



## Engineering Sciences Section – 2005

### C54 Validating Asbestos Data - What Do We Have to Go On?

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After attending this presentation, attendees will understand the current limitations involved in assessing the quality of results from asbestos analyses in environmental matrices.

This presentation will impact the forensic community and/or humanity by increasing awareness of some of the limitations in evaluating the usability of asbestos results in risk assessment and remediation, reported results are not always what they may seem.

**Learning Objective:** to address the present state of validating asbestos data, the tools already possessed as well as the additional tools that are needed.

When an outside source is asked to validate data it is hoped the results are usable. If there were problems with the analysis, find out how they may have affected results. Another reason to ask someone to validate data is to ascertain whether or not the data would be defensible in court, i.e., do the data support the reported results?

The whole point of environmental analytical chemistry is to determine what is present and how much there is. The data have to support both the presence of the compounds or elements identified as well as the concentrations of any compounds or elements reported in a sample.

Validation of data produced by methods such as those included in EPA Solid Waste methods (SW-846) and the EPA Contract Laboratory Program Statements of Work (EPA CLP SOWs) is a "by the book" process. One can follow a guideline, fill out a checklist, refer to specific limits for the quality control (QC) analyses, and have the decisions on how to qualify the data generally laid out. "If this, then that," so to speak.

But what happens when the data and results are from methods that have no "book" to follow? It's still the same process, still the same questions to answer. Are the correct analyses identified in the sample? Are the reported concentrations correct? Do the data support the identifications and the concentrations reported?

Asbestos analysis is not new. Interest in identifying and quantifying asbestos minerals began in the 1960s when adverse health effects were first identified in workers involved in the use of asbestos as fire retardant coatings. The concern grew as awareness of the dangers of these materials grew. The earliest sampling and analysis methods were designed to measure exposure by inhalation so airborne particles were the matrix of concern. All asbestos fibers were treated the same and the intent was to err on the conservative side. False positives are much more welcome than false negatives when human health is at stake.

As time passed and work on asbestos monitoring continued, it was determined that some types of asbestos fibers are more dangerous to human health than others. Methods and instrumentation have been improved for the detection and differentiation of asbestos materials. But the tools a validator relies upon are not all there. There are no National Functional Guidelines to follow. There are no EPA regional SOPs for validation of these data. It is back to the basics of, "what's there and how much."

But there are some tools available. There are QA/QC measures that allow laboratories to demonstrate their ability to identify and quantify asbestos fibers and for validators to evaluate that ability. Deficiencies have been identified in the availability of standard reference materials and guidance for laboratories. Methods are in development to address additional matrices. Meanwhile, professionals use what is necessary to ensure that the results are usable and defensible.

#### Validating, Asbestos, Defensibility