

**Technical Review Workgroup for Metals and Asbestos
Asbestos Committee Annual Report:
Accomplishments and Activities for Calendar Year 2017**

Members

Region 1

Gary Lipson

Office of Emergency Management (OEM)

Janine Dinan (retired)

Brian Schlieger

Region 2

Charles Nace (co-chair)

Office of Research and Development (ORD)

Maureen Gwinn

Region 3

Jack Kelly

Greg Voigt

**Office of Superfund Remediation and Technology
Innovation (OSRTI)**

Andrea Kirk (co-chair)

Rich Kapuscinski (interim/acting co-chair)

Edward Gilbert

Les Szabo

Region 4

Tim Frederick

Candice Teichert

Nardina Turner

Region 5

Elizabeth Nightingale

Region 6

Anna Milburn

Region 7

Dave Williams

Region 8

David Berry (co-chair)

Region 9

Daniel Stralka

Region 10

Jed Januch

Julie Wroble

Technical Review Workgroup: Asbestos Committee Accomplishments of Calendar Year 2017

The Technical Review Workgroup (TRW) Asbestos Committee is dedicated to identifying and promoting consistent application of the best available science for purposes of characterizing human exposures and health risks at asbestos-contaminated sites. To support its mission and contribute to the Agency's core mission to protect human health and the environment, the TRW Asbestos Committee engaged in several activities and projects in 2017, which are summarized below.

Reports and Guidance Development on Asbestos Site Characterization and Risk Assessment (completed and active/continuing projects)

1. **PROJECTS TO IMPROVE THE SAMPLING AND ANALYSIS OF ASBESTOS IN SOIL AND AIR**: Since inception, the TRW Asbestos Committee has researched, evaluated, and helped develop asbestos-related sampling and analysis methods, products and tools. An overview of these efforts for 2017 is provided below.
 - A. **National Asbestos Data Entry Sheet (NADES)**: NADES spreadsheets provide a standard electronic data deliverable for recording and transmitting results from laboratories using analytical methods most commonly employed to quantify asbestos levels in environmental samples, including Phase Contrast Microscopy (PCM) for air samples, Polarized Light Microscopy (PLM) for bulk materials, and Transmission Electron Microscopy (TEM) for air and dust samples. NADES spreadsheets are available to EPA staff on the intranet [at response.epa.gov, under Asbestos Data Management Support, in the ERT (Environmental Response Team) collection]. NADES spreadsheets incorporate recommendations in the 2008 *Framework For Investigating Asbestos-Contaminated Superfund Sites* (OSWER Directive #9200.0-68; "Asbestos Framework"). Widespread use of NADES spreadsheets promotes efficiency and convenience in communicating and documenting analytical results.

The TRW Asbestos Committee updated the NADES PCM spreadsheet to include optional reporting of TEM results based on the methods published by the National Institute of Occupational Safety and Health (NIOSH).
 - B. **Evaluation of Fluidized Bed Asbestos Segregator** : The fluidized bed asbestos segregator (FBAS) refers to a sample preparation instrument and methodology that utilizes air elutriation to separate asbestos structures from heavier particles in a bulk sample, such as soil, and deposit these structures onto a filter that can be analyzed by TEM or other appropriate microscopic techniques. FBAS facilitates quantification of asbestos and other mineral fibers at much lower levels [~1000 times lower] than the traditional PLM methods. The ability to accurately quantify the asbestos content in soil is important for reliably informing cleanup decisions and for reliably determining if cleanup standards have been attained.

Asbestos Committee members from Regions 8 and 10 continued development and evaluation of the TRW-sponsored FBAS for quantifying asbestos levels in soil. They have been conducting multiple studies including method improvement, method comparison, and an inter-laboratory evaluation in collaboration with EPA's Environmental Response Team.

If proven effective, the FBAS may be able to replace the currently recommended Activity-Based Sampling method for evaluation of asbestos exposure and human health risk. Activity-Based

Sampling is a time-consuming, labor-intensive method for estimating human exposures to asbestos fibers released from soil to the breathing zone because of soil disturbance activity by humans.

- C. **Mini Statements of Work:** Mini Statements of Work (“mini SOWs”) represent fill-in-the-blank templates that can be used by EPA staff to provide tracking information about site-specific samples and instructions to analytical labs that receive and test the samples, along with a project-specific statement of work.

The Asbestos Committee developed and posted mini SOWs on the intranet [at response.epa.gov, under Asbestos Data Management Support, in the ERT (Environmental Response Team) collection], where they are available to EPA staff. The standardized instructions are consistent with recommendations in the Asbestos Framework.

- D. The Asbestos Committee continued its review of the Analytical Method Comparison report, to assess the future usability of data from the 2011 study. Useable data from the subcontractor’s laboratory analysis were found for most samples and analyses, with the exception of indirect analysis where data are more limited. The Committee’s review identified next additional steps to bring the comparisons and the associated report to completion.

2. **RISK ASSESSMENT SUPPORT:** The Asbestos Committee continues to develop and refine guidance, provide clarification on existing guidance, and support EPA regional staff who have site-specific questions about asbestos. Committee members work collaboratively with Regional personnel to promote awareness and consistent application of appropriate data, methods, and assumptions for exposure and risk assessment for asbestos-contaminated sites nationally. The following projects were undertaken to support work being conducted in the regions.

- A. **Framework Update:** The Asbestos Committee is incorporating updates to the Asbestos Framework, reflecting recent technical developments regarding risk assessment for asbestos and pertinent analytical methods (for example, recent technical developments regarding the FBAS and PLM, PCM, and TEM methods and new risk calculations, as summarized below). The information and resources within the Asbestos Framework support site characterization and exposure estimates for risk-based removal and remedial actions pursuant to CERCLA.
- B. **Development of New Risk Calculations for Less-Than-Lifetime Asbestos Exposures:** The updates to the Asbestos Framework include the new risk calculations. In 2014, the U.S. Environmental Protection Agency published an inhalation reference concentration (RfC) for Libby Amphibole Asbestos (LAA) in its Integrated Risk Information System (IRIS). The RfC is applicable to individuals with life-long exposure. It was unclear how this value would apply to individuals who were exposed for shorter lengths of time. General risk calculations for inhaled contaminants are available to risk assessors through the *Risk Assessment Guidance for Superfund (RAGS), Part F*, (OSWER 9285.7-82, EPA-540-R-070-002, January 2009) for non-chronic exposures. However, asbestos risks pose some unique challenges. Exposure to most inhaled contaminants ceases when a person leaves the contaminated area. Asbestos differs from typical inhaled contaminants in that particles can remain in the body for decades, where they continue to elicit a biological response. Asbestos Committee members have developed new risk calculations that take the unique attributes of asbestos into consideration so that risk assessments more accurately reflect the biological impact of less-than-lifetime asbestos exposure.

Communication, Training, and Outreach

1. **Hotline:** The TRW Asbestos Committee responds to questions from inquiries made either by telephone (toll-free 1 866-282-8622) or email (asbestoshelp@epa.gov) to the TRW Asbestos Committee hotline. The TRW Asbestos Committee responded to nine requests for assistance in 2017. Of these calls, seven were from state or federal agencies. The remaining two calls were from other sources (concerned citizens, engineering and consulting firms). Common issues included questions related to asbestos analytical methods and sampling. There were no international requests.
2. **Presentations/Training:** TRW Asbestos Committee members published scientific articles and gave technical presentations at conferences in 2017. These activities are listed in the table below.

Meeting/Presentation/ Training	Location	Dates	TRW Asbestos Committee Member(s)	Title of Presentation
2017 ASTM Johnson Conference	Burlington, VT	July 31 2017 - August 4 2017	Maureen Gwinn David Berry Tim Frederick Jed Januch Andrea Kirk Julie Wroble Ann Strickland Peggy Forney	Finalizing the Libby Action Plan Research Program (Gwinn, Berry, and Kirk) Fluidized Bed Asbestos Segregator – Inter- Laboratory Round Robin (Januch and Berry) Comparison Between PCM and TEM Analysis of Filters Loaded with LA-Spiked Soil Standards Using the FBAS Preparation Method (Berry) River Street Warehouse Fire: A Case Study of an EPA Emergency Response (When it Rained Asbestos on Portland) (Wroble) Use of FBAS Prepared Soil Samples to Make Cleanup Decisions at an ACM- Contaminated Site (Frederick and Berry) Taz and Sons: Bad Removal of Asbestos Coated Pipeline (Forney) Liberty Fibers: Asbestos NESHAPS Investigation,

				Criminal Prosecution and Superfund Victim Restitution Order (Strickland and Forney)
Manuscript ¹	PLOS One	7/2017	Wroble Frederick	Comparison of soil sampling and analytical methods for asbestos at the Sumas Mountain asbestos site-working towards a toolbox for better assessment
Manuscript (collaboration with NIOSH) ²	Environmental Earth Sciences	3/2017	Januch	Evaluation of fluidized bed asbestos segregator (FBAS) to determine erionite in soil
Asbestos Training	OHHRRAF Risk Assessors Training Conference in Philadelphia	8/2017	Nace Mazziotta	Asbestos training for risk assessors

3. **Website:** This website has been migrated to one-EPA format. The TRW continues to support the incorporation of additional materials, as appropriate.
4. **Charter:** The TRW Charter was revised to clarify members' roles and responsibilities, nomination process, standard operating procedure for development and clearance of documents, and facilitation of discussions during meetings. The charter applies equivalently to all of the TRW Committees.

Coordination with Regions, EPA Program Offices, and Other Federal Agencies

Upon request, Asbestos Committee members provide appropriate technical information and counsel to EPA colleagues, regarding site-specific investigation and cleanup matters involving asbestos. The following list of sites and issues summarizes these activities for 2017:

Region 1: Responded to an on-scene coordinator (OSC) who had questions regarding the National Emission Standard for Asbestos, which is found in Subpart M of the National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Part 61, pertinent to a former mine site (Vermont Asbestos Group).

Region 2: Responded to an OSC concerning the new ASTM soil method for use at CERCLA sites.

Region 3: Provided appropriate technical information and counsel to support asbestos contamination response actions at the Keasbey and Mattison Residential Site and the BoRit site.

Region 4: Provided counsel in support of Region 4's use of the FBAS for screening soil data at the Davidson Depot Asbestos Site.

¹ <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0180210>

² <https://doi.org/10.1007/s12665-017-6438-7>

Region 5: Provided appropriate technical information and counsel to EPA staff regarding the Frank Foundry Site, Beck's Lake Site, and the Bendix site. Provided appropriate technical information and counsel to state staff regarding a demolition in Muskegon, Michigan.

Region 6: Supported OSCs evaluating potential risks at the Burnett (Texas) Vermiculite site.

Region 10: Supported Region 10 discussions concerning the Portland Warehouse fire.

Coordination with Other Nongovernment Groups

- The Asbestos Committee invited researchers from the University of Pennsylvania (UPenn), who work under the NIEHS Superfund basic research program, to give a presentation about their research objectives and projects regarding asbestos.
- In response to an inquiry from the talc industry about the FBAS method for analysis of mineral fibers, members of the TRW Asbestos Committee provided contact information about the sole commercial laboratory known to be able to perform the analysis they were seeking.