



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: 395 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 November 1, 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:

395 South End Avenue is a 35-story and 400 residential dwellings managed by Gateway Management Corp. The building manager is Mr. Tom De-Francesco and his telephone number is (212) 321-2000.

Post 9/11 Maintenance History:

Maintenance activities were conducted as part of the clean-up effort in the aftermath of 9/11. Reports are available in the office of Mr. Tom De-Francesco.

395 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 samples were collected from mechanical room exhaust. All identification data and visual inspections are documented in the attached checklists.

- A) Kitchen and bathroom (30)exhausts - located on the roof (but the roof Exhaust fans # 3,13,15,17,20,22,26,27,28 are not working)
- B) HV Unit for North side located on the roof.
- C) HV Unit for South side located on the roof
- D) HV Unit#12 -Located on the laundry room.
- E) HV Unit#15 -Located on the 1st floor-storage room.
- F) HVAC-Unit-Located on the 1st floor -computer room area.
- G) Vault Exhaust /24CVD& Transformer Exhaust/24CVD-Located on the 1st floor.
- H) HVAC-(5) Units located in the lobby.
- I) Exhaust fan/10CVD-Located in the storage room basement.
- J) HV Unit -Model#M110E /Fresh Air Intake fan/14CVD-Located in the storage room basement

Summary of Findings:

During our visual inspection of the various HVAC systems black dust with film of white (more than 1/16th of an inch) was found in the following systems.

Exhaust fan#26 and its components-Located on the roof.

HV-15 -Located on the 1st floor in the storage room.

Vault and Transformer exhausts and its components-Located in the 1st floor.

GE-HVAC (5) Units their outside louvers -Located in the lobby.

This was recorded in the Ventilation system evaluation forms.

Bulk samples were collected and WTC related dust was NOT detected by EMSL Analytical, Inc.

However, during our visual inspection WTC related dust was observed in various components of the HVAC units and exhaust fans described above in this paragraph.

Scope of Work:

Cleaning is required to remove WTC related dust from the following systems.

Exhaust fan#26 and its components-Located on the roof.

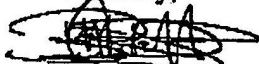
HV-15 and its components -Located on the 1st floor in the storage room.

Vault and Transformer exhausts louvers and its plenums-Located in the 1st floor.

GE-HVAC (5) Units their outside louvers -Located in the lobby.

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 results of Chain of custody

Part 1.0 General Information

Date of Evaluation: <u>11/01/02</u>		Building contact name and phone: <u>THOMAS J. FRANCHESKO</u> <u>212-321-2000</u>	
Evaluation Team (list name and affiliation):			
<u>ALEX KAZAKOV</u>		<u>ATHENICA</u> (Environmental Professional)	
<u>FRANK TROETTI</u>		<u>DUCT DUSTERS</u> (HVAC/Electrical Professional)	
<u>TONY GALLO</u>		<u>DUCT DUSTERS</u> (Sheet Metal Professional)	
Building Address:		Type of Facility (check all that apply):	
<u>395 SOUTH END AVE</u>		☒ Residential	
<u>NEW YORK, NY</u>		☐ Multi-use	
		☐ Other (describe)	
		Number of residential units: <u>400</u> Number of floors: <u>35</u>	
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: <u>KITCHEN & BATHROOM EXHAUST</u> MAKE: <u>DAYTON (30 FANS)</u>						
Location: <u>ROOF</u>						
Access adequate for inspection of components: <u>YES</u>						
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)	<u>SHEET METAL</u>		☒		<u>N</u>	
Return air grille	<u>SHEET METAL</u>		☒		<u>N</u>	
Return air plenum	<u>SHEET METAL</u>		☒		<u>N</u>	
Filter rack						
Filter media						
Coils (evaporator)						
Blower assembly	<u>SHEET METAL</u>		☒		<u>N</u>	
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 10704TEL: 914-776-5700
FAX: 914-237-4390Inspection Address: 395 South End Ave., NYC
Inspection Date: 10/28/02

Exhaust Fans

Fan #	Model	Manufacturer	Condition	Comments
0	4HX83A	Dayton	Black	
1	No Information Available	No Information Available	Black	
2	4HX87A	Dayton	Black	
3	No Information Available	No Information Available	Black	
4	No Information Available	No Information Available	Black	
5	No Information Available	No Information Available	Black	
6	3C049A	Dayton	Black	
7	No Information Available	No Information Available	Black	
8	4HX87A	Dayton	Black	
9	4HX83A	Dayton	Black	
10	No Information Available	HG Industries	Black	
11	No Information Available	No Information Available	Black	
12	No Information Available	No Information Available	Black	
13	No Information Available	No Information Available	Black	
14	No Information Available	No Information Available	Black	
15	No Information Available	No Information Available	Black	
16	4HX83A	Dayton	Black	
17	No Information Available	No Information Available	Black	
18	No Information Available	No Information Available	Black	

Inspection Date: 10/29/02

HVAC Units

Fan #	Model	Manufacturer	Condition	Comments
North	M115E	Cambridge	Black	Electric Heats for Hallways
South	M115E	Cambridge	Black	Electric Heats for Hallways

Exhaust Fans

Fan #	Model	Manufacturer	Condition	Comments
19	3C049A	Dayton	Black	
20	4HX87A	Dayton	Black	
21	4HX83A	Dayton	Black	
22	4HX87A	Dayton	Black	
23	4HX87A	Dayton	Black	
24	No Information Available	No Information Available	Black	
25	No Information Available	No Information Available	Black	
26	No Information Available	No Information Available	White	
28	No Information Available	No Information Available	Black	
30	No Information Available	No Information Available	Black	
	AWB0245KA-02	Air Master	Black	Large Exhaust Fans
	AWB0245KA-02	Air Master	Black	Large Exhaust Fans

