130 Liberty Street

New York, New York

Supplemental Investigation Summary Report

Vertical Shafts Sampling Summary Results

Prepared for:
Lower Manhattan Development Corporation
One Liberty Plaza, 20th Floor, New York, NY 10006

LMDC
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1. INTRODUCTION

TRC Environmental Corporation (TRC) was contracted and authorized by the Lower Manhattan Development Corporation (LMDC) to conduct a *Supplemental Investigation* (SI) of previously inaccessible spaces in the building located at 130 Liberty Street (the Building). The intent of the SI is to address the additional sampling recommendations presented in The Louis Berger Group, Inc. (Berger) *Initial Building Characterization Report* dated September 14, 2004. This Summary Report presents the results of the supplemental investigation and testing of the previously inaccessible interior vertical shafts (i.e. pipe, duct, and elevator shafts) within the Building.

1.1 Background

The Building is located across the street and south of the WTC site and is a former office building comprised of 40 stories and approximately 1.5 million square feet. The massive debris generated from the collapse of the South Tower of the WTC broke approximately 1,500 windows, curtain wall, and structural components creating a gash (Gash Area) in the Building's exterior exposing portions of the interior north side of the Building between the 7th and 24th floors. The debris demolished the plaza in front of the Building, exposing the basement and subbasement (Basement A and Basement B) areas and ruptured a diesel fuel tank in the basement, the contents of which burned. The Gash Area and broken windows exposed the interior of the Building to the elements.

As a result of the collapse of the World Trade Center (WTC) on September 11, 2001, a combination of soot, dust, dirt, debris, and contaminants settled in and on the Building. See the *Initial Building Characterization Report* for additional background information.

1.2 Scope of Work

In the *Initial Building Characterization Report*, Berger identified areas that were inaccessible during their investigation including the following locations:

- Curtain Wall Cavity
- Cell Systems within Floors
- Interstitial Spaces within Interior Walls and Column Cavities
- Inside Vertical Shafts
- Exterior Building Surfaces

In addition, Berger recommended performing preliminary waste characterization.

This supplemental investigation summary presents the results of additional inspection and sampling performed by TRC of the previously inaccessible vertical shafts within the Building. Supplemental investigations regarding curtain wall cavity, cell systems within floors, heating, ventilation, and air conditioning (HVAC) ductwork, interstitial spaces within interior walls and column cavities, exterior building surfaces, fireproofing, waste characterization, and visual inspection of the Building for mold and asbestos containing building materials (ACBM) are addressed in separate summaries.

As part of the supplemental investigation, TRC collected the following samples:

COPC	Asbestos	Lead	Silica	Dioxin	PAH	MMVF
Total Samples	126	106	35	55	55	27

For the interior vertical shafts within 130 Liberty Street, TRC collected fifteen (15) representative surface wipe samples for the United States Environmental Protection Agency (USEPA) contaminants of potential concern (COPCs) list analysis. The COPC list includes asbestos, lead, man-made vitreous fibers (MMVF), silica, polynuclear aromatic hydrocarbons (PAHs) and dioxins.

TRC utilized a tiered approach to sample analysis. All asbestos and lead wipe samples were analyzed and the results reviewed. Results of this study were compared to the findings in the *Initial Building Characterization Report*, benchmark, and background concentrations presented in previous environmental studies as detailed in the following sections. If surface concentrations of asbestos and lead were found to be similar to the *Initial Building Characterization Report* and elevated when compared to benchmark and background concentrations, further analysis for the remaining COPCs was not conducted. If surface concentrations of asbestos and lead were found to be less than the *Initial Building Characterization Report*, benchmark, and background concentrations, further analysis for the remaining COPCs was conducted.

1.3 Previous Environmental Studies

Several studies concerning WTC-related contaminants have been performed by, or with the review of, the federal, state, and local regulatory authorities in the aftermath of the events of September 11, 2001. In particular, the USEPA has been responsible for studies associated with the development of the EPA's list of COPCs, as discussed in this section.

