



**SENT VIA E-MAIL AND FIRST CLASS MAIL**

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October 29, 2021

Richard Tallman, P.E.

Pottsville District Mining Office  
Pennsylvania Department of Environmental Protection  
5 West Laurel Boulevard  
Pottsville, PA 17901

**Re: Elevated Review Technical Deficiencies Application No. 7974SM1C10  
Rock Hill Quarry  
East Rockhill Township, Bucks County  
Response to PADEP April 12, 2021 Technical Deficiency Letter**

Dear Mr. Tallman:

Hanson Aggregates Pennsylvania LLC ("Hanson") provides this response to your letter dated April 12, 2021, requesting additional information in connection with Rock Hill Quarry ("Quarry").<sup>1</sup>

By letter dated June 21, 2021, PADEP granted Hanson an extension through October 29, 2021, for Items 10.e. through 12.c. of the Technical Deficiency Letter ("TDL") in recognition of the fact that these items require additional sampling and analysis. Hanson provided a timely response to Items 1 through 10.d of the Department's TDL on July 6, 2021. Accordingly, Hanson now provides this timely response to the remaining Items 10.e. through 12.c. Hanson is also attaching to this response a memorandum by the R.J. Lee Group ("RJLG") regarding its analysis of the single non-asbestiform structure (Attachment A) and a baseline assessment of risk posed by community exposure to background concentrations of asbestos at the Quarry perimeter (the "Risk Assessment") (Attachment B).

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<sup>1</sup> Hanson is currently reviewing the Department's October 21, 2021 Letter. This submission shall not be construed as a response to the Department's October 21, 2021 Letter, and Hanson reserves the right to supplement or amend this submission, its prior submission, and related Asbestos Monitoring and Mitigation Plan and others plans in response to any issues raised or directives of the Department made therein. Hanson shall respond to the Department's October 21, 2021 Letter in a full and timely fashion on or before the required response date of December 6, 2021.

Hanson conducted five (5) rounds of sampling at the eight (8) locations along the perimeter of the Quarry to characterize background levels of naturally occurring asbestos (“NOA”) at the Quarry. Hanson identified the eight locations in its July 6, 2021 submission. Of the forty (40) samples, Hanson identified only a single structure warranting additional analysis, which was subsequently determined not to possess asbestos morphology. Copies of the results of Hanson’s perimeter sampling and analysis are attached hereto as Attachment C.

As discussed in the Risk Assessment, the results of Hanson’s sampling in the air along the perimeter of the Quarry establish that no asbestos fibers were detected. These data provide a baseline against which any future detections of asbestos can be measured. The lack of background asbestos in the air at the Quarry perimeter indicates that further off-site analysis of asbestos, especially at locations outside the Quarry property, is unnecessary at this time. Because no asbestos fibers were detected in the air at the perimeter of the Quarry, any asbestos detected at locations outside the Quarry would be unrelated to Quarry operations.

**Hanson Response to Comments from Rockhill Environmental Preservation Alliance (“REPA”) and Dr. Bradley Erskine.**

On October 4, 2021, the Rockhill Environmental Preservation Alliance, Inc. (“REPA”) and Dr. Bradley Erskine of Erskine Environmental Consulting, Inc. (“EEC”) submitted a response letter (the “EEC Response Letter”) to the Department following Hanson’s September 14, 2021, submission. Tellingly, REPA expressly stated that it “remains committed [sic] working with the Department to permanently cease operations at the Rock Hill Quarry.” REPA’s statement demonstrates its true intentions in this process. Apparently, REPA has absolutely no interest in credibly participating in this review. REPA’s comment also unfairly mischaracterizes the Department’s role, which is not to shut down the Quarry, but rather to make sure Hanson’s Quarry operations comply with Pennsylvania environmental statutes and the Department’s regulations.

The EEC Response Letter’s criticism of the counting methodology should be rejected. Hanson stands by its statement in its September 14, 2021 submission 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.”

