STATE OF NEW YORK
DEPARTMENT OF HEALTH

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April 8, 2011

Dear Interested Party,

Enclosed is a list of frequently asked questions (FAQs) regarding asbestos/fibers analysis that were developed through the collaboration of the New York State Department of Health's (NYSDOH) Environmental Laboratory Approval Program (ELAP) and Bureau of Occupational Health (BOH), and the NYS Department of Labor (DOL).

These FAQs, along with responses, were created to help clarify and interpret existing New York State guidance and regulations. This information will be of interest to ELAP-certified laboratories that analyze samples for asbestos, asbestos-related mitigation companies /consultants, training providers or other interested parties involved in the assessment, sampling and/or analysis of asbestos. At the end of the FAQ is a detailed list of references for your review. Please refer to the appropriate regulation, guidance, manual or methods as necessary for further information.

If you have any additional questions, please do not hesitate to contact the appropriate State program listed below:

NYS DOH Environmental Laboratory Approval Program : (518) 485-5570 or elap@health.state.ny.us
NYS DOH Asbestos Worker Training Program : (518) 402-7940 or boh@health.state.ny.us
NYS DOL- Division of Safety & Health
Engineering Services Unit - For ICR 56 or Variance inquires: (518) 457-1536 or ESU.SH@labor.ny.gov

NEW YORK STATE

ASBESTOS / FIBERS – FREQUENTLY ASKED QUESTIONS

Listed below are the most frequently asked questions (FAQs) regarding asbestos /fibers that are commonly received by the New York State Department of Health's (NYS DOH) Environmental Laboratory Approval Program (ELAP) and Bureau of Occupational Health (BOH), as well as, the NYS Department of Labor (DOL).

FAQ #1: How long does my laboratory need to keep PCM sample cassettes with filters? PLM friable bulk samples? Non-friable organically bound (NOB) bulk samples?

- If your laboratory is not returning the PCM sample cassettes with filters to the client, you must store them for a minimum of 60 days after the final written report is submitted to the client. Refer to Certification Manual Item 232.1.
- If your laboratory is not returning the friable bulk samples to the client, you shall retain them in secure areas (similar to areas used to store evidentiary material) for at least 60 days after a final written report of results is sent to the client. Refer to Certification Manual Item 198.1 (Section 8.1.4).
- If your laboratory is not returning the NOB bulk samples to the client, you shall retain them in secure areas (similar to areas used to store evidentiary material) for at least 60 days after a final written report of results is sent to the client. Refer to Certification Manual Item 198.4 and 198.6 (Section 8.1.4).
- Note: TEM grids must be stored in a neat and easily retrievable fashion for at least three years after results of analyses have been reported. Refer to Certification Manual Item 198.4 (Section 8.1.4).

FAQ #2: When did the gravimetric reduction requirement for non-friable organically bound (NOB) samples become a requirement?

This requirement went into effect in August 1992.

FAQ #3: How long does my laboratory need to keep records associated with PCM, PLM, and TEM analyses?

With the exception of TEM potable water samples collected from a public water supply system, your laboratory is required to keep the records for a minimum of 5 years. Records associated with TEM potable water samples collected from a public water supply system are to be kept for a minimum of 10 years. Refer to Certification Manual Item 176 and Section 8.1.5 of Items 198.1, 198.4, and 198.6.

FAQ # 4: For which types of samples does ELAP offer proficiency tests (PT)?

ELAP proficiency tests for these types of samples:

- fibers (Air) samples by PCM;
- asbestos (Air) samples by TEM;
- asbestos in friable bulk (Solid and Chemical Materials) samples by PLM;
- asbestos in non-friable bulk (Solid and Chemical Materials) samples by TEM; and
- asbestos (Drinking Water) samples by TEM

ELAP does not PT for asbestos in non-friable bulk by PLM.

FAQ # 5: Which types of samples does my laboratory need to gravimetrically reduce?

In March 2011, the ELAP Certification Manual was updated to include more detail regarding which types of materials must be gravimetrically reduced. Manual Item 198.1 describes the laboratory-approved method for Friable bulk samples that may not require gravimetric reduction, while Manual Item 198.6 describes the approved method for Non-Friable Organically Bound (NOB) bulk samples that **must** be gravimetrically reduced.

It is recommended that friable samples, which contain matrices that interfere with optical properties (e.g., large percentage of aggregate glass or "milky way effect"), or when asbestos concentrations are near the one percent level, be gravimetrically reduced (Item 198.1, Section 4.3). Meanwhile, NOB building materials embedded in flexible-to-rigid organic matrices including asphalt or vinyl must be gravimetrically reduced according to either Item 198.4 or 198.6 (Section 4). Refer to Table 1 below, which is also included in Items 198.1, 198.4, and 198.6.

