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October 4, 2021

Via Email and First-Class Mail
Mr. Richard Tallman, P.E.
Pottsville District Mining Office
Pennsylvania Department of Environmental Protection
5 West Laurel Boulevard
Pottsville, PA 17901

Re: Preliminary Ambient Air Analysis Results
Elevated Review Technical Deficiencies Application No. 7974SM1C10
Hanson Aggregates Pennsylvania LLC
Rock Hill Quarry
East Rockhill Township, Bucks County, PA

Dear Mr. Tallman:

On behalf of Rockhill Environmental Preservation Alliance, Inc. (REPA), attached please find comments from Dr. Bradley Erskine of Erskine Environmental Consulting, Inc. (EEC) to the above-referenced Preliminary Ambient Air Analysis Results.

Kindly also accept this letter as a brief response to Hanson Aggregates Pennsylvania LLC's (Hanson) criticisms of Dr. Erskine's prior reviews. Hanson erroneously claims that "[a]ll fibers, regardless of length, are counted by Hanson at the perimeter air Monitors," and that "[t]here will not be a scenario where the Department is unaware of the presence of NOA at the perimeter based on any 'selective' or 'systematic' counting scheme." As the attached comments show, however, this is just not true. Rather, as Dr. Erskine objectively explains, the RJLG report (dated July 30, 2021) categorized detected fiber as non-asbestos amphibole in opposition to reporting requirements of the ISO 10312 test method. The fiber should have been reported on the report as actinolite asbestos, and not non-asbestiform amphibole.

The Department's determinations regarding activities at the Rock Hill Quarry must be based on facts and science, not unsupported hyperbole.

REPA remains committed working with the Department to permanently cease operations at the Rock Hill Quarry.

Thank you for your attention to this matter.

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
Gary Latsha, PADEP
Doug White, PADEP
Michael Kutney, PADEP
John Stefanko, PADEP
REPA

Erskine Environmental Consulting

Geologic Investigations Hazardous Materials Naturally Occurring Asbestos

Technical Memorandum

September 28, 2021

Subject: Comments on Hanson's Ambient Air Monitoring Results:

Preliminary Ambient Air Analysis Results
Elevated Review Technical Deficiencies Application No. 7974SM1C10
Hanson Aggregates Pennsylvania LLC
Rock Hill Quarry
East Rockhill Township, Bucks County, PA

Preliminary Ambient Air Analysis Results – August 27, 2021 Event
Elevated Review Technical Deficiencies Application No. 7974SM1C10
Hanson Aggregates Pennsylvania LLC
Rock Hill Quarry
East Rockhill Township, Bucks County, PA

Hanson submitted a number of test results where asbestos was detected in one sample during a time frame when activity at the site was minimal or absent. The test results and interpretations were provided by their consulting laboratory, R.J. Lee Group (RJLG). For the sample where an actinolite fiber was observed, RJLG, within the body of the text, classified the fiber as not having the characteristics of asbestos, and included a TEM photograph and EDX chemical spectra in support of this assertion. The final laboratory report omitted reference to the determination that the fiber was actinolite, a regulated form of asbestos.

It is EEC's opinion that the final lab report incorrectly reported the fiber as non-asbestos (not "asbestiform") amphibole, rather than actinolite asbestos as required by the test method.

If accepted on face value, the data set indicates that appreciable concentrations of asbestos from offsite sources had not migrated onto the site during the periods of sampling, and no asbestos was liberated by wind from the material on the site. It follows that asbestos concentrations measured during the disturbance of material at the Rock Hill quarry, such as an approved annual 500-ton removal event, will have increased and be solely attributed to site disturbance activities.

The following are some observations regarding the reporting and interpretation of the data within the two reports which support EEC's opinion regarding the reporting of the fiber as asbestos.

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The RJLG report (dated July 30, 2021) categorized detected fiber as non-asbestos amphibole in opposition to reporting requirements of the ISO 10312 test method.

It appears from the text in the report that RJLG used undisclosed criteria that eliminated the reporting of the fiber as asbestos, as would have been otherwise reported had the test method be implemented as written.

The report characterized an amphibole fiber (which is one type of structure) as follows:

> *A single amphibole structure (Figure 2) was observed during the analysis of sample 0706-4 (3174478) collected at site location M5. The structure is 5.5 µm long and 0.7 µm wide (aspect ratio 7.86) and does not have characteristics of asbestiform morphology.*

The fiber in question, does, in fact, possess the characteristics of asbestos as defined by the procedures of the test method, and the method includes no criteria allowing the classification of a fiber as non-asbestos using general descriptive criteria. ISO 10312 defines a fiber as:

> *Any particle with parallel or stepped sides, of minimum length 0.5 µm, and with an aspect ratio of 5:1 or greater, shall be defined as a fiber.*

The fiber in question meets this definition.

