



August 13, 2020

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

Dear Mr. Latsha,

Thank you for your July 23, 2020 response to REPA's inquiry of July 8, 2020. As an FYI, we never received the response that was addressed to us directly. Rather, we were made aware of it after East Rockhill Township (who was copied) posted it on their website. For the future, our email address is info@rockhillpa.org and our mailing address is 703 W. Market Street, Perkasie, PA 18944. Attached please find comments from Erskine Environmental Consulting (EEC) on your explanation for the asbestos test protocols that DEP will require from Hanson.

Because there is still apprehension that RJLG may use other criteria to report reduced asbestos content at the Rockhill Quarry, Dr. Erskine has recommended a prohibition of those techniques which would allow such under reporting. In order to confirm that all proper procedures are being followed, he also recommends that lab bench sheets and spreadsheets be reviewed, and that RJLG state, precisely, the criteria they used, as well as inter laboratory sample exchange.

It is concerning that the DEP memo focuses on bulk samples, which raises additional questions. It is also not clear if the extension for testing is for water samples only. While recent focus has shifted to the accuracy of testing protocols, details for location of sample selection and collection procedures also remain unclear. Is DEP asking for the three analyses of previous samples or new samples? What samples are being tested, and why were they selected? How was the location and sample selection determined? Please respond to these new questions.

One of our largest concerns, still, is that the effort to date has been biased by conflict of interest when Hanson hires its own consultant and lab, because of the significant potential that the product may be compromised if asbestos is found. It is in the owner's financial interest to under-report or not report the presence of asbestos. This has been pointed out many times in previous EEC reports which REPA submitted to DEP. Dr. Erskine also recommended a fresh start using DEP consultants. But there has been no indication from DEP that there is any interest in third-party sampling, instead allowing continued self-monitoring by laboratory consultants who have repeatedly under reported asbestos levels at the Rockhill Quarry. Also, data is

worthless if samples were not collected properly and are not representative. Without a clear sampling plan that can identify the location of the asbestos and can guarantee that no asbestos will be blasted or dispersed into the air during future mining activities, residents will not be protected from risks of exposure.

We can continue to inquire, review, comment and respond indefinitely. But the *indisputable* facts remain that a) asbestos has been detected at the Rockhill Quarry b) mining operations at the site occur within 300 feet of residential families and within a 5 miles radius of 11,000+ students c) *“there is no ‘safe’ level of asbestos exposure for any type of asbestos fiber. Asbestos exposures as short in duration as a few days have caused mesothelioma in humans”- OSHA safety and health fact sheet for asbestos <https://www.osha.gov/SLTC/asbestos/>.*

We would also like to clarify our comment regarding DEP “negotiating” test protocols with Hanson. That comment was based exclusively on your July 2, 2020 letter of extension to Hanson in which you state *“This additional time is being granted because the Department asked Hanson to wait on analyzing the samples **until the Department and Hanson could agree on testing and counting protocols.**”* Perhaps there was a misunderstanding. Generally speaking, though, it takes two sides to “agree on”, but only one oversight authority to establish requirements.

Respectfully yours,

Rockhill Environmental Preservation Alliance, Inc.

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
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Erskine Environmental Consulting

Geologic Investigations Hazardous Materials Naturally Occurring Asbestos

Technical Memorandum

July 29, 2020

Subject: Comments on DEP's letter dated July 23, 2020, titled:
"Response to inquiries regarding the extension of the due date from June 30, 2020 until August 14, 2020 for reporting TEM and petrographic analysis of rock samples described in the Department's April 17, 2020 letter"

Attached is a Microsoft WORD import of the DEP letter referenced above, with comments highlighted.

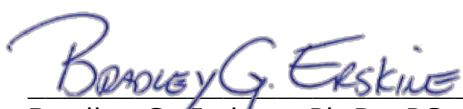
In general, it appears that DEP has reviewed a wide range of test methodologies for asbestos, and appreciates the advantages, disadvantages, and nuances of each. In particular, the general analysis program appears to be designed to compare the variation of concentrations of asbestos that may be reported depending on which test method is applied.

Comments on several subjects are included in the attached letter, but most focus on sample preparation, the use of applying the general definitions of commercial asbestos as a means to remove fibers from reporting, and the problematic use of test method ISO 22262. However, the intention of comparing several test methods, particularly ISO 10302, suggests that many of the issues outlined in this review may have already been anticipated by DEP.

Included in the comments are several recommendations. These include:

- Require samples to be prepared following the recommendations found in the CARB 435 Guidance Document (CARB, 2017).
- Fibers of all widths should be counted.
- Refrain from allowing the general characteristics of commercial asbestos to be applied as a means to remove fibers from reporting requirements.
- Request all lab bench sheets that identify fibers encountered, and the reasons why they were, or were not, included in the count.
- Request the EXCEL spreadsheets that enumerate each fiber and provides their lengths and widths.
- Retain a split sample and prepared TEM grids for inter laboratory QA analysis.