Methodology to Analyze Common Asbestos Samples

The table below lists many of the sample types commonly submitted to laboratories for bulk analysis. Please note: not all types of samples that may contain asbestos are listed. The laboratory is ultimately responsible for the accurate determination of which analysis is needed for each sample type (e.g., 198.1, 198.4 or 198.6) and for communicating those testing requirements to their client.

Table 1 Asbestos Sample Types

Material Types that may be analyzed by Item 198.1 unless NOB material is identified	Material Types that must be analyzed by Item 198.6/198.4
Ceiling Tiles *without* Cellulose	Ceiling Tiles *with* Cellulose
Gypsum Wallboard Joint Compounds	Resilient Floor Tiles
Wall and Ceiling Plaster	Vinyl Asbestos Tile
Acoustical Ceiling and Wall Coatings	Mastic
Sprayed Decorative Coatings (Texture Coats)	Asphalt Shingles
Sprayed on Fireproofing	Roofing Materials
Asbestos Pipe Packing	Paint Chips
Pipe Insulation	Caulking
Duct Wrap	Glazing
Fiberglass Insulation	Rubberized Asbestos Gaskets
Boiler Insulation	Siding Shingles
Furnace Gaskets	
House Wrap	

Please note that upon further review, asbestos fibers embedded in transite and cementitious materials are present as large bundles, which makes detection by PLM possible without gravimetric reduction. Therefore, transite and cementitious materials were removed from the above table requiring analysis by 198.6/ 198.4.

FAQ # 6 : Which types of samples does my laboratory not need to gravimetrically reduce?

Friable materials are described as dry materials that may be crumbled, pulverized, or reduced to powder by hand pressure, and includes previously nonfriable material after such previously nonfriable material becomes damaged to the extent that when dry it may be crumbled, pulverized, or reduced to powder by hand pressure. In general, friable materials do not need to be gravimetrically reduced according to the procedures in either Item 198.4 or 198.6 (Section 4) unless they contain matrices that interfere with optical properties (e.g., large percentage of aggregate glass or "milky way effect"), or when asbestos concentrations are near the one percent level, be gravimetrically reduced (Item 198.1, Section 4.3).

FAQ # 7 :What information must be included on a chain-of-custody (COC) for fiber (Air) samples to be analyzed by PCM/ TEM versus the information that must be included on a COC for friable and non-friable bulk samples to be analyzed by either or both PLM and TEM?

In general, all COC protocols, which are used for evidentiary or legal purposes, need to contain, at a minimum, the following information:

- Identity of personnel involved in sampling and sample receipt;
- Sample location;
- Sampling date and time;
- Type of sample collected (e.g., personal air, friable, NOB);
- Field sample ID;
- Number of samples collected; and
- Custody of the samples (e.g., relinquished to and relinquished by on this date and time).

For fiber (Air) samples to be analyzed by PCM/TEM, refer to Code Rule 56 (Section 4.5). The information needed on the "Air Sample Log" shall be incorporated into the COC, as well as, the sampling volume and start and stop time of the air sampling pumps.

FAQ # 8: ASTM method D5755 and D6480, which utilize microvacuum sampling and wipe sampling, respectively, are standard methods for the collection and analysis of surface dust/residue bulk samples. What are the accepted methods for collecting bulk samples of suspect materials (including bulk samples of surface dust/residue) for bulk sample analyses by ELAP method or ASTM method, to determine asbestos content ?

EPA AHERA bulk sample collection methods shall be used for collection of all bulk samples for asbestos surveys. For contamination assessments, if quantities of dust or residue are insufficient to utilize standard EPA AHERA bulk sample collection techniques, other accepted standard bulk sampling methods (e.g., ASTM D5755, ASTM D6480, etc.) may be utilized by the asbestos contractor inspection/survey firm completing the assessment, based upon their professional judgment. However, all bulk samples collected must be analyzed by ELAP approved methodology at an ELAP accredited laboratory. ASTM method D5755 and D6480 are not certified as ELAP approved methods of analysis.

FAQ # 9: Is NIOSH 7402 an approved method?

Yes. NIOSH 7402 is an ELAP approved method. Refer to Certification Manual Item 180.4 (Air and Emissions). It is listed as ELAP Method Code 4592.

FAQ # 10: How can I tell if vermiculite contains asbestos or what sampling methods should be used?