EEC’s criticism confuses the required counting methodology with RJLG analysis of particle morphology. In particular, EEC takes issue with RJLG’s analysis of the asbestiform morphology of the single structure identified across five rounds of sampling. As a result, EEC concludes that “[a]sbestos 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's conclusion is confusing. On one hand, EEC warns that asbestos will be unreported. On the other, EEC would not be able to perform its evaluation of RJLG's analysis but for Hanson providing the final laboratory analysis reports for each of its five rounds of sampling and documentation as to the single structure identified, which, in addition to the final laboratory report, included a map identifying the location of the identified structure, electron micrograph imagery of the structure, an energy dispersive x-ray spectrum, and a selected area electron diffraction pattern, as well as a RJLG memorandum reviewing the data.

It is remarkable that EEC can review the data set provided by Hanson and then comment that asbestos will be unreported and that Hanson is not transparent. As indicated in its laboratory reports, RJLG counted all structure lengths that meet or exceed 0.5 um with a  $\geq 3:1$  aspect ratio and reported the total numbers of structures that met that length. There was only one such structure. RJLG's subsequent analysis of the particle morphology of that structure has no impact on whether RJLG included that structure in its initial count – which it did. Hanson did not exclude the structure based upon its determination that it did not have the characteristics of asbestiform morphology.

EEC's difference of opinion regarding RJLG's analysis of the particle morphology of a single structure does not change the fact that RJLG *did* count the structure and, importantly, provided the data for the Department's (and the public's) review. This is how Hanson will continue to operate in the future. Hanson (or its consultant) will count all fibers that meet or exceed 0.5 micrometers at the perimeter of the Quarry and will provide the Department with all laboratory analysis in accordance with the requirements of Hanson's Asbestos Monitoring and Mitigation Plan ("AMMP"). The Department will be able to review whether any structures were identified. Based on these data, the Department may determine, on its own, whether Hanson appropriately counted structures and performed any appropriate corrective actions.

Contrary to EEC's critique, RJLG's qualitative analysis of the structure and conclusion that it does not have characteristics of asbestiform morphology *is* supported by the method used. EEC's criticism seems to be that RJLG did not provide enough detail regarding its qualitative assessment of the structure and determination that it did not possess the characteristics of asbestiform morphology and that the ISO 10312 method does not "specif[y] any additional criteria where a fiber can be deemed non-asbestos using general characteristics." This is patently wrong. First, RJLG did report the structure in accordance with the method as an amphibole structure. See RJLG Final Laboratory Report, TEM ISO Analysis (July 20, 2021).

Though ISO 10312 does not necessarily discriminate between asbestiform fibers and elongated/cleavage fragments of other non-asbestiform structures, ISO 10312 *does not* remove or prohibit the exercise of professional judgement from the process following the initial classification. This is implied throughout the method.

ISO 10312 "Ambient Air – Determination of Asbestos Fibres – Direct Transfer Transmission Electron Microscopy Method" (hereinafter, "ISO 10312") provides relevant

definitions:

- Asbestiform: specific type of mineral fibrosity in which fibres and fibrils possess high tensile strength and flexibility.
- Asbestos: group of silicate minerals belonging to the serpentine and amphibole groups, which have crystallized in the asbestiform habit, causing them to be easily separated into long, thin, flexible, strong fibres when crushed or processed;
- Cleavage: breaking of a mineral along one of its crystallographic directions;
- Cleavage Fragment: fragment of a crystal that is bounded by cleavage faces:
  - **Note 1 to entry: crushing of non-asbestiform amphibole generally yields elongated fragments that conform to the definition of a fibre.**
- Fibre: elongated particle that has parallel or stepped sides
  - Note 1 to entry: For the purposes of this document, a fibre is defined to have an aspect ratio equal to or greater than 5:1 and a minimum length of 0.5 µm.

