



November 16, 2020

Dr. Rachel L. Levine  
Secretary of Health  
Pennsylvania Department of Health  
625 Forster Street  
Harrisburg, PA 17120

Dear Dr. Levine:

The following is a response from Rockhill Environmental Preservation Alliance (REPA) on the PA DOH letter to PA DEP dated September 16, 2020, regarding Naturally Occurring Asbestos (NOA) at the Rockhill Quarry in East Rockhill, PA.

REPA is grateful for DOH's input on the risks of exposure to NOA and concurs with many of DOH's observations and conclusions. Your letter is consistent with virtually all of the recommendations submitted by our expert, Dr. Bradley Erskine, of Erskine Environmental Consulting (EEC) within its reviews of technical documents submitted by Hanson, RJLG and EarthRes. Based on the DOH letter, REPA concludes that mining of NOA-bearing rocks at the Rockhill quarry is not safe to the residents of the Rockhill Township, mining activities should not be permitted, and the site be properly reclaimed to prevent any future exposure to asbestos.

To provide context and a basis for its conclusions and recommendations, the DOH document begins with a review of significant EPA and professional studies that were related to asbestos exposure by Naturally Occurring Asbestos near residential communities. These include the vermiculite mining site at Libby, Montana; waste piles at Ambler, Pennsylvania; mining at Belvedere Mountain, Vermont; exposures from asbestos in southern Nevada; and the El Dorado hills of northern California.

DOH concluded:

*"These studies document that environmental exposure to NOA can occur in communities near specific geological formations and may increase the risk of asbestos-related lung diseases."*

Based on the technical information produced in these documents combined with the acceptance that asbestos is present in the Rockhill quarry rocks, DOH also concluded:

*"As it pertains to the health of citizens who live near the Rockhill Quarry, NOA is best to be avoided and left alone", and "These observations justify pause for further evaluation."*

Based on the substantial documentation provided in several of EEC's review documents, REPA concurs with these recommendations.

The DOH document also references the testing methodologies that were used in the studies that are considered the standard of practice for investigating NOA sites and assessing the potential risk. The document states:

*“The methods and results are presented in the EPA document titled: El Dorado Hills Naturally Occurring Asbestos Multimedia Exposure Assessment El Dorado Hills, California. In another NOA EPA document titled Environmental Monitoring for Asbestos: Sumas Mountain Asbestos Site Selected Residential Properties, bulk, activity-based, and surface water sampling methods are explained in detail.”*

DOH further states:

*“Also, various activity-based personal sampling should be considered to determine the risk of exposure to vulnerable populations, a thorough environmental asbestos sampling plan should also include schools, daycares, and hospitals, etc.”, and “Also, partnering with local and state air monitoring teams to determine the NOA fiber levels offsite would be appropriate.”*

The geologic assessment did not employ the standard investigative and test methodologies, air monitoring has not been conducted, and all work was conducted by consultants and laboratories with significant financial ties to the mining industry.

Thus, DOH concurs with many recommendations that were provided within the EEC document reviews, including:

- The geologic investigation that was conducted by the owner of the mine was biased and not designed nor performed in conformance with methodologies that are accepted by EPA, and a new investigation be conducted by DEP (or DOH) using their own consultants and laboratory to eliminate the conflict of interest (Page 5 of EEC document dated September 1, 2019,
- Activity-based sampling should be conducted within the project site and air monitoring along roads within the community be conducted to assess the potential and actual exposures. (Page 5 of EEC document dated June 6, 2019),
- Conduct predictive air modeling that may assist in the design of the air monitoring program, and set risk-based thresholds to document exposures to residents and children at nearby schools (page 5 of EEC document dated September 23, 2019).

DOH also appears to reject Hanson’s representation that air monitoring performed at the site shows that the public has or will not be exposed to asbestos during mining (see bullet no. 4, page 1 of Hanson’s request for an extension dated April 2, 2020). DOH states:

*“The Department does not currently have sufficient data to support the assessment that communities or children who attend schools in close proximity to the Rockhill Quarry are in immediate risk of asbestos or Elongate Mineral Fiber-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.”*

Thus, the potential for exposure to Township residents is unknown but likely, and further investigations, performed by DEP/DOH third-party consultants using EPA protocols, is required before any additional activities occur at the site.

### **Conclusions of the DOH Letter**

In their summary section at the end of the document, DOH concluded:

*“Until sufficient data are available to determine the level of onsite and offsite asbestos or hazardous Elongate Mineral Fibers 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.”*

DOH summarized three concepts. REPA concurs with Concept 1 and 2 but agrees on Concept 3 with limitations, as described in bullet 9 of the **CONCLUSIONS** section of this letter.

