a permitted processing facility where it will be crushed, sorted and sold. This will create an asbestos exposure event at a site where one did not exist previously, and the operator and its workers will need to be informed and comply with the OSHA Standard. Special dust control measures and air monitoring, similar to those required at the Rock Hill Quarry, will likely need to be implemented. Recipients of the material will also require hazard communication.

If permitted for full operations, the processed aggregate at the Rock Hill Quarry will be sold and transported off-site for use on construction projects. Because OSHA regulates asbestos in any amount, the OSHA Standard will apply to all projects that use the material, and each customer will need to be informed of the presence of asbestos. The customer will need to inform the those who will be working with the material. Entities who use the material on construction projects, such as the Commonwealth of Pennsylvania, Cities and Townships, need to be aware that they may be accepting significant liability. The location of this material will need to be tracked to prevent inadvertent exposure during repair and maintenance activities.

The residents of the Rockhill Township will be particularly impacted. Because the closest aggregate producer will be the least expensive option, aggregate or fill when needed locally will likely be sourced at the Rock Hill Quarry. Haul trucks will deliver construction aggregate through the community to the destination, and new, possibly uncontrolled, fugitive emissions will occur throughout the community and in close proximity to residents. These issues should be addressed and mitigated in a special handling plan, and attorneys with the DEP and DOH should consider these issues prior to the approval of a mining permit.

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ATTACHMENT 3(c)(i)

Conceptual Reclamation Plan
January 15, 2021

401 Marina Place, Benicia, CA 94510 erskine.geo@gmail.com 707-738-4917

Attachment 3(c)(i) – Conceptual Reclamation Plan

Rock Hill Quarry SMP No. 7974SM1 January 15, 2021

As depicted on the attached Conceptual Reclamation Map (dated January 15, 2021), the mining area affected by R.E. Pierson mining activities in 2017 and 2018 consists of approximately 5.4 acres. The extent of newly created highwalls and affected Pre-Act highwalls is delineated on the Conceptual Bonding Map.

The conceptual reclamation would consist of the following:

- Identified affected Pre-Act highwalls and newly created highwalls (see Conceptual Reclamation Map and Conceptual Bonding Map) shall be reclaimed by drilling and blasting. Standard air-rotary drilling practices would be utilized as well as standard blasting techniques;
- Approximately 52,000 cubic yards of rock would need to be blasted to achieve the conceptual grading on the Conceptual Reclamation Map;
- Blasting of the newly created highwalls would create slopes of a maximum 35-degrees (from horizontal) that will extend to terraces at elevations 614 feet above mean sea level (AMSL), 654 feet AMSL and 714 feet AMSL;
- Reclaimed areas would likely need additional coverage using existing overburden material staged north of the quarry pit. Approximately 235,000 square feet (5.4 acres) of disturbed area would need to be covered with one (1) foot of material, which equals approximately 8,700 cubic yards of overburden needed for grading;
- Reclaimed areas would be graded to blend with the surrounding area when feasible to achieve a functional post-mining environment; and
- Upon final grading, the slopes and terraces would be vegetated and stabilized at a minimum uniform 70 percent perennial vegetative cover.

The Conceptual Reclamation Plan refers to drilling by air-rotary methods and blasting. The ancillary disturbance activities such as sorting and sizing, excavation, loading, hauling, and processing are not mentioned. None of these activities are included in the Operations Plan, Dust Mitigation Plan, or Air Monitoring Plan. The DEP requested that future activities be addressed. Hanson is not responsive the DEP's comments.

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ATTACHMENT 4(a)

Module 17 – Air Pollution & Noise Control Plan
January 15, 2021 16

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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		x			
Screening		x			
Cleaning					
Stockpiling				x	Diabase

b) Describe the processing facilities and the amount of minerals to be processed.

No aggregate processing is currently conducted at the site.

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).

There are no DEP Air Quality authorizations associated with the Rock Hill Quarry site.

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

No processing facility proposed

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:

Prior to commencing site activities, Hanson will conduct a meeting with all personnel to review site procedures including air emission controls. Hanson proposes to install a windsock at the site to provide a visual indicator of wind direction during site activities.

a) *Access roads, haul roads and adjoining portions of the public road*

Fugitive dust may be minimized utilizing the following 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.