See ISO 10312, Section 3 (Terms and Definitions), at p. 2-3 (emphasis added). Clearly, within its definition section, ISO 10312 expressly states that “non-asbestiform amphibole” can meet the definition of a fibre.

This concept of distinguishing between asbestiform and non-asbestiform is consistently reflected across the regulatory spectrum. As discussed by Hanson in its September 14, 2021 submission, OSHA removed non-asbestiform from its asbestos standards. See 55 Fed. Reg. 4938 (Feb. 12, 1990); 57 Fed. Reg. 24310 (June 8, 1992). Similarly, in EPA’s “Method for the Determination of Asbestos in Bulk Building Materials” (EPA/600/R-93/116), EPA states:

The major purpose of the quantitative preparation is to provide the analyst with a representative grain mount of the sample **in which the asbestos can be observed and distinguished from the nonasbestos matrix.**

See EPA/600/R-93/116, at p. 12 (emphasis added).

Thus, contrary to EEC’s suggestion, laboratories are *required* to classify particles as asbestiform or non-asbestiform to meet applicable regulatory requirements. Consistent with its prior critique of Hanson’s analysis, EEC’s theme seems to be that Hanson and its consultants should not be permitted to exercise any professional judgment. This is not possible. In any event, Hanson personnel are well trained and more than capable of implementing Hanson’s corrective action scheme to the satisfaction of the Department.

**10. Please provide an up to date comprehensive NOA Monitoring and Risk Mitigation Plan for the Rock Hill Quarry.: §77.451, §77.105, §77.130.**

- e. **Please determine, quantify, and express the site-specific incremental risk of cancer above background risks that the proposed operations at the**

## **Rock Hill quarry will have on surrounding communities.**

RESPONSE: As indicated by Hanson's five (5) rounds of sampling at the perimeter of the Quarry, RJLG identified a single structure, which it determined did not have the characteristics of asbestiform morphology. RJLG also determined that the concentration from that analysis was 0.001 fibers/cc – 10 times lower than Hanson's proposed action limit in its AMMP. As a result of this baseline background analysis at the Quarry, asbestos fibers are not detected at the Quarry perimeter. Any future detections of asbestos at the Quarry perimeter during Quarry operations will represent the "incremental" risk of cancer above background risks. Further, any asbestos detected at the Quarry during Quarry operations will represent the highest concentrations to which community members may be exposed from operations. Finally, as indicated by the baseline background risk assessment, the current cancer risk posed by asbestos in the air at the Quarry is zero. Even conservatively assuming that the one non-asbestiform structure is a PCMe asbestiform structure, the risk level is well within EPA's acceptable risk range of  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ .

11. **Please address suggestions provided by Secretary Dr. Rachel Levine the Pennsylvania Department of Health in the September 16, 2020 letter to Secretary McDonnell of the Pennsylvania Department of Environmental Protection including: §77.126, §77.104.**

Hanson is aware that the National Stone, Sand & Gravel Association ("NSSGA") previously provided a response to the Pennsylvania Department of Health's ("PADOH") September 16, 2020, letter to the Department.<sup>2</sup> Hanson concurs with NSSGA's responses provided therein and incorporates it here as if fully stated herein. Hanson further provides its response to the PADOH suggestions, below.

- a. **Conducting comprehensive health-based environmental sampling of air and soil for onsite, source, property/fence line and offsite locations.**

RESPONSE: Hanson conducted five (5) rounds of sampling at eight (8) locations along the Quarry perimeter throughout the summer and fall of 2021. This sampling indicates that there is no asbestos detected in the ambient air at the Quarry perimeter. Moreover, this sampling indicates that any asbestos detected off-site, especially at locations attenuated and far removed from the Quarry, are unrelated to Quarry operations. This sampling indicates that off-site sampling at locations removed from the Quarry is unnecessary at this time. The sampling also provides an appropriate baseline from which Hanson and the Department can assess any future risks posed by future detections of asbestos detected in the air at the Quarry perimeter. Further, any asbestos detected at the Quarry during Quarry operations will represent the most conservative and protective figures against which community exposure can be measured.