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

General Impression:
EXHAUST FAN #26 - WTC-related dust observed during our inspection

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:	
HEATER FOR NORTH SIDE	HALLWAYS - MODEL # M115E
Location: ROOF	Area Served: CORRIDORS - 35 th -15 th
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	SHEET METAL			X	N	
Return air plenum	SHEET METAL			X	N	
Return air plenum damper						
Return air ducts	SHEET METAL			X	N	
Turning vanes	SHEET METAL		X		N	
Mixing chambers						
Filter rack(s)	METAL		X		N	
Filter banks/media	FIBER GLASS		X		N	
Pre-heat coils	ALUMINUM / COPPER		X		N	
Cooling coils						
Re-heat coils						
Humidification and/or air cleaning equipment						
Fire dampers						
In-line re-heat coils						
Acoustical blower housing lining	FIBER GLASS		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)	SHEET METAL		X		N	
Supply air ducts						
-High pressure - main trunk						
-Low pressure - branches						
Supply plenum or supply duct linings						
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 DUST
☐ 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

Ventilation System Identification:

HEATER FOR SOUTH SIDE HALLWAYS - MODEL M115A	
Location: <u>Roof</u>	Area Served: <u>HALLWAYS 35th to 15th FLOOR</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	ALUMIN.		X		N	
Outside air duct	Sheet metal		X		N	
Outside air damper(s)	Sheet metal		X		N	
Return air grilles	ALUMIN.			X	N	
Return air plenum	SHEET METAL				N	
Return air plenum damper						
Return air ducts	SHEET METAL			X	N	
Turning vanes	SHEET METAL		X		N	
Mixing chambers						
Filter rack(s)	SHEET METAL		X		N	
Filter banks/media	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	Fiberglass		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						
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 dust</u>				
☐ Filter loading (general impression) <u>CLEAN</u>		☐ Water damage <u>NONE OBSERVED</u>				
☐ Filter bypass (describe) <u>NO</u>		☐ Visible suspect mold growth <u>NONE OBSERVED</u>				
☐ Abraded/delaminated acoustical lining <u>NO</u>		☐ Evidence of animal incursion (carcasses, feathers, fecal matter) <u>NONE OBSERVED</u>				

Ventilation System Identification:

HV- ELECTRO DUCT → HV-12

Location: LAUNDRY RM - 2nd FLOOR

Area Served: 2nd 14th FL HALLWAYS & LAUNDRY 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	ALUMIN		x		N	
Outside air duct	sheet metal		x		N	
Outside air damper(s)	sheet metal		x		N	
Return air grilles	ALUMIN		x		N	
Return air plenum	sheet metal		x		N	
Return air plenum damper						
Return air ducts	sheet metal		x		N	
Turning vanes	sheet metal		x		N	
Mixing chambers						
Filter rack(s)	sheet 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	fiber glass		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						
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 OBSERVED			
☐ Filter bypass (describe) NO			☐ Visible suspect mold growth NON OBSERVED			
☐ Abraded/delaminated acoustical lining NONE			☐ Evidence of animal incursion (carcasses, feathers, fecal matter) NONE OBSERVED			

Basement Exhaust

Fan #	Model	Manufacturer	Condition	Comments
10	10CVD	Loren Cook	White	
	20CVD	Loren Cook	Black	Storage Room Exhaust
1st Flr E-119	24CVD	Loren Cook ✓	White	Vault Exhaust
	24CVD	Loren Cook ✓	White	Transformer Room Exhaust

HVAC Exhaust

Fan #	Model	Manufacturer	Condition	Comments
	M110E	Cambridge	Black	Electric Heater for Storage Room
HV-15 ✓	M110E	Cambridge	White	
	FB4ANB048	Carrier	Clean	Lobby Unit

Lobby HVAC

Fan #	Model	Manufacturer	Condition	Comments
1	AZ25E12D3BM1	General Electric	White	White Accumulation on Outside Louvers
2	AZ25E12D3BM1	General Electric	White	White Accumulation on Outside Louvers
3	AZ25E12D3BM1	General Electric	White	White Accumulation on Outside Louvers
4	AZ25E12D3BM1	General Electric	White	White Accumulation on Outside Louvers
5	AZ25E12D3BM1	General Electric	White	White Accumulation on Outside Louvers

Ventilation System Identification: HV-15 MODEL M1MOE	
Location: 1 ST FLOOR - STORAGE ROOM	Area Served: 1 ST FLOOR -
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	ALUMIN.			✓	Y	
Outside air duct	sheet metal			✓	Y	
Outside air damper(s)	sheet metal			✓	Y	
Return air grilles	ALUMIN.			✓	Y	
Return air plenum	sheet metal			✓	Y	
Return air plenum damper						
Return air ducts	sheet metal			✓	Y	
Turning vanes						
Mixing chambers						
Filter rack(s)	sheet metal		✓		Y	
Filter banks/media	fiber glass		✓		Y	
Pre-heat coils	copper/ALUM.		✓		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		✓		Y	
Duct connectors	sheet metal		✓		Y	
Blower assembly including blower wheel, blower housing, air vanes, in-line noise attenuators, acoustical treatments (e.g. baffles, duct linings)	sheet metal		✓		Y	
Condensate drain pan						
Condensate accumulator						
Supply air plenum						
Supply air plenum damper(s)						
Supply air ducts	sheet metal			✓	Y	
-High pressure - main trunk						
-Low pressure - branches						
Supply plenum or supply duct linings	fiber glass		✓		Y	
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/WHITE
☒ Filter loading (general impression) CLEAN	☐ Water damage NONE OBSERVED
☐ Filter bypass (describe) NO	☐ Visible suspect mold growth NONE OBSERVED
☐ Abraded/delaminated acoustical lining NONE OBSERVED	☐ Evidence of animal incursion (carcasses, feathers, fecal matter) NONE OBSERVED

