New York City Fire Department
World Trade Center Site
October 17, 2001

Employee/ Job Title	Location	Minutes Sampled	Substance Sampled	TWA Exposure over sampling period	PESH 8-hour TWA - PEL
[redacted]	Mid-section, between two Towers, West Command	250	asbestos	0.112 f/cc (1) <0.005 f/cc (2)	0.1 f/cc
[redacted]	Mid-section, between two Towers, West Command	335	asbestos	0.068 f/cc (1) 0.004 f/cc (2)	0.1 f/cc
[redacted]	Church & Dey, East Command	169	asbestos	0.069 f/cc [1] (3)	0.1 f/cc
[redacted]	ATV Driver, East Command	373	asbestos	0.059 f/cc (1) <0.003 f/cc (2)	0.1 f/cc
[redacted]	Mid-section, between two Towers, West Command	585	dust iron oxide lead cadmium **	38.9 mg/m^3 0.785 mg/m^3 0.040 mg/m^3 0.000923 mg/m^3 (0.923 ug/m^3)	15 mg/m^3 10 mg/m^3 0.050 mg/m^3 (4) 0.005 mg/m^3
[redacted]	Mid-section, between two Towers, West Command	585	respirable dust respirable quartz silica % silica	1.70 mg/m^3 0.015 mg/m^3 0.90 %	5 mg/M^3 0.1 mg/M^3 NA (5)

[redacted]	Mid-section, between two Towers, West Command	562 313	acrolein acetaldehyde formaldehyde phosgene carbon monoxide	ND 0.003 ppm. <= 0.007 ppm. ND 5 ppm. 49 ppm. (Peak)	0.1 ppm. 100 ppm. 0.75 ppm. 0.1 ppm. 35 ppm 200 ppm [6]
[redacted]	Mid-section, between two Towers, West Command	584	nitrogen dioxide nitric oxide	<=0.05 ppm. <= 0.05 ppm.	1 ppm. (STEL) 25 ppm.
[redacted]	Mid-section, between two Towers, West Command	584	petroleum distillates benzene ethyl alcohol	0.019 ppm. 0.015 ppm. 0.046 ppm.	400 ppm. 1 ppm. 1000 ppm.
[redacted]	Mid-section, between two Towers, West Command	568 568	hydrochloric acid hydrofluoric acid nitric acid phosphoric acid sulfuric acid carbon monoxide	ND ND ND ND 0.48 mg/m^3 [7] 4 ppm. 60 ppm. (Peak)	7 mg/m^3 (Ceiling Limit) 3 ppm. 5 mg/m^3 1 mg/m^3 1 mg/m^3 35 ppm 200 ppm [6]
Bulk # 4	powdery debris from mid-section	NA	asbestos silica lead iron aluminum copper magnesium sulfur calcium	ND 2.1 % 0.07 % 1.1 % 0.70 % 0.21 % 0.62 % 5.2 % 14 %	NA

Bulk # 5 (JL)	from debris pile, Plaza area	NA	asbestos silica lead iron aluminum copper magnesium sulfur calcium	ND 1.9 % 0.01 % 1.1 % 0.94 % 0.03 % 0.81 % 2.0 % 11 %	NA
Bulk # 5 (NL)	coating on 4' x 2' steel beam on rubble pile	NA	asbestos-chrysotile silica lead iron aluminum copper magnesium sulfur calcium	15 % 1.0 % <= 0.01 % 1.5 % 2.6 % ND 5.7 % 3.4 % 21 %	NA

TWA = Time Weighted Average
PEL = Permissible Exposure Limit
PESH = NYS Public Employee Safety and Health Bureau
f/cc = Fibers per Cubic Centimeter
ppm = parts per million
mg/m^3 = milligrams per cubic meter
ug/m^3 = microgram per cubic meter
STEL = Short Term Exposure Limit
Peak = Highest Level Seen During Test
ND = not detected
NA = not Applicable
% = Percent
< = Less Than
<= = Less Than or Equal To
** = Metals scan also included; Aluminum, Chromium, Copper, Iron, Magnesium, Mangenese, Molybdenum, and Nickel.

Analytical Method for total dust is based on NIOSH 0600
Analytical Method for silica is based on OSHA ID142 and NIOSH 7500
Analytical Method for metals is based on OSHA ID 125G

[1] = Sample result based on analytical method NIOSH 7400. This method utilizes Phase Contrast Microscopy (PCM) which counts ALL FIBERS longer than 5 microns in length and have a length to width ratio equal to or greater than 3:1.
[2] = Sample result based on analytical method NIOSH 7402. This method utilizes Transmission Electron Microscopy (TEM) to identify and quantify asbestos fibers present.
[3] = Cassette sample was overloaded for the purpose of TEM analysis
[4] = The Action Level for lead is 0.030 mg/m^3
[5] = silica containing materials are generally considered as silica dust when the % silica is > 1%.
[6] = The Ceiling Limit for carbon monoxide is to be measured over a 5 minute sample.
[7] = Results may include soluble non-sulfuric acid sulfate compounds