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<sup>2</sup> Available at

[https://files.dep.state.pa.us/RegionalResources/SERO/SEROPortalFiles/Community%20Info/RockHillQuarry/NaturalResources/Asbestos%20Information%20-%20Timeline/NSSGA\\_EMP\\_Clarification\\_to\\_DOH.pdf](https://files.dep.state.pa.us/RegionalResources/SERO/SEROPortalFiles/Community%20Info/RockHillQuarry/NaturalResources/Asbestos%20Information%20-%20Timeline/NSSGA_EMP_Clarification_to_DOH.pdf)

Hanson also included analysis of eight (8) bulk samples of overburden material collected at the Quarry, which were analyzed using polarized light microscopy (“PLM”) in accordance with EPA/R-93/600/116 “Method for the Determination of Asbestos in Bulk Building Materials,” and by transmission electron microscopy (“TEM”) in accordance with ISO 22262-2.

**b. Produce sample data applicable to human health, stationary breathing and on-person sampling over several weeks including summer and winter seasons covering various weather conditions.**

RESPONSE: Hanson performed five (5) rounds of background analysis at eight (8) locations at the perimeter of the Quarry, for a total of forty (40) samples. The results of those analysis indicate that asbestos fibers were not detected in the air at the Quarry perimeter. This analysis serves as an adequate baseline against which any future detections of asbestos in the ambient air at the Quarry perimeter.

**c. Conducting various activity-based personal sampling.**

RESPONSE: In accordance with Section 4 of Hanson’s AMMP, Hanson will perform activity-based sampling on a quarterly basis during the following operations:

1. Immediately downwind vicinity of blasting, if blasting is conducted during the quarter;
2. Near drilling machinery during operations, if drilling is conducted during the quarter;
3. Next to internal quarry roads on which haul trucks travel;
4. Near crushing/processing machinery during operations.

If TEM analysis confirms asbestos fiber concentrations in excess of the Mine Safety Health Administration (“MSHA”) asbestos standard (0.1 f/cc) in any sample, Hanson will (1) notify DEP within 24 hours of receipt of the TEM analysis results, and (2) within three calendar days, conduct perimeter air monitoring in accordance with the AMMP. Hanson will maintain records associated with quarterly activity-based monitoring in accordance with the AMMP.

**d. Determine the risk of exposure to vulnerable populations including schools, daycares, hospitals, etc.**

RESPONSE: Based on five (5) rounds of background ambient air sampling collected at eight (8) locations along the perimeter of the Quarry, Hanson has not detected asbestos fibers in the air at the Quarry perimeter. Across forty (40) samples, RJLG identified a single structure, which RJLG determined did not possess asbestiform characteristics.

Even assuming that this structure was asbestiform, RJLG further calculated the concentration from that round of sampling to be 0.001 fibers/cc – 10 times lower than Hanson’s proposed action limit in its AMMP.

This baseline background analysis demonstrates that the risk of exposure to asbestos from the Quarry to the surrounding community is effectively zero at this time. Finally, as indicated by the baseline background risk assessment, the current cancer risk posed by background levels of asbestos in the air at the Quarry is zero. Even conservatively assuming that the one non-asbestiform structure is a PCMe asbestiform structure, the risk level of asbestos based on the perimeter sampling is well within EPA’s acceptable target cancer risk range of  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ .

**e. Conduct waterbody sampling.**

RESPONSE: In addition, in its July 6, 2021 response to the Department, Hanson provided sampling analysis of surface water at the following seven locations at the Quarry:

1. NPDES Outfall
2. Sediment Trap 1
3. Sediment Trap 2
4. Sediment Trap 3
5. Sediment Basin 1
6. Sediment Basin 2
7. Quarry Pit

That sampling analysis did not identify any asbestos structures. As discussed by Hanson in its July 6, 2021 submission, this recent sampling supplements prior sampling reanalyzed in the August 14, 2020 submission. For that submission, Hanson analyzed water samples from each of the above listed sampling points in the spring of 2019. None of those samples were close to or exceeded EPA’s recommended water quality criterion of 7 million fibers per liter (“MFL”)<sup>3</sup> or the federal drinking water maximum contaminant level (“MCL”) of 7 MFL that exceed 10 microns in length.<sup>4</sup>

Regarding ingestion via drinking water or other means, EPA has not established a reference dose level (“RfD”) with respect to any increased risk of cancer associated with the ingestion of asbestos. See EPA IRIS Summary – Asbestos.<sup>5</sup> Further, according to the Agency for Toxic Substances and Disease Registry (“ATSDR”), “studies in humans and animals indicate that the ingestion of asbestos causes little or no risk of non-carcinogenic injury.” See ATSDR Toxicological Profile for Asbestos (September 2001), at 3.2.2.<sup>6</sup>

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<sup>3</sup> <https://www.epa.gov/wqc/national-recommended-water-quality-criteria-human-health-criteria-table>

<sup>4</sup> <https://www.epa.gov/sites/production/files/2018-12/documents/hh-criteria-calculation-matrix-2002.pdf>

<sup>5</sup> Available at [https://cfpub.epa.gov/ncea/iris/iris\\_documents/documents/subst/0371\\_summary.pdf](https://cfpub.epa.gov/ncea/iris/iris_documents/documents/subst/0371_summary.pdf).

<sup>6</sup> Available at <https://www.atsdr.cdc.gov/toxprofiles/tp61.pdf>.

In that regard, the relevant water body - Tohickon Creek – was evaluated for use as a potable water supply. As discussed by Hanson in its July 19, 2018 submission<sup>7</sup>, there are no known surface water intakes for a PWS within 10 miles downstream of the Quarry discharge. See Hanson Permit Update Submission (July 19, 2018), Module 8.5 (Public Water Supply Information).

**f. Utilizing the EPA executed comprehensive NOA environmental sampling study protocols as guidelines.**

RESPONSE: As discussed in section 3.4 of Hanson’s AMMP (Analytical Methods), with respect to perimeter air analysis, Hanson employed the method identified by EPA in its Framework:

The analytical methods and laboratory analysis for asbestos in air analysis to be utilized as part of this plan shall be those described in ISO 10312-2019-10 “Ambient Air – Determination of Asbestos Fibers – Direct Transfer Transmission Electron Microscopy Method”, as modified by Page C-3 of EPA’s “OSWER Directive #9200.0-68, September 2008, Framework For Investigating Asbestos-Contaminated Superfund Sites”, which states that “Under the ISO method, two specific counting schemes are detailed. The first scheme is more general and allows for the counting of fibers that are 0.5 µm in length or greater, and have aspect ratios of 5:1 or greater. In routine practice, TEM is able to resolve fibers down to approximately 0.1 µm in width, as compared to the resolution for routine PCM (0.25 µm). Therefore, short thin fibers that would not be detected using PCM will be detected using TEM under the general counting scheme. EPA recommends modification of the aspect ratio to 3:1 for this counting scheme.

With respect to analysis of surface water, samples were analyzed in accordance with EPA Method 100.1 600/4-03-043 (Analytical Method For Determination Of Asbestos Fibers In Water).<sup>8</sup>

Finally, with respect to RJLG’s analysis of bulk overburden materials at the Quarry, samples were analyzed by both polarized light microscopy (“PLM”) in accordance with EPA/R-93/600/116 (Method for the Determination of Asbestos in Bulk Building Materials)<sup>9</sup> and by transmission electron microscopy (TEM) in accordance with ISO 22262-2 “Quantitative determination of asbestos by gravimetric and microscopical methods.”

