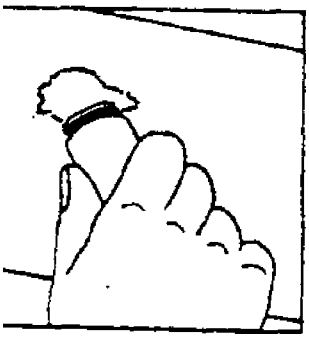
SAMPLING AND MONITORING

Sampling



The only way to determine if a material contains asbestos is to send a sample to a lab. No-one can tell if a material contains asbestos by looking at it. Many materials look the same. Building materials that contain asbestos look exactly the same as materials that do not contain asbestos. A small piece of the material must be removed and sent to a lab to determine if it contains asbestos.

Special precautions must be used when the sample is taken. The person taking the sample should wear a respirator and suit and decontaminate after taking the sample.

The material from which the sample was taken must be sealed after the sample is taken to prevent asbestos fibers from getting into the air.

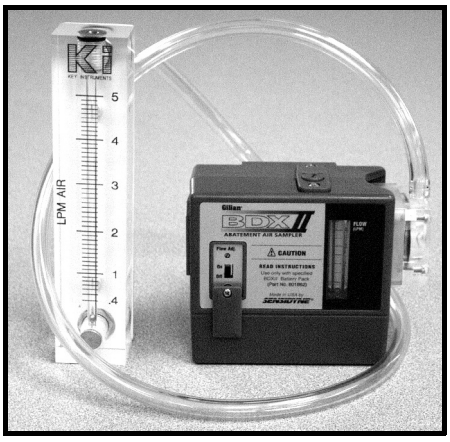
The sample is labeled and placed in a sealed container for shipping to the lab. At the lab, the contained is opened and analyzed using a **Polarized Light Microscope.** A report is sent to the building owner listing the materials that contain asbestos and how much asbestos they contain. Decisions are then made on how best to deal with the asbestos containing materials.

Monitoring

The air also must be monitored to find out how much asbestos is in the air. There are two ways to determine how much asbestos is in the air: **personal monitoring and area monitoring.**

Personal Monitoring

Personal monitoring is done by hanging a small **"personal sampling pump"** on a worker from each crew, usually one out of every four workers. The sample is collected in a **special filter** attached to the pump. The sample is identified with the name of



of the person that wore the pump, the task being performed, the number of the pump, and the amount of time that the pump was worn. **This sampling cassette is sent to a lab to be analyzed.** The lab analyzes the sample and sends a report to the employer. This report lists the amount of asbestos that the worker was exposed to.

The sample is collected in the wearer's **"breathing zone"**. This is an area within **12**" Of the person's nose and mouth. High readings may mean that the work is not being performed properly. More water may be needed to control the fibers. A different work method may be needed that releases less fibers. If the fiber count cannot be lowered, a higher level of PPE may be needed.

Area Monitoring

Monitoring is also done to determine how much asbestos is in a certain area. **An area monitor looks similar to a personal sampling pump. The main differences are the size of the pump and the amount of air that is drawn through the filter.**

Area monitoring is used to find out if the containment is controlling the spread of fibers. These pumps are set up outside of the containment in other areas of the building. If asbestos is found, the containment is not working and needs to be changed or repaired.

