

375 SOUTH END AVE.



ATHENICA
ENVIRONMENTAL SERVICES INC.

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December 09, 2002

United States Environmental Protection Agency (USEPA)
Region 2
290 Broadway
New York, NY 10007-1866

Attn: Mr. Eric Wilson-Quadrant Coordinator
Tel# (212) 637-3150 Fax# (212) 637-3105

Re: 375 South End Avenue, Manhattan, NY
Evaluation Report for Building HVAC & Environmental Inspection for WTC Related Dust

Dear Mr. Wilson:

Athenica Environmental Services, Inc. and Dust Dusters performed Building HVAC & Environmental inspections on October 31, 2002.

Qualifications:

Dust Dusters (DD) is a NADCA certified corporation. Mr. Frank Troetti and Mr. Tony Gallo of DD performed the inspections of the HVAC and exhaust systems in conjunction New York State certified Asbestos Inspector Mr. Alex Kazakov of Athenica Environmental Services, Inc (AES).

Background:

375 South End Avenue is a 35 story 585 residential dwellings managed by Gateway Management Corp.-(212) 321-3812. The building contact is Mr. Tom De-Francesco and his telephone number is (212)321-2000.

Post 9/11 Maintenance History:

On December 03,2002 Athenica's project manager Theresa Vasquez received a call from Mr.Glen Kassis from Gateway Plaza Management Corp..The maintenance reports are available in their office but due to large volume is difficult to expedite our request.

375 South End Avenue, Manhattan, NY
December 09, 2002

Inspection Details:

As part of the survey, the following HVAC system types were inspected by Mechanical and Environmental professionals and bulk sample was collected from exhaust duct in the basement-mechanical phone room. All identification data and visual inspections are documented in the attached checklists.

- A. Kitchen and bathroom exhaust - located on the roof and basement
- B. HVAC (7)Units-located on the lobby.
- C. Compactor room exhaust&intake,CVD24 exhaust, gym exhaust(no filter installed)-located on the basement.
- D. Heating for the East side of the hallways – located on the roof.
- E. Heating for the West side hallways – located on the roof.
- F. A/C#1 for the elevator room – located on the upper bulkhead.
- G. A/C #2 for the elevator room – located on the bulkhead.

Summary of Findings:

During our visual inspection of the various HVAC systems black dust (less than 1/16th of an inch) was observed in the following exhaust fans.

Exhaust fan#8,#16 located on the roof.

Exhaust fan #01 –CVD24-located on the basement.

This was recorded in the Ventilation system evaluation forms.

Bulk sample was collected and WTC related dust was NOT detected by EMSL Analytical, Inc

Scope of work:

WTC related dust must be removed from the following:

Exhaust fans #8,16 located on the roof along with their associated components and their ducts.

Compactor room exhaust #01& intake,CVD24 exhaust, gym exhaust(no filter installed)- located on the basement along with their associated components and their ducts.

Should you require any further information, please feel free to contact me.

Sincerely,



Vasilis Bellos
Director of Operations

Attachments: 1) Ventilation System Evaluation forms
2) EMSL Lab results & Chain of Custodies

VENTILATION SYSTEM EVALUATION FORM**Part 1.0 General Information**

Date of Evaluation: 10-31-09-		Building contact name and phone: THOMAS DI-FRANCESCO 212-321-2000	
Evaluation Team (list name and affiliation):			
ALEX - KAZAKOV - ATHENICA		(Environmental Professional)	
FRANK TROETTI - DUCT-DUSTERS		(HVAC/Electrical Professional)	
TONY - GALLO - DUCT DUSTERS		(Sheet Metal Professional)	
Building Address:		Type of Facility (check all that apply):	
375 SOUTH END AVE		☒ Residential	
NEW YORK, N.Y.		☐ Multi-use	
		☐ Other (describe)	
		Number of residential units: 585 Number of floors: 35	
HVAC System Types (check all that apply)			
☐ Unit ventilator (single residence unit)		☐ Wall/window AC unit (single residence unit)	
☐ Fan coil unit (single residence unit)		☒ Central ventilation system	
☐ Heat pump unit (single residence unit)		☒ Passive shaft/duct	
☐ Other (describe)			
Location of outside air intake:			
Outside air intake accessible for inspection <u>X</u> Y <u> </u> N (explain)			

Part 2.0 Checklists**2.1 Ventilators, wall air conditioning units and window air conditioning units in common spaces**

Ventilation System Identification: KITCHEN & BATHROOM EXHAUST - SEE ATTACHMENT						
Location: ROOF						
Access adequate for inspection of components: YES						
System Components	System Component Substrate Material (sheet metal wrapped) (sheet metal lined) (fiberglass) (flexible connector) (double walled)	Dust/Dirt / Debris			Suspect WTC-Related Dust	
		None	Light (<1/16 inch depth)	Heavy (≥ 1/16 inch depth)	Present? (Y/N)	Estimate % of total dust loading
Outside air intake louvers, grates and/or screens						
Outside air duct						
Outside air damper(s)	SHEET METAL		✓		N	
Return air grille	SHEET METAL		✓		N	
Return air plenum	SHEET METAL		✓		N	
Filter rack						
Filter media						
Coils (evaporator)						
Blower assembly	SHEET METAL		✓		N	
Condensate drain pan						
In-line electrical resistance strip heaters (in supply ducts connected to unit ventilators)						
Fire dampers						
Turning vanes						
Supply air plenum or supply duct						
Supply air plenum or supply duct liner						
Supply air diffuser						

2.1 Ventilators, wall air conditioning units and window air conditioning units in common spaces (cont.)

Other Information:	
☒ Unit cycled prior to inspection YES	☐ Color of dust/dirt/debris BLACK / white
☐ Filter loading (general impression) N/A	☐ Water damage NONE
☐ Filter bypass (describe) N/A	☐ Visible suspect mold growth NONE
☐ Abraded/delaminated acoustical lining N/A	☐ Evidence of animal incursion (carcasses, feathers, fecal matter)
General Impression: EXHAUST FANS #8 & 16 are covered with WTC NONE related dust. The rest of the exhaust fans are <u>NOT</u> covered with WTC related dust only with regular black dust.	