**g. Please provide a complete all-encompassing Workplace Controls and**

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<sup>7</sup> Available at <https://files.dep.state.pa.us/RegionalResources/SERO/SEROPortalFiles/Community%20Info/RockHillQuarry/Non-Coal%20Surface%20Mining/July%2019%2c%202018%20Hanson%20Aggregates%20Permit%20Update.pdf>.

<sup>8</sup> <https://semspub.epa.gov/work/08/1772054.pdf>

<sup>9</sup> <https://www.nist.gov/system/files/documents/nvlap/EPA-600-R-93-116.pdf>



## Practices Plan to Reduce NOA Exposure

RESPONSE: As part of its July 6, 2021 submission, Hanson developed and submitted an AMMP and Mineral Identification and Management Guide. These documents set forth comprehensive plans to safely identify, monitor, report to the Department, and mitigate (if necessary) NOA encountered during Quarry operations.

As indicated in Section 3.3 its AMMP:

During periods of full quarry operation, perimeter monitoring samples will be collected on a bimonthly basis. Bi-monthly samples will be collected for an initial 6-month period of full quarry operations. Although daily hours of operation may vary, sampling events will coincide with times the aggregate processing equipment is operating and will not be conducted on closed days except to perform ambient or low activity sampling as described below. Samples will also be collected during blasting activities.

Further, per Section 4, Hanson will perform activity-based monitoring:

On a quarterly basis, unless otherwise approved in writing by PADEP, Hanson will collect and analyze air samples during each of the following operations using the same collection and analysis methods described above in Sections 3.2 and 3.4:

- Immediately downwind vicinity of blasting, if blasting is conducted during the quarter.
- Near drilling machinery during operations, if drilling is conducted during the quarter.
- Next to internal quarry roads on which haul trucks travel.
- Near crushing/processing machinery during operations.

If TEM analysis confirms asbestos fiber concentrations in excess of MSHA asbestos standard (0.1 f/cc) in any sample<sup>10</sup>, Hanson will (1) notify PADEP within 24 hours of receipt of the TEM analysis results, and (2) within three calendar days, conduct perimeter air monitoring in accordance with Section 3 above. Hanson will maintain records associated with quarterly activity-based monitoring in accordance with Section 3.5.

Finally, in accordance with section 6.2 of its AMMP, to minimize dust at the Quarry, Hanson will apply several measures with respect to vehicle traffic, stockpiling and material handling, crushing and sizing equipment, drill rigs, and blasting, including the following:

### Vehicle Traffic

- Hanson will utilize a dedicated street sweeper to clean paved plant roads

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<sup>10</sup> Note, the MSHA PEL is an 8-hour time-weighted average exposure.

and public roadways near site entrances as needed. Hanson's [or a subcontractor's] street sweeper is a state-of-the-art sweeper utilizing a broom system and water sprays to collect debris while minimizing dust generation. Hanson will maintain a log of the time and day when the street sweeper is used.

- When operating, Hanson will conduct a daily visual inspection for material tracked onto public roads. If material has accumulated on a public road, Hanson will clean the road promptly or, at minimum, by the end of the workday. During full quarry operations, one camera will be installed to monitor the entrance of the quarry to allow the operator to observe any accumulated material.
- Posted vehicle speed limits on haul roads in quarry and stockpile areas to no more than 15 miles per hour

#### Haul Roads:

- Application of water or commercial dust suppressing liquids during extremely dry or windy conditions and in winter months as needed.
- Roads are resurfaced/regraded as needed to maintain a clear and safe working surface and thereby reducing dust generation.