Figure 1 shows examples of asbestos fibers, published in the ISO 10312 test method, as defined by the testing protocol. Figure 2 is the fiber in question as published in the September 9, 2021 Hanson report. Although partially obscured by particulate material, it seems quite clear that the particle morphology in Figure 2 is consistent with the examples in Figure 1. Because ISO 10312 is a test method for asbestos, the fiber should have been reported as an asbestos fiber, and analysis continue. The method does not specify any additional criteria where a fiber can be deemed non-asbestos using general characteristics.

RJLG accepted that the structure was a fiber by definition included in the ISO 10312 method.

The RJLG report (dated July 30, 2021) identified the fiber as actinolite, an amphibole regulated as asbestos.

According to ISO 10312, and virtually all other TEM test methods, once a structure has been identified as meeting the criteria of a fiber, and x-ray diffraction has identified it as amphibole, the next step is to analyze it chemically to determine if it belongs to one of the five regulated amphibole species. Figure 3 shows the electron diffraction pattern of the fiber, showing it to be an amphibole, and Figure 4 shows the EDS spectra, showing it to be actinolite.

RJLG accepted that the fiber in question is an amphibole, and accepted that it is actinolite.

Summary

It is not clear why RJLG did not report the fiber as asbestos when, by their own report, meets the criteria specified in ISO 10312:

1. The particle meets the definition of a fiber,
2. The particle was identified as an amphibole, and
3. The amphibole was identified as actinolite.

Thus, the fiber should have been reported on the report as actinolite asbestos, and not non-asbestiform amphibole.

Through a process of elimination, it appears from the text that the foundation for reporting the fiber as non-asbestos may have been that the fiber "does not have characteristics of asbestiform morphology". ISO 10312, and no other standardized test method, allow general descriptive attributes of asbestos to be used as a means to override the reporting of asbestos as determined by the test methods.

This subject has been addressed in several memoranda by EEC, and it is a very important issue in evaluating whether or not the project should be allowed to move forward. If the RJLG reports are an indication of what may be expected in the future, then it seems asbestos in processed material and air samples will be reported as non-asbestos based on "characteristics of asbestiform morphology" rather than as reported by the test methodology. Asbestos that may be present will be unreported, as it was during the initial investigation. An exposure assessment cannot be accurately conducted with a compromised or biased data set.

EEC recommends that DEP hire a consulting laboratory to verify RJLG's results and provide a third-party opinion regarding the methodologies discussed in this and previous EEC memoranda. It can begin by requesting that RJLG provide, to the lab, the prepared TEM sample that contains the fiber to the lab for QC analysis. Assuming that RJLG tracks the location of fibers on the TEM grid, which is standard practice, the lab should be able to locate this fiber and provide an independent analysis.

Interlaboratory exchanges are an important component of a laboratories QC program. DEP should also request the result of all interlaboratory exchanges (of Rock Hill samples) to verify that other labs agree with RJLG's determinations.

Please contact me if you have any questions.

Bradley G. Erskine

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FIGURES

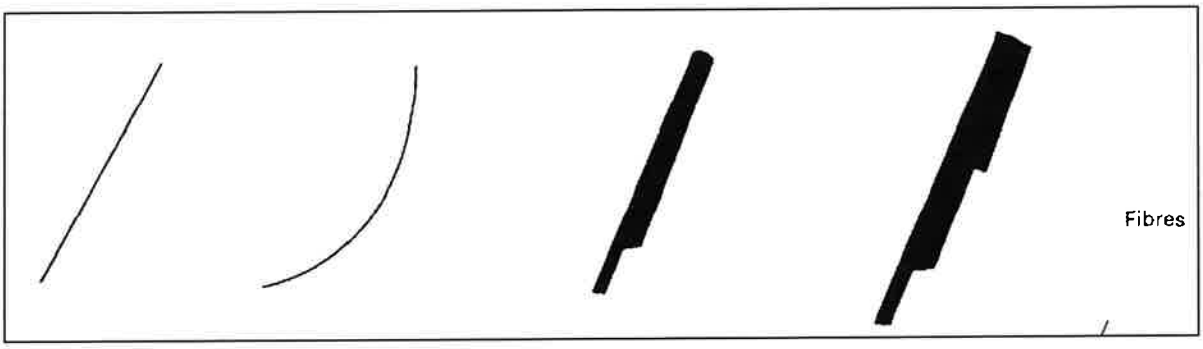

Figure 1: Examples of fiber morphology as published in the ISO 10312 test method.

