July 5, 2023

Richard E. Tallman, PE
Environmental Engineer, Bureau of District Mining Operations
Pennsylvania Department of Environmental Protection
5 West Laurel Boulevard
Pottsville, PA 17901

Re: Rock Hill Quarry, East Rockhill Township, Bucks County, PA

Dear Mr. Tallman:

Attached please find a Technical Memorandum of June 22, 2023 wherein Erskine Environmental Consulting, Inc. (EEC) provides its comments on Heidelberg Materials on Heidelberg Materials Limited Activity Based Sampling Event 3.

Once again, it appears that Heidelberg is applying procedures that effectively reduce reported asbestos concentrations, it is curious that Heidelberg avoids the term "asbestos." There are contradictions in their report, as well as the report submitted by RJLG is subject to misinterpretation.

Heidelberg also provides an interpretation of the test data that is incorrect. The cover report states:

"The results of the air sampling over the last two years demonstrate that operations at the Quarry will not result in an unacceptable risk of exposure to asbestos associated with quarrying activities".

This statement is not factual!

The activity-based sampling during each of the three events represent fugitive emissions from limited volumes of material transported a limited distance and disturbed by a single loader. The results cannot be projected into the future where the activity or volume is increased, different numbers or mixes of equipment operate, or on days where climatic conditions differ. **The results provide little, if any, opportunity to predict future exposures**. In addition, ABS sampling of other individual tasks (hauling, excavation, drilling, blasting) cannot predict the potential exposure when activity is increased and multiple tasks are conducted simultaneously. The results of each sampling events can be interpreted only as a reflection of the activities that occurred on the specific days that were sampled.

Neither the EPA nor the PA Department of Health have determined that any amount of airborne asbestos is acceptable. Heidelberg and their consultants have not produced any scientific studies that exposure to airborne asbestos is safe at any concentrations. Even while testing at these extremely limited activities have produced airborne asbestos. Heidelberg has not proposed any methods to encapsulate the airborne asbestos.

REPA remains committed to working with PA DEP to permanently cease operations at the Rockhill Quarry, as any citizen concerned with protecting the health of their family would. This is the only quarry in the state of Pennsylvania that has NOA that is in a **residential area** surrounded by thousands upon thousands of residents and students.

Respectfully yours,

Rockhill Environmental Preservation Alliance, Inc. (REPA)

cc: The Honorable Josh Shapiro, Governor of Pennsylvania
The Honorable Richard Negrin, Secretary, PA-DEP
The Honorable Brian Fitzpatrick, U.S. Representative PA-01
The Honorable Steven Santarsiero, 10th Senatorial District
The Honorable Jarrett Coleman, 16th 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
Marianne Morano, East Rockhill Township Manager
Megan Banis-Clemens, Pennridge School District, School Board Member
Todd Hippauf, Quakertown Community School District, School Board Member
Amiee Bollinger PADEP
Virginia Cain, PADEP
Erika Furlong, PADEP
Craig Lambeth, PADEP
Shawn Mountain, PADEP
Patrick Patterson, PADEP
James Rebarchak, PADEP
Daniel Sammarco, PADEP
Sachin Shankar, PADEP
Doug White, PADEP
Michael Kutney, PADEP
John Stefanko, PADEP
Daniel Koury, PADEP

Erskine Environmental Consulting

Geologic Investigations Hazardous Materials Naturally Occurring Asbestos

Technical Memorandum

June 22, 2023

Subject: Comments on:
Heidelberg Materials
Limited Activity Based Sampling Event 3
Rock Hill Quarry
SMP No. 7974SM1
East Rockhill Township
Bucks County, Pennsylvania

Erskine Environmental Consulting, Inc. (EEC) provides its comments on Heidelberg Materials Limited Activity Based Sampling Event 3, referenced above.

The comments are broken into two subjects:

- Analytical test report submitted by R. J. Lee Group (RJLG),
- Interpretation of test data from the activity-based sampling (ABS) sampling event 3.

Each are discussed below.

Comments on Attachment 1: Laboratory Analysis

The cover page of the report states

> "The samples were analyzed using ISO method 10312 modified per OSWER Directive #9200.0-68 to include fibers ≥0.5 µm long and ≥3:1 aspect ratio".

The referenced method is a test method to report asbestos particles, as indicated by its full title:

ISO 10312:2019: Ambient air- Determination of asbestos fibres- Direct transfer transmission electron microscopy method.

