

The Agency for Toxic Substances and Disease Registry (ATSDR), a federal public health agency under the Department of Health and Human Services, was created under Superfund legislation to assist the Environmental Protection Agency, and state and local public health departments in assessing how toxic substances in the environment may affect public health.

The New York City Department of Health requested ATSDR's assistance in designing a sampling plan and in conducting sampling of residential air and dust in lower Manhattan to determine if residents are being exposed to concentrations of materials that may be harmful.

The Purpose of the Sampling

- response to public concern
- determine if residents are being exposed to concentrations of materials that may be harmful
- determine whether areas already cleaned contain materials that may be of public health concern
- provide information to the public on possible public health implications

The Sampling Plan and its Limitations

The sampling plan was designed to obtain samples from locations across the lower Manhattan area. Because of the time urgency associated with the need to obtain results, the plan was not designed to garner samples statistically representative of the area, but rather to give public health officials and citizens relatively quick, overall feedback regarding contaminants present. Thirty residential buildings were sampled in lower Manhattan, the vast majority of which had some degree of clean up.

ATSDR focused on building-related materials that were known to have emanated from the collapse of the World Trade Center towers that might cause health problems. However, our investigation cannot definitively conclude whether the contaminants found were actually from the disaster.

Sample Locations

- A total of 117 air samples were taken from inside and adjacent to the selected residences in various areas of lower Manhattan
- A total of 98 dust samples were taken from apartments, common areas, and outdoor areas of those 30 residential buildings
- Background samples of both dust and air were taken from four buildings north of 59th Street

Air Sample Results

- The air samples from inside the buildings showed no elevated levels of asbestos. Levels were similar to those seen in areas not affected by the World Trade Center collapse.

Dust Sample Results

Asbestos

- Low levels of asbestos were found in settled dust, primarily below Chambers Street, in 10 (17.5 %) of the residential units dust sampled, 5 (19.2 %) of the common area samples and 5 (33 %) of the outdoor areas samples. Only 2 of the 15 indoor samples exceeded the 1% level. Four outside samples exceeded 1%.
- New York City conducted follow-up activities at all locations that exceeded 1% of asbestos in dust.

- Asbestos was detected in some of the areas previously cleaned.
- No asbestos was detected in the background dust samples taken from north of 59th Street.
- Settled dust samples were analyzed using Polarized Light Microscopy or PLM. PLM identifies and distinguishes types of fibers, including asbestos or fibrous glass, by shape and the pattern/color of their appearance. TEM, a more sensitive form of analysis, was conducted as an additional check on all dust samples in which PLM testing did not detect levels of asbestos.

Fibrous glass and other contaminants

- Fibrous glass was detected in settled dust samples from 23 (40.4%) of the residential unit samples, 11 (42.3%) of the common area samples, and 9 (64.3%) of the outside samples. The percentage of fibers in indoor samples that were fibrous glass ranged from 2% to 35%.
- No fibrous glass was detected in background dust samples.
- Fibrous glass was detected in many of the locations previously cleaned.
- Samples continue to be analyzed for other contaminants, including crystalline silica, mica, gypsum, and calcite, as well as the total amount of dust and fibrous glass in the air.

Health Implications of Findings/Recommendations

- Exposure to fibrous glass is known to cause rashes and upper respiratory irritation. These sampling results suggest that fibrous glass should be considered in choosing the mode and frequency of clean up.
- The negative air data and low levels of asbestos in dust suggest that clean up practices seem to be largely effective in eliminating asbestos exposure.
- Although both the asbestos and fibrous glass were found in dust, both types of particles can become airborne if disturbed. Therefore, ATSDR is recommending that people continue to conduct frequent cleaning with HEPA vacuums and damp cloths/mops to reduce the potential for exposure in accordance with NYC Department of Health guidance.
- ATSDR is recommending additional monitoring of residential units in lower Manhattan.
- ATSDR continues to work with the New York City Department of Health, and other federal and state agencies, to provide information on sampling results to the citizens of New York City and help interpret the possible health effects of contaminants found.