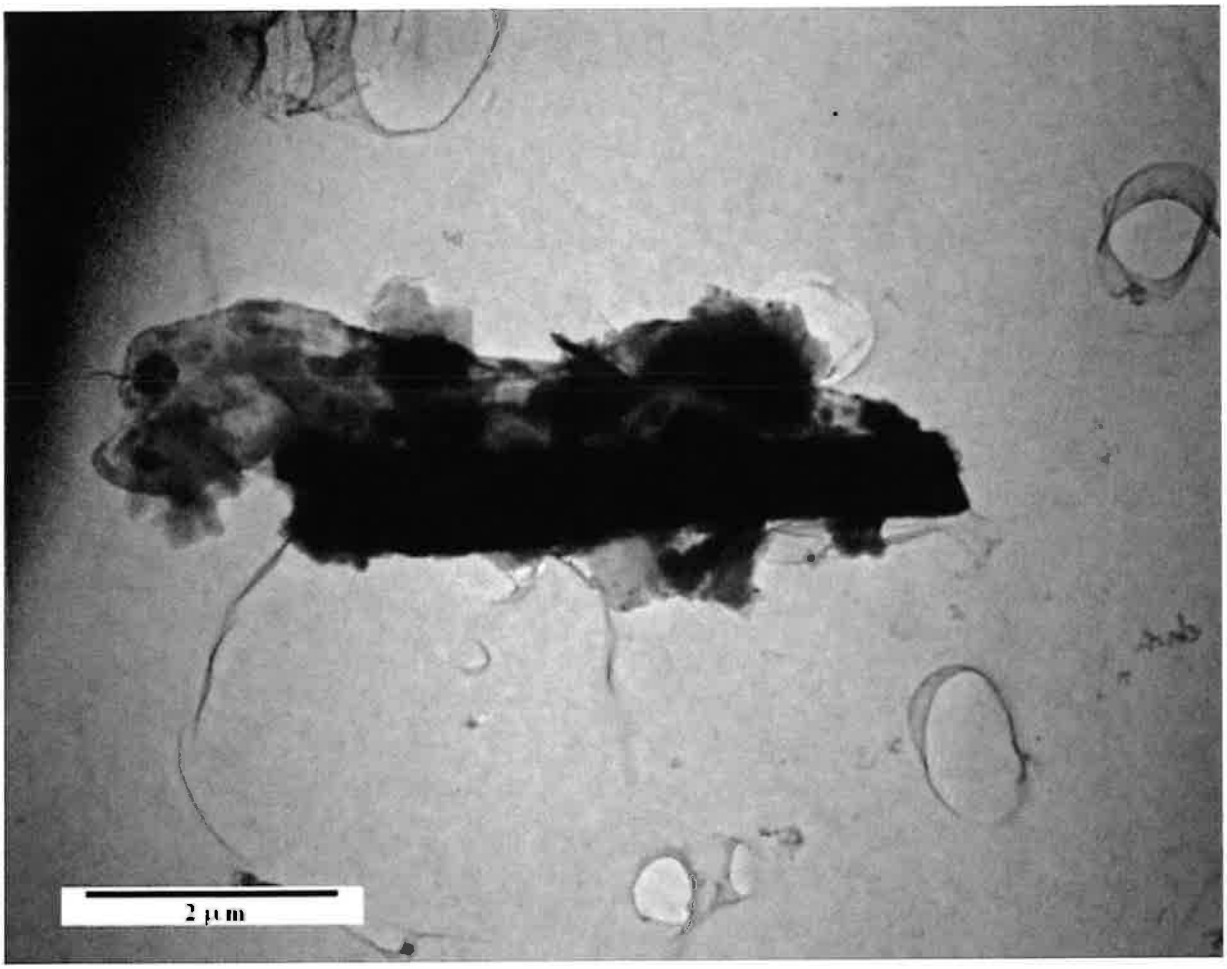

Figure 2: TEM photomicrograph of the fiber structure reported in RJLG's sample 0706-4 (3174478).

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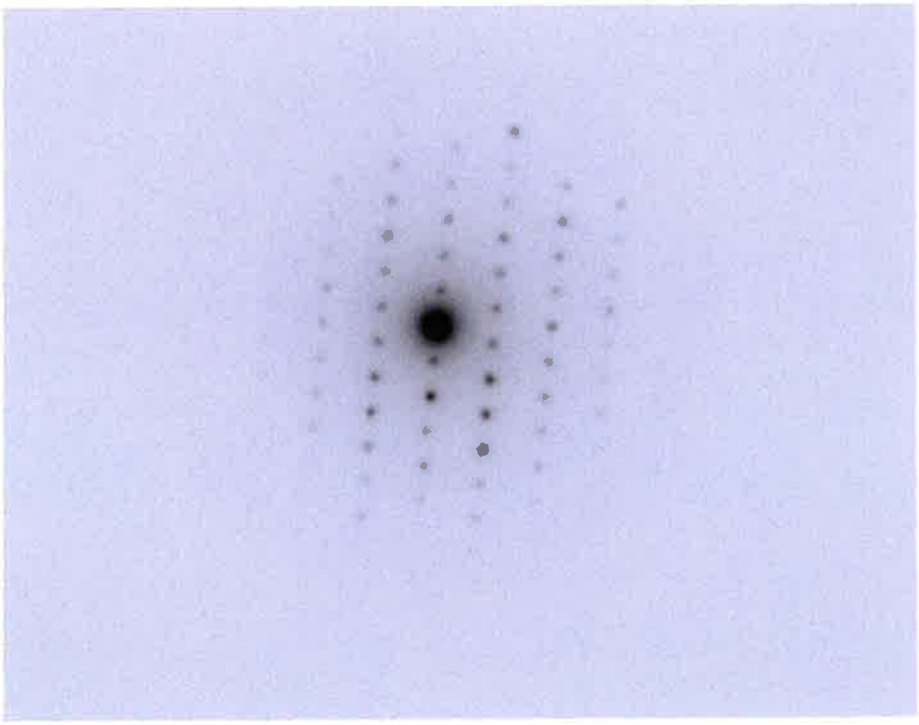
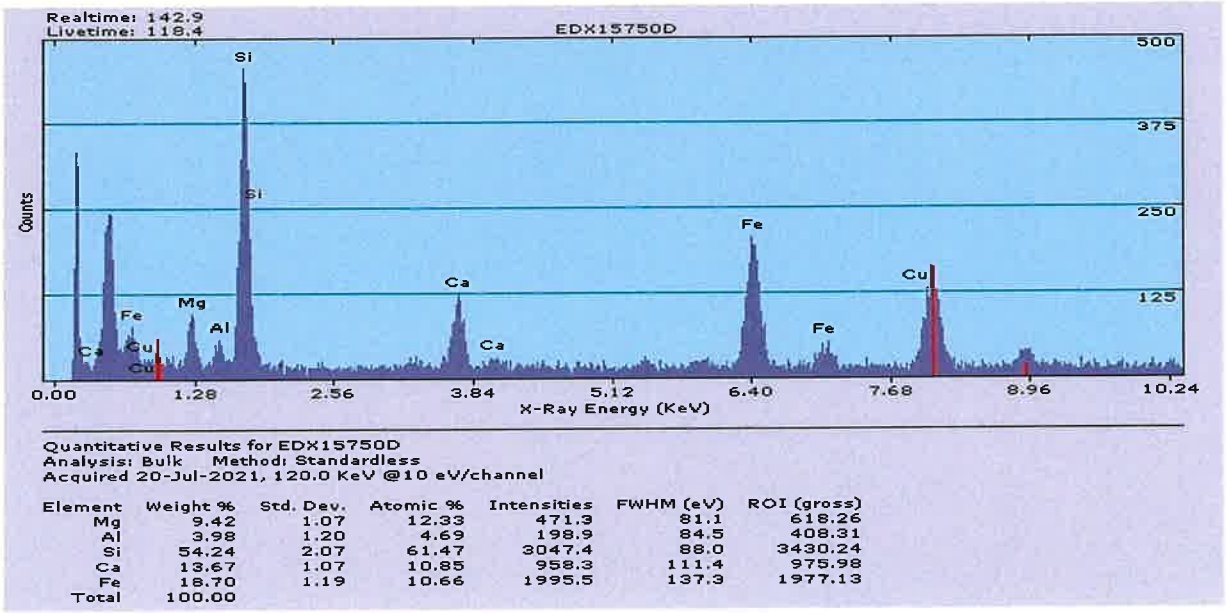


Figure 3: X-ray diffraction pattern showing the fiber to be an amphibole.



Element	Weight %	Std. Dev.	Atomic %	Intensities	FWHM (eV)	ROI (gross)
Mg	9.42	1.07	12.33	471.3	81.1	618.26
Al	3.98	1.20	4.69	198.9	84.5	408.31
Si	54.24	2.07	61.47	3047.4	88.0	3430.24
Ca	13.67	1.07	10.85	958.3	111.4	975.98
Fe	18.70	1.19	10.66	1995.5	137.3	1977.13
Total	100.00					

Figure 4: Energy dispersive x-ray spectrum documenting the amphibole fiber as actinolite.

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