2.2 Fan coil/ heat pump units in common spaces

Ventilation System Identification:						
Location:						
Access adequate for inspection of components:						
System Components	System Component Substrate Material (sheet metal wrapped) (sheet metal lined) (fiberglass) (flexible connector) (double walled)	Dust/Dirt/Debris			Suspect WTC-Related Dust	
		None	Light ($< 1/16$ inch depth)	Heavy ($\geq 1/16$ inch depth)	Present? (Y/N)	Estimate % of total dust loading
Return air grille						
Return air plenum						
Filter rack						
Filter media						
Blower assembly						
Thermal coils						
Supply air plenum						
Supply air diffuser						
Other Information:						
☐ Unit cycled prior to inspection		☐ Color of Dust/Dirt/Debris				
☐ Filter loading (general impression)		☐ Water damage				
☐ Filter bypass (describe)		☐ Visible suspect mold growth				
☐ Abraded/delaminated acoustical lining		☐ Evidence of animal incursion (carcasses, feathers, fecal matter)				
General Impression:						

2.3 Central ventilation systems

Ventilation System Identification:	
Location:	Area Served:
Mechanical room: clean <u>Y</u> <u>N</u> dry <u>Y</u> <u>N</u> stored chemicals/refuse <u>Y</u> <u>N</u>	
Access adequate for inspection of components:	
AHU interior surfaces are visibly accessible:	

VENTILATION SYSTEM EVALUATION FORM**Part 1.0 General Information**

Date of Evaluation: 10-31-02		Building contact name and phone: THOMAS DE-FRANCESCO 212-321-2000	
Evaluation Team (list name and affiliation):			
ALEX KAZAKOV - ATHENICA		(Environmental Professional)	
FRANK TROTTI & TONY GAUD - DUCT DUSTERS		(HVAC/Electrical Professional)	
		(Sheet Metal Professional)	
Building Address:		Type of Facility (check all that apply):	
375 SOUTH END AVE		☒ Residential	
NEW YORK, N.Y.		☐ Multi-use	
		☐ Other (describe)	
		Number of residential units: 585 Number of floors: 35	
HVAC System Types (check all that apply)			
☐ Unit ventilator (single residence unit)		☐ Wall/window AC unit (single residence unit)	
☐ Fan coil unit (single residence unit)		☒ Central ventilation system	
☐ Heat pump unit (single residence unit)		☒ Passive shaft/duct	
☐ Other (describe)			
Location of outside air intake:			
Outside air intake accessible for inspection ☒ Y ☐ N (explain)			

Part 2.0 Checklists**2.1 Ventilators, wall air conditioning units and window air conditioning units in common spaces**

Ventilation System Identification: HVAC (4) Units - MAKE G.E.						
Location: LOBBY						
Access adequate for inspection of components: YES						
System Components	System Component Substrate Material (sheet metal wrapped) (sheet metal lined) (fiberglass) (flexible connector) (double walled)	Dust/Dirt / Debris			Suspect WTC-Related Dust	
		None	Light ($< 1/16$ inch depth)	Heavy ($\geq 1/16$ inch depth)	Present? (Y/N)	Estimate % of total dust loading
Outside air intake louvers, grates and/or screens						
Outside air duct						
Outside air damper(s)						
Return air grille	PLASTIC	NONE				
Return air plenum						
Filter rack						
Filter media	NYLON	NONE				
Coils (evaporator)	COPPER / ALUM.	NONE				
Blower assembly	SHEET METAL	NONE				
Condensate drain pan						
In-line electrical resistance strip heaters (in supply ducts connected to unit ventilators)						
Fire dampers						
Turning vanes						
Supply air plenum or supply duct						
Supply air plenum or supply duct liner						
Supply air diffuser						

2.1 Ventilators, wall air conditioning units and window air conditioning units in common spaces (cont.)

Other information:

☒ Unit cycled prior to inspection	YES	☐ Color of dust/dirt/debris	NONE
☐ Filter loading (general impression)	CLEAN	☐ Water damage	NONE
☐ Filter bypass (describe)	NO	☐ Visible suspect mold growth	NONE
☐ Abraded/delaminated acoustical lining	NONE	☐ Evidence of animal incursion (carcasses, feathers, fecal matter)	NONE

General Impression:

Units ARE CLEAN.

2.2 Fan coil/ heat pump units in common spaces

Ventilation System Identification:

Location:

Access adequate for inspection of components:

System Components	System Component Substrate Material (sheet metal wrapped) (sheet metal lined) (fiberglass) (flexible connector) (double walled)	Dust/Dirt/Debris			Suspect WTC-Related Dust	
		None	Light (<1/16 inch depth)	Heavy (≥ 1/16 inch depth)	Present? (Y/N)	Estimate % of total dust loading
Return air grille						
Return air plenum						
Filter rack						
Filter media						
Blower assembly						
Thermal coils						
Supply air plenum						
Supply air diffuser						

Other Information:

☐ Unit cycled prior to inspection	☐ Color of Dust/Dirt/Debris
☐ Filter loading (general impression)	☐ Water damage
☐ Filter bypass (describe)	☐ Visible suspect mold growth
☐ Abraded/delaminated acoustical lining	☐ Evidence of animal incursion (carcasses, feathers, fecal matter)

General Impression:

VENTILATION SYSTEM EVALUATION FORM**Part 1.0 General Information**

Date of Evaluation: 10-31-02	Building contact name and phone: THOMAS DE-FRANSESCO 212-321-2000
Evaluation Team (list name and affiliation):	
ALEX KAZAKOV	(Environmental Professional)
FRANK TROETTEL & TONY GAUD - DUST DUCTERS	(HVAC/Electrical Professional)
	(Sheet Metal Professional)
Building Address:	Type of Facility (check all that apply):
375 SOUTH END AVE	☒ Residential
NEW YORK, NY	☐ Multi-use
	☐ Other (describe)
	Number of residential units: 585 Number of floors: 35
HVAC System Types (check all that apply)	
☐ Unit ventilator (single residence unit)	☐ Wall/window AC unit (single residence unit)
☐ Fan coil unit (single residence unit)	☒ Central ventilation system
☐ Heat pump unit (single residence unit)	☒ Passive shaft/duct
☐ Other (describe)	
Location of outside air intake:	
Outside air intake accessible for inspection <u>Y</u> <u>N</u> (explain)	

Part 2.0 Checklists**2.1 Ventilators, wall air conditioning units and window air conditioning units in common spaces**

Ventilation System Identification: MAKE: LOREER COOK, DAYTON, YORK - EXHAUST FANS						
Location: BASEMENT SEE ATTACHED LIST						
Access adequate for inspection of components: YES						
System Components	System Component Substrate Material (sheet metal wrapped) (sheet metal lined) (fiberglass) (flexible connector) (double walled)	Dust/Dirt / Debris			Suspect WTC-Related Dust	
		None	Light (<1/16 inch depth)	Heavy (≥ 1/16 inch depth)	Present? (Y/N)	Estimate % of total dust loading
Outside air intake louvers, grates and/or screens						
Outside air duct						
Outside air damper(s)	sheet metal		✓		N	
Return air grille	sheet metal		✓		N	
Return air plenum	sheet metal		✓		N	
Filter rack						
Filter media						
Coils (evaporator)						
Blower assembly	sheet metal		✓		N	
Condensate drain pan						
In-line electrical resistance strip heaters (in supply ducts connected to unit ventilators)						
Fire dampers						
Turning vanes						
Supply air plenum or supply duct						
Supply air plenum or supply duct liner						
Supply air diffuser						

2.1 Ventilators, wall air conditioning units and window air conditioning units in common spaces (cont.)

120 Kimball Terrace
Yonkers, New York 10704



TEL: 914-776-5700
FAX: 914-237-4390

Inspection Report for Athenica Environmental
Inspection Address: 375 South End Ave., NYC
Inspection Date: 10/31/02