The USEPA COPC Committee developed, in their *World Trade Center Indoor Air Assessment: Selecting Contaminants of Potential Concern and Setting Health Based Benchmarks, Peer Review Draft (September 2002),* a tiered approach to evaluate the health risks posed by contaminants that might be present in an indoor environment (air and settled dust) for residential reoccupancy. For each COPC, three levels were developed:

Tier I - Level above which, after elimination of potential indoor sources (combustion by-products, stored chemicals, etc.), aggressive clean-up action should be taken expeditiously along with follow-up sampling to confirm attainment of Tier III level.

Tier II - Range where diligent cleaning should continue, after elimination of potential indoor sources (combustion by-products, stored chemicals, etc.), with follow-up sampling to confirm attainment of Tier III level.

Tier III - Level below which the risk is negligible or consistent with the New York City background level found in the USEPA Background Study as identified below.

These levels were established for residential reoccupancy. The Tier I screening level was intended to be protective of a resident who may have been exposed to WTC-related contaminants in their residence for one year. The Tier III clearance level was intended to be protective of a resident who is exposed to WTC-related contaminants in their residence for 30 years, which was the upper-bound estimate for residency in one dwelling. For asbestos and lead in settled dust, the tiered values are as follows:

ASBESTOS

Tier	Settled Dust
I	>30,000 str/cm2
II	30,000 str/cm2 to background
III	Background

LEAD

Tier	Settled Dust
I	>40 ug/ft2
II	40 ug/ft2 to 25 ug/ft2 (or background)
III	<25 ug/ft2 (or background)

These levels were developed to be risk-based levels for residential settings. While the USEPA residential benchmark and background concentrations relate to residential settings and are not directly applicable to a commercial deconstruction project, these studies can be used to put the results of this supplemental investigation into relative context.

Subsequent to peer review of the September 2002 report, the USEPA COPC Committee developed, in their *World Trade Center Indoor Environmental Assessment: Selecting Health-Based Benchmarks (May 2003)* report, health based benchmarks that reflected only the Tier III levels.

The USEPA, Region 2, also developed the *World Trade Center Background Study Report (April 2003).* The objective of this study was to determine and/or estimate indoor baseline levels or background concentrations for the presence of specific contaminants in residential buildings unaffected by the WTC disaster. The average background concentrations for asbestos and lead in settled dust on hard surfaces are 6,192 structures per square centimeter (str/cm^2) and 1.78 micrograms per square foot (ug/ft^2), respectively.

Based on the text by Millette and Hays, *Settled Asbestos Dust Sampling and Analysis*, levels of asbestos in settled dust as determined by the microvacuum techniques are considered low if less than 1,000 str/cm^2. Levels above 10,000 str/cm^2 are considered generally above background. Levels above 100,000 str/cm^2 are considered high and in the range of significant accidental release from an abatement site.

1.4 Purpose and Objectives

The objective of the SI is to provide additional information relative to the concentrations of COPCs within previously inaccessible spaces. This SI summary presents the results specifically for the vertical shafts (i.e. duct, pipe, and elevator shafts) investigation.

The SI of previously inaccessible areas is intended to assist in determining what measures and protocols may be required in support of the 130 Liberty Street cleaning and deconstruction plan. In particular, the results of the SI are intended to provide reference

information allowing for informed decisions to be made regarding appropriate cleaning and deconstruction methods. These decisions include the development and implementation of engineering controls to contain the work zone (i.e., to ensure no exposure to the surrounding community during the cleaning and deconstruction) and appropriate methods for the disposal or recycling of materials generated by the cleaning and deconstruction activities. Using the available characterization results, LMDC, its consultants, and the selected deconstruction contractor can develop and implement appropriate deconstruction protocols and safety precautions for the cleaning and deconstruction process to ensure the health and safety of workers and the surrounding community.

2. METHODOLOGY

This section presents the methodologies implemented for the dust characterization for asbestos and lead in the vertical shafts. These tasks were implemented in accordance with the *Sampling Analysis and Quality Assurance Project Plan* (SAQAPP) developed by TRC dated November 15, 2004.

TRC collected representative surface wipe samples for asbestos and lead from the vertical shafts, elevator shafts, and elevator pits. The vertical shafts were accessed by cutting a hole into the shaft wall. Each elevator shaft was accessed via the roof hatch of each elevator.