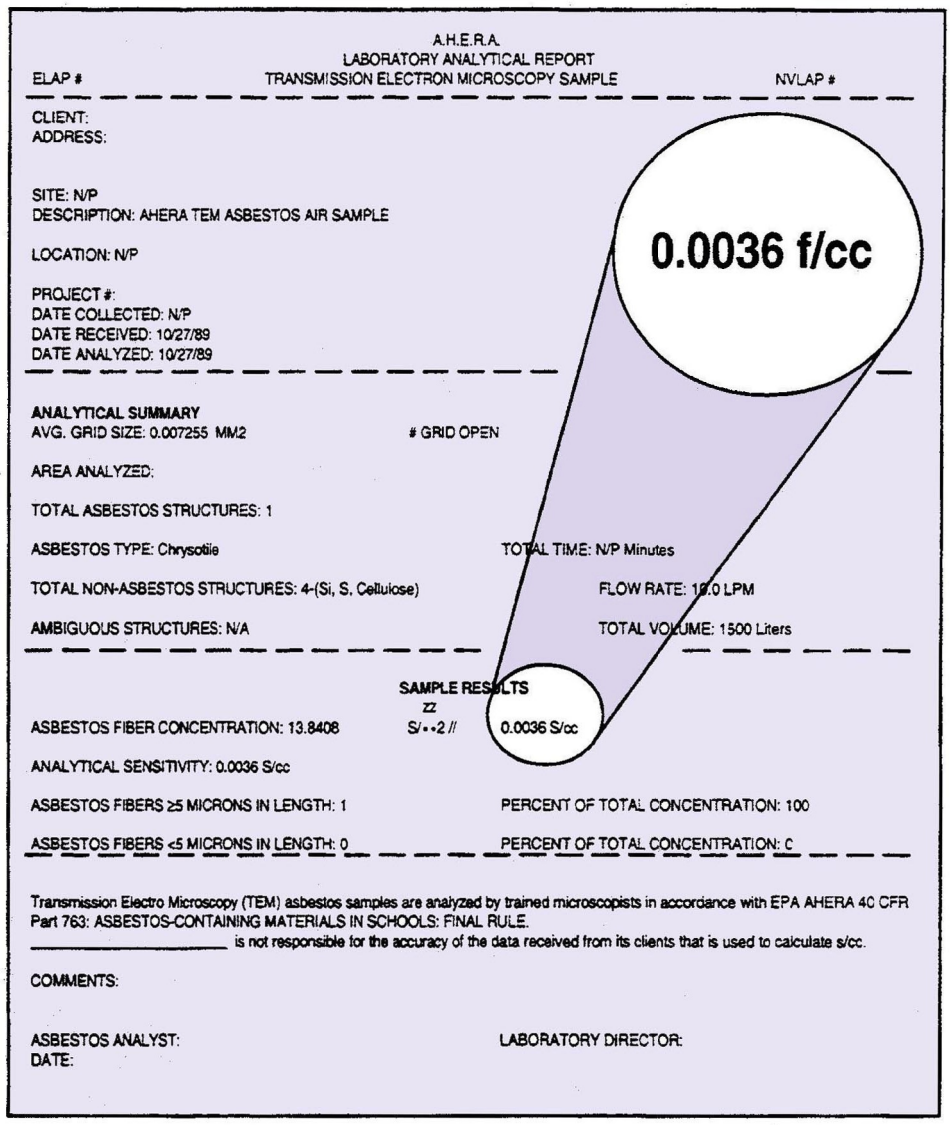
Area monitors are also used inside the containment to determine if the work is being done properly. If the fiber counts are too high, work methods need to be changed to lower the amount of fibers released.

Final Clearance

After the work is done, monitoring is performed to see if all of the asbestos has been successfully cleaned up. Area monitors are placed in the work area. **Aggressive sampling is done.** The people

doing the sampling use leaf blowers to stir up the air. They are trying to put fibers into the air.

The samples are sent to a lab for analysis. A special microscope, called a **Transmission Electron Microscope (TEM)**, is used to analyze final clearance samples from schools and may be used for other final clearance samples.



A.H.E.R.A.
LABORATORY ANALYTICAL REPORT
TRANSMISSION ELECTRON MICROSCOPY SAMPLE

ELAP # NVLAP #

CLIENT:
ADDRESS:

SITE: N/P
DESCRIPTION: AHERA TEM ASBESTOS AIR SAMPLE

LOCATION: N/P

PROJECT #:
DATE COLLECTED: N/P
DATE RECEIVED: 10/27/89
DATE ANALYZED: 10/27/89

ANALYTICAL SUMMARY
AVG. GRID SIZE: 0.007255 MM2 # GRID OPEN

AREA ANALYZED:

TOTAL ASBESTOS STRUCTURES: 1

ASBESTOS TYPE: Chrysotile TOTAL TIME: N/P Minutes

TOTAL NON-ASBESTOS STRUCTURES: 4-(Si, S, Celluiose) FLOW RATE: 10.0 LPM

AMBIGUOUS STRUCTURES: N/A TOTAL VOLUME: 1500 Liters

SAMPLE RESULTS
ZZ
ASBESTOS FIBER CONCENTRATION: 13.8408 S/••2 // 0.0036 S/cc

ANALYTICAL SENSITIVITY: 0.0036 S/cc

ASBESTOS FIBERS ≥5 MICRONS IN LENGTH: 1 PERCENT OF TOTAL CONCENTRATION: 100

ASBESTOS FIBERS <5 MICRONS IN LENGTH: 0 PERCENT OF TOTAL CONCENTRATION: C

Transmission Electro Microscopy (TEM) asbestos samples are analyzed by trained microscopists in accordance with EPA AHERA 40 CFR Part 763: ASBESTOS-CONTAINING MATERIALS IN SCHOOLS: FINAL RULE.
_____ is not responsible for the accuracy of the data received from its clients that is used to calculate s/cc.

COMMENTS:

ASBESTOS ANALYST: LABORATORY DIRECTOR:
DATE:

0.0036 f/cc

CLEARANCE AIR SAMPLE REPORT FROM A LAB

If removal and cleanup have been done properly, the readings will be low. But if removal and cleanup have not been done properly, fibers will be blown into the air and collected on the filters. If the readings are too high, the cleanup must be done again until the job passes.

Key Facts

The only way to tell if a material contains asbestos is to send a sample to a lab.

Special microscopes called Polarized Light Microscopes or Transmission Electron Microscopes are needed to accurately determine the amount of asbestos in a sample.

Monitoring is done to determine the amount of asbestos in the air.

Personal air samples must be taken in the worker's breathing zone.

Changes in work practices and PPE may be made based on air samples.