Exhaust Fans

Fan #	Model	Manufacturer	Condition	Comments
1	4HX87A	Dayton	Black	Rooftop Units
2	No Information Available	No Information Available	Black	Rooftop Units
3	4HX88A	Dayton	Black	Rooftop Units
3A	3981	Acorn Air	Black	Rooftop Units
4	4HX87A	Dayton	Black	Rooftop Units
5	No Information Available	No Information Available	Black	Rooftop Units
6	No Information Available	No Information Available	Black	Rooftop Units
7	No Information Available	No Information Available	Black	Rooftop Units
8	No Information Available	No Information Available	White	Rooftop Units
9	No Information Available	No Information Available	Black	Rooftop Units
10	No Information Available	No Information Available	Black	Rooftop Units
11	No Information Available	No Information Available	Black	Rooftop Units
12	No Information Available	No Information Available	Black	Rooftop Units
13	4HX87A	Dayton	Black	Rooftop Units
14	No Information Available	No Information Available	Black	Rooftop Units
15	4274	Acorn Air	Black	Rooftop Units
16	GB-240-15-X	Greenheck	White	Rooftop Units
17	GB-161-7-X	Greenheck	Black	Rooftop Units
18	No Information Available	No Information Available	Black	Rooftop Units
19	4HX83A	Dayton	Black	Rooftop Units
20	No Information Available	No Information Available	Black	Rooftop Units
21	No Information Available	No Information Available	Black	Rooftop Units
22	No Information Available	No Information Available	Black	Rooftop Units
23	No Information Available	No Information Available	Black	Rooftop Units
24	No Information Available	No Information Available	Black	Rooftop Units
25	No Information Available	No Information Available	Black	Rooftop Units
26	4HX87A	Dayton	Black	Rooftop Units
27	No Information Available	No Information Available	Black	Rooftop Units
28	4HX83A	Dayton	Black	Rooftop Units
29	No Information Available	No Information Available	Black	Rooftop Units
30	No Information Available	No Information Available	Black	Rooftop Units
31	No Information Available	No Information Available	Black	Rooftop Units
32	No Information Available	No Information Available	Black	Rooftop Units
33	GB-240-LMDX-QD	Greenheck	Black	Rooftop Units
34	No Information Available	No Information Available	Black	Rooftop Units
35	No Information Available	No Information Available	Black	Rooftop Units
36	S-133519-00	No Information Available	Black	Rooftop Units
37	No Information Available	No Information Available	Black	Rooftop Units
38	SX125BC	Penn	Black	Rooftop Units
West	4040	Acorn Air	Clean	Hallway Ventilation
East	4039	Acorn Air	Clean	Hallway Ventilation

HVAC Units

<i>Fan #</i>	<i>Model</i>	<i>Manufacturer</i>	<i>Condition</i>	<i>Comments</i>
<i>West</i>	<i>M118E</i>	<i>Cambridge</i>	<i>Black</i>	<i>Hallway Electric Heater</i>
<i>East</i>	<i>M118E</i>	<i>Cambridge</i>	<i>Black</i>	<i>Hallway Electric Heater</i>
<i>1</i>	<i>No Information Available</i>	<i>Trane</i>	<i>Clean</i>	<i>Elevator Room A/C</i>
<i>2</i>	<i>No Information Available</i>	<i>American Standard</i>	<i>Clean</i>	<i>Elevator Room A/C</i>

Basement**Exhaust Fans**

<i>Fan #</i>	<i>Model</i>	<i>Manufacturer</i>	<i>Condition</i>	<i>Comments</i>
<i>1</i>	<i>CVD24</i>	<i>Loren Cook</i>	<i>White</i>	
	<i>4C660A</i>	<i>Dayton</i>	<i>Black</i>	<i>Compactor Room Exhaust</i>
	<i>4C659A</i>	<i>Dayton</i>	<i>Black</i>	<i>Compactor Room Intake</i>
	<i>N2AHD14A46C</i>	<i>York</i>	<i>Black</i>	<i>Gym Entrance - No Filter Installed</i>

Lobby

<i>Fan #</i>	<i>Model</i>	<i>Manufacturer</i>	<i>Condition</i>	<i>Comments</i>
<i>1</i>	<i>AZ25E12D3BM1</i>	<i>General Electric</i>	<i>Clean</i>	<i>Front Of Lobby Area</i>
<i>2</i>	<i>AZ25E12D3BM1</i>	<i>General Electric</i>	<i>Clean</i>	<i>Front Of Lobby Area</i>
<i>3</i>	<i>AZ25E12D3BM1</i>	<i>General Electric</i>	<i>Clean</i>	<i>Front Of Lobby Area</i>
<i>4</i>	<i>AZ25E12D3BM1</i>	<i>General Electric</i>	<i>Clean</i>	<i>Front Of Lobby Area</i>
<i>5</i>	<i>AZ25E12D3BM1</i>	<i>General Electric</i>	<i>Clean</i>	<i>Front Of Lobby Area</i>
<i>6</i>	<i>AZ25E12D3BM1</i>	<i>General Electric</i>	<i>Clean</i>	<i>Front Of Lobby Area</i>
<i>7</i>	<i>AZ25E12D3BM1</i>	<i>General Electric</i>	<i>Clean</i>	<i>Front Of Lobby Area</i>

Other Information:

☒ Unit cycled prior to inspection	☒ Color of dust/dirt/debris White & black
☐ Filter loading (general impression) CLEAN	☐ Water damage NONE
☐ Filter bypass (describe) N/A	☐ Visible suspect mold growth NONE
☐ Abraded/delaminated acoustical lining NONE	☐ Evidence of animal incursion (carcasses, feathers, fecal matter)

General Impression:

EXHAUST FAN #1 was observed to be covered with WTC related dust.

2.2 Fan coil/ heat pump units in common spaces**Ventilation System Identification:****Location:****Access adequate for inspection of components:**

System Components	System Component Substrate Material (sheet metal wrapped) (sheet metal lined) (fiberglass) (flexible connector) (double walled)	Dust/Dirt/Debris			Suspect WTC-Related Dust	
		None	Light ($< 1/16$ inch depth)	Heavy ($\geq 1/16$ inch depth)	Present? (Y/N)	Estimate % of total dust loading
Return air grille						
Return air plenum						
Filter rack						
Filter media						
Blower assembly						
Thermal coils						
Supply air plenum						
Supply air diffuser						

Other Information:

☐ Unit cycled prior to inspection	☐ Color of Dust/Dirt/Debris
☐ Filter loading (general impression)	☐ Water damage
☐ Filter bypass (describe)	☐ Visible suspect mold growth
☐ Abraded/delaminated acoustical lining	☐ Evidence of animal incursion (carcasses, feathers, fecal matter)

General Impression:

Ventilation System Identification:	
HEATING FOR EAST SIDE HALLWAYS - MODEL # M118E	
Location: ROOF	Area Served: ALL FLOORS
Mechanical room: clean <u>Y</u> <u>N</u> dry <u>Y</u> <u>N</u> stored chemicals/refuse <u>Y</u> <u>N</u>	
Access adequate for inspection of components: YES	
AHU interior surfaces are visibly accessible: YES	