Asbestos surface wipe samples were collected and analyzed per methods detailed in the American Society for Testing Materials (ASTM) standard test method D6480-99. Asbestos bulk samples were collected and analyzed per methods detailed in the New York State Environmental Laboratory Approval Program (NYS ELAP) test method 198.1. Lead wipe samples were collected following the United States Department of Housing and Urban Development (HUD) Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing Appendix 13.1 and analyzed as per analytical method USEPA SW-846 7420.

Samples were properly labeled as per the SAQAPP and delivered to the EMSL Analytical Inc. laboratory, an independent New York State Department of Health certified laboratory.

3. RESULTS

3.1 Asbestos

Fifteen asbestos wipe, one duplicate, two blanks, and ten bulk dust samples were collected on various floors of the Building as detailed below. Samples were divided up by Zone, as described in the *Initial Building Characterization Report*. Zones 2 and 3 apply to TRC's study and are defined as follows:

> Zone 2: Office space located at or below the 24th Floor that may have been subjected to dust entering the Building through the Gash, HVAC system (and possibly circulated through the HVAC system), vertical shafts, or broken windows.
>
> Zone 3: Office space located above the 24th Floor that may have been impacted by dust distributed through the HVAC system, vertical shafts, or broken windows.

Wipe sample results ranged from less than 6,820 structures per square centimeter (str/cm^2) to 134,000 str/cm^2. Six (6) of the fifteen (15) samples exceeded the Tier I value of 30,000 str/cm^2. The arithmetic mean concentration for these eleven results was 37,374 str/cm^2 using one-half the detection limit for non-detected sample results. No asbestos was detected in the ten bulk samples. Sample results are provided in the attached Tables 1 and 3.

Asbestos Sample ID	Floor	Location	Zone
KD-ASB-W-29-VERTICAL SHAFT-001	29	Vertical Shaft	3
KD-ASB-W-20-VERTICAL SHAFT-002	20	Vertical Shaft	2
KD-ASB-W-18-VERTICAL SHAFT-003	18	Vertical Shaft	2
KD-ASB-W-15-VERTICAL SHAFT-004	15	Vertical Shaft	2
KD-ASB-W-12-VERTICAL SHAFT-005	12	Vertical Shaft	2
KD-ASB-W-10-VERTICAL SHAFT-006	10	Vertical Shaft	2
KD-ASB-W-8-VERTICAL SHAFT-007	8	Vertical Shaft	2
KD-ASB-W-7-VERTICAL SHAFT-008	7	Vertical Shaft	2
KD-ASB-W-9-VERTICAL SHAFT-009	9	Vertical Shaft	2
KD-ASB-W-11-VERTICAL SHAFT-010	11	Vertical Shaft	2
KD-001-ASB-ELEVATOR SHAFT-18FL WALL-CAR26	4	Elevator Shaft	2
KD-002-ASB-ELEVATOR SHAFT-22FL WALL-CAR26	22	Elevator Shaft	2
KD-003-ASB-ELEVATOR SHAFT-31FL WALL-CAR26	31	Elevator Pit	3
KD-004-ASB-ELEVATOR PIT-1ST FL-1TO4	1	Elevator Pit	2
KD-005-ASB-ELEVATOR PIT-1DTFL-	1	Metal plate wall	2

Asbestos Sample ID	Floor	Location	Zone
20TO22			
KD-002	35	Pipe Shaft, ED-34	3
KD-003	2	Pipe Shaft, DC-56	2
KD-004	4	Pipe Shaft, DB-34	2
KD-002	1	Elevator Pits 1-4	2
KD-003	1	Elevator Pits 20-22	2
KD-004	1	Elevator Pits 17-19	2
KD-005	39	Elevator top, car 26, wall & hatch	3
KD-006	31	Elevator shaft wall, car 26	3
KD-007	22	Elevator shaft wall, car 26	2
KD-008	19	Elevator shaft wall, car 26	2

A limited data validation was performed on the sample results in accordance with the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review EPA 540/R-99/008* (October 1999). In general, the data appeared to be valid as reported and may be used for decision-making purposes. For the wipe samples, potential uncertainty exists in the concentrations of the positive results for asbestos in select samples due to variability in the field duplicate results. This issue may have a minor impact on the data usability.