Please contact me if you have any questions.



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

July 23, 2020

Rockhill Environmental Preservation Alliance, Inc.
703 West Market Street
Perkasie, PA 18944

Re: Response to inquiries regarding the extension of the due date from June 30, 2020 until August 14, 2020 for reporting TEM and petrographic analysis of rock samples described in the Department's April 17, 2020 letter

REPA Members:

The Pennsylvania Department of Environmental Protection (Department) on June 29, 2020 extended the deadline to August 14, 2020 for the submission of rock sample testing results as a result of its desire to ensure that a more inclusive analytic methodology would be followed. In order to fulfill this concern, also expressed by public comment, the Department had discussions with Hanson Aggregates and its consultant R.J. Lee Group leading up to the decision to extend the deadline.

As a result, the Department expects that the following methodology will be applied:

1. Samples will be prepared utilizing the method as described in CARB 435

The sample preparation methodology as specified by CARB 435 has become the standard for the processing of rock and soil samples. However, not specified is the subsequent CARB 435 guidance document that was produced, following extensive testing, to address deficiencies that have been observed in the original method. In particular, the guidance document recommends the use of a Bico Braun disc pulverizer (or equivalent) calibrated to produce a nominal 200 mesh final product with a narrow size distribution. The use of ball mill or chatterbox pulverizers, which are allowed in the original CARB 435 method, cannot be accurately calibrated, and typically over-pulverize asbestos fibers, leading to destruction of fibers or milling to a small particle size below the 0.5 μ m counting threshold. The result is an underestimation of asbestos concentration.

It is recommended that RJLG adhere to the improvements within the CARB 435 guidance document, and summarize, in a cover letter, the procedures that were used to prepare samples. A summary of the methodology employed to prepare and analyze samples, as well as deviations, is a standard practice within the laboratory industry.

2. All particles will be counted as fibers that meet the criteria below:
 - a. Length \geq 0.5 μ m
 - b. Length to width aspect ratio \geq 3:1
 - c. No minimum width

In general, the counting rules specified by DEP are consistent with current standard of practice for rock and soil samples. However, there are two potential flaws that may allow deviations from the intent of the instructions:

- I. The definition of a "fiber" is not specified, nor is a prohibition of using subjective

differential counting methods included. For example, RJLG may continue its practice of applying subjective and unique criteria that eliminates fibers based on the non-ideal morphology. For example, RJLG has demonstrated that they eliminate fibers when they possess non-ideal morphologies such as an embayments, stepped sides, or non-perpendicular tips. The instructions in item (2) may not prevent the under-reporting asbestos concentrations based on a practice that is far outside of the norm for laboratories and not expressly specified in test methods.

- II. The requirement of “no minimum width” in item 2(c) may not prevent the elimination of fibers by applying a maximum width cutoff point. RJLG has indicated that they selectively remove fibers based on health-risk criteria, and the instructions, as stated, may not prevent elimination of fibers with widths greater than, for example, 0.2 μ m or 0.4 μ m, or any other criteria that is chosen for whatever reason. This can be avoided by stating that fibers of all widths be counted. It is recommended that DEP require all widths to be counted, and request an EXCEL spreadsheet that provides the length and width of each fiber encountered.
- III. The instructions do not address bundles of fibers. A bundle of long fibers with independent aspect ratios $\geq 3:1$ may be eliminated because the bundle itself does not have an aspect ratio of $\geq 3:1$.

It is recommended that RJLG specify, in its cover letter for the analyses, precisely the criteria used to define a “fiber”, and the criteria used to eliminate fibers and bundles from reporting. In addition, RJLG be instructed to submit the lab bench sheets that generally describe, often with a sketch, each fiber that was considered, and state the reason why a fiber was not included in the count.

3. TEM analysis will cite to EPA 600/R-93/116 as the method for TEM analysis and TEM analysis will also cite ISO 22262 as the method for TEM analysis.

The application of ISO 22262-1 and ISO 2262-2 is an interesting choice. Normally, it should not be applied to building materials in the United States nor applied to NOA under any circumstance. ISO 22262 is not cited by any Federal regulatory agency as an approved test method, is not consistent with test methodology required in the United States, and is virtually unknown within the asbestos consulting industry in the United States. It may be a standard test method for building materials in the European Union, but has not been adopted for use in the United States.

The stated purpose of ISO 22262 is “to quantify the asbestos for the purpose of defining the regulatory status of a material” in commercially applied asbestos within building materials. Annex A of the method titled: “Types of Commercial Asbestos Containing Materials and Optimum Analytical Procedures” cites examples of materials under the scope as: “asbestos cement products, asbestos-containing lightweight panels and fire-prevention panels, asbestos packings and asbestos cloths, asbestos boards, asbestos foams, asbestos-containing fireproofing and acoustic and decorative plasters (sprayed asbestos), and asbestos-containing compositions for trowel application and putties”.