System Components	System Component Substrate Material	Dust/Dirt/Debris			Suspect WTC-Related Dust	
		None	Light (<1/16 inch depth)	Heavy (≥ 1/16 inch depth)	Present? (Y/N)	Estimate % of total dust loading
Outside air intake louvers, grates and/or screens	Alumin.		X		Y	
Outside air duct	sheet metal		X		Y	
Outside air damper(s)	sheet metal		X		Y	
Return air grilles	Alumin.		X		Y	
Return air plenum	sheet metal		X		Y	
Return air plenum damper	sheet metal		X		Y	
Return air ducts	sheet metal		X		Y	
Turning vanes	metal		X		Y	
Mixing chambers						
Filter rack(s)	metal		X		Y	
Filter banks/media	fiber glass		X		Y	
Pre-heat coils	copper/Alum.		X		Y	
Cooling coils						
Re-heat coils						
Humidification and/or air cleaning equipment						
Fire dampers						
In-line re-heat coils						
Acoustical blower housing lining	sheet metal		X		Y	
Duct connectors						
Blower assembly including blower wheel, blower housing, air vanes, in-line noise attenuators, acoustical treatments (e.g. baffles, duct linings)	sheet metal		X		Y	
Condensate drain pan						
Condensate accumulator						
Supply air plenum						
Supply air plenum damper(s)						
Supply air ducts	sheet metal		X		Y	
-High pressure - main trunk	sheet metal		X		Y	
-Low pressure - branches						
Supply plenum or supply duct linings	fiber glass		X		Y	
Supply air duct damper(s)	sheet metal		X		Y	
Supply air diffusers						
Terminal boxes						
Open or ducted passive ventilation shaft(s)	sheet metal		X		Y	
Other Information:						
☒ Unit cycled prior to inspection	YES	☐ Color of Dust/Dirt/Debris	BLACK			
☐ Filter loading (general impression)	NORMAL	☐ Water damage	NONE OBSERVED			
☐ Filter bypass (describe)	NO	☐ Visible suspect mold growth	NONE OBSERVED			
☐ Abraded/delaminated acoustical lining	No	☐ Evidence of animal incursion (carcasses, feathers, fecal matter)	NONE OBSERVED			

HEATING FOR WEST SIDE HALLWAY - MODEL # M118E

Location: <u>Roof</u>	Area Served: <u>ALL FLOORS</u>
Mechanical room: clean <u>Y</u> <u>N</u> dry <u>Y</u> <u>N</u> stored chemicals/refuse <u>Y</u> <u>N</u>	
Access adequate for inspection of components: <u>YES</u>	
AHU interior surfaces are visibly accessible: <u>YES</u>	

System Components	System Component Substrate Material	Dust/Dirt/Debris			Suspect WTC-Related Dust	
		None	Light (<1/16 inch depth)	Heavy (≥ 1/16 inch depth)	Present? (Y/N)	Estimate % of total dust loading
Outside air intake louvers, grates and/or screens	Alum.		X		N	
Outside air duct	sheet metal		X		N	
Outside air damper(s)	sheet metal		X		N	
Return air grilles	Alum.		X		N	
Return air plenum	sheet metal		X		N	
Return air plenum damper	sheet metal		X		N	
Return air ducts	sheet metal		X		N	
Turning vanes	metal		X		N	
Mixing chambers						
Filter rack(s)	metal		X		N	
Filter banks/media	fiber glass		X		N	
Pre-heat coils	copper/Alum.		X		N	
Cooling coils						
Re-heat coils						
Humidification and/or air cleaning equipment						
Fire dampers						
In-line re-heat coils						
Acoustical blower housing lining	sheet metal		X		N	
Duct connectors						
Blower assembly including blower wheel, blower housing, air vanes, in-line noise attenuators, acoustical treatments (e.g. baffles, duct linings)	sheet metal		X		N	
Condensate drain pan						
Condensate accumulator						
Supply air plenum						
Supply air plenum damper(s)						
Supply air ducts	sheet metal		X		N	
-High pressure - main trunk						
-Low pressure - branches						
Supply plenum or supply duct linings	fiber glass		X		N	
Supply air duct damper(s)						
Supply air diffusers						
Terminal boxes						
Open or ducted passive ventilation shaft(s)						
Other Information:						
☒ Unit cycled prior to inspection	<u>YES</u>	☒ Color of Dust/Dirt/Debris	<u>BLACK</u>			
☒ Filter loading (general impression)	<u>CLEAN</u>	☐ Water damage	<u>N/A</u>			
☐ Filter bypass (describe)	<u>NO</u>	☐ Visible suspect mold growth	<u>N/A</u>			
☐ Abraded/delaminated acoustical lining	<u>NO</u>	☐ Evidence of animal incursion (carcasses, feathers, fecal matter)	<u>N/A</u>			

#1	A/C FOR ELEVATOR ROOM - MODEL - NAME	
Location:	UPPER BULK HEAD	Area Served: ELEVATOR RM
Mechanical room: clean	X Y N	dry
	Y N	stored chemicals/refuse
	Y N	
Access adequate for inspection of components:	YES	
AHU interior surfaces are visibly accessible:	YES	

System Components	System Component Substrate Material	None	Dust/Dirt/Debris		Suspect WTC-Related Dust	
			Light (<1/16 inch depth)	Heavy (≥ 1/16 inch depth)	Present? (Y/N)	Estimate % of total dust loading
Outside air intake louvers, grates and/or screens	Aluminum		X		N	
Outside air duct	sheet metal		X		N	
Outside air damper(s)	sheet metal		X		N	
Return air grilles	Aluminum		X		N	
Return air plenum						
Return air plenum damper						
Return air ducts	sheet metal	X			N	
Turning vanes						
Mixing chambers						
Filter rack(s)	sheet metal	X			N	
Filter banks/media	fiber glass	X			N	
Pre-heat coils						
Cooling coils	copper/Alum.	X			N	
Re-heat coils						
Humidification and/or air cleaning equipment						
Fire dampers						
In-line re-heat coils						
Acoustical blower housing lining						
Duct connectors						
Blower assembly including blower wheel, blower housing, air vanes, in-line noise attenuators, acoustical treatments (e.g. baffles, duct linings)	sheet metal	X			N	
Condensate drain pan	galvanized sheet metal				N	
Condensate accumulator						
Supply air plenum						
Supply air plenum damper(s)						
Supply air ducts	sheet metal	X			N	
-High pressure - main trunk						
-Low pressure - branches						
Supply plenum or supply duct linings	fiber glass	X			N	
Supply air duct damper(s)						
Supply air diffusers						
Terminal boxes						
Open or ducted passive ventilation shaft(s)						
Other Information:						
☐ Unit cycled prior to inspection	YES		☐ Color of Dust/Dirt/Debris	BLACK		
☒ Filter loading (general impression)	CLEAN		☐ Water damage	N/A		
☐ Filter bypass (describe)	NO		☐ Visible suspect mold growth	N/A		
☐ Abraded/delaminated acoustical lining	NO		☐ Evidence of animal incursion (carcasses, feathers, fecal matter)	N/A		