According to the EPA, you should assume that vermiculite insulation contains asbestos. It is recommended that you do not disturb it; or use a trained professional if it needs to be disturbed or removed. According to NYS Industrial Code Rule 56, vermiculite is a suspect miscellaneous asbestos containing material. Since there is currently no approved analytical methodology to reliably confirm vermiculite as non-asbestos containing, it is always best to assume vermiculite is contaminated with asbestos and proceed accordingly. For more information see the EPA website at http://www.epa.gov/asbestos/pubs/verm_questions.html.

FAQ # 11: Does my laboratory need to hold ELAP certification for NIOSH 7400 to analyze personal air asbestos and other fiber samples?

NIOSH 7400 is applicable to personal air sampling; that is, sampling located in a worker's breathing zone (Sampling Section, 2. "For personal sampling, fasten the (uncapped) open-face cassette to the worker's lapel. The

open face should be oriented downward."). ELAP, however, does not certify laboratories for the testing of samples related to personal monitoring / industrial hygiene since these activities are federally regulated by OSHA. Therefore, your laboratory does not need to hold ELAP certification for the testing of personal monitoring / industrial hygiene samples.

FAQ # 12: What is the required minimum counting time per PCM slide? How many slides can an analyst read in one day, including all the required breaks to reduce eye fatigue?

NIOSH 7400 (Measurement Section 19, Note 1), outlines a minimum counting time of 15 seconds per field and the requirement that the analyst must either (a) count enough fields to yield 100 fibers (a minimum of 20 fields) or (b) stop at 100 fields regardless of the number of fibers counted. For example, since field blanks must have 7 or less fibers per 100 fields to indicate contamination is not an issue, then that analyst is estimated to require 25 minutes per sample, or a total of **2 samples per hour**. In a typical 8-hour workday, this analyst could only read 16 samples. This is also taking into account the 10-20 minute breaks from the microscope, every one or two hours required by NIOSH 7400 (Calibration and Quality Control Section, 14) to limit fatigue.

ELAP recognizes that some analysts may be able to effectively exceed the 2 samples per hour, while utilizing alternative tools to the counting sheets (i.e., the clicker counters) and/or may work longer than a typical 8 hour business day. Therefore, if a laboratory intends to exceed the two (2) slides per hour recommended by NIOSH 7400, a performance-based Demonstration of Capability (DOC) must be established for each associated analyst. The DOC will establish the number of samples that can be accurately read per hour/ per analyst. Initial DOC's (iDOC) must be forwarded to ELAP for review and approval. Following ELAP approval of the iDOC, each analyst's continued DOC must be challenged quarterly (i.e., four times a year) by laboratory management, and all records must be maintained at the laboratory for review during on-site assessment. If the laboratory's analyst is found to be in exceedance of such demonstrated capability, a formal investigation of the laboratory's performance will result.

FAQ # 13: What is the minimum sampling volume to be collected for air sampling associated with (a) post-abatement (clearance) air monitoring and (b) post-abatement area monitoring for PCM analysis?

Within the upcoming revision to NYS Industrial Code Rule 56, minimum air sample volume requirements are being added for both background and clearance PCM air samples. The minimum volume will be 1,200 liters for all background and clearance PCM air samples collected.

NYC DEP, Chapter 1, Asbestos Control Program, specifies a minimum volume of 1800 L and 560 L for clearance and area samples, respectively.

FAQ #14: My laboratory is certified for asbestos in non-friable (NOB) material by PLM - Item 198.6, can I report a negative result if 1% or less asbestos is detected?