The term "as needed", is vague and provides no standard by which the unpaved roads will be deemed appropriately wetted. The lack of specificity allows the operator to determine the standard, which could be unreasonably low and not health protective. Two standards are often specified on NOA projects. The first is an absence of visible dust at a given distance from the vehicle or truck tires, often specified as ten feet. The second is to specify that the soil to below the depth of disturbance (which varies with the weight of the vehicle or truck and tire dimensions) is wetted to a degree that achieves an "adequately wet" state, a term originating in the Federal NESHAP regulations for demolitions. ASTM has a standard field test method to verify that soil is in an adequately wet state.

- A facility-wide speed limit of 15 miles per hour (mph) will be posted and enforced to minimize fugitive dust emissions that could potentially be generated by mobile equipment.

- A 450 foot section of paved road exists between North Rockhill Road the unpaved portion of the site and should minimize fugitive dust emissions or track out.

Specification of a road as the only mitigation will not mitigate track-out, and may contribute to asbestos emissions. Mud that is dislodged on the on-site road will dry quickly in warm weather, producing a source of emissions with each pass. Most of the caked-on mud on vehicle and truck undercarriages and tires will remain, and then dislodged on off-site roads as it dries and dislodged during travel. This mud will dry, and create new emission sources at significant distances from the site. The most effective method to reduce, but not entirely eliminate, track-out is to design a manual decontamination station at the point of egress where mud is dislodged using power sprayers. Emissions from the on-site road can be reduced by keeping the road wet at all times and end of day cleaning, or routine and frequent wet sweeping during the day. Wet sweeping of roads traveled by vehicles or haul trucks would be required to prevent secondary emissions in the community. This emission source caused by track-out is one example where the community-based monitoring envisioned by the DOH.

- 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.

The street sweeper should be specified as a wet sweeper. The term "as needed" is vague, and should be replaced with a verifiable standard.

- 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.

During 500-ton removal activities, all trucks will tarp their loads prior to moving from the loading area at the aggregate stockpile.

Material should be loaded with a specified freeboard, typically one foot to prevent spillage should the tarp be compromised or not fully sealing the load.

c) Drilling operation.

Drilling activities are not anticipated in the current or intended operations at the site until such time in the future Hanson requests and the Department approves aggregate processing activities.

DEP Comment number 3 specified: *"Please updated Module 10.1: Equipment and Operation Plan to reflect current and intended operations at the Rock Hill Quarry. §77.452 (2)(iii)".* The acknowledgment of a future permit indicates that drilling and other mining activities such as blasting, sizing, excavation, dozing, loading, and aggregate processing are intended future activities. Note that Attachment 3(c)(i)- Conceptual Reclamation Plan, indicates that drilling, blasting, excavation, loading and grading are specified.

d) Overburden removal and mineral extraction

Overburden removal and mineral extraction activities are not anticipated in the current or intended operations at the site until such time in the future Hanson requests and the Department approves these activities.

One of the reasons for the DEP's requirement to specify future activities, as well as the handling, dust control and air monitoring plans for these activities, is presumably to allow a complete review of operations in support of a decision to allow this work to occur. DEP cannot make an informed decision regarding permitting without having reviewed a complete and thorough set of plans.

e) Stockpiles (overburden, topsoil, product).

Overburden materials have been stockpiled and stabilized with vegetation to minimize erosion by wind or water. Existing product stockpiles should contain sufficient moisture to minimize fugitive dust emissions. During 500-ton removal activities, if sufficient moisture is not present in the aggregate piles to minimize fugitive dust generation during material loading activities, wet dust suppression (e.g. standard water sprinklers) will be used to minimize fugitive dust emissions.

Standard water sprinklers (lawn sprinklers?) will not keep material adequately wet during excavation and loading operations because they can wet only the surface and are not directed at the point of disturbance. It should be reminded that hard rock cannot be wetted, and therefore, the stockpiles will not be sufficiently wetted when loading operations commence. Water hoses of a volume and flow that is commensurate with the volume being disturbed should be applied concurrently at the point of disturbance at all times. Also, there is no standard specified that allows a determination of "sufficient moisture", which allows decisions to be made in an arbitrary manner. Hanson should specify the definition of "sufficient moisture".

During 500-ton removal activities, the loader operator will minimize the drop height from the bucket into the dump truck in an effort to minimize fugitive dust emissions.

The term "minimize the drop height" is vague and arbitrary, allowing the drop height to be approved at the discretion of the excavator operator. It also allows the operations to be influenced by production schedules. Experienced operators can drop the load within a few feet of the bed, and this should be the requirement.