In addition, the ISO 22262 method is narrowly and extremely focused toward the identification of asbestos that was commercially mined, and therefore, is one of the least inclusive methods if applied to NOA. For example, the method states that a fiber should be classified as asbestos if “no statistically significant peaks from Al are present”. The purpose of this restriction is to include only fibers that are compositionally equivalent to those that were mined and applied to building materials (and therefore the building material is regulated under several regulations), and exclude asbestos that was not intentionally applied, and therefore, the material would not

be regulated in buildings. While commercially mined asbestos deposits may not contain appreciable amounts of aluminum, this is not true for NOA because Al readily substitutes for Si in silicate minerals. In the United States, asbestos is not excluded from reporting if the Atoms per Formula Unit (APFU) of Al is below a particular threshold. Applying these criteria to NOA, which are designed for building materials, would exclude most amphibole asbestos in geologic materials from reporting requirements. Both EPA and USGS have dismissed this type of differentiation technique as not suitable for the identification of asbestos in geologic materials.

4. Fibers meeting the above criteria will be recorded as asbestos if they are shown to be chrysotile compositionally by TEM/EDS or structurally by TEM/SAED consistent with amphibole mineral.

As written, this specification requires all amphiboles that meet the definition of a fiber be reported as asbestos. This is a positive requirement because it would eliminate the under reporting of amphibole asbestos using subjective chemical criteria specified in ISO 22262.

5. Of the amphibole particles identified, they will be grouped into the asbestos category if they are consistent with the morphological description of asbestiform as described in two asbestiform counting methods.
 - a. Method 1: This counting will be done according to EPA 600/R-93/116 (Appendix A, Asbestiform (morphology), (see also ISO 22262-1 (Section 7.2.3.7.1 Morphology)).
 - b. Method 2: This counting will be done using the same sample according to the counting criteria in ISO I0312, (See Annex C, Structure Counting Criteria).
- I. It may be problematic for particles that meet the definition of a fiber to be grouped or otherwise classified as asbestos based on the general characteristics provided in test methods for building materials.

EPA 600/R-93/116 Appendix A, states: “Asbestiform (morphology)- Said of a mineral that is like asbestos, i.e., crystallized with the habit of asbestos. Some asbestiform minerals may lack the properties which make asbestos commercially valuable, such as long fiber length and high tensile strength. With the light microscope, the asbestiform habit is generally recognized by the following characteristics...”.

ISO 22262-1, Section 7.2.3.7.1, Morphology has similar language: “In the light microscope, the asbestiform habit is generally recognized by the following characteristics...”.

Clearly, these general characteristics cannot be used as a differentiator for reporting asbestos in building materials, and do not apply to all asbestos in geologic materials. Identification and reporting of asbestos should be based on the counting criteria only, such as that specified in item (2), above, and not eliminated because particles do not meet the general characteristics found in commercially mined asbestos. As an excellent example, ISO 10302 provides definitions of asbestos in the beginning of the test method, but the counting rules found in Annex C do not apply the general definitions. This is also the case for EPA and OSHA test methods.

- II. Many of the issues regarding definitions and differential counting methodology will be eliminated by applying the counting protocol of test method ISO 10302. It is widely recognized in the United States, used by EPA and consultants for risk assessment purposes, and by geologists to fully characterize the dimensional population of asbestos in rocks. It is recommended that DEP request that an EXCEL spreadsheet of the test data (dimensions of each enumerated bundle and fiber) be included with the test report.

This test protocol was not a "negotiated" result. Rather, it is a requirement imposed by the Department that should result in an enhanced and more complete analysis of the samples as the counting of identified asbestos fibers will additionally be performed according to the Structure Counting Criteria as described in ISO 10312, Annex C. This Asbestos Structure Counting Criteria is more inclusive of Elongate Mineral Particles over a greater range than EPA 600/R-93/116 and/or ISO 22262.

Both counting methods (EPA 600/R-93/116 (ISO 22262) and ISO 10312) will be performed on each sample examined to allow the Department to compare the results of each counting method on each sample to assist in the characterization of the geology of the quarry.

It is recommended that DEP requires RJLG to split the prepared sample for quality assurance purposes. The samples could be sent to an independent lab to assure that the material was prepared properly (and not over pulverized), and if so, reanalyzed. The TEM grids should also be retained for re-analysis.

There has been no modification of the protocol for re-sampling and testing the water samples. The requirement to use EPA 100.1 remains the same as outlined in the Department's April 17, 2020 letter. The Department does not view this extension as an additional opportunity to respond but as an effort to avoid additional delays caused by reviews of Hanson's submittals after the fact.

Thank you again for your inquiry.

Sincerely,

Gary A. Latsha

District Mining Manager
Bureau of District Mining Operations

cc: John J. Stefanko, Deputy Secretary
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Michael Kutney, P.G., EGM
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MSI-REPA (7/20)

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