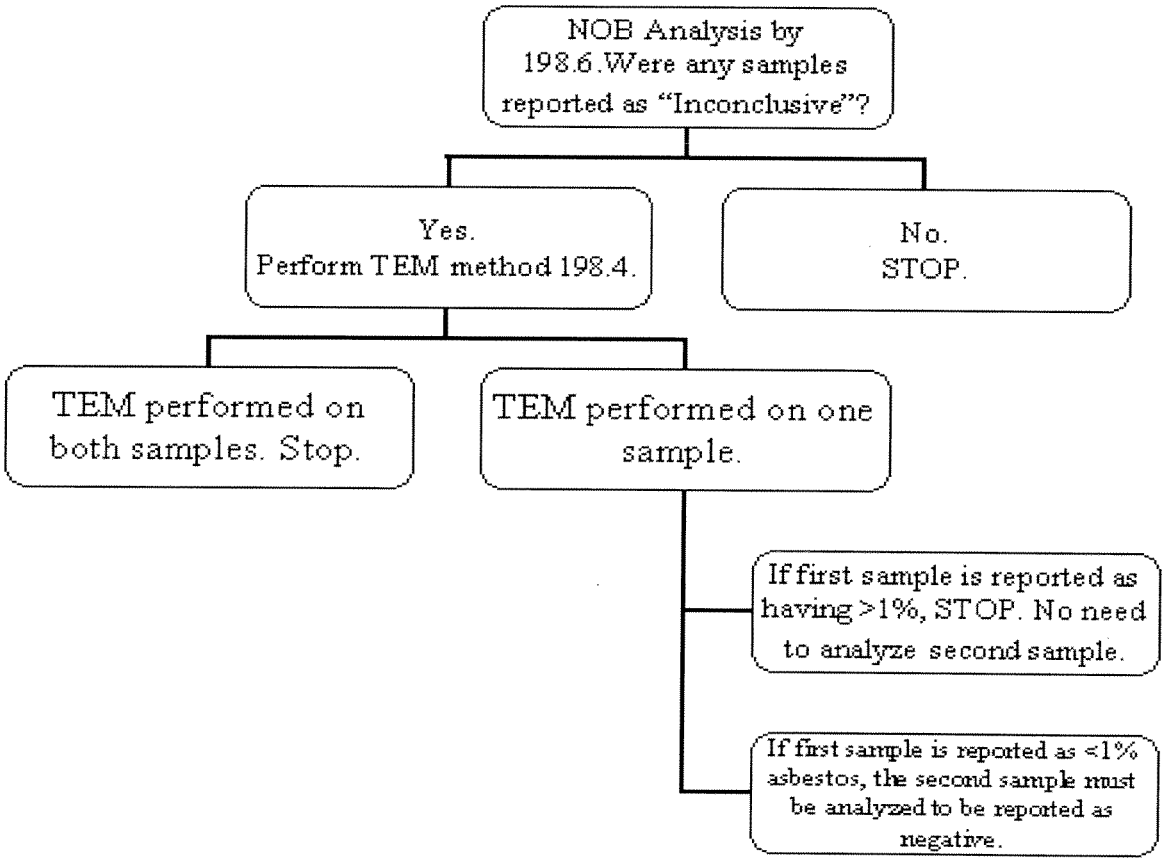
No, a 'Negative' result may NOT be generated following bulk samples asbestos testing in NOB material by ELAP Certification Manual Item 198.6. This item (i.e., Section 6, 'Test Reports') has been updated with information regarding reporting results to clients. Overall, NOB material analyzed by PLM, Item 198.6 can either yield a 'Positive' asbestos containing material (ACM) or 'Inconclusive' result. Samples with 'Inconclusive' results **must not** be interpreted as being non-ACM.

In addition, samples that have yielded asbestos fibers during preliminary analysis (4.1.3) but have not received full gravimetric reduction, report results as "Inconclusive - Asbestos Detected at Unquantified Percentage". Because quantitative TEM (Item 198.4) is the only consistently reliable method for detection of asbestos in NOBs, a disclaimer for PLM is required for each negative (1% or less asbestos) NOB sample that contained more than 1% residue in Section 4.4. This disclaimer **shall** be cited along with each negative result reported to clients:

- **Disclaimer:** "Polarized-light microscopy is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. Quantitative transmission electron microscopy is currently the only method that can be used to determine if this material can be considered or treated as non-asbestos containing."

FAQ # 15: My asbestos abatement company collected two NOB samples from a homogenous area and submitted them to be analyzed by PLM – Item 198.6. Can my company declare the area as non-asbestos containing based on only one of these samples being analyzed by TEM – Item 198.4?

If both NOB samples were fully gravimetrically reduced, analyzed by PLM – Item 198.6, and reported as either "Inconclusive – Trace" or "Inconclusive – No asbestos detected" and with the disclaimer, the samples need to be analyzed by TEM – Item 198.4. Refer to the flowchart below to aid in making your decisions.



References:

NYS ELAP Certification Manual: http://www.wadsworth.org/labcert/elapcert/index.html
NYS Code Rule 56: http://www.labor.state.ny.us/formsdocs/wp/CR56.pdf
NYC DEP Chapter 1: http://www.nyc.gov/html/dep/pdf/air/asbestos_rules_20110203.pdf
NIOSH 7400: http://www.cdc.gov/niosh/docs/2003-154/pdfs/7400.pdf
NIOSH 7402: http://www.cdc.gov/niosh/docs/2003-154/pdfs/7402.pdf
EPA Vermiculite factsheet: http://www.epa.gov/asbestos/pubs/verm_questions.html