During 500-ton removal activities, the aggregate will be loaded from the downwind side of the existing aggregate stockpiles in an effort to minimize fugitive dust emissions.

The emissions due to loading is not influenced by location relative to the stockpiles position. It is influenced primarily by volume of material, adequate wetting, and drop height (particularly when wind is present that can strip fine particles). Tire mounted dozers and excavators should be specified to prevent crushing of rock which creates emissions with each pass.

Hanson will attempt to schedule the 500-ton removal activities during wet weather or during calm (wind) weather days in an effort to minimize fugitive dust emissions.

It is not clear why Hanson believes that calm wind conditions decrease fugitive emissions. In general, asbestos dust concentrations that migrate off site are higher during cold low-wind weather, where particles are not dispersed and remain near the ground surface, compared to warm windy weather where particles are dispersed and rise. Wind will increase fugitive emissions where drop heights are high and the material not properly wetted, but close attention to wetting and keeping the drop height to a few feet should prevent substantial wind stripping. Hanson should employ the services of consultants that are experienced with particle dispersion physics.

f) Loading and unloading areas.

Sufficient moisture should exist in the stockpiled aggregate products to control fugitive dust emissions during loadout. As needed, water will also be applied to the unpaved surfaces in the loading and unloading areas; stockpiles; and any other area where stone is being handled to minimize fugitive dust.

This statement is absolutely false and the assumption dangerous. Hard rock cannot be wetted. See comment regarding the sprinklers, above.

g) Crushing and other processing equipment.

At this time, no aggregate processing at the site is proposed.

As stated above, aggregate processing is the primary purpose of the permitting requests, as it has been since the beginning of the NOA investigation.

h) Conveyors.

N/A

Conveyance is very much applicable. Aggregate processing facilities convey material following crushing. During the 500-ton removal phase, the material will be unloaded at a crushing and sorting plant where conveyors are used. If permitted at the Rock Hill Quarry, the processing facility will use a conveyor system to sieve and sort the aggregate into size fractions. DEP requested that current and future operation be addressed, and Hanson did not respond to this operation that is an integral part of aggregate mining.

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.

N/A

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 during any site work.

Aggregate product stockpiles and berms provide additional noise attenuation.

Hanson will comply with the East Rockhill Township Noise Ordinance.

ATTACHMENT 4(b)(ii)

Draft Air Monitoring Plan
January 15, 2021

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Draft Air Monitoring Plan

Rock Hill Quarry
SMP No. 7974SM1
January 15, 2021

As requested by the Department, Hanson has prepared the following Draft Air Monitoring Plan (hereafter referred to as Plan) that incorporates monitoring for potential airborne asbestos fibers during periods of limited activity at the quarry as well as during inactivity. The scope of this Plan includes those activities Hanson, or its subcontractors, perform at the site. The limited activities are described below along with task-based air sampling protocols.

During the proposed limited activity period at the Rock Hill Quarry, the following site tasks must be conducted:

Monthly NPDES water sample collection

Hanson personnel or a subcontractor will access the site at least once per month to collect water samples from the NPDES discharge point(s). It is possible that additional trips in a month would be necessary to collect follow-up water samples. Since the site visit duration, typically by only one (1) person, would last less than 30 minutes, Hanson does not propose air monitoring to be conducted during these events. Hanson or its subcontractor will obey the posted speed limit of 15 miles per hour (mph) intended to minimize fugitive dust emissions that could potentially be generated by the passenger vehicle driving to the sample points.

Routine site inspection conducted via drive through;

At any time, Hanson or a subcontractor may access the site to conduct routine inspections for evidence of trespassing, site vandalism or regular checks on the stormwater management controls. Since the site visit duration would typically last less than 30 minutes, Hanson does not propose air monitoring to be conducted during these events. Hanson or its subcontractor will obey the posted speed limit of 15 mph intended to minimize fugitive dust emissions that could potentially be generated by the passenger vehicle.

Annual removal of 500 tons of crushed aggregate from existing stockpiles; and

As required by the Department, Hanson will conduct removal of a minimum 500 tons of previously crushed aggregate material on an annual basis. The event will likely last one (1) day; however, some equipment (e.g., loader, etc.) may be transported to the site ahead of the loadout event. During 500-ton removal activities, if sufficient moisture is not present in the aggregate piles to minimize fugitive dust generation during material loading activities, wet dust suppression (e.g. standard water sprinklers) will be used to minimize fugitive dust emissions.

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All vehicle movement at the site will obey the posted speed limit of 15 mph intended to minimize fugitive dust emissions. A maximum of 25 truckloads should be needed to remove the 500 tons. Additional details are provided in the Module 17 – Air Pollution and 22 Noise Control Plan (revised January 15, 2021).

DEP Comment number 3 specified: *"Please updated Module 10.1: Equipment and Operation Plan to reflect current and intended operations at the Rock Hill Quarry. §77.452 (2)(iii)".* The acknowledgment of a future permit indicates that drilling and other mining activities such as blasting, sizing, excavation, dozing, loading, and aggregate processing are intended future activities. The response did not adequately respond to DEP's requirement, and DEP will be unable to satisfactorily review this submittal and make an informed decision regarding permitting.

Prior to commencing site activities, Hanson will conduct a meeting with all personnel to review site procedures including air emission controls. During the day of the 500-ton loadout event, Hanson will conduct air monitoring to assess airborne particulate for the potential presence of naturally occurring asbestos (NOA). The air monitoring will be conducted at two (2) upwind and three (3) downwind locations relative to the aggregate loading operation and be located at or near the perimeter of the disturbed area of the Surface Mine Permit boundary (or as close as possible). The sample collection will follow the attached draft protocol titled Naturally Occurring Asbestos (NOA) Perimeter Monitoring Practices (to be finalized upon approval from the Department).

A letter report will be prepared and submitted to the Department no later than 30 days after the receipt of the analytical data from the laboratory. The report will include a description of the sample methodology, weather conditions, pump serial numbers, initial/final flow rates, sample numbers, sample locations, sample start/end times, laboratory analysis results, and recommendations (if necessary).

Non-scheduled site maintenance (e.g., ponds, roads, etc.)

At any time, Hanson or a subcontractor may access the site to conduct maintenance to stormwater ponds, berms, site roads, etc. Should the nature of the work disturb any dry aggregate or earthen material and last more than four (4) hours, the air monitoring methodology presented above will be utilized to monitor the site activity. If the maintenance event is to last less than four (4) hours, water sprays will be used to minimize fugitive dust emissions that could be generated by the maintenance activities. Natural precipitation will be used to minimize fugitive dust emissions when weather conditions allow. Hanson or its subcontractor will also obey posted speed limit of 15 mph intended to minimize additional fugitive dust emissions from moving vehicles.

Idle Site Background Conditions Monitoring

To address the Department's concerns regarding potential exposure to airborne NOA at the site, Hanson proposes to conduct a one-time background air monitoring event. This air monitoring event will last a total of two (2) days and consist of five (5) samples per day with two (2) upwind and three (3) downwind locations relative to the site permit boundary. Hanson will plan this background sampling event during

dry weather conditions. The sample collection will follow the attached draft protocol titled Naturally Occurring Asbestos (NOA) Perimeter Monitoring Practices (to be finalized upon approval from the Department). Upon receipt of DEP- approval, the background sampling will be completed prior to the next 500-ton loadout event.

1. Purpose

The purpose of this document is to outline practices for periodically assessing potential naturally occurring asbestos (NOA) fibers in air at the perimeter of the Rock Hill Quarry permit boundary, in East Rockhill Township, Bucks County, Pennsylvania. This document defines air sampling and analysis techniques to be implemented through certified and licensed third-party specialists.

A perimeter air monitoring plan should include daily, not periodic monitoring. If periodic monitoring is being requested, the periodicity (every other day; once a week, etc.) should be stated, along with the reasoning why periodic monitoring will be sufficiently protective of the surrounding community.

It is stated that the plan will be implemented by certified and licensed third-party specialists, however, no certification or license has been identified. This should not be determined after a plan is approved.

The plan does not adequately identify the purpose by including a vague reference to "assessing potential NOA fibers". The purpose should be the implementation of a site-specific air monitoring plan that will accurately measure asbestos concentrations at the site perimeter and assure that these concentrations are below a recognized risk-based threshold that has been agreed to by DEP and DOH.

2. Scope

The scope of this document is limited to the permitted boundary of the Rock Hill Quarry operations. It is not applicable to assessments conducted beyond the facility's perimeter. The focus of this assessment is to establish a plan for assessing the potential presence of NOA fibers in air at the perimeter of the Rock Hill Quarry.