2 A/C FOR ELEVATOR ROOM - MODEL - AMERICAN STANDARD

Location: UPPER BULKHEAD Area Served: ELEVATOR RM

Mechanical room: clean ☒ Y ☐ N dry ☒ Y ☐ N stored chemicals/refuse ☐ Y ☒ N

Access adequate for inspection of components: YES

AHU interior surfaces are visibly accessible: YES

System Components	System Component Substrate Material	Dust/Dirt/Debris			Suspect WTC-Related Dust	
		None	Light (<1/16 inch depth)	Heavy (≥ 1/16 inch depth)	Present? (Y/N)	Estimate % of total dust loading
Outside air intake louvers, grates and/or screens	Aluminum		X		N	
Outside air duct	sheet metal		X		N	
Outside air damper(s)	sheet metal		X		N	
Return air grilles	Aluminum		X		N	
Return air plenum						
Return air plenum damper						
Return air ducts	sheet metal	X			N	
Turning vanes		/				
Mixing chambers						
Filter rack(s)	sheet metal	X			N	
Filter banks/media	fiberglass	X			N	
Pre-heat coils						
Cooling coils	copper/Aluminum	X			N	
Re-heat coils						
Humidification and/or air cleaning equipment						
Fire dampers						
In-line re-heat coils						
Acoustical blower housing lining						
Duct connectors						
Blower assembly including blower wheel, blower housing, air vanes, in-line noise attenuators, acoustical treatments (e.g. baffles, duct linings)	sheet metal	X			N	
Condensate drain pan	galvanized steel	X			N	
Condensate accumulator						
Supply air plenum						
Supply air plenum damper(s)						
Supply air ducts	sheet metal	X			N	
-High pressure - main trunk						
-Low pressure - branches						
Supply plenum or supply duct linings	fiber glass	X			N	
Supply air duct damper(s)						
Supply air diffusers						
Terminal boxes						
Open or ducted passive ventilation shaft(s)						
Other Information:						
☐ Unit cycled prior to inspection	YES	☐ Color of Dust/Dirt/Debris		BLACK		
☒ Filter loading (general impression)	CLEAN	☐ Water damage		NONE		
☐ Filter bypass (describe)	NO	☐ Visible suspect mold growth		NONE		
☐ Abraded/delaminated acoustical lining	NO	☐ Evidence of animal incursion (carcasses, feathers, fecal matter)		NONE		

ATTACHMENT A – SCOPE OF WORK

2.4 Sampling

Sampling is required if light to heavy dust is present that is not visually identified as WTC related (maximum 5 samples).

Samples Collected:	☒ Y ☐ N
Sample Locations:	
Location 1:	Basement - Mechanical Phone Rm - Exhaust Duct
Location 2:	
Location 3:	
Location 4:	
Location 5:	

USEPA Contract Laboratory Program 360201005 Generic Chain of Custody

Origination ID: 033982476 1012002 1035185
Request Type: O
BIN #: 1083375

Zip Code: 10280		Date Shipped: 11/1/2002	
Confirmation #: 0020210105567		Carrier Name: Hand Delivered	
HPD Sequence ID: 805309		Airbill:	
Floor/Apt: Glenn Kassis		Shipped to: EMSL Analytical Inc	
Requestor Name: 375 South End Avenue		307 West 38th Street	
Normalized Address: alex kazakov		New York NY 10018	
Project Leader: Special Pre Monitoring		(212) 290-0051	
Activity:			
Agency:			

SAMPLE No.	Col. Method/ SAMPLER	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE No.	RESIDENCE/ COMMON AREA ID	SAMPLING LOCATION	VOLUME (L)/ AREA (cm ²)	DATE/TIME	DURATION (min)	CALC. Vol (L)
05587-305-581	bulk sample/ alex kazakov	HVAC (Std)	689 (1)	basement	mechanical phone room exhaust duct	area:	S: 11/1/2002 E: 11/1/2002		

RECEIVED
NOV -2 PM 7:04
503

Shipment for Case Completed?	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Chain of Custody Seal Number:
Analysis Key: HVAC = HVAC	Shipment Issued?		

TR Number: 10280-033982476-110202-0006
PR provides preliminary results. Requests for preliminary results will increase analytical costs.
Send Copy to: Sample Management Office, 2000 Edmund Halley Dr., Reston, VA. 20191-3400 Phone 703/284-9346 Fax 703/284-9222
All flow rates are L/min
WTC
F20528 WTC Page 1 of 1



EMSL Analytical, Inc. - 107 Haddon Avenue
Westmont, NJ. 08108
(856) 858-4800

11/7/02

Attention: Terry Smith
U.S.EPA
HQ Financial Services Division
1200 Pennsylvania Avenue
NW Maildrop 2734R
Washington, DC 20460

Project: WTC
Ref. Number: 360201005

**Man Made Vitreous Fiber Analysis Performed
by Scanning Electron Microscopy (SEM),
and Polarized Light Microscopy (PLM).**

Sample ID	Description	Analyte	Concentration (%)	Analytical Sensitivity (%)	Comments
05587-305-581	Fibrous Dust Ball	Fibrous Glass	5%	~1%	pH = 6.32
		Mineral Wool	ND	~1%	
		Ceramic Fiber	ND	~1%	

J. Newton
Analyst

7 November, 2002
Date of Analysis

Note: EMSL can only verify the results of the analysis in structures per mm² and not concentration that is based upon data obtained by non-laboratory personnel.
This report may not be reproduced in part without written permission by EMSL.

INTERNAL CHAIN OF CUSTODY

11/6/02 1:36:05 PM

Order ID: 360201005

Attn: U. S. EPA
HQ Financial Services Division
1200 Pennsylvania Ave. NW Maildrop 2734R
Washington, DC 20460

Fax: Phone:
Project: Residential / 375 South End Ave

Customer ID: USEPA30
Customer PO: 2W-1104-NNLX
Received: 11/02/02 7:04 PM
EMSL Order: 360201005
EMSL Project ID: Residential

Test: Miscellaneous **Matrix:** Bulk **TAT:** 72 Hour **Qty:** 1

Acct Sts: PO **Sisprsn:** rdemalo **Logged:** AKEMP **Date:** 11/6/02

☐ Exempt from prep charge **Prepped:** _____ **Date:** _____
☐ Exempt from lab opening fee **Analyzed:** _____ **Date:** _____
☐ Exempt from layer/aliquot charges **Data Entry:** _____ **Date:** _____
Screened: _____ **Date:** _____
Mailed: _____ **Date:** _____

Special Instructions

REFERENCE 2W-1103-NNLX ON ALL INVOICES IN PO FIELD!!!