2.3 Central ventilation systems

Ventilation System Identification:	
HVAC - FB4ANB048 - MAKE CARRIER	
Location: 1 st FL - COMPUTER RM. AREA	Area Served: LOBBY, FRONT DESK AREA
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	ALUMIN.	✓	✓		✓	
Outside air duct	SHEET METAL	✓				
Outside air damper(s)	SHEET METAL	✓				
Return air grilles	ALUM.	✓				
Return air plenum	SHEET METAL	✓				
Return air plenum damper						
Return air ducts	SHEET METALS	✓				
Turning vanes	ALUMIN.	✓				
Mixing chambers	SHEET METAL	✓				
Filter rack(s)	SHEET METAL	✓				
Filter banks/media	SHEET METAL	✓				
Pre-heat coils	ALUM./copper	✓				
Cooling coils	ALUM./copper	✓				
Re-heat coils						
Humidification and/or air cleaning equipment						
Fire dampers						
In-line re-heat coils						
Acoustical blower housing lining	fiber glass	✓				
Duct connectors	sheet metal	✓				
Blower assembly including blower wheel, blower housing, air vanes, in-line noise attenuators, acoustical treatments (e.g. baffles, duct linings)	sheet metal	✓				
Condensate drain pan	galvanized	✓				
Condensate accumulator						
Supply air plenum	sheet metal	✓				
Supply air plenum damper(s)	sheet metal	✓				
Supply air ducts						
-High pressure - main trunk						
-Low pressure - branches						
Supply plenum or supply duct linings	fiber glass	✓				
Supply air duct damper(s)	ALUMIN.	✓				
Supply air diffusers	ALUMIN.	✓				
Terminal boxes						
Open or ducted passive ventilation shaft(s)						
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				

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

Date of Evaluation: <u>11-01-02</u>		Building contact name and phone: <u>THOMAS DE-FRANCESCO</u>	
Evaluation Team (list name and affiliation):			
<u>ALEX KAZAKOV - ATHENICA</u>		(Environmental Professional)	
<u>FRANK TROETTI & TONY GAUD-DUGA DUSTERS</u>		(HVAC/Electrical Professional)	
		(Sheet Metal Professional)	
Building Address:		Type of Facility (check all that apply):	
<u>395 SOUTH END AVE</u>		☒ Residential	
<u>NEW YORK, NY.</u>		☐ Multi-use	
		☐ Other (describe)	
		Number of residential units: <u>400</u> Number of floors: <u>35</u>	
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: <u>24 CVD - VAULT EXHAUST & TRANSFORMER EXHAUST / MAKE: LORER COOK</u>						
Location: <u>1ST FLOOR</u>						
Access adequate for inspection of components: <u>YES</u>						
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	<u>SHEET METAL</u>			☒	<u>YES</u>	
Outside air damper(s)	<u>SHEET METAL</u>			☒	<u>YES</u>	
Return air grille	<u>SHEET METAL</u>			☒	<u>YES</u>	
Return air plenum						
Filter rack						
Filter media						
Coils (evaporator)						
Blower assembly	<u>SHEET METAL</u>			☒	<u>YES</u>	
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 OBSERVED
☐ Filter bypass (describe)	N/A	☒ Visible suspect mold growth	NONE OBSERVED
☐ Abraded/delaminated acoustical lining	NONE	☒ Evidence of animal incursion (carcasses, feathers, fecal matter)	NONE

General Impression:

WTC related dust, observed in the exhaust fan components.

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 EVALUATION FORM**Part 1.0 General Information**

Date of Evaluation: 11.01-02	Building contact name and phone: THOMAS DiFranzese 212-321-2000	
Evaluation Team (list name and affiliation):		
ALEX LAZAROV		(Environmental Professional)
FRANK TROTTI & TOM GAUD-DUET DURET		(HVAC/Electrical Professional)
		(Sheet Metal Professional)
Building Address:	Type of Facility (check all that apply):	
395 South End Ave	☒ Residential	
NEW YORK, NY	☐ Multi-use	
	☐ Other (describe)	
	Number of residential units: 400	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: HVAC Unit - MAKE GE - (5) Units						
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	Aluminum			✓	Y	
Outside air duct						
Outside air damper(s)						
Return air grille	plastic	✓				
Return air plenum						
Filter rack						
Filter media	NYLON	✓				
Coils (evaporator)	COPPER/ALUM.	✓				
Blower assembly	sheet metal	✓				
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	☒ Color of dust/dirt/debris white
☐ 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)

General Impression: Outside louvers of HVAC units located in the basement are covered with WTC related dust @ need to be cleaned.

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: 11-01-02		Building contact name and phone: THOMAS De-FRANCESCO	
Evaluation Team (list name and affiliation):			
ALEX KAZAROV - ATENICA		(Environmental Professional)	
FRANK TROETTI & TONY GALLO - DIXIE DUSTERS		(HVAC/Electrical Professional)	
		(Sheet Metal Professional)	
Building Address:		Type of Facility (check all that apply):	
395 SOUTH END AVE		☒ Residential	
NEW YORK, NY.		☐ Multi-use	
		☐ Other (describe)	
		Number of residential units: 400 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: EXHAUST FAN - 10KVD - LOREN COOK						
Location: STORAGE RM - BASEMENT						
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	SHEET METAL		☒		N	
Outside air damper(s)	SHEET METAL		☒		N	
Return air grille	SHEET METAL		☒		N	
Return air plenum						
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
☐ Filter loading (general impression)	NO	☐ 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:

NO WTC-related dust was observed.