In its deficiency letter, DEP stated: "Please address all concerns expressed by the Pennsylvania Department of Health in its September 16, 2020 letter to the Pennsylvania Department of Environmental Protection. §77.122, (b). DOH stated: "Also, partnering with local and state air monitoring teams to determine the NOA fiber levels offsite would be appropriate". No monitoring is proposed within the community and therefore, the air monitoring plan inadequately addressed the DOH concerns.

3. Definitions

Asbestos – A generic term for several asbestiform hydrated silicates. The term asbestos is limited to the following mineral fibers: chrysotile, amosite, crocidolite, anthophyllite asbestos, tremolite asbestos, and actinolite asbestos.

Asbestos Fiber – A fiber, longer than 5 micrometers (µm) with a length-to-width ratio of at least 3:1 and comprised of the asbestiform minerals listed in the above definition of asbestos.

Hanson continues to apply the least restrictive definition of asbestos to the Rockhill site. The 5µm length is derived from OSHA test methodology that applies the 5µm length to worker personal monitoring. EPA uses a lower length of 0.5µm for public monitoring. The application of the 5µm minimum length is inappropriate, and will severely under report the air concentrations in perimeter samples.

Phase Contrast Microscopy (PCM) – Counts fibers that are present on filters to give a time-weighted average of the concentration of those fibers for the volume of air sampled. PCM results are fiber concentrations and do not distinguish between asbestos and non-asbestos fibers.

PCM is the methodology used by OSHA for worker protection, and should not be used at the Rockhill site to measure airborne asbestos concentrations for public exposure purposes.

Transmission Electron Microscopy (TEM) - Identifies specific asbestos fibers in air (and bulk) samples. TEM is capable of analyzing samples at high magnification (20,000X and higher) and identifies asbestos fibers by morphology, crystalline structure and elemental analysis.

The term "morphology" refers to the practice of particle differentiation, where fibers that did not crystallize in the asbestiform habit are removed from the count, resulting in an under reporting of asbestos concentration. EEC has exhaustively reviewed this practice in prior submittals, and has shown that 1) no OSHA, EPA, or NIOSH-approved test method provides a procedure for particle differentiation, and 2) neither OSHA, EPA nor NIOSH support this practice. The asbestos concentration must be analyzed and reported as specified by the selected test method, and no arbitrary and internal procedures should be applied to the samples.

4. Naturally Occurring Asbestos (NOA) Air Sampling Practices

4.1. Number and Locations for Air Sampling

For each sampling event, a minimum of five (5) samples will be collected:

- Two (2) upwind; and
- Three (3) downwind.

General air sampling locations will be selected based upon:

- Site-specific activities ongoing during the sampling period;
- Historic prevailing wind direction; and
- Wind direction and site-specific weather conditions at the time of sampling.

Wind direction and wind speed will be monitored during each sampling event. If wind direction changes materially 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 analysis and comparison. In addition, if wind

direction change is considered extreme during any sampling event, the sampling location may be adjusted to reflect the change based on judgement of the field sampling technician.

• Wind direction and speed will be measured using a hand-held anemometer and recorded on field sampling data sheets.

In all cases, based upon professional judgment and knowledge of potential offsite receptors, sampling areas may also be adjusted to provide more representative data and consideration of special conditions. Any change in location will be properly documented to reflect the location, time, and change in wind direction.

An air monitoring plan should include a site map showing the anticipated areas of disturbance and proposed monitoring locations relative to the disturbance areas and prevailing wind direction.

4.2. Air Sample Collection

Sampling will be in accordance with the National Institute for Occupational Safety and Health (NIOSH) Manual for Analytical Methods (Method 7400 or Method 7402 for Asbestos and other Fibers). Air samples will be collected from fixed sampling locations with low-flow pumps. Each sampling apparatus shall include a cassette that contains a 25-millimeter (mm) diameter Mixed Cellulose Ester (MCE) filter with a pore size of 0.8 or 0.45 micrometers (um). Sample pumps shall be:

• Set to operate at approximately three (3) to four (4) liters per minute (lpm);
• Placed approximately five (5) feet above the ground surface (e.g. designed to approximate the breathing area of a worker or passerby to assess potential exposure);
• Calibrated prior to and following each sampling event using a cassette reserved for calibration (from the same lot of sample cassettes to be used for sample collection); and
• Sampled for durations lengthy enough to assure an adequate sample volume to achieve the desired laboratory reporting limits.

(Note: the site is a remote location where power for high volume sampling pumps is not available.)

Attachment A includes the field sampling data sheet and log sheet forms that will be used to document sampling activities.