**Concept 1: “If possible, NOA should be avoided and left alone: If rock containing NOA is intact and undisturbed, your risk of exposure is low. Avoid blasting it, crushing it, or grinding it up.”**

REPA concurs with the finding that asbestos should be left alone in its undisturbed state. Blasting, crushing and grinding of rock are the principal methods to produce aggregate in hard rock quarries. As was pointed out on page 7 of EEC’s memorandum dated June 6, 2019, as well, as other citations in EEC documents, hard rock mining of NOA materials is a high emission and multiple release process, including drilling using percussion methods where dust and cuttings are removed using compressed air, blasting where no dust mitigation measures are available, sorting and sizing of blasted material using large pneumatic hammers, multiple crushing of material by large steel-track excavators and bulldozers, further disturbance by loaders, and crushing and sieving to produce material with a specified size distribution at the crushing and processing facility. Each release is exacerbated by the powerful forward-facing cooling fans on heavy equipment, continuously blowing dust into the air that cannot be suppressed or captured. These disturbance activities at multiple points of disturbance in hard rock create a large cumulative source of asbestos emissions compared to routine grading projects in loose soils. The release of asbestos cannot be avoided at the site because as pointed out on page 2 item number 4 in EEC’s memorandum dated August 31, 2020, the RJLG petrographic analysis showed that asbestos is distributed throughout the diabase unit and not restricted to the large visible actinolite veins.

For examples of typical mining operations, please see the YouTube videos at the following links:

#### Blasting

[https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwjh\\_u7v9MjsAhVSsp4KHeWMBjcQyCkWAHoECAgQAw&url=https%3A%2F%2Fwww.youtube.com%2Fwatch%3Fv=fg2hefTwZ00&usg=AOvVaw341taUy-\\_kim9LTLfaaznt](https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwjh_u7v9MjsAhVSsp4KHeWMBjcQyCkWAHoECAgQAw&url=https%3A%2F%2Fwww.youtube.com%2Fwatch%3Fv=fg2hefTwZ00&usg=AOvVaw341taUy-_kim9LTLfaaznt)

#### Excavation, bulldozing and loading

[https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwiPt-q9cjsAhVDrp4KHbGRCMIQtWlWAnoECAEQAg&url=https%3A%2F%2Fwww.youtube.com%2Fwatch%3Fv=ksHLOydwZH4&usg=AOvVaw0\\_FMQRai8jQf2-IteGwpJ2](https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwiPt-q9cjsAhVDrp4KHbGRCMIQtWlWAnoECAEQAg&url=https%3A%2F%2Fwww.youtube.com%2Fwatch%3Fv=ksHLOydwZH4&usg=AOvVaw0_FMQRai8jQf2-IteGwpJ2)

#### Crushing and processing

[https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwjXoMLS8sjsAhUNsJ4KHx6JBGIQtWlWA3oECAEQAg&url=https%3A%2F%2Fwww.youtube.com%2Fwatch%3Fv%3DihySPvB1uTQ&usg=AOvVaw2vWRNO1cUpFy\\_PNBhG4PMh](https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwjXoMLS8sjsAhUNsJ4KHx6JBGIQtWlWA3oECAEQAg&url=https%3A%2F%2Fwww.youtube.com%2Fwatch%3Fv%3DihySPvB1uTQ&usg=AOvVaw2vWRNO1cUpFy_PNBhG4PMh)

**Concept 2: “Have a plan. Before you disturb rock or soil that is likely to contain asbestos, make sure you have an adequate protocol in place to control and contain the dust. Also, partnering with local and state air monitoring teams to determine the NOA fiber levels offsite would be appropriate.”**

REPA agrees with DOH's recommendation that before any activity at the quarry proceeds, the actual risk to offsite residents needs to be assessed by professionals with no ties to the mining industry.

Page 4 of EEC's June 6, 2019 memorandum recommended that the perimeter monitoring program be supported by air modeling to provide a predictive capability to airborne dust concentrations at off-site locations. Air modeling is fairly commonplace at sites such as quarries where high emissions are predicted, and the data from the model can be used to calculate a risk-based threshold for the site perimeter program. Page 5 of EEC's memorandum dated June 6, 2019 recommended that the program include activity-based sampling and construction area monitoring, in addition to perimeter and community area air monitoring.

Page 4, recommendation 4, of EEC's June 26, 2020 memorandum further recommended that DEP should reject Hanson's Air Monitoring Plan on the basis that it does not adequately address potential exposure to the residents of the Rock Hill Township, worker protection, and background. It further recommends that an Air Monitoring Plan should be developed by an experienced professional, reporting directly to DEP (or DOH), after a competent NOA assessment has been made, on the basis that the contractor should not be monitoring their own emissions when the public is the receptor.

***Concept 3: Keep it wet and cap it: If the rock or dirt contains NOA, keep it wet while you're working, and seal it under a layer of clean soil and a layer of pavement, turf, or clean gravel.***

As was pointed out on Page 7 of EEC's memorandum dated June 6, 2019, as well as other citations in EEC documents, hard rock cannot accept water to become adequately wetted in the same manner that loose material can. Thus, there are no standard methods available to control asbestos dust generated during the drilling, blasting, tracking (by excavators and bulldozers), crushing and processing. The fine material generated from these operations may be controlled using water, but the asbestos fibers generated by these operations have since been released with no control. NIOSH has shown that misters and foggers, such as those used at crushing facilities, is not effective for suppressing small dust particles of asbestos. There is no effective method of asbestos dust control during hard rock mining operations. This illustrates EPA's point about how low levels of asbestos in rock can produce high concentrations in the air under certain conditions. Hard rock mining is one of those conditions.

### **Commonwealth of Pennsylvania Department of Health Letter to Pennridge School District, Dated October 22, 2020**

On the basis of their review of relevant documents and scientific literature, the DOH stated their position unequivocally as follows:

*“Until operations at the Rockhill quarry can be deemed non-hazardous for adults and children in the surrounding communities, we recommend that geological formations which contain Naturally Occurring Asbestos (NOA) in Rockhill quarry should not be disturbed.”*

They further state:

*“Any activity occurring on the Rockhill quarry which could raise the risk of exposure to inhaled or ingested elongated mineral fibers should be avoided.”*

It should be noted that the term “elongate mineral fibers (EMF)”, which was also referenced in the September 16, 2020 letter, refers to “elongate mineral particles (EMP)”, a term used by the National Institute for Occupational Safety and Health (NIOSH) to describe any mineral particle that meets the regulatory or test method definition of a fiber (see reference, footnoted below)[1]. At the Rockhill quarry, this includes all fibers reported by Hanson and R.J. Lee Group as asbestos, as well as those reported as “cleavage fragments”.

Thus, DOH appears to concur with EEC's recommendation:

*“that the laboratory refrain from arriving at an opinion whether a particle is asbestiform or a cleavage fragment. There is no approved test method to make this determination, and the opinion is subjective”* (page 4 of EEC document dated June 6, 2020).

DOH also referenced the EPA toxicological study of NOA at the Libby Montana Superfund site. The study found both cancer and non-cancer health effects from the inhalation of amphibole fibers that are not regulated in building materials, including winchite, richterite and arfvedsonite. The USGS and NIOSH classify another “non-regulated” amphibole, glaucophane, as asbestos. The so-called “non-regulated” amphiboles, if present at the Rockhill quarry, were neither identified nor included in the asbestos reporting, leading to another under-reporting of potentially hazardous asbestos fibers.

As a result, RJLG under reported the asbestos concentrations at the Rockhill quarry, as was pointed out in several of the EEC documents.

[1] <https://www.cdc.gov/niosh/docs/2011-159/pdfs/2011-159.pdf>

### **Additional Considerations**

REPA feels it necessary to point out that the potential for exposure to asbestos and regulatory framework for its safe handling is not limited to the quarry boundaries. It will be a continuing risk to any entity who accepts this quarry material for use as a construction aggregate. The owners and contractors of infrastructure, commercial and residential projects that accept or use this material will need to be informed of the presence of asbestos, and OSHA compliance with perimeter exposure monitoring will be required while this material is being placed. Further, any future disturbance of this material will require the same level of compliance and verification monitoring. It should be pointed out that if this material were to be used on a state highway project, for example, the OSHA Standard (asbestos in any amount) will be triggered during any repair or maintenance operation that disturbs this material. Over time, the asbestos-containing product from the quarry will progressively spread out among the Township community and elsewhere, creating new and multiple sources of asbestos exposure. Unless the DEP creates an elaborate tracking and notification system for this material, and implements Operation & Maintenance procedures for its placement and future disturbance, the potential exposure to the community by a specific volume of material will be multiplied: once from the mining, once during placement and grading, and again if disturbed in the future. If used as fill on residential projects, children may be exposed daily if the material is not properly capped. This is not only a health issue, it is also a liability issue for those who accept and use the material, as well as those who own property where this material is used.