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 Identification:

Location: HEATER FOR BASEMENT : MODEL# M110E / 14CVD SUPPLY AIR-FAN
 Area Served: BASEMENT
 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	<u>Alum.</u>				<u>N</u>	
Outside air duct	<u>sheet metal</u>				<u>N</u>	
Outside air damper(s)	<u>sheet metal</u>				<u>N</u>	
Return air grilles	<u>Alum.</u>			<u>X</u>	<u>N</u>	
Return air plenum	<u>sheet metal</u>					
Return air plenum damper						
Return air ducts	<u>sheet metal</u>			<u>X</u>	<u>N</u>	
Turning vanes						
Mixing chambers						
Filter rack(s)	<u>sheet metal</u>			<u>X</u>	<u>N</u>	
Filter banks/media	<u>fiber glass</u>					
Pre-heat coils	<u>copper/Alum.</u>		<u>X</u>		<u>N</u>	
Cooling coils						
Re-heat coils						
Humidification and/or air cleaning equipment						
Fire dampers						
In-line re-heat coils						
Acoustical blower housing lining	<u>sheet metal</u>		<u>X</u>		<u>N</u>	
Duct connectors						
Blower assembly including blower wheel, blower housing, air vanes, in-line noise attenuators, acoustical treatments (e.g. baffles, duct linings)	<u>sheet metal</u>		<u>X</u>		<u>N</u>	
Condensate drain pan						
Condensate accumulator						
Supply air plenum						
Supply air plenum damper(s)						
Supply air ducts	<u>sheet metal</u>		<u>X</u>		<u>N</u>	
-High pressure - main trunk						
-Low pressure - branches						
Supply plenum or supply duct linings	<u>fiberglass</u>		<u>X</u>		<u>N</u>	
Supply air duct damper(s)	<u>sheet metal</u>		<u>X</u>			
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 No
☐ Filter bypass (describe) NO ☐ Visible suspect mold growth No
☐ Abraded/delaminated acoustical lining No ☐ Evidence of animal incursion (carcasses, feathers, fecal matter) No

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: MECHANICAL ROOM - 1 st FLOOR - 1000
Location 2:
Location 3:
Location 4:
Location 5:

EPA USEPA Contract Laboratory Program Generic Chain of Custody

3603201003

Zip Code: 10280 Confirmation #: 0920210105569 HPD Sequence ID: 805311 Floor/Apt: Glenn Kassele Requestor Name: 395 South End Avenue/ alex kazakov Project Location: Special Pre Monitoring Activity: Agency:		Date Shipped: 11/2/2002 Carrier Name: Hand Delivered Airbill: Shipped to: EMSL Analytical Inc 307 West 38th Street New York, NY 10018 (212) 290-0051		Origin: 033982476 10112002 1035167 Request Type: O BIN #: 1083377	
Chain of Custody Record					
Relinquished By		Date / Time		Signature	
1. <i>[Signature]</i>		11/2/02		<i>[Signature]</i>	
2. <i>[Signature]</i>		11/2/02		<i>[Signature]</i>	
3. <i>[Signature]</i>		11/5/02		<i>[Signature]</i>	

SAMPLE No.	Col. Method/ SAMPLER	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE No. of Bottles	RESIDENCE/ COMMON AREA ID	SAMPLING LOCATION	VOLUME (L)/ AREA (cm2)	SAMPLE COLLECTION DATE/TIME	DURATION (min)	CALC. Vol (L)
05598-301-562	built sample/ alex kazakov	HVAC (Std)	670 (1)	mechanical room exhaust	transfer room fan exhaust area:		S: 10/28/2002 E: 10/28/2002	-	0.00

EMSL MANHATTAN
RECEIVED
02 NOV -2 PM 7:05

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

TR Number: 10280-033982476-110202-0007

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
FWS.2.8 WTC Page 1 of 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: 360201003

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

<i>Sample ID</i>	<i>Description</i>	<i>Analyte</i>	<i>Concentration (%)</i>	<i>Analytical Sensitivity (%)</i>	<i>Comments</i>
05569-301-562	Fibrous Dust Ball	Fibrous Glass	8%	~1%	pH = 6.32
		Mineral Wool	2%	~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 mm, 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 1:25:21 PM

Order ID: 360201003

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

Fax: Phone:
Project: Residential / 395 South End Ave

Customer ID: USEPA30
Customer PO: 2W-1104-NNLX
Received: 11/02/02 7:05 PM

EMSL Order: 360201003
EMSL Project ID: Residential

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

Acct Sts: PO Slsprsn: rdemalo Logged: AKEMP Date:
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
360201003	360201003-0001	05569-301-562		11/5/02 6:05:00 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: **360201003**

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

11:30:41 11:37:02
4.70 um 22.4°C

11:32:00 11:37:02
10.06 um 22.4°C

5.06E = 94.1

11:31:46 11:37:02
7.00 um 22.4°C

7.0 STD Re. Calc

11:40:01 11:37:02
6.32 um 24.3°C

562

11:42:00 11:37:02
5.36 um 24.3°C

559

11:43:24 11:37:02
6.77 um 24.4°C

560

11:44:01 11:37:02
6.32 um 24.3°C

561

11:46:01 11:37:02
7.00 um 24.3°C

7.0 STD Re. Calc

J. Newton
Analyst

7 November, 2002
Date of Analysis

Note: EMSL can only verify the results of the analysis in structure per unit 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.: 360201003	Sample ID: 05569-301-562	Date: 7 November, 2002

[illegible]

N/A = not applicable; (Color - C) = Clear, B = blue, G = green, Gr = gray, R = red, O = orange, Bl = black; [SOE - I] = isotropic, + = positive, - = negative] [F = fibrous, A = acicular, T = tabular, L = lamellar, M = massive]; R. of synthetic fibers are reported in DS color based upon 1.550 liquid

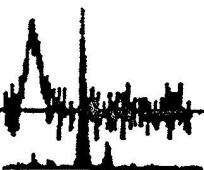
WksPID Char.dot

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. 040217979

- 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: 040217979

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

Customer ID: USEPA30
Customer PO: 2W-1104-NNLX
Date Received: 11/02/02 7:05 PM

Fax: Residence : 395 South End Ave
Project: EMSL Order: 040217979
Report Date: 11/07/02
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 %
05569-301-562	mechanical room exhaust	0.0021	4.14	<0.95	<0.95	2.86	3.29	0.95
Ref Sid	0.026Q 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 1:22:12 PM

Order ID: 040217979

Attn: U. S. EPA
HQ Financial Services Division
1200 Pennsylvania Ave. NW Maildrop 2734R
Washington, DC 20480

Fax: Phone:
Project: Residence / 395 South End Ave

Customer ID: USEPA30
Customer PO: 2W-1104-NNLX
Received: 11/02/02 7:05 PM
EMSL Order: 040217979
EMSL Project ID: Residential

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

Acct Sts: PO Slsprsn: rdemalo Logged: AKEMP Date: 11/6/02
Prepped: Date: 11/6/02
Analyzed: Date: Data Entry: Date: 11/7/02
Screened: Date: Mailed: Date:

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

Special Instructions

Email: marian.murphy@ttemi.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
040217979	040217979-0001	05569-301-562	mechanical room exhaust	11/5/02 6:05:00 PM

Used 125 micron sieve, 2.1 ug in 10ml alcohol,
filtered whole solution

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

Page 1

EPA USEPA Contract Laboratory Program
Generic Chain of Custody

040217979

Origination ID: 033982476 10112002 1035167
Request Type: O
BIN #: 1083377

Zip Code: 10280	Date Shipped: 11/2/2002	Chain of Custody Record	
Confirmation & HPD Sequence ID: 0020210105569 805311	Carrier Name: Hand Delivered Airbill:	Relinquished By	Sampler Signature Received By
Floor/Apt: Requestor Name: Normalized Address: Project Leader: Activity: Agency:	Shipped to: EMSL Analytical Inc 307 West 38th Street New York NY 10018 (212) 250-0051	(Date / Time) 11/2/02 10/28	(Date / Time) 11/3/02

SAMPLE No.	Coli. Method/ SAMPLER	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE No. of Bottles	RESIDENCE / COMMON AREA ID	SAMPLING LOCATION	VOLUME (L) / AREA (cm ²)	SAMPLE COLLECTION DATE/TIME	DURATION (min)	CALC. Vol (L)
05569-301-562	bulk sample/ alex kazakov	HVAC (Std)	670 (1)	mechanical room exhaust	transfer room fan exhaust area:		S: 10/28/2002 E: 10/28/2002	-	0.00

RECEIVED
B
OCT-3 PM 7:05

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 Lead?		

TR Number: 10280-033982476-110202-0007

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

WTC
FAS.2.8 WTC Page 1 of 1

WTC_Residential Study

EMSL Billing # 040217979

395 South End Avenue

		Quartz mg	Cristo mg	Tridymite mg	Gypsum mg	Calcite mg	Portlandite mg
1	05569-301-562	0.087	<DL	<DL	0.060	0.069	<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 Primary	Cristo Primary	Tridymite Primary	Gypsum Primary	Calcite Primary	Portlandite Primary
1	05569-301-562	432.0	0.0	0.0	2489.7	710.2	28.5
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
<u>Equations for obtaining mass of a phase (ug) from Peak Area (if that phase is assumed to be present).</u>							
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	

Bulk Sample For XRD
 used 125 micron sieve
 Initial Mass 2.1 mg

Vol Filtered 10 ml of 100 ml
 (2:1 Hexag entire suspension)