#### Stockpiles and Material Handling:

- Storage piles will be wetted using water sprays as necessary to control emissions. Stock and working piles will be adequately wetted or controlled using dust palliatives or suppressants, wind berms, or breaks during the addition and removal of material.
- Hanson may wet materials to be handled prior to loading trucks. The drop height will be minimized as safety permits. Trucks will be loaded on the leeward side of the storage pile. The facility will install a wind sock to easily identify wind direction.
- Dust will be controlled with wet sprays and/or dust collection systems in accordance with best available technology requirements on all conveyors/transfer points.
- Overburden will be wetted (if necessary) prior to movement or handling to minimize dust generation.

#### Crushing and Sizing Equipment:

- Shot rock and processed aggregate spillage will be cleaned up as needed to minimize creation of excessive amounts of dust and to maintain general housekeeping in the quarry. The frequency of cleaning up spillage will vary depending upon how much material is running through the plant and how much product is being produced, loaded, and sold on a given day

#### Blasting:

- Prior to blasting, all drill cuttings will be removed from around the drill holes. The use of dust or screenings as stemming for blast holes will not be permitted. Coarse aggregate will be used for stemming.

- To minimize the offsite migration of dust, the blast area will be pre-wetted to minimize the release of surface dust and fines, scheduling blasts only under favorable meteorological conditions. In addition, smaller blasts can be employed when possible.

**h. Please provide a complete all-encompassing plan to prevent NOA exposure to the surrounding community.**

RESPONSE: As discussed above, Hanson's AMMP provides that during full Quarry operations, Hanson will perform perimeter monitoring analysis on a bi-monthly basis. During more limited 500-ton removal operations, Hanson will collect samples during the entirety of the removal event. In accordance with ISO 10312-2019-10, as modified by EPA's Framework, Hanson analytical laboratory will count all asbestos fibers that are 0.5 um in length or greater. Analytical reports provided to Hanson by the analytical laboratory will be sent to PADEP promptly in accordance with Hanson's AMMP.

From that count, Hanson will determine if the identified asbestos fibers exceed Hanson's proposed corrective action threshold level in its AMMP. If TEM analysis confirms asbestos fiber concentrations in excess of the proposed corrective action level in any sample, Hanson will undertake the following corrective measures to abate any potential migration of asbestos fibers:

1. Report the results immediately to the Hanson site manager and Operations Manager. Hanson will also notify the PADEP within 24 hours of receipt of the TEM analysis results.
2. Daily air sampling of that location will commence for 7 days.
3. Investigate the potential cause of the results. The investigation will include at least the following elements:
  - a. Review of operational activities that were occurring during sampling,
  - b. Confirmation that dust suppression systems are fully operational, and
  - c. Quality Assurance and Quality Control review of all sampling and laboratory equipment and procedures.
4. Hanson will take immediate corrective measures. These corrective measures may vary based on the location of the sample, and findings of the investigation. The investigation will begin as soon as the result is confirmed and will be completed in an expedited manner. The corrective actions may include investigation of the source of any airborne asbestos, extra dust suppression measures, cleanup, repairs or modifications to systems and controls, or temporary cessation of operations.
5. Within seven calendar days of receipt of the TEM analysis results from the 7-day daily air sampling in 2) above, submit to PADEP a written report of the sampling

results, and a plan and schedule of steps that have been or will be taken to identify and mitigate the source of the airborne asbestos, and to re-monitor ambient air at the facility perimeter. This written report should also include the results of the most recent EPA Method 100.1 water sampling described in Section 5.

6. Hanson will record the results and all corrective measures taken at the site in a permanent written log.

In the event that asbestos is detected at the perimeter, Hanson will notify the Department quickly upon receipt of laboratory analysis. If that asbestos exceeds Hanson's proposed corrective action level threshold in its AMMP, Hanson is obligated to perform corrective actions, which may include temporary cessation of Quarry operations. Hanson must submit a written report of the sampling results, and a plan and schedule of steps that have or will be taken to identify and mitigate the source of airborne asbestos. In this way, the exposure to the community of asbestos generated by Quarry operations will be consistently monitored and addressed, as necessary. Data collected at the perimeter of the quarry also represents the most conservative exposure scenario against which community exposure can be measured, and will be more protective of the community than data collected off-site.

**12. Testing provided by Hanson Aggregates has shown that NOA and Elongate Mineral Particles are present at the Rock Hill Quarry Site. § 77.451, § 77.104.**

- a. **Please quantify the background levels of airborne NOA and EMPs in the vicinity of the Rock Hill Quarry site by performing a background level assessment utilizing the structure counting criteria as described in ISO 10312-2019-10 "Ambient Air - Determination of Asbestos Fibers - Direct Transfer Transmission Electron Microscopy Method", as modified in Appendix C, Page C-3: Fiber Measurement and Identification detailed in EPA's "OSWER Directive #9200.0-68, September 2008, Framework For Investigating Asbestos-Contaminated Superfund Sites".**

RESPONSE: Hanson collected five (5) rounds of ambient air samples at eight (8) monitoring locations at the quarry perimeter in accordance with ISO 10312-2019-10, as modified by EPA's Framework. Across five rounds of sampling, RJLG identified a single structure, which it determined did not possess the characteristics of asbestiform morphology. As such, no asbestos fibers were detected in the air at the perimeter of the Quarry.

- b. **Utilizing the background levels of NOA and EMPs, specify the corrective action levels to be used to maintain NOA and EMPs transmission and/or migration below levels known to be associated**

**with asbestos related diseases with the assumption that EMPs may pose the same health risks as NOA.**

RESPONSE: As discussed in Hanson's July 6, 2021, submission and Section 3.6 Hanson's AMMP (Corrective Actions), Hanson has proposed a corrective action level consistent with EPA's Framework, as well as EPA's superfund responses at, for example, the Ambler and Borit Asbestos Superfund Sites.

- c. Please provide a detailed all-encompassing site-specific NOA and EMP guidance document for the Rock Hill Quarry addressing sampling, analysis, monitoring, and controlling NOA & EMP transmission resulting from any operation at the Rock Hill Quarry via air, water or aggregate production and transportation.**

RESPONSE: Hanson developed and provided its AMMP as part of its July 6, 2021 submission to the Department. Hanson's AMMP provides a comprehensive guide as to how Hanson will collect, analyze, and monitor airborne asbestos data at the Quarry during both full and limited Quarry operations, record and report that data to the Department, perform corrective actions, perform activity based monitoring, and mitigate dust and emissions during operations. The perimeter analysis and activity based analysis will identify asbestos generated during all quarrying activities, including the processing of current aggregate stockpiles. Hanson has also developed a Mineral Identification and Management Guide to assist its quarry personnel in inspecting the Quarry, identifying protocol asbestos fibers, and properly dispose of identified asbestos material.

In addition to perimeter air analysis, Hanson will collect a sample from dust suppression water sources for asbestos analysis, which will be analyzed in accordance with EPA Method 100.1 (Analytical Method For Determination Of Asbestos Fibers In Water).


With respect to the transportation of rock determined to contain NOA at and from the Quarry, Hanson's AMMP implements several emissions mitigation measures with respect to truck traffic and the local haul road. These include the following measures:

1. posted vehicle speed limit of 15 miles per hour,
2. paving the site entrance,
3. truck washing equipment,
4. street sweepers to clean public roadways,
5. requirements that all trucks transporting materials off-site be covered.

Further, the OSHA and MSHA Hazard Communication Standards require product warnings that meet their specifications. This is normally conveyed in Safety Data Sheets and weigh ticket warnings. The Quarry will comply with all OSHA and MSHA warning regulations.

Hanson remains committed to continuing to work with PADEP to allow the removal of the Cessation Order so that quarrying activities can safely resume at the Rock Hill Quarry.

Regards,



Andrew J. Gutshall, P.G.  
Area Environmental Manager



Catherine Stehlin  
Associate General Counsel – NE Region

encl:

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