Within the body of the test method, the term asbestos is cited 155 times, 167 times if the references are included. For amphiboles, the definition of amphibole asbestos (section 3.6) includes a reference to amphiboles that "crystallized in the asbestiform habit". The term "asbestiform" is a general descriptive term that cannot, and has not, been defined precisely. Definitions, including ISO 10312, usually provide a limited number of properties or observations of ideal asbestos that was mined for commercial use.

The ISO is well aware of this, as evidenced by the following:

- The definition of asbestiform (section 3.6) references an aged 1977 U.S. Bureau of Mines Information circular, which states: "Because of the complexity and variability of crystal morphology in different mineral groups, the descriptive terms are generally explained by illustration rather than by numerical values."

- The scope of ISO 10312 (section 1) states: "The method cannot discriminate between individual fibres of asbestos and elongate fragments (cleavage fragments and acicular particles) from non-asbestos analogues of the same amphibole mineral."

Therefore, any particle that meets the definition of a fiber and is a regulated composition (e.g. actinolite) must be reported as asbestos. There are no procedures to identify or report a fiber as being asbestiform.

RJLG previously stated that they have developed a proprietary test method to distinguish a single fiber as asbestiform. If RJLG wishes to analyze samples by an undisclosed method that has not been widely distributed for peer review and not tested for precision, accuracy and reproducibility, then the method should be cited rather than the ISO 10312 method. If RJLG wishes to modify the ISO 10312 method, then the modification should be reported, and the test methodology citation should be reported as such. In either case, the analysis should not be reported as ISO 10312.

There is a contradiction within the report regarding this issue. For sample M4H, RJLG reports amphibole (labeled "amph" in the header) at a concentration of 0.0011 s/cc. There is no indication in the title of the report or the table indicating that it reports asbestos concentrations. The report gives the appearance that asbestos was not detected. However, deep in the fine print of in the footer notes, note number 4 (abbreviations) defines "amph" as being amphibole asbestos. Therefore, the particle is reported as asbestos if the citation in the footer is extracted.

However, in the column titled asbestiform amphibole, the report indicates that no asbestiform amphibole was detected (reported as <0.0011 s/cc). This suggests, in this column, that the RJLG is reporting the 0.0011 s/cc concentration as not being asbestos.

Is RJLG reporting the particle in question as asbestos, or not?

For the reasons stated above, the asbestiform amphibole column should be ignored, and the concentration in this report, and all other reports, should be reported as asbestos, as required by ISO 10312. It would be correct and transparent to simply title the report as an asbestos report, and label the two reporting columns as chrysotile asbestos and amphibole asbestos.

In summary, the report submitted by RJLG is subject to misinterpretation. The end users of the report should not have to search through the fine print of the footer notes to ascertain that the reported concentrations are asbestos concentrations, nor should they be expected to comprehend the language in the ISO 10312 method.

Comments on Interpretation of test data from the activity-based sampling (ABS) sampling event 3.

Heidelberg Materials (Heidelberg) cover letter provides a summary of sampling event 3, and interpretation of the RJLG test data. The letter is misleading in that it implies that fibers reported in the RJLG reports are not asbestos.

Heidelberg refers to asbestos particles reported by the ISO 10312 method as:

> "…only two total amphibole structures have been identified, neither of which were determined to be asbestiform structures".

Heidelberg interprets the data as follows:

> "As Heidelberg has detailed, even if the identified structures were determined to be asbestiform, their detection would have resulted in concentrations that are significantly lower than PADEP's action limit of 0.01 fibers/cc".

It is curious that Heidelberg also seems to avoid the term "asbestos". As shown above, the ISO 10312 method cannot differentiate particles based on morphology. In fact, no analytical test methods for asbestos provides criteria for differentiation. The reference to asbestos particles as being not asbestiform gives the appearance that asbestos was not detected, when in fact, it was. The ISO 10312 method, which was used for the analyses, requires that these reported particles be reported as asbestos.

Heidelberg also provides an interpretation of the test data that is incorrect. The cover report states:

> "The results of the air sampling over the last two years demonstrate that operations at the Quarry will not result in an unacceptable risk of exposure to asbestos associated with quarrying activities".

This statement is not factual. The activity-based sampling during each of the three events represent fugitive emissions from limited volumes of material transported a limited distance and disturbed by a single loader. The results cannot be projected into the future where the activity or volume is increased, different numbers or mixes of equipment operate, or on days where climatic conditions differ. The results provide little, if any, opportunity to predict future exposures. In addition, ABS sampling of other individual tasks (hauling, excavation, drilling, blasting) cannot predict the potential exposure when activity is increased and multiple tasks are conducted simultaneously. The results of each sampling events can be interpreted only as a reflection of the activities that occurred on the specific days that were sampled.

Please contact me if you have any questions.

Bradley G. Erskine

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