EMSL SILICA WORKSHEET FOR USEPA PROJECTS

EMSL Order ID# 040217979 Client: USEPA

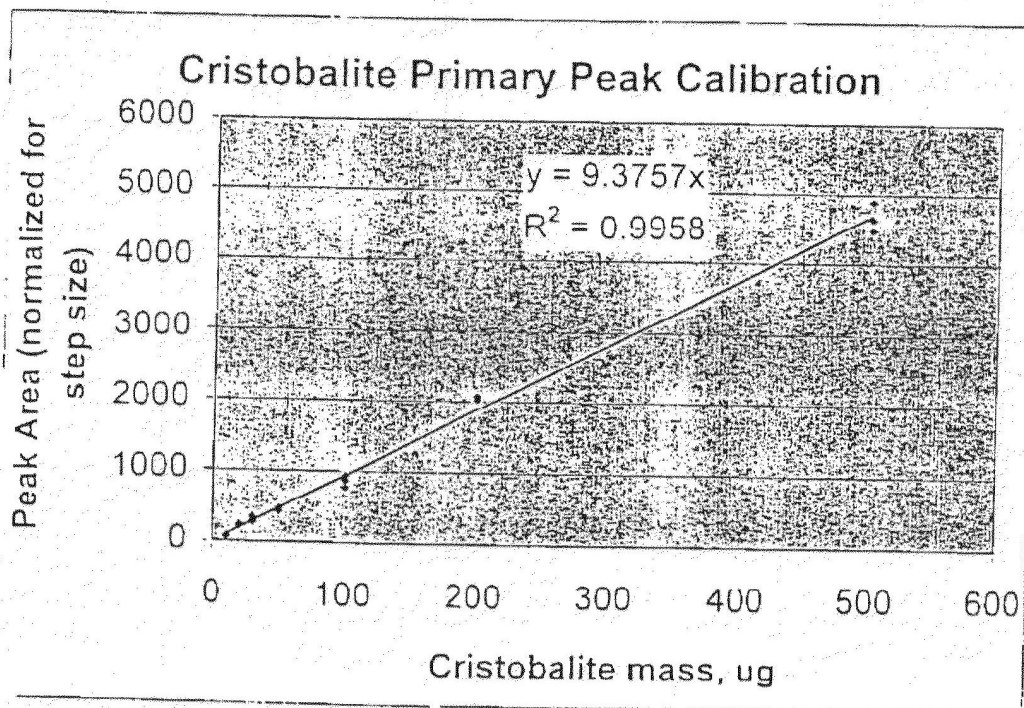
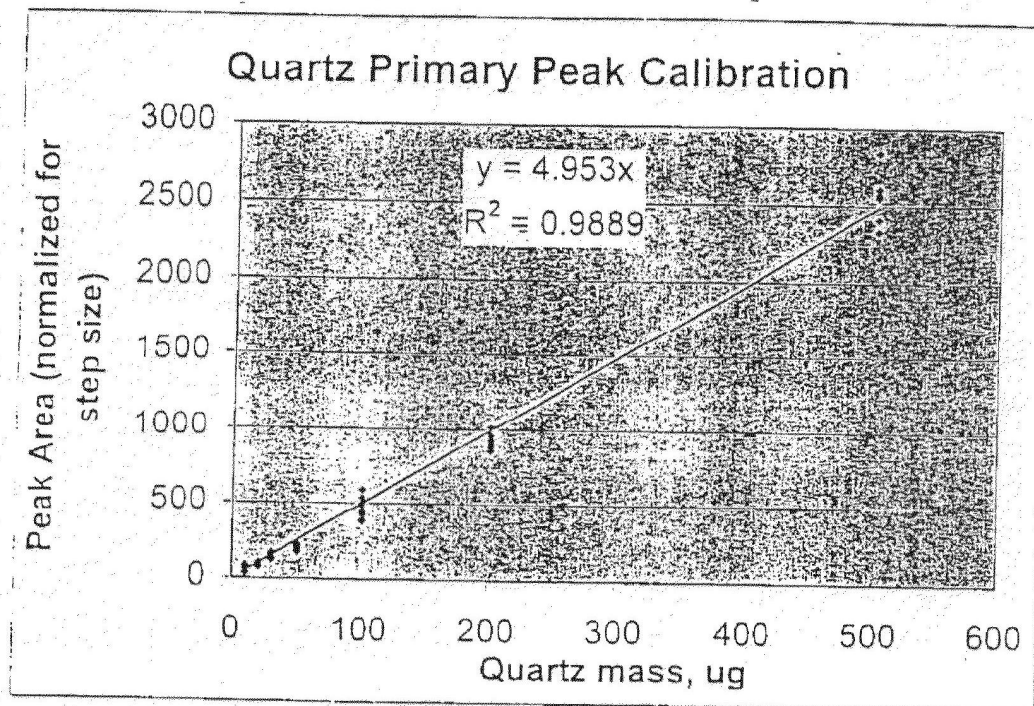
Client Sample Number	EMSL#	α-Quartz (mg)	Cristob. (mg)	Tridy. (mg)	Calcite (mg)	Gypsum (mg)	Portlandite (mg)
N/A	LB-						
N/A	QC-						
05541-301-502	1	0.087	<DL	<DL	0.069	0.060	<DL
	2						
	3						
	4						
	5						
	6						
	7						
	8						
	9						
	10						
	11						
	12						

