



Bell Laboratories

subject Asbestos Sampling in Two New England
Telephone Business Offices, Boston,
Massachusetts
March 6, 1979
48106-3

date April 6, 1979
from V. R. Cohen

MEMORANDUM FOR RECORDIntroduction:

On March 6, 1979, environmental hygiene measurements were made at two New England Telephone business offices in Boston to determine airborne asbestos fiber concentrations. Bulk insulation samples from these locations had been previously analyzed for and found to contain asbestos. Ms. V. R. Cohen of Bell Laboratories accompanied by Mr. J. Rourke, Safety, New England Telephone Company, performed this survey.

During this sampling, some renovation work was being performed which should be the subject for another study to determine whether medical examinations and other precautionary measures need be taken.

Summary:

Environmental air samples collected at two business offices in Boston revealed very low airborne fiber concentrations. The levels found were below the Occupational Safety and Health Administration (OSHA) Standard for asbestos fibers, and indicate a safe working environment.

Standard:

The present standard for asbestos promulgated by OSHA is two fibers per cubic centimeter greater than five micrometers (μm) in length. This two fiber limit refers to an eight-hour time weighted average (TWA) permissible exposure limit and includes a ten fiber per cubic centimeter ceiling concentration which is not to be exceeded.

The recommended standard proposed by the National Institute for Occupational Safety and Health (NIOSH) is 0.1 fibers per cubic centimeter greater than five μm in length as an eight-hour time weighted average permissible exposure limit and a 0.5 fiber per cubic centimeter ceiling concentration.

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The seven or eight-hour time weighted average exposure level at which medical examinations become mandatory is 0.1 fibers per cubic centimeter or greater (see OSHA Program Directive #300-16).

Sampling Techniques:

Samples were collected on 37mm open faced Millipore cellulose ester filters with a 0.8 μ m nominal pore size diameter. Air was pulled through the filters with portable, battery powered Mine Safety Appliance Corporation pumps at 2.0 liters per minute.

The pumps were calibrated with the soap bubble flow meter technique. Analysis for asbestos using phase contrast microscopy as recommended by NIOSH was performed at Bell Laboratories by Ms. Cohen.

The bulk samples were split and analyzed by both Bell Laboratories and McCrone Associates. At Bell Laboratories, analytical techniques included x-ray diffraction and optical microscopy. At McCrone Associates dispersion staining with polarized light microscopy was used.

Results:

The results of this survey are found in Tables I and II. The bulk samples were found to contain 8% asbestos at the Keystone Building, 99 High Street, and 10% asbestos at 101 Huntington Avenue. Fiber concentrations ranged from 0.003 to 0.072 fibers per cubic centimeter. These concentrations indicate a safe working environment.

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Table I

Asbestos Samples Collected in Two New England Telephone Company
Business Offices, Boston, Massachusetts, March 6, 1979.

<u>Description</u>	<u>Duration (minutes)</u>	<u>Volume (liters)</u>	<u>Lower Limit of Detection (fibers/cc)</u>	<u>Number of Fibers Observed</u>	<u>Concentrations (fibers/cc)</u>
Keystone Building 99 High Street					
Rm 1004 - Revenue Matters					
1	213	426	.002	5	.009
2	162	324	.002	9	.021
Rm 501 - Renovation Area					
1	193	386	.002	8	.016
2	167	334	.002	9	.021
Rm 306 - Business Services Central					
1	177	354	.002	33	.072
2	167	334	.002	3	.007
101 Huntington Avenue					
Rm 1600 - Central Order Bureau					
1	203	406	.002	12	.023
2	117	234	.003	11	.036
Rm 1965 - General Office Network					
1	202	404	.001	3	.003
2	112	224	.003	10	.035
Training Room 6-9th floor					
1	175	350	.002	5	.011
2	125	250	.003	6	.019

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Table II

Bulk Insulation Samples Submitted by New England Telephone Company, Boston, Massachusetts, and Analyzed by McCrone Associates, Chicago, Illinois and Bell Laboratories.

<u>Description</u>	<u>Asbestos Content</u>
Keystone Building 99 High Street	8%
101 Huntington Avenue	10%

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