TRC reviewed the *Initial Building Characterization Report*. Berger collected 40 supplemental screening samples of the settled dust from porous and non-porous surfaces and analyzed for asbestos using TEM. The samples were collected from various places within the Building, including, but not limited to carpeting, counters, vent units, and above the ceiling tiles. The results revealed detectable levels of asbestos above the residential background level of 6,192 structures/cm^2 identified in the EPA *World Trade Center Background Study Report Interim Final* (April 2003). The highest concentrations of asbestos were identified in the first and second floors, fifth floor mechanical room, and the 40th/41st floor mechanical room. Asbestos was detected in dust at concentrations in excess of 6,192 structures/cm^2 in 24 of the 31 floors sampled by TEM analysis (77%). The samples containing asbestos ranged from a minimum concentration of less than 891 structures/cm^2 (from Floors 5, 24, 25, 28, 34, and 41) to a maximum concentration of 4,879,200 structures/cm^2 (from Floor 2). These results are relatively greater than the vertical shafts SI results.

TRC reviewed the *Deutsche Bank Damage Assessment report: Contamination Report Pursuant to Testing Protocol-12, Elevator and Elevator Shafts Summary Report* by RJ Lee Group, Inc. dated December 2003. The average and maximum asbestos

concentrations of this report were 4,198,000 str/cm^2 and 71,390,000 str/cm^2, respectively. Although the concentrations reported in the RJ Lee report are significantly higher than the concentrations found in this SI, both reports identify the presence of asbestos in surface dust in the elevator shafts.

3.2 Lead

Fifteen lead wipe samples, one duplicate, and two blank samples were collected on various floors of the Building as detailed below. Sample results ranged from less than 10 ug/ft^2 to 340 ug/ft^2 with an arithmetic average of 116 ug/ft^2. Sample results are provided in the attached Table 2.

Sample ID	Floor	Location	Zone
KD-Pb-W-29-VERTICAL SHAFT-001	29	Vertical Shaft	3
KD-Pb-W-20-VERTICAL SHAFT-002	20	Vertical Shaft	2
KD-Pb-W-18-VERTICAL SHAFT-003	18	Vertical Shaft	2
KD-Pb-W-15-VERTICAL SHAFT-004	15	Vertical Shaft	2
KD-Pb-W-12-VERTICAL SHAFT-005	12	Vertical Shaft	2
KD-Pb-W-10-VERTICAL SHAFT-006	10	Vertical Shaft	2
KD-Pb-W-8-VERTICAL SHAFT-007	8	Vertical Shaft	2
KD-Pb-W-7-VERTICAL SHAFT-008	7	Vertical Shaft	2
KD-Pb-W-9-VERTICAL SHAFT-009	9	Vertical Shaft	2
KD-Pb-W-11-VERTICAL SHAFT-010	11	Vertical Shaft	2
KD-001-LEAD-ELEVATOR SHAFT 18 FL WALL-CAR 26	18	Elevator Shaft	2
KD-002-LEAD-ELEVATOR SHAFT 22 FL-WALL-CAR 26	22	Elevator Shaft	2
KD-003-LEAD-ELEVATOR SHAFT-31 FL-WALL-CAR 26	31	Elevator Shaft	3
KD-004-LEAD-ELEVATOR SHAFT-1 FL -1 TO 4 PIT	1	Pit room-elevator counter weights 1-4	2
KD-005-LEAD-ELEVATOR SHAFT-1 FL-20 TO 22 PIT	1	Pit room-elevator counter weights 20-22	2

A limited data validation was performed on the above samples in accordance with the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (July 2002). In general, the data appeared to be valid as reported and may be used for decision-making purposes.

According to the *Initial Building Characterization Report*, there was significant variation in the lead testing results collected from the Building dust samples. Lead was detected in 122 of 125 samples tested. Lead results of samples collected above the plenum ranged

from 350 ug/m^2 (32.52 ug/ft^2) to 10,900 ug/m^2 (1,012.6 ug/ft^2). Lead results from samples collected below the plenum ranged from 150 ug/m^2 (13.92 ug/ft^2 - in Zone 3) to 101,000 ug/m^2 (9,383.2 ug/ft^2 - in Zone 1). This variation in lead concentrations is consistent with the level of disturbance that has occurred within the Building, including the cleaning of the "Gash Area," since September 11, 2001. The report has identified lead concentrations within the Building that exceed both the background residential level and the health-based benchmark identified in the EPA studies in 121 of the 125 samples tested (97%). These results are relatively greater than the vertical shafts SI results.

The *Elevator and Elevator Shaft Summary Report* indicated average and maximum lead results were 970 ug/ft^2 and 27,000 ug/ft^2, respectively. Although the concentrations listed in this RJ Lee report are higher than the concentrations found in this SI, both reports identify the presence of lead in surface dust in the elevator shafts.

4. FINDINGS

Sample results were compared to criteria provided in Section 1.2 and 1.3 and identified on the bottom of Tables 1 through 3. This Supplemental Investigation has identified average asbestos and lead concentrations in the interior of the vertical and elevator shafts that exceed the benchmark criteria provided in the May 2003 and September 2002 WTC Indoor Air Assessment studies, April 2003 background study, and are generally consistent with the concentrations identified in the *Initial Building Characterization Report.* Therefore, the remaining COPC wipe samples were not analyzed. While the USEPA residential benchmark and background concentrations relate to residential settings and are not directly applicable to a commercial deconstruction project, these studies can be used to put the results of this supplemental investigation into relative context.

5. CONCLUSIONS AND RECOMMENDATIONS

Asbestos and lead were found within the dust on the surfaces of the interior of the vertical shafts. Concentrations were generally lower than the asbestos and lead levels discussed in the *Initial Building Characterization Report* and the RJ Lee *Elevator and Elevator Shaft Summary Report* for the dust in the exposed areas, however multiple samples and arithmetic average results exceeded the USEPA residential health-based benchmark and background criteria. The results of the sampling and testing performed for this Supplemental Investigation revealed levels of contaminants that should be considered in connection with the deconstruction of the Building. Therefore, TRC recommends review of the results by federal, state, and local regulators and that the vertical shafts be handled in a manner that complies with applicable laws.

6. REFERENCES

Damage Assessment, 130 Liberty Street Property, Contamination Report Pursuant to Testing Protocol-12, Elevator and Elevator Shafts, Summary Report. RJ Lee Group, Inc., December 2003.

Initial Building Characterization Study Report, 130 Liberty Street, New York, New York. The Louis Berger Group, Inc., September 14, 2004.

Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual (Part A). Interim Final. Office of Emergency and Remedial Response, Washington, D.C. United States Environmental Protection Agency, December 1989.

Sampling, Analysis, and Quality Assurance Project Plan, Supplement Investigation of 130 Liberty Street, New York, New York. TRC Environmental Corp., November 15, 2004.

Settled Asbestos Dust Sampling and Analysis. James R. Millette, Steven M. Hays, 1994.

World Trade Center Indoor Environment Assessment: Selecting Contaminants of Potential Concern and Setting Health-Based Benchmarks. Contaminants of Potential Concern (COPC) Committee. United States Environmental Protection Agency, May 2003.

World Trade Center Indoor Air Assessment: Selecting Contaminants of Potential Concern and Setting Health-Based Benchmarks. Contaminants of Potential Concern (COPC) Committee of the World Trade Center Indoor Air Taskforce Working Group. Peer Review Draft, September 2002.

World Trade Center Background Study Report, Interim Final. United States Environmental Protection Agency, Region 2, April 2003.

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Table 1
Vertical Shafts - Asbestos
Asbestos Wipe (SW 6480-99)