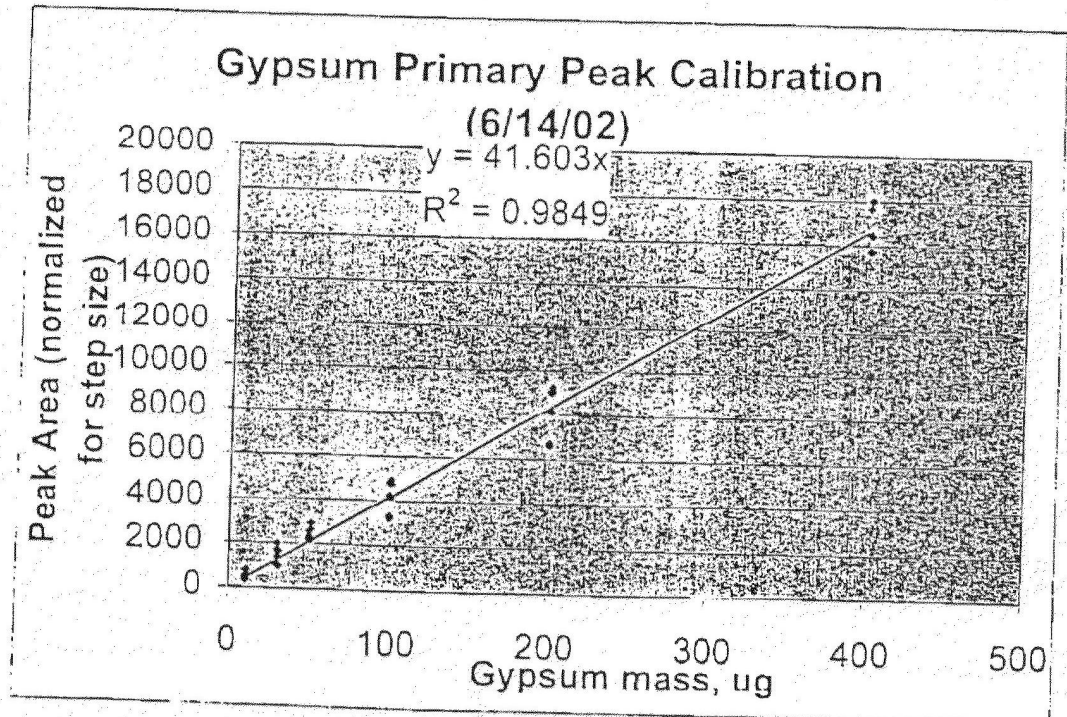
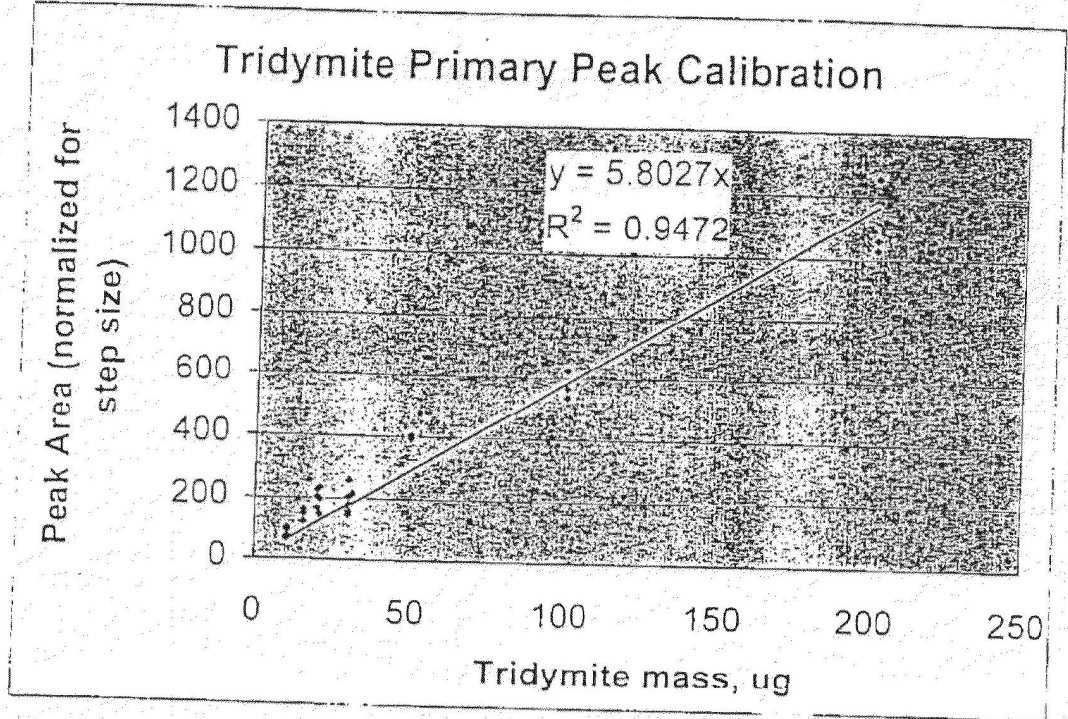
SILICA STANDARDS

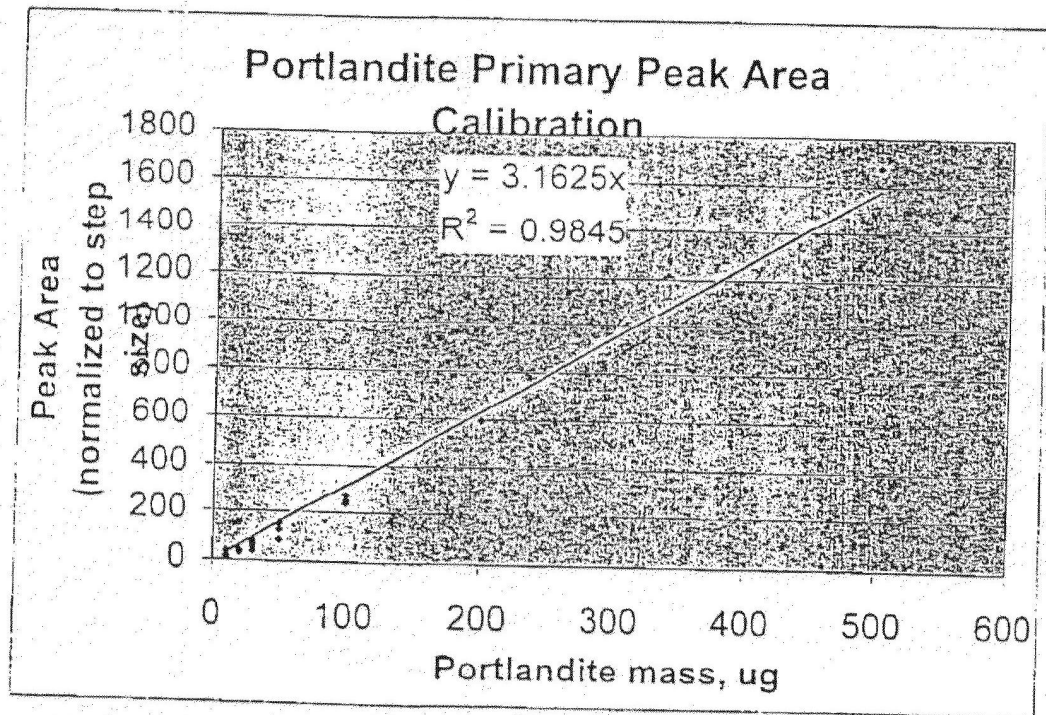
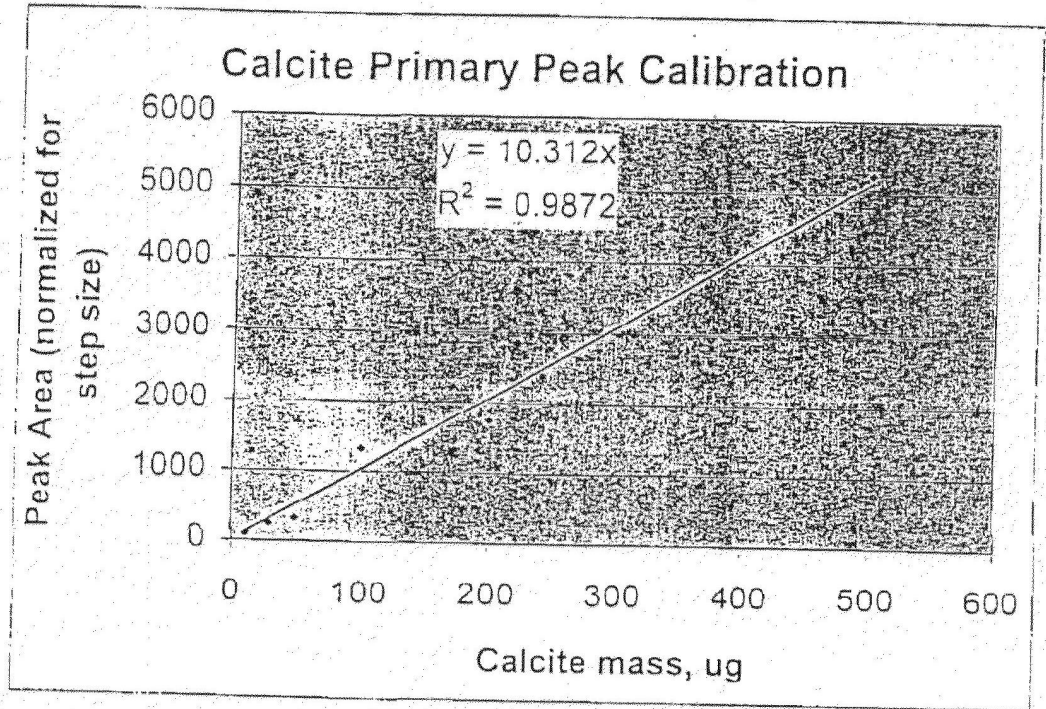
QUARTZ STANDARD WEIGHT(mg) 0.026 XRD READING(mg) 0.029
 CRISTOBALITE STANDARD WEIGHT(mg) 0.050 XRD READING(mg) 0.061
 TRIDYMITTE STANDARD WEIGHT(mg) 0.050 XRD READING(mg) 0.090

