



Customer-Focused Solutions

April 9, 2002

Mr. G. Foster Mills
Managing Attorney
New York City Law Department
59 Maiden Lane, 28th Floor
New York, New York 10038

Re: Report of Environmental Monitoring of Carpet Removal at 100 Church Street
TRC Project Number 35052-0000-00007

Dear Mr. Mills:

TRC Engineers, Inc. (TRC) is pleased to present the following report of environmental monitoring for carpet removal performed on floors 2 through 6 at 100 Church Street.

1.0 Introduction

As a result of the dust generated by the collapse of buildings on September 11, 2001 at the World Trade Center, asbestos dust was found in the carpeting inside the New York City Law Department's office space at 100 Church Street, New York, New York. The NYCLD retained Cambridge Carpets (Cambridge) to remove and replace the carpeting on floors 2 through 6, and retained TRC to perform environmental monitoring during the carpet replacement and associated furniture cleaning.

The carpeting in the NYCLD space had been glued to the substrate. As part of the carpet removal procedures, Cambridge applied a mastic release agent to the top of the carpeting to penetrate the carpet and dissolve the underlying glue, so that the carpeting could be pulled up from the substrate. This mastic release agent also acted as a wetting agent to minimize the release of fibers during carpet removal activities.

As part of the project, Cambridge also wet-wiped all office furniture prior to installation on new carpeting. The detailed wet-wiping procedure, which is included as an attachment to this report, involved using rags or sponges saturated with amended water (water mixed with a detergent). Cambridge wet-wiped the furniture until no visible dust remained.

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Messrs. Gerald Stanley and Jeremy Gagne of TRC conducted the environmental monitoring, which included observing Cambridge's work practices to ensure that the substrate was not disturbed during carpet removal activities, and the furniture was properly cleaned. TRC also conducted extensive air sampling during carpet replacement. The purpose of the sampling was to: 1) monitor the air for airborne fibers and asbestos structures that may have been generated by carpet dust; and 2) monitor the air for ethanolamine vapors that may have resulted from the mastic release agent that was used to dissolve the carpet glue. The following types of sampling were performed:

- Air sampling inside worker's "breathing zone" for airborne fiber concentrations and ethanolamine (2-Aminoethanol). This is referred to as "personal" air sampling.
- Air sampling in the areas adjacent to the carpeting removal work area for airborne fiber concentrations. This is referred to as "area" air sampling.

Appendix A presents the data tables showing the results of the samples collected, Appendix B provides copies of TRC's written observations (narrative logs) of the contractor's work practices, Appendix C presents area air sampling laboratory results and chain-of-custody sheets, Appendix D presents the personal Occupational Safety and Health Administration (OSHA) permissible exposure limit (PEL) asbestos air sampling laboratory results and chain-of-custody sheets, Appendix E presents OSHA Short Term Exposure Limit (STEL) asbestos air sampling laboratory results and chain-of-custody sheets, and Appendix F presents ethanolamine personal air sampling laboratory results and chain-of-custody sheets.

2.0 Air Sampling and Analysis

Representative sampling was conducted on each floor within the NYCLD space where carpet removal was being performed. Independent laboratories certified by the New York State Department of Health (NYSDOH) under the Environmental Laboratory Approval Program (ELAP) performed all analytical work.

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2.1 Personal Air Sampling

Asbestos

Personal air sampling for airborne fibers was based on procedures described by OSHA. This involves placing a personal air-sampling pump on a worker throughout the duration of a work shift. An air sample filter cassette was attached to the pump by a flexible plastic (tygon) tube and clipped to the collar of a worker, i.e. the cassette was positioned inside the worker's "breathing zone". Air was drawn through the cassette, thereby trapping airborne particles and fibers on the filter.

The cassettes were sent to a laboratory for analysis by PCM and the results compared to the OSHA PEL. One hundred and eighty two (182) air samples were collected from the breathing zones of various workers who removed the carpeting. These samples were collected throughout the 12-hour work shift and were analyzed for airborne fibers using Phase Contrast Microscopy (PCM). All 182 samples were found to be below the OSHA PEL of 0.1 fibers per cubic centimeter of air (f/cc). As a quality control measure, five (5) of these samples were re-analyzed by Transmission Electron Microscopy (TEM), which differs from PCM in that TEM can differentiate between asbestos and non-asbestos fibers. No asbestos was detected in the five samples analyzed by TEM.

Seventy (70) samples were collected from workers for a 30-minute duration and were analyzed for airborne fibers using PCM. All 70 samples were found to be below the OSHA STEL of 1.0 f/cc. As a quality control measure, two (2) of these samples were re-analyzed by TEM, and no asbestos fibers were detected.

Ethanolamine

Personal air sampling for ethanolamine vapor was conducted by placing a personal air sampling pump on a worker and drawing air through a filter cassette for the duration of the 12-hour work shift. The cassette was sent to a laboratory for analysis and the results were compared to the OSHA PEL.

Sixty-six (66) were collected from the breathing zones of various workers who removed the carpeting. All 66 samples were below the analytical detection limit.

2.2 Area Air Sampling

Air samples were collected adjacent to the areas where the carpet removal was being performed. These are known as "area" air samples. These samples differed from personal air samples in that the sample

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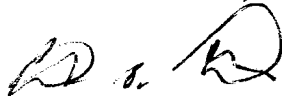
cassettes were not attached to workers via personal air sampling pumps, but were instead attached to stationary pumps.

One hundred and seventy six (176) air samples were collected in the office areas adjacent to the carpeting removal work areas and were analyzed for airborne fiber concentrations using PCM. Eleven (11) of these samples were found to be equal to or above 0.01 f/cc. This level was established by the New York State Department of Labor (NYSDOL) asbestos regulations as the "clearance" level for asbestos abatement projects. If air samples collected inside the abatement work area at the conclusion of abatement are less than 0.01 f/cc, then the work area is considered suitable for re-occupancy. Ten of the eleven samples equal to or above 0.01 f/cc were re-analyzed by TEM and were found to contain no asbestos. One of the eleven samples was found to contain one asbestos structure which, for the volume of air that was sampled, equated to 0.0032 asbestos structures per cubic centimeter of air.

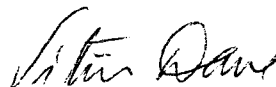
Should you have any questions or comments regarding this report, or need any further assistance, please feel free to contact us.

Very truly yours,

TRC ENGINEERS, INC.



Graham P. Brooks
Program Manager



Nitin Dave, PE, CIH, CSP
Senior Project Manager

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