Vertical Shafts Surface Sample Results
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Sample ID	Lab Sample ID	Sample Date	Sample Type	Floor	Location	ASBESTOS (structures/cm^2)
KD-ASB-W-29-VERTICAL SHAFT-001	030422803-0001	11/18/2004	Wipe	29	Sheetrock	**59,800**
KD-ASB-W-29-VERTICAL SHAFT-001 QA/QC	030422803-0002	11/18/2004	Wipe	29	Sheetrock	29,900
KD-ASB-W-20-VERTICAL SHAFT-002	030422803-0003	11/18/2004	Wipe	20	Sheetrock	29,900
KD-ASB-W-18-VERTICAL SHAFT-003	030422803-0004	11/18/2004	Wipe	18	Sheetrock	<14,200
KD-ASB-W-15-VERTICAL SHAFT-004	030422803-0005	11/18/2004	Wipe	15	Sheetrock	<14,900
KD-ASB-W-12-VERTICAL SHAFT-005	030422803-0006	11/18/2004	Wipe	12	Sheetrock	14,300
KD-ASB-W-10-VERTICAL SHAFT-006	030422803-0007	11/18/2004	Wipe	10	Sheetrock	<14,900
KD-ASB-W-8-VERTICAL SHAFT-007	030422803-0008	11/18/2004	Wipe	8	Sheetrock	<14,900
KD-ASB-W-7-VERTICAL SHAFT-008	030422803-0009	11/18/2004	Wipe	7	Sheetrock	**134,000**
KD-ASB-W-9-VERTICAL SHAFT-009	030422803-0010	11/18/2004	Wipe	9	Sheetrock	**39,800**
KD-ASB-W-11-VERTICAL SHAFT-010	030422803-0011	11/18/2004	Wipe	11	Sheetrock	<14,900
KD-ASB-W-000-VERTICAL SHAFT-FB1	030422803-0012	11/18/2004	Wipe	FB	Blank	Blank
KD-001-ASB-ELEVATOR SHAFT-18FL WALL-CAR2(	030424469-0001	12/9/2004	Wipe	18	Metal plate wall	**37,600**
KD-002-ASB-ELEVATOR SHAFT-22FL WALL-CAR2(	030424469-0002	12/9/2004	Wipe	22	Metal plate wall	13,700
KD-003-ASB-ELEVATOR SHAFT-31FL WALL-CAR2(	030424469-0003	12/9/2004	Wipe	31	Metal plate wall	<6,820
KD-004-ASB-ELEVATOR PIT-1ST FL-1TO4	030424469-0004	12/9/2004	Wipe	1	Metal plate wall	**72,200**
KD-005-ASB-ELEVATOR PIT-1DTFL-20TO22	030424469-0005	12/9/2004	Wipe	1	Metal plate wall	**119,000**
KD-0002-BL-BLANK-000-FL	030424469-0006	12/9/2004	Wipe	FB	Blank	Blank

	str/cm2
Arithmetic Mean (ND=1/2)	37,374
May 2003 Benchmark[1]	n/a
April 2003 Background Assessment[2]	6,192
September 2002 WTC Indoor Assessment[3]	
Tier I	>30,000
Tier II	>30,000 to background
Tier III	Background

References:

[1] *World Trade Center Indoor Environment Assessment: Selecting Contaminants of Potential Concern and Setting Health-Based Benchmarks.* Contaminants of Potential Concern (COPC) Committee. United States Environmental Protection Agency, May 2003.

[2] *World Trade Center Background Study Report, Interim Final*. United States Environmental Protection Agency, Region 2, April 2003.

[3] *World Trade Center Indoor Air Assessment: Selecting Contaminants of Potential Concern and Setting Health-Based Benchmarks.* Contaminants of Potential Concern (COPC) Committee of the World Trade Center Indoor Air Taskforce Working Group. Peer Review Draft, September 2002.

Table 2
Vertical Shafts - Lead
Lead Wipe (SW-846 7420)