L:\INDUSTRIAL\HYGIENE\Silica\Forms\Infoleposil\worksheet2air.doc

</







395 S.E. Ave.



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: **360201003**

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

Sample ID	Description	Analyte	Concentration (%)	Analytical Sensitivity (%)	Comments
05569-301-562	Fibrous Dust Ball	Fibrous Glass	8%	~1%	pH = 6.32
		Mineral Wool	2%	~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 mass and not concentration that is based upon data obtained by non-laboratory personnel.
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INTERNAL CHAIN OF CUSTODY

11/6/02 1:25:21 PM

Order ID: 360201003

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

Fax: Phone:
Project: Residential / 395 South End Ave

Customer ID: USEPA30
Customer PO: 2W-1104-NNLX
Received: 11/02/02 7:05 PM

EMSL Order: 360201003
EMSL Project ID: Residential

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

Acct Sts: PO **Sisprsn:** rdemalo **Logged:** AKEMP **Date:** _____
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
360201003	360201003-0001	05569-301-562		11/5/02 6:05:00 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: 360201003

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

11:08:41 11:07:01
4.70 um 22.4°C

11:09:00 11:07:02
10.06 um 22.4°C

SLOPE = 96.1

11:31:46 11:07:03
7.86 um 22.4°C

7.0 STD Recheck

11:40:01 11:07:02
5.22 um 22.7°C

562

11:42:00 11:07:02
5.56 um 22.5°C

559

11:43:24 11:07:02
6.77 um 22.4°C

560

11:44:03 11:07:02
5.32 um 22.7°C

561

11:46:01 11:07:02
7.61 um 22.1°C

7.0 STD Recheck

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.
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EPA USEPA Contract Laboratory Program
Generic Chain of Custody

360201003

Zip Code: 10280 Confirmation #: 0020210105569 HPD Sequence ID: 805311 Floor/Apt: Glenn Kassia Requestor Name: 335 South End Avenue/ Normalized Address: alex kazakov Project Leader: Special Pre Monitoring Activity: Agency:		Date Shipped: 11/2/2002 Carrier Name: Hand Delivered Airbill: Shipped to: EMSL Analytical Inc 307 West 38th Street New York NY 10018 (212) 290-0051		Origin: 033982476 10112002 1035167 Request Type: O BIN #: 1083377	
Chain of Custody Record Relinquished By (Date / Time) 1. <i>[Signature]</i> 11/2/02 2. <i>[Signature]</i> 11/2/02 3. <i>[Signature]</i> 11/2/02 4. <i>[Signature]</i> 11/2/02		Sampler Signature: <i>[Signature]</i> Received By (Date / Time)			
SAMPLE No.	05569-301-562	Col. Method/ SAMPLER	bulk sample/ alex kazakov	ANALYSIS/ TURNAROUND	HVAC (Std)
TAG No./ PRESERVATIVE No. of Bottles	670 (1)	RESIDENCE/ COMMON AREA ID	mechanical room exhaust transfer room fan exhaust area:	VOLUME (L)/ AREA (cm ²)	
SAMPLING LOCATION		SAMPLE COLLECTION DATE/TIME	S: 10/28/2002 E: 10/28/2002	DURATION (min)	0.00
CALC. Vol (L)					

02 NOV -2 PM 7:05
 RECEIVED
 WTC

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

TR Number: 10280-033982476-110202-0007

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