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
360201005	360201005-0001	05567-305-561		11/5/02 6:04:00 PM

EMSL Materials Lab, 107 Haddon Ave., Westmont, NJ 08108

Page 1



EMSL Analytical, Inc. - 107 Haddon Avenue
Westmont, NJ. 08108
(856) 858-4800

Attention: Terry Smith
U.S.EPA
HQ Financial Services Division
1200 Pennsylvania Avenue
NW Maildrop 2734R
Washington, DC 20460

11/7/02

Project: WTC
Ref. Number: 360201005

**Man Made Vitreous Fiber Analysis Performed
by Scanning Electron Microscopy (SEM),
and Polarized Light Microscopy (PLM).**

QAL 1
11:28:41 11/07/02
4.00 pH 22.4°C

QAL 2
11:29:55 11/07/02
10.06 pH 22.4°C

SLOPE = 96 %

11:31:46 11/07/02
7.90 pH 22.4°C

7.0 STD REACTION

11:40:31 11/07/02
6.32 pH 24.7°C

562

11:42:00 11/07/02
5.56 pH 24.5°C

559

11:43:24 11/07/02
6.77 pH 24.4°C

560

11:44:51 11/07/02
6.32 pH 24.3°C

561

11:46:02 11/07/02
7.00 pH 24.1°C

7.0 STD REACTION

J. Newton
Analyst

7 November, 2002
Date of Analysis

Note: EMSL can only verify the results of the analysis in structures per mm² and not concentration that is based upon data obtained by non-laboratory personnel.
This report may not be reproduced in part without written permission by EMSL.

Client: U.S.EPA

Project ID: WTC

Analyst: J. Newton

Ref. No.:

36020100 5

Sample ID: 05567-305-561

Date: 7 November, 2002

Sample Description	561									
Identification	FG	MW								
Morphology	F									
Color	CL									
Streak Color	CL									
Transparency	Transp	Transp	Transp	Transp	Transp	Transp	Transp	Transp	Transp	Transp
Crystalline	Y : N	Y : N	Y : N	Y : N	Y : N	Y : N	Y : N	Y : N	Y : N	Y : N
Pleochroism	Y : N	Y : N	Y : N	Y : N	Y : N	Y : N	Y : N	Y : N	Y : N	Y : N
SOE	1 : + : -	1 : + : -	1 : + : -	1 : + : -	1 : + : -	1 : + : -	1 : + : -	1 : + : -	1 : + : -	1 : + : -
Ext. L										
RI - (L)	1.605	1.605								
RI - (H)	1.605	1.605								
Other										
Org. In-org	0 : 1	0 : 1	0 : 1	0 : 1	0 : 1	0 : 1	0 : 1	0 : 1	0 : 1	0 : 1
Elemental Comp.	Si 7 Co	Ca 7 Si								
Diffraction										
Concentration (%)	5%									
Comments	NOT QUANTIFIED ON 4/1 FIBER PROB. MIN. ANALYSIS CONTAMINATED									

N/A = not applicable; [Color - C] = Clear, B = blue, G = green, R = red, O = orange, BI = black; [SOE - I] = isotropic, + = positive, - = negative;
 [P] = fibrous, A = acicular, T = tabular, L = lamellar, M = massive; RI of synthetic fibers are reported in DS color based upon 1.559 liquid.

WksPID_Char.dot



EMSL Analytical, Inc. - 107 Haddon Avenue
Westmont, NJ. 08108
(856) 858-4800

11/7/02

Attention: Terry Smith
U.S.EPA
HQ Financial Services Division
1200 Pennsylvania Avenue
NW Maildrop 2734R
Washington, DC 20460

Project: WTC
Ref. Number: 360201005

**Man Made Vitreous Fiber Analysis Performed
by Scanning Electron Microscopy (SEM),
and Polarized Light Microscopy (PLM).**

Sample ID	Description	Analyte	Concentration (%)	Analytical Sensitivity (%)	Comments
05567-305-561	Fibrous Dust Ball	Fibrous Glass	5%	~1%	pH = 6.32
		Mineral Wool	ND	~1%	
		Ceramic Fiber	ND	~1%	

J. Newton
Analyst

7 November, 2002
Date of Analysis

Note: EMSL can only verify the results of the analysis in structures per mm² and not concentration that is based upon data obtained by non-laboratory personnel.
This report may not be reproduced in part without written permission by EMSL.

INTERNAL CHAIN OF CUSTODY

11/6/02 1:36:05 PM

Order ID: 360201005

Attn: U. S. EPA
HQ Financial Services Division
1200 Pennsylvania Ave. NW Maildrop 2734R
Washington, DC 20460

Fax: Phone:
Project: Residential / 375 South End Ave

Customer ID: USEPA30
Customer PO: 2W-1104-NNLX
Received: 11/02/02 7:04 PM
EMSL Order: 360201005
EMSL Project ID: Residential

Test: Miscellaneous **Matrix:** Bulk **TAT:** 72 Hour **Qty:** 1

Acct Sts: PO **Slsprsn:** rdemalo **Logged:** AKEMP **Date:** 11/6/02

- ☐ Exempt from prep charge
☐ Exempt from lab opening fee
☐ Exempt from layer/aliquot charges

Prepped: _____ **Date:** _____
Analyzed: _____ **Date:** _____
Data Entry: _____ **Date:** _____
Screened: _____ **Date:** _____
Mailed: _____ **Date:** _____

Special Instructions

REFERENCE 2W-1103-NNLX ON ALL INVOICES IN PO FIELD!!!

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
360201005	360201005-0001	05567-305-561		11/5/02 6:04:00 PM

EMSL Materials Lab, 107 Haddon Ave., Westmont, NJ 08108

Page 1



EMSL Analytical, Inc. - 107 Haddon Avenue
Westmont, NJ. 08108
(856) 858-4800

11/7/02

Attention: Terry Smith
U.S.EPA
HQ Financial Services Division
1200 Pennsylvania Avenue
NW Maildrop 2734R
Washington, DC 20460

Project: WTC
Ref. Number: 360201005

**Man Made Vitreous Fiber Analysis Performed
by Scanning Electron Microscopy (SEM),
and Polarized Light Microscopy (PLM).**

CAL 1
11:28:41 11/07/02
5.00 pH 22.4°C

CAL 2
11:29:55 11/07/02
10.06 pH 22.4°C

SLOPE = 96 %

11:31:46 11/07/02
7.00 pH 22.4°C
7.0 STD RECALC

11:40:31 11/07/02
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11:43:24 11/07/02
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11:44:51 11/07/02
6.32 pH 24.3°C

561

11:46:02 11/07/02
7.00 pH 24.1°C

7.0 STD RECALC

J. Newton
Analyst

7 November, 2002
Date of Analysis

Note: EMSL can only verify the results of the analysis in structures per mm² and not concentration that is based upon data obtained by non-laboratory personnel. This report may not be reproduced in part without written permission by EMSL.

