

# ***Erskine Environmental Consulting***

*Geologic Investigations Hazardous Materials Naturally Occurring Asbestos*

## **Technical Memorandum**

March 5, 2020

Subject: Pennsylvania Department of Environmental Protection  
Comments on the Qualitative Geologic Survey Report (QGSR)

EEC has reviewed the PADEP comments on the QGSR, and offers a few comments.

The document appropriately relies on PADEP's internal review of the QGSR, EPA test methods, and other documents rather than rely on opinions by others. Based on the comments, it appears that PADEP performed a serious and in-depth review of the QGSR and EPA test methods. As a result, PADEP asked a number of focused and probing questions that should generate some enlightening responses.

The PADEP document covers a wide range of subjects, including:

- The length criteria used for reporting of asbestos in water, appropriateness of the chosen methodology, and apparent decrease in stringency from the previous testing by EMSL.
- Reasons for choices of methodology.
- Reasons for the use of aspect ratios >20:1 or >10:0 as a determining factor to exclude fibers from reporting.
- Drilling and sampling protocol, particularly with respect to coverage.
- Use of vein volume as a tool to estimate asbestos concentrations.
- Correlation of drilling data with mapping data.
- Differences in concentrations as reported by EARTHRES and PADEP.
- A need for an accurate and complete geologic characterization.

EEC offers a few additional questions that may be of interest to PADEP. One subject regarding the lack of an SOP was not covered in the PADEP document. The other subject that focuses on populations of fibers augments several of the questions that were asked by PADEP.

### **Standard Operation Procedure**

The RJLG stated that it does not have a Standard Operating Procedure (SOP) for its methodology to differentially exclude fibers that are deemed cleavage fragments from those that are deemed asbestiform. It stated that it relies on "40 years of experience" only.

However, RJLG submitted as part of its qualifications a certificate indicating its participation in the National Institute of Standards and Technology (NIST) National Voluntary Laboratory Accreditation Program (NVLAP). This accreditation is legally required for testing of building materials in schools, and is a fundamental requirement for the selection of laboratories that test for asbestos in commercial and residential buildings, as well as NOA. There is an expectation that the procedures and protocols established through this accreditation are the basis for all asbestos testing.

The accreditation program requires that laboratory analysts adhere to a written SOP for both PLM and TEM testing, successful participation in a proficiency analytical testing program (PAT), laboratory inspections and re-certification, and a quality assurance (QA) program that includes intra-laboratory sample exchanges as well as inter-laboratory exchanges. The purpose is to assure that all laboratories perform testing in accordance with test methods and produce data that is accurate, precise and reproducible. It appears that RJLG follows the strict protocol for testing and QA procedures in building materials where the NVLAP accreditation is legally required, but effectively abandons the established procedures and relies on “experience” when performing testing for NOA.

Questions:

- Why did RJLG not submit its SOP for asbestos testing under the NVLAP program when an SOP was requested?
- Why are the procedures included within RJLG’s NVLAP SOP not applied to NOA at the Rockhill Quarry site?
- Why did RJLG apply a less stringent testing protocol to the Rockhill Quarry than NVLAP-accredited laboratories apply to asbestos in schools?

**Analysis Using Populations of Fibers**

RJLG references properties listed in EPA/600/R-93/116 glossary for the term “Asbestiform (morphology)”, presumably as a roadmap to develop differential counting procedures that are not specified in the test method itself. The glossary states: “These characteristics refer to the population of fibers as observed in a bulk sample” (note- the underlining is present in the EPA document). RJLG provided this information to PADEP on the bottom of page 4 of its November 25, 2019 letter titled: “Regulations of Asbestos Minerals”.

Questions:

- If the prescribed test method stated that the definition refers to a population of fibers, why did RJLG eliminate fibers on a particle by particle basis rather than use a statistically sound population of fibers?
- What, precisely, are the individual criterion that RJLG uses to eliminate a fiber from reporting as asbestos?
- Where in the test method are the properties of cleavage fragments, either as individual particles or a population, listed.
- Where in the body of the test method are the counting rules presented that allows for the classification of fibers into cleavage fragments vs. asbestiform fibers?

Please contact me if you have any questions.



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