Vertical Shafts Surface Sample Results
LMDC
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Sample ID	Lab Sample ID	Sample Date	Sample Type	Floor	Location	Lead (ug/ft^2)	Lead (ug/m^2)
KD-Pb-W-29-VERTICAL SHAFT-001	030422874-0001	11/18/2004	Wipe	29	Sheetrock	**140**	**1,507**
KD-Pb-W-29-VERTICAL SHAFT-001 QA/QC	030422874-0002	11/18/2004	Wipe	29	Sheetrock	**140**	**1,507**
KD-Pb-W-20-VERTICAL SHAFT-002	030422874-0003	11/18/2004	Wipe	20	Sheetrock	21	**226**
KD-Pb-W-18-VERTICAL SHAFT-003	030422874-0004	11/18/2004	Wipe	18	Sheetrock	13	**140**
KD-Pb-W-15-VERTICAL SHAFT-004	030422874-0005	11/18/2004	Wipe	15	Sheetrock	24	**258**
KD-Pb-W-12-VERTICAL SHAFT-005	030422874-0006	11/18/2004	Wipe	12	Sheetrock	32	**344**
KD-Pb-W-10-VERTICAL SHAFT-006	030422874-0007	11/18/2004	Wipe	10	Sheetrock	38	**409**
KD-Pb-W-8-VERTICAL SHAFT-007	030422874-0008	11/18/2004	Wipe	8	Sheetrock	**67**	**721**
KD-Pb-W-7-VERTICAL SHAFT-008	030422874-0009	11/18/2004	Wipe	7	Sheetrock	<10	**<108**
KD-Pb-W-9-VERTICAL SHAFT-009	030422874-0010	11/18/2004	Wipe	9	Sheetrock	**41**	**441**
KD-Pb-W-11-VERTICAL SHAFT-010	030422874-0011	11/18/2004	Wipe	11	Sheetrock	**160**	**1,722**
KD-Pb-W-000-VERTICAL SHAFT-FB1	030422874-0012	11/18/2004	Wipe	FB	Blank	<10	**<108**
KD-001-LEAD-ELEVATOR SHAFT 18 FL WALL-CAR 26	030424472-0001	12/9/2004	Wipe	18	Metal plate wall	**88**	**947**
KD-002-LEAD-ELEVATOR SHAFT 22 FL-WALL-CAR 26	030424472-0002	12/9/2004	Wipe	22	Metal plate wall	**110**	**1,184**
KD-003-LEAD-ELEVATOR SHAFT-31 FL-WALL-CAR 26	030424472-0003	12/9/2004	Wipe	31	Metal plate wall	**310**	**3,337**
KD-004-LEAD-ELEVATOR SHAFT-1 FL -1 TO 4 PIT	030424472-0004	12/9/2004	Wipe	1	Pit room-elevator counter weights 1-4	**340**	**3,660**
KD-005-LEAD-ELEVATOR SHAFT-1 FL-20 TO 22 PIT	030424472-0005	12/9/2004	Wipe	1	Pit room-elevator counter weights 20-22	**240**	**2,583**
KD-000-BL-BLANK-000FL	030424472-0006	12/9/2004	Wipe	FB	Blank	<10	**<108**

	ug/ft2
Arithmetic Mean (ND=1/2)	109
May 2003 Benchmark[1]	25
April 2003 Background Assessment[2]	1.78
September 2002 WTC Indoor Assessment[3]	
Tier I	>40
Tier II	40 to 25 (or background)
Tier III	<25 (or background)

References:

[1] *World Trade Center Indoor Environment Assessment: Selecting Contaminants of Potential Concern and Setting Health-Based Benchmarks.* Contaminants of Potential Concern (COPC) Committee. United States Environmental Protection Agency, May 2003.

[2] *World Trade Center Background Study Report, Interim Final*. United States Environmental Protection Agency, Region 2, April 2003.

[3] *World Trade Center Indoor Air Assessment: Selecting Contaminants of Potential Concern and Setting Health-Based Benchmarks.* Contaminants of Potential Contaminants of Concern (COPC) Committee of the World Trade Center Indoor Air Taskforce Working Group. Peer Review Draft, September 2002.

Table 3
Vertical Shafts - Asbestos Bulk
Asbestos Bulk (NYS ELAP 198.1)

Vertical Shafts Surface Sample Results
LMDC
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Sample ID	Lab Sample ID	Sample Date	Sample Type	Floor	Location	ASBESTOS (%)
KD-002	030424266-0001	12/7/2004	Bulk	35	Pipe Shaft, ED-34	ND
KD-003	030424266-0002	12/7/2004	Bulk	2	Pipe Shaft, DC-56	ND
KD-004	030424266-0003	12/7/2004	Bulk	4	Pipe Shaft, DB-34	ND
KD-002	030424267-0001	12/7/2004	Bulk	1	Elevator Pits 1-4	ND
KD-003	030424267-0002	12/7/2004	Bulk	1	Elevator Pits 20-22	ND
KD-004	030424267-0003	12/7/2004	Bulk	1	Elevator Pits 17-19	ND
KD-005	030424267-0004	12/7/2004	Bulk	39	Elevator top, car 26, wall & hatch	ND
KD-006	030424267-0005	12/7/2004	Bulk	31	Elevator shaft wall, car 26	ND
KD-007	030424267-0006	12/7/2004	Bulk	22	Elevator shaft wall, car 26	ND
KD-008	030424267-0007	12/7/2004	Bulk	19	Elevator shaft wall, car 26	ND

ND = Not Detected