Client: U.S.EPA

Project ID: WTC

Analyst: J. Newton

Ref. No.:

36020100 5

Sample ID: 05567-305-561

Date: 7 November, 2002

Sample Description	561								
Identification	FG	MW							
Morphology	F								
Color	CL								
Streak Color	CL								
Transparency	Transp	Transp	Transp	Transp	Transp	Transp	Transp	Transp	Transp
Crystalline	Y : N	Y : N	Y : N	Y : N	Y : N	Y : N	Y : N	Y : N	Y : N
Pleochroism	Y : N	Y : N	Y : N	Y : N	Y : N	Y : N	Y : N	Y : N	Y : N
SOE	1 : + : -	1 : + : -	1 : + : -	1 : + : -	1 : + : -	1 : + : -	1 : + : -	1 : + : -	1 : + : -
Ext. Z	1	1	1	1	1	1	1	1	1
RI - (L)	1.605	1.605	1.605	1.605	1.605	1.605	1.605	1.605	1.605
RI - (H)	1.605	1.605	1.605	1.605	1.605	1.605	1.605	1.605	1.605
Other									
Org. In-org	O : I	O : I	O : I	O : I	O : I	O : I	O : I	O : I	O : I
Elemental Comp.	Si 7 Ca	Ca 7 Si							
Diffraction									
Concentration (%)	5%								
Comments	NOT QUANTIFIED ONE 4 / FIBER PROB. 11/05/02 CONT. 11/05/02								

N/A = not applicable; [Color - Cl = Clear, B = blue, G = green, R = red, O = orange, BI = black]; [SOE - I = isotropic, + = positive, - = negative]; [F = fibrous, A = acicular, T = tabular, L = lamellar, M = massive]; RI of synthetic fibers are reported in DS color based upon 1.55 liquid.

WksPID_Char.dot

USEPA Contract Laboratory Program Generic Chain of Custody

Origination ID: 033982476 10112002 1035165 Request Type: O BIN #: 1083375																					
Zip Code: 10280 Confirmation #: 0020210105567 HPD Sequence ID: 805309 Floor/Apt: Requester Name: Glenn Kassiss Normalized Address: 375 South End Avenue/ Project Leader: alex kazakov Activity: Special Pre Monitoring Agency:	Date Shipped: 11/1/2002 Carrier Name: Hand Delivered Airbill: Shipped to: EMSI Analytical Inc 307 West 38th Street New York NY 10018 (212) 290-0051																				
Chain of Custody Record <table border="1"> <thead> <tr> <th>Relinquished By</th> <th>(Date / Time)</th> <th>Received By</th> <th>(Date / Time)</th> </tr> </thead> <tbody> <tr> <td>1. Alex Kazakov</td> <td>11/2/02</td> <td>Alex Kazakov</td> <td>11/2/02</td> </tr> <tr> <td>2. Alex Kazakov</td> <td>11/2/02</td> <td>Alex Kazakov</td> <td>11/2/02</td> </tr> <tr> <td>3. Alex Kazakov</td> <td>11/2/02</td> <td>Alex Kazakov</td> <td>11/2/02</td> </tr> <tr> <td>4. Alex Kazakov</td> <td>11/2/02</td> <td>Alex Kazakov</td> <td>11/2/02</td> </tr> </tbody> </table>		Relinquished By	(Date / Time)	Received By	(Date / Time)	1. Alex Kazakov	11/2/02	Alex Kazakov	11/2/02	2. Alex Kazakov	11/2/02	Alex Kazakov	11/2/02	3. Alex Kazakov	11/2/02	Alex Kazakov	11/2/02	4. Alex Kazakov	11/2/02	Alex Kazakov	11/2/02
Relinquished By	(Date / Time)	Received By	(Date / Time)																		
1. Alex Kazakov	11/2/02	Alex Kazakov	11/2/02																		
2. Alex Kazakov	11/2/02	Alex Kazakov	11/2/02																		
3. Alex Kazakov	11/2/02	Alex Kazakov	11/2/02																		
4. Alex Kazakov	11/2/02	Alex Kazakov	11/2/02																		

SAMPLE No.	Col. Method/ SAMPLER	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE No. of Baffles	RESIDENCE/ COMMON AREA ID	SAMPLING LOCATION	VOLUME (L)/ AREA (cm ²)	SAMPLE COLLECTION DATE/TIME	DURATION (min)	CALC. Vol (L)
05587-305-581	bulk sample/ alex kazakov	HVAC (Std)	689 (1)	basement	mechanical phoe room exhaust duct	area:	S: 11/1/2002 E: 11/1/2002		

NOV -2 PM 7:04
RECEIVED
503

Shipment for Case Completed? Y	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Chain of Custody Seal Number:
Analysis Key: HVAC = HVAC	Shipment Iced?		

TR Number: 10280-033982476-110202-0006

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

All flow rates are L/min

Send Copy to: Sample Management Office, 2000 Edmund Halley Dr., Reston, VA, 20191-3400 Phone 703/264-9348 Fax 703/264-9222

WTC

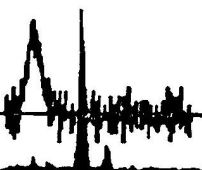
F2528 WTC Page 1 of 1

EMSL

Final Report To US EPA
World Trade Center Residential Study
Crystalline Minerals in Dust
by X-ray Diffraction

Submitted by
Dr. Samudra and Dr. Hu

EMSL Analytical, Inc. Westmont, NJ



List of Documents for EPA_WTC Residential Study

EMSL Billing No. 040217976

- 1. EMSL Final Report. (Phase identity assumed but unconfirmed in EPA samples in this report)**
- 2. EMSL Internal Chain of Custody**
- 3. Client's Chain of Custody.**
- 4. Summary Sheet listing Peak Area and Estimated Mineral Mass (ug) for six minerals (Quartz, Cristobalite, Tridymite, Gypsum, Calcite and Portlandite).**
- 5. Bench Sheets**

Appendix

- a. Table of Protocols for X-ray Diffraction Study**
- b. Calibration Curves for six minerals**

EMSL Analytical, Inc.
107 Haddon Ave., Westmont, NJ 08108

Order ID: 040217976

Attn: U.S. EPA
HQ Financial Services Division
1200 Pennsylvania Avenue,
NW Maildrop 2734R
Washington, DC 20460

Fax: Residential / 375 South End Ave
Project: EMSL Project ID:
Report Date: 11/07/02

Customer ID: USEPA30
Customer PO: 2W-1104-NNLX
Date Received: 11/02/02 7:04 PM

EMSL Order: 040217976
EMSL Project ID:
Date Analyzed: 11/6-11/7/02

Silica, Crystalline Analysis of Bulk Dust Samples
Performed by X-Ray Diffraction (XRD) NIOSH Method 7500 (Modified), Issue 3, 1/15/98

Sample ID	Location	Sample Mass (g)	α -Quartz %	Cristobalite %	Tridymite %	Gypsum %	Calcite %	Portlandite %
05367-305-561	mechanical phoe room exhaust duct	0.002	14.80	<1.00	<1.00	0.95	1.75	<1.00
Ref Std	0.036Q 0.050C 0.050T	N/A	0.024 mg	0.061 mg	0.090 mg	N/A	N/A	N/A

Note: Reported quartz contents may not represent respirable quartz fraction, due to large particle size of the samples.