The NIOSH 7400 method by PCM and complimentary 7402 method by TEM are applied to personal air sampling of workers and not applied for the purposes of public exposure assessment. For air sampling in schools and public spaces, EPA specifies the method specified in the AHERA regulations, which is a TEM based and not PCM-based method. PCM is allowed by EPA only when the amount of asbestos disturbance is very small and work is conducted in a mini-containment occupied by a single worker.

By specifying NIOSH 7400/7402, Hanson is applying the least restrictive method as a means to measure exposure to residents and the public. These methods count fibers that are >5µm long and ≥0.25µm

wide, and omit all fibers that are 5µm and ≥0.25µm, and cannot distinguish between asbestos and non-asbestos fibers.

It is possible that Hanson intends to measure a concentration using the NIOSH 7402 method. Although a concentration can be measured, the method does not allow this concentration to be reported- only the ratio of asbestos to total fibers. The use of this concentration will result in an under reporting of asbestos concentration because all fibers ≤5µm will be eliminated from the count.

It is significant that Hanson did not specify a threshold that is health-protective. In previous submittals, Hanson stated that the OSHA permissible exposure limit (PEL) of 0.1 f/cc would be used based on the NIOSH 7400/7402 methodology. This threshold is not protective of offsite receptors, particularly when it is based on a methodology that eliminates most fibers from the count. A risk-based threshold approved by DEP and DOH should be developed, based on EPA TEM testing protocols.

4.3. Air Sample Analyses

Laboratory analyses of the collected samples will be conducted via a certified and licensed third- party. The analyses will be in accordance with the NIOSH Manual for Analytical Methods (Method 7400 and Method 7402 for Asbestos and other Fibers).

• Method 7400 Phase Contrast Microscopy (PCM): PCM will be used to analyze all samples. (See Attachment B – Method 7400.)
• Method 7402 Transmission Electron Microscopy (TEM): TEM will be used to further identify asbestos fibers of all widths longer than 5 micrometers (µm) with a length-to- width ratio of greater than or equal to 3:1. (See Attachment C – Method 7402.)

See comment, above.

In addition, Hanson is proposing a deviation of the NIOSH 7400/7402 test method that may lead to an incorrect reporting of asbestos concentrations. Method 7400 counts all fibers that are >5µm and ≥0.25µm, and cannot distinguish between asbestos and non-asbestos fibers. Using TEM, NIOSH 7402 analyzes fibers with the same lengths and widths that are observable by PCM (PCM-equivalent fibers), and reports the ratio of asbestos fibers to total fibers, providing an adjusted concentration of asbestos only. Note that bullet no. 2 above states that fibers of all-widths will be analyzed, and therefore, the equivalency will be eliminated. If the ratio of asbestos to total fibers is lower for the thin fibers than the wide fibers, for example, the resulting adjusted concentration will be lower than the concentration reported if the methods were conducted as written.

4.4. Third-Party Requirements

Third-party personnel collecting samples will be both certified for asbestos work and licensed and/or certified according to applicable State of Pennsylvania requirements, as applicable.

The air monitoring plan should state what these licenses and certifications are.

Third party laboratories conducting analysis shall be accredited through both recognized accreditation bodies, the American Industrial Hygiene Association (AIHA) and the National Voluntary Laboratory Accreditation Program (NVLAP).

Under the NVLAP accreditation, laboratories are required to adhere to an approved standard operating procedure for the analysis of air samples, and successfully pass proficiency analytical tests of samples provided by NIST. The test methods that are covered under the accreditation do not allow deviations that have been employed on the Rockhill site and seem to be intended to be used in the future. DEP should require a submittal of the laboratory SOP, presumably RJLG, and allow review prior to any decision regarding permit approvals.

4.5. Reports and Records

Air monitoring results will be formally documented within a summary report. Reports are to be maintained for a period of no less than five (5) years past the sampling date.

5. Responsibilities

Quarry Management

Quarry Management is responsible for the implementation of the sampling through:

- Providing for the contractual use of third parties conducting the air monitoring; and
- Maintaining result summary documentations.

Environment & Sustainability

Environment & Sustainability (E&S) representatives are responsible for supporting management during sampling implementation, coordinating for any necessary Occupational Health support with Corporate, and assisting in result communication.

6. References

1. National Institute of Occupational Health and Safety (NIOSH) Manual for Analytical Methods:
1.1. Method 7400
1.2. Method 7402