### **CONCLUSIONS**

The DOH concluded that there is insufficient 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. They cite several EPA and other studies, which provide a roadmap to make this determination. There are two components to a program where sufficient data can be collected:

First, a multi-disciplinary team of professionals would need to determine a risk-based asbestos perimeter threshold that is deemed “safe”, and collect data to establish that this threshold is not likely to be exceeded over the ten-year project. This effort would include re-evaluation of the site geology and mineralogy, activity-based sampling of each disturbance activity, measurement of asbestos emission rates, background characterization, receptor-risk analysis, air modeling, and community air sampling. The process is time consuming and expensive, and there is no guarantee that the effort will prove that the mining operation can be conducted safely.

Second, assuming a dust mitigation program and theoretical risk-based perimeter threshold is accepted by DOH and the community, the actual exposure to residents will not be known without inspection and verification monitoring. The inspection and verification monitoring program would also require a time consuming and expensive process, involving a multi-disciplinary team of professionals. Daily inspections would be required, as will daily monitoring at the site, site perimeter, and within the community. It may require several years of data collection, and perhaps the entire ten year period, before it is certain that the operations are safe, and it will be far too late if it is found that the original assumptions and theoretical calculations were incorrect. Overexposure to asbestos can be determined only after the overexposure has occurred for a considerable time period.

As a result, REPA is calling for the immediate and permanent cessation of all operations at the Rockhill quarry based on already established facts:

- Asbestos is a carcinogen that can inflict serious health hazards and even cause death to those who are exposed.
- The Rockhill quarry is located in a residential area where children, a high-risk group, are located nearby.
- No agency has published a safe level of exposure, and therefore, any exposure may be unsafe.
- NOA is present and pervasive across the Rockhill quarry.
- Since there is no effective method for asbestos dust control during hard rock mining operations, release of asbestos cannot be suppressed or avoided.
- The quarry will operate for ten years, increasing risks and cumulative effects through long term exposure.
- Although quarry owners may argue that asbestos concentrations are “low”, and therefore any exposure derived from quarry operations will be “safe”, EPA unequivocally states that even low concentrations of asbestos in the source material may lead to unacceptable airborne concentrations, depending on many factors including disturbance activity, type of receptor (adult vs. child), and distance.
- The quarry project is a high emission project where low rock and soil concentrations can lead to high airborne concentrations: drilling, blasting, steel track equipment, sorting and sizing using pneumatic hammers, loading, crushing and sieving, etc.
- Problems are exacerbated due to the impossibility to wet hard rock. Since no safe method has been established to eliminate NOA emissions from mining hard rock found in the Rockhill quarry, the DOH recommendation in Concept 3 to “keep it wet while you're working” is not acceptable for preventing the release of asbestos fibers into the atmosphere. Dust will be further tracked through the community, providing additional sources of exposure even closer to receptors.
- The material will likely be purchased by developers and contractors, and placed as fill or road base throughout the community over time, requiring OSHA compliance and monitoring throughout the life of the project, including any repair or maintenance operation that disturbs this material.
- Run-off from the Rockhill quarry property drains to an unnamed tributary of the Tohickon Creek, an integral tributary of the Lower Delaware Wild and Scenic River system.
- Asbestos fibers from the quarry could adversely impact the nearby 518-acre Quakertown Swamp, home to the largest great blue heron rookery in eastern Pennsylvania, habitat for 91 bird species and the largest intact freshwater wetland remaining in Bucks County, recognized as significant by the Pennsylvania Natural Diversity Inventory because it is a haven for a variety of wildlife species. The area has been listed as a first priority site in the Bucks County Natural Areas Inventory (NAI) and is categorized by the U.S. Fish and Wildlife Service as an all-important wetland area and important natural resource because it stores floodwaters and its dense plant growth absorbs and filters pollutants.

REPA has been joined by numerous Legislators (at the local, state and federal levels), Environmental Groups and residents who share the unified view that mining operations at the Rockhill quarry must be permanently terminated in order to protect the health of the community and sensitive natural areas nearby. Their letters, along with technical reviews by EEC and other information relevant to NOA at the Rockhill quarry, can be found at our website <https://rockhillpa.org/>.



We ask that PA DOH consider all facts and collaborate with PA DEP to protect the residents of East Rockhill, surrounding communities and our environment by permanently shutting down the Rockhill quarry.

We thank you for your attention to this matter.

Respectfully Yours,  
Rockhill Environmental Preservation Alliance, Inc.

cc: The Honorable Patrick McDonnell, Secretary, PA-DEP  
The Honorable Brian Fitzpatrick, U.S. Representative PA-01  
The Honorable Steven Santarsiero, 10<sup>th</sup> Senatorial District  
The Honorable Craig Staats, PA's 145<sup>th</sup> 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  
Ms. Megan Banis-Clemens, Pennridge School District, School Board Member