Instrument Sensitivity: 0.005 mg: α -Quartz 0.010 mg: Gypsum 0.020 mg: Cristobalite/Tridymite/Calcite/Portlandite

< - Less than the stated value. The lowest reportable value is equivalent to the Analytical Sensitivity which is calculated from the lowest reproducible concentration of silica detectable by the instrument.

Anant Samudra, Ph.D.,
Analyst


Stephen Siegel, CIH- Lab Manager
Or other approved signatory

AIHA Accredited - Laboratory ID #100192

INTERNAL CHAIN OF CUSTODY

11/6/02 1:17:06 PM

Order ID: 040217976

Attn: U. S. EPA
HQ Financial Services Division
1200 Pennsylvania Ave. NW Maildrop 2734R
Washington, DC 20460

Fax: Phone:
Project: Residential / 375 South End Ave

Customer ID USEPA30
Customer PO: 2W-1104-NNLX
Received: 11/02/02 7:04 PM

FMSI Order: 040217976
EMSL Project ID: Residential

Test: XRD **Matrix:** Bulk **TAT:** 72 Hour **Qty:** 1

Acct Sts: PO**Sisprsn:** rdemalo**Logged:** AKEMP**Date:**

- ☐ Exempt from prep charge
- ☐ Exempt from lab opening fee
- ☐ Exempt from layer/aliquot charges

Prepped:**Analyzed:****Data Entry:****Screened:****Mailed:****Date:****Date:****Date:****Date:****Date:****Special Instructions**

Email: marian.murphy@itemi.com and fax: 973-529-0216 REFERENCE 2W-1103-NNLX ON ALL INVOICES IN PO FIELD!!!

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
040217976	040217976-0001	05567-305-561	mechanical phoe room exhaust duct	11/5/02 6:04:00 PM

Used 125 micron sieve, 2.0mg in 10ml alcohol,
filter whole solution

EMSL Analytical, Inc., 107 Haddon Ave., Westmont, NJ 08108

Page 1

EPA USEPA Contract Laboratory Program
Generic Chain of Custody 040217976

Zp Code: 10280 Confirmed on #: 0020210105567 HPD Sequence ID: 805309 Floor/Apt: Requestor Name: Glenn Kassia Normalized Address: 375 South End Avenue/ Project Leader: alex kazakov Activity: Special Pre Monitoring Agency:		Date shipped: 11/11/2002 Carrier Name: Hand Delivered Airbill: Shipped to: EMSL Analytical Inc 307 West 38th Street New York NY 10018 (212) 290-0051		Chain of Custody Record Relinquished By (Date / Time) 1 <i>Glenn Kassia</i> 11/12/02 2 <i>Glenn Kassia</i> 11/12/02 3 <i>Glenn Kassia</i> 4		Sample Signature Received By (Date / Time) 1 <i>Glenn Kassia</i> 2 3 4		Origination ID: 033982476 10112002 1035165 Request Type: O BIN #: 1063375	
---	--	---	--	--	--	---	--	---	--

SAMPLE No.	Col. Method/ SAMPLER	ANALYSIS/ TURNAROUND	TAG No/ PRESERVATIVE No. of Baffles	RESIDENCE/ COMMON AREA ID	SAMPLING LOCATION	VOLUME (L)/ AREA (cm2)	SAMPLE COLLECTION DATE/TIME	DURATION (min)	CALC. Vol (L)
05567-305-561	bulk sample/ alex kazakov	HVAC (Std)	669 (1)	basement	mechanical phoe room exhaust duct	area:	S: 11/11/2002 E: 11/11/2002	0.00	

Shipment for Case Compliance	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Chain of Custody Seal Number:
Analysis Key: HVAC = HVAC		Shipment load?	

TR Number: 10280-033982476-110202-0006
 PR provides preliminary results. Requests for preliminary results will increase analytical costs.
 Send Copy to: Sample Management Office, 2000 Edmund Halley Dr., Reston, VA. 20191-3400 Phone 703/264-9348 Fax 703/264-9222
 All flow rates are L/min
WTC
 FAS 2.8 WTC Page 1 of 1

WTC_Residential Study

EMSL Billing # 040217976

375 South End Avenue

		Quartz	Cristo	Tridymite	Gypsum	Calcite	Portlandite
		mg	mg	mg	mg	mg	mg
1	05567-305-561	0.296	<DL	<DL	0.019	0.035	<DL

Reference	True Value	0.026	0.050	0.050	0.010	0.030	0.050
	Measured	0.024	0.061	0.090	0.007	0.029	0.036

Peak Areas		Quartz	Cristo	Tridymite	Gypsum	Calcite	Portlandite
		Primary	Primary	Primary	Primary	Primary	Primary
1	05567-305-561	1467.4	0.0	0.0	798.7	359.2	0.0

Reference		118.0	574.4	521.5	300.3	299.6	114.3
Corrected							
124363.5							
2.412283	slope	4.953	9.3758	5.8028	41.603	10.312	3.1625

Equations for obtaining mass of a phase (ug) from Peak Area (if that phase is assumed to be present).

Alpha Quartz (Primary)	$ug = (Peak\ Area) / 4.953$	DL = 5 ug
Cristobalite (Primary)	$ug = (Peak\ Area) / 9.3758$	DL = 20 ug
Tridymite (Primary)	$ug = (Peak\ Area) / 5.8028$	DL = 20 ug
Gypsum (Primary)	$ug = (Peak\ Area) / 41.603$	DL = 10 ug
Calcite (Primary)	$ug = (Peak\ Area) / 10.312$	DL = 20 ug
Portlandite (Primary)	$ug = (Peak\ Area) / 3.1625$	DL = 20 ug

EMSL SILICA WORKSHEET FOR USEPA PROJECTS

Bulk Sample For XRD
 Weigh 12.5 ~~micro~~ ^{micro} sieve
 Initial Mass 2.0 ~~g~~ ^g

Vol Filtered Qml of 100 ml
 (Entire Suspension)

EMSL Order ID# 040217976 Client: USEPA

Client Sample Number	EMSL#	α-Quartz (mg)	Cristob. (mg)	Tridym. (mg)	Calcite (mg)	Gypsum (mg)	Portlandite (mg)
N/A	LB-						
N/A	QC-						
05507-355-501	1	0.296	<DL	<DL	0.035	0.019	<DL
	2						
	3						
	4						
	5						
	6						
	7						
	8						
	9						
	10						
	11						
	12						

SILICA STANDARDS

QUARTZ STANDARD WEIGHT(mg)	<u>0.026</u>	XRD READING(mg)	<u>0.024</u>
CRISTOBALITE STANDARD WEIGHT(mg)	<u>0.050</u>	XRD READING(mg)	<u>0.061</u>
TRIDYMITTE STANDARD WEIGHT(mg)	<u>0.050</u>	XRD READING(mg)	<u>0.030</u>

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