

## Gilsenan, Michael

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**From:** Gilsenan, Michael (ex)  
**Sent:** Friday, July 12, 2002 2:40 PM  
**To:** Pecunies, Russ; Radhakrishnan, Krish  
**Subject:** FW: Updated SOWs



CLEANING\_SOW#4Monitoring\_SOW#4  
.wpd



.wpd

FYI

-----Original Message-----

From: LaPosta.Dore@epamail.epa.gov [mailto:LaPosta.Dore@epamail.epa.gov]

Sent: Friday, July 12, 2002 2:33 PM

To: apotiev@dcas.nyc.gov; thomas.llieber@epamail.epa.gov;  
lynch.katie@epamail.epa.gov; lynes.carol@epamail.epa.gov;  
barry.benjamin@epamail.epa.gov; cxjohnso@gw.dec.state.ny.us;  
njeffery@health.nyc.gov; jleight@health.nyc.gov;  
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grevatt.peter@epamail.epa.gov; tulis.dana@epamail.epa.gov; rcwl@cdc.gov;  
svrl@cdc.gov; basso.ray@epamail.epa.gov; maddaloni.mark@epamail.epa.gov;  
callahan.kathy@epamail.epa.gov; laposta.dore@epamail.epa.gov;  
jprudhom@health.nyc.gov; michaelgi@dep.nyc.gov; lilan@cityhall.nyc.gov;  
sbenson@oem.nyc.gov; rlc07@health.state.ny.us; sxj6@cdc.gov;  
axb9@cdc.gov; robert.tranter@fema.gov;  
fitzpatrick.robert@epamail.epa.gov; david.ippolito@osha.gov;  
garvey-robert@dol.gov; giardina.paul@epamail.epa.gov;  
girman.john@epamail.epa.gov; smith.terry@epamail.epa.gov;  
debonis.michael@epamail.epa.gov; jmillier@health.nyc.gov;  
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simon.paul@epamail.epa.gov; lynes.carol@epamail.epa.gov;  
schaum.john@epamail.epa.gov  
Subject: Updated SOWs

Attached are the updated versions of the SOWs for the cleaning  
and monitoring contracts.

(See attached file: CLEANING\_SOW#4.wpd) (See attached file:  
Monitoring\_SOW#4.wpd)  
(See attached file: CLEANING\_SOW#4.wpd) (See attached file:  
Monitoring\_SOW#4.wpd)

Please let me know if you have any questions, thanks

**Indoor Air Residential Assistance Program**  
**Cleaning Contract Scope of Work**  
**DRAFT - 7/10/02**

**A. Introduction**

All work performed under this contract must be in compliance with all applicable, relevant, and appropriate regulations, including but not limited to those of the United States Environmental Protection Agency (EPA), the United States Department of Labor Occupational Safety and Health Administration (OSHA), the New York State Department of Labor (NYS DOL), and the New York City Department of Environmental Protection (DEP).

The USEPA and DEP will solicit participation in a direct assistance program for residents and residential building owners south of Canal Street who are concerned that their apartments may have debris/dust from the collapse of the World Trade Center (WTC). A DEP/USEPA telephone hotline has been established to receive requests from the public. The assistance will include various options, including the cleaning within apartments and common spaces by licensed asbestos contractors with follow-up asbestos sampling, asbestos air sampling only, and providing high efficiency particulate air (HEPA) vacuums.

NYS DOL licensed asbestos contractors shall perform clean-up activities for residents who wish to have their homes cleaned. A third party Monitoring Contractor will schedule and monitor the work, perform a visual inspection, and perform asbestos air sampling when the clean-up is completed.

The purpose of this contract is to acquire the services of a NYS DOL licensed asbestos contractor with DEP and NYS DOL certified workers for the performance of clean-up activities at residential buildings impacted by the collapse of the World Trade Center. The scope of work for the clean-up activities is attached.

**B. Roles and Responsibilities**

The EPA has overall responsibility for insuring that work conducted as part of the Indoor Air Residential Assistance Program is completed safely, efficiently and in compliance with the Scope of Work and all applicable rules and regulations. As such, EPA shall have the following authorities relating to work conducted under this contract:

1. The authority to stop work for health and safety reasons or for non-compliance with the Scope of Work.
2. The authority to direct the contractor in the performance of the work.
3. The authority to review and approve or disapprove of the qualifications of the contractor personnel involved in the work.
4. The right to inspect and accept or reject any work .

A third party Monitoring Contractor will perform air monitoring. Personal air monitoring will be performed on a minimum of one worker per shift per apartment during the first 6 weeks of cleaning operations. Thereafter, personal air samples will be taken randomly at a rate of one sample per quadrant per day. The results of this sampling shall be sent immediately to EPA, DEP, OSHA and the employer. The employer will make these results available to the employees or their designated representatives for their review in accordance with 29 CFR 1910.1001 and 29 CFR 1926.58.

### **C. Qualifications**

All work shall be performed by a NYS DOL licensed contractor with NYS DOL and NYC DEP certified workers. Proof of qualifications must be presented upon request.

### **D. Specifications**

This contract shall be in force for 18 consecutive months from the commencement date. Contractors must be prepared to mobilize within 72 hours of the contract award. Contractors shall have on staff and assigned to this contract a sufficient number of properly trained and certified workers to clean 20 units simultaneously and complete the clean-up activities within each unit within 2 days. Activities shall be coordinated with the Project Monitor to ensure that the visual inspection is performed within two hours of the completion of clean-up activities. Cleaning activities shall be considered completed upon successful visual inspection by the Project Monitor. Copies of all invoices for work conducted under this contract shall be provided to USEPA and DEP.

The contractor shall prepare a Health and Safety Plan (HASP) in accordance with 29CFR1910.1020 and 29 CFR 1926.58. All personnel involved in residential cleaning activities shall follow the contractor HASP prepared by their employer. EPA shall be provided with a copy of the employer HASP prior to the start of work. All clean-up operations will be conducted in accordance with either Scope A or Scope B as described below.

HEPA means a filter system capable of trapping and retaining 99.97% of all mono-dispersed particles of 0.3 micrometers in diameter.

HEPA vacuum means a vacuum cleaner equipped with a HEPA filter, with a static water lift of 95 to 100 inches.

### **Scope of Work A**

Application: These procedures apply to the clean-up of minimal dust accumulations (light coating). If a visual inspection indicates the presence of significant accumulations of dust and/or debris from the collapse of the WTC Scope B procedures shall applied (refer to Scope of Work B). Residents may be present during Scope A cleaning procedures.

#### **Cleaning of Common Spaces**

Common spaces including hallways, stairways and elevators interiors will be cleaned if requested by the building owner. EPA or designee will evaluate and determine if other common areas including utility rooms, laundry rooms, compactor rooms require cleaning. If elevator

shafts are determined to contain significant WTC dust and or debris, clean-up will proceed under the Scope B site specific work plan. Work will begin from the entrance and continue through all common spaces in an orderly fashion. A detailed description of the minimum cleaning requirements for common space is as follows:

- a. **Vacuuming will begin with the ceiling, continue down the walls and include floors.**
- b. **Impermeable walls and floors will be wet wiped using disposable wipes, after consultation with and approval by owner. Wet wiping will not be conducted if it is determined that it would cause damage to the surface.**
- c. Carpets will be cleaned with a hot water extraction cleaner. The cleaner shall be equipped with a motorized agitator brush and have a static water lift of 95 to 110 inches.

## 2. Cleaning of HVAC Systems

If the Project Monitor in consultation with EPA determines that an HVAC system requires cleaning, the cleaning contractor shall clean the HVAC system utilizing specialized labor trained and experienced in duct cleaning. The HVAC cleaning will be conducted in accordance with National Air Duct Cleaners Association (NADCA) General Specification for the Cleaning of Commercial Heating, Ventilating and Air Conditioning Systems and the NADCA Assessment, Cleaning and Restoration Standard (ACR 2002). In the event that the HVAC system for an entire building requires cleaning a separate, site specific contract will be awarded for this work. Verification of HVAC system cleanliness will be determined by the Monitoring Contractor. If visible contaminants are evident through visual inspection, those portions of the system where contaminants are visible shall be recleaned and subjected to reinspection for cleanliness.

## 3. Cleaning of Residential Spaces

All horizontal hard surfaces shall be HEPA vacuumed and wet wiped. Vertical and soft surfaces shall be HEPA vacuumed two times. Surfaces include but are not limited to walls, floors, ceilings, ledges, trims, furnishings, appliances, equipment, etc. Encapsulating agents shall not be applied. Dry sweeping is prohibited. **Carpets will be cleaned with a hot water extraction cleaner.** Cleaning of clothing and accessories (handbags, shoes etc.) shall be the responsibility of the occupant. A detailed description of the minimum cleaning requirements is as follows:

- a. Terraces, balconies, exterior window sills, window wells and window guards that are accessible from the interior of the dwelling, will be cleaned.
- b. Interior windows, screens, window sills and window guards will be cleaned
- c. **Vacuuming will begin with the ceiling, continue down the walls and include the floor.**
- d. **Impermeable walls and floors will be wet wiped using disposable wipes, after consultation with and approval by owner. Wet wiping will not be conducted if it is determined that it would cause damage to the surface.**
- e. Curtains, fabric window treatments, upholstery and other materials that cannot be cleaned by wet wiping shall be HEPA vacuumed two times. Fabric covered furniture will be vacuumed using a stiff brush attachment.
- f. Carpets will be cleaned with a hot water extraction cleaner. The cleaner shall be equipped with a motorized agitator brush and have a static water lift of 95 to 110 inches.
- g. Paperwork, books shall be HEPA vacuumed.

- h. Electrical outlets will be vacuumed.
  - i. Window air conditioners will be vacuumed then removed from their position and vacuumed internally. Filters will be HEPA vacuumed and reinstalled. Air conditioners will be reinstalled after cleaning.
  - j. Intake/discharge registers of HVAC systems (if present) will be removed/cleaned. The first foot of duct work will also be vacuumed, then the register will be reinstalled and covered with plastic.
  - k. Appliances such as refrigerators and stoves will be cleaned and moved. The floor footprint of the appliances will be cleaned and the appliance will be reinstalled in its original position.
  - l. Refrigerator cooling tubes will be brushed and vacuumed.
  - m. Stove storage drawers will be vacuumed if present. Stove cook tops will be opened and vacuumed. Stove exhaust fan filters will be cleaned.
  - n. The first foot of all exhaust duct work (including stove, dryer and bathroom vents) will be vacuumed. Exhaust fans will be vacuumed and wiped.
  - o. Closet floors will be vacuumed.
  - p. Solid objects (electrical equipment, exercise equipment, etc.) will be wet wiped, moved to allow cleaning of the underlying surface and will be returned to their original location.
  - q. Dishwashers toe plates will be removed and the floor beneath the appliance will be cleaned.
  - r. Baseboard heaters will be cleaned. Protective covers on finned radiant heaters and baseboard heaters will be removed to expose heat elements. Fins are to be brushed and vacuumed to remove dust.
  - s. All cleaning equipment will be vacuumed and/or wet wiped for use on the residence.
4. HEPA air filtration devices (AFDs) will run continuously during all cleaning activities as appropriate given site conditions. A standard 1200 cfm device shall be installed per 36,000 cubic feet.
5. An adequate number of asbestos supervisors shall be present at each work place.
6. A Cleaning Checklist (to be developed) will be completed by the supervisor at the completion of the cleaning.
7. A thorough visual inspection will be conducted by the Project Monitor to verify the absence of visible dust accumulations. Additional clean-up procedures shall be performed where visible dust is observed.
8. Air sampling shall be performed by the Air Sampling Technician after the area is free of dust accumulations as determined by the Project Monitor.
- The apartment will be recleaned and retested if the clean-up criteria of 0.0009 fibers/cc (PCME measured by TEM) is not achieved or if determined necessary by EPA. This clean-up criteria may be reevaluated and revised, if determined necessary based on field conditions and analytical limitations.**

9. Any damage or loss to that occurs during cleaning is the responsibility of the cleaning contractor. The cleaning contractor is not responsible for damage or loss caused by the acts of parties not involved in the clean-up.
10. **Materials that can not be effectively cleaned (e.g. carpets and fabric covered furniture) may be identified for disposal as waste by EPA or designee. Disposal of residents personal property shall not occur without prior authorization by EPA and the owner. Disposal of all wastes generated during the cleaning shall be the responsibility of the contractor. All waste generated shall be treated as asbestos containing material. Transportation and disposal of generated waste shall be in compliance with all applicable rules and regulations.**
11. If mold is observed, the cleaning contractor will contact the Monitoring Contractor who will contact the NYCDOH and EPA.

## Scope of Work B

Application: A visual inspection was performed and the presence of accumulations of dust or debris (including large or significant amounts of dust or debris in residential units or portions thereof such as windows, terraces or balconies) from the collapse of the WTC was identified by EPA or designee.

Residents may be present depending on these unit specific circumstances. In cases where clean-up areas can be isolated by closing doors or by the erection of containment barriers, the resident may be present in the unit. In all other applications of Scope B it is assumed that residents will not be present.

1. A site specific work plan will be prepared for review and approval by EPA prior to the start of work. This work plan will include detailed procedures for the removal of dust and debris and the cleaning, **at a minimum the procedures specified for a Scope A cleaning shall be applied.**

An ACP-7 form asbestos project notification form shall be submitted, as required by Title 15, Chapter 1 of the Rules of the City of New York and New York (RCNY), directly to the NYC DEP Asbestos Control Program prior to the start of work. NYS DOL notification shall be submitted.

2. At least one asbestos supervisor shall be present at each work place (work place is defined in Title 15, Chapter 1 RCNY as the work area and the decontamination enclosure system).

3. Personal protective equipment including disposable clothing, gloves, and respirators shall be worn during this clean-up activity.

4. Warning signs shall be posted at the approach to the work area.

5. A worker decontamination enclosure system shall be installed at the entrance to the work area. A remote decontamination enclosure system shall be considered when appropriate i.e. inability to comply with the provision due to space limitation or other agency rules, such as for compliance with NYCFD egress requirements.

HVAC systems shall be shut down and locked out or isolated locally. The site specific work plan shall provide additional information on the HVAC system and proposed procedures for shutdown or isolation.

6. Isolation barriers shall be installed with two layers of 6-mil polyethylene sheeting and sealed with tape.

7. Negative pressure ventilation equipment shall be installed and operated during all clean-up activities. Equipment shall run continuously until clearance air monitoring. A minimum of one air change every 30 minutes shall be provided. When ducting to the outside is not possible, a second negative pressure ventilation unit compatible with the primary unit may be connected in series.

10. All WTC debris shall be misted and double-bagged. Accumulation of water is prohibited. Water misting shall be sufficient to wet the material without water accumulations. After the removal of debris, all surfaces shall be HEPA vacuumed and wet wiped. Encapsulating agents shall not be applied. Once all surfaces have been HEPA vacuumed and wet wiped, a second cleaning shall be performed. Surfaces include but are not limited to walls, floors, ceilings, ledges, trims, appliances, equipment and furnishings.
11. If identified by the Monitoring Contractor during initial site visit, surfaces that may not be wet wiped shall be HEPA vacuumed three times or disposed as ACM waste.
12. **Materials that can not be effectively cleaned (e.g. carpets and fabric covered furniture) may be identified for disposal as waste by EPA or designee. Disposal of residents personal property shall not occur without prior authorization by EPA and the owner. Disposal of all wastes generated during the cleaning shall be the responsibility of the contractor. All waste generated shall be treated as asbestos containing material. Transportation and disposal of generated waste shall be in compliance with all applicable rules and regulations.**
13. A cleaning checklist (to be developed) will be completed by the supervisor at the completion of the cleaning.
14. A thorough visual inspection will be conducted by the Project Monitor to verify the absence of visible dust accumulations. Additional clean-up procedures shall be performed where visible dust is observed.
15. After successful clearance air monitoring isolation barriers shall be removed in conjunction with the use of a HEPA vacuum.
16. **Air sampling shall be performed by the Air Sampling Technician after the area is free of dust accumulations as determined by the Project Monitor. The apartment of will be cleaned and retested if the clean-up criteria of 0.0009 fibers/cc (PCME measured by TEM) is not achieved or if determined necessary by EPA. This clean-up criteria may be reevaluated and revised, if determined necessary based on field conditions and analytical limitations.**
17. Any damage or loss that occurs during cleaning is the responsibility of the cleaning contractor. The cleaning contractor is not responsible for damage or loss caused by the acts of parties not involved in the cleanup.
18. All work shall be in compliance with all other applicable requirements of Title 15, Chapter 1 of the RCNY and New York Industrial Code Rule 56.
19. If mold is observed, the cleaning contractor will contact the Monitoring Contractor who will contact the NYCDOH and EPA.

**Indoor Air Residential Assistance Program**  
**Monitoring Contract Scope of Work**  
**DRAFT - 7/10/02**

**A. Introduction**

All work performed under this contract must be in compliance with all applicable, relevant, and appropriate regulations and this Scope of Work, including but not limited to those of the United States Environmental Protection Agency (EPA), the United States Department of Labor Occupational Safety and Health Administration (OSHA), the New York State Department of Labor (NYSDOL), the New York State Department of Health Environmental Laboratory Approval Program (ELAP) and the New York City Department of Environmental Protection (NYCDEP).

The USEPA and DEP will solicit participation in a direct assistance program for residents and residential building owners south of Canal Street who are concerned that their apartments may have debris/dust from the collapse of the World Trade Center (WTC). A DEP/USEPA telephone hotline has been established to receive requests from the public. The assistance will include various options, including the cleaning within apartments and common spaces by licensed asbestos contractors with follow-up asbestos sampling, asbestos air sampling only, and providing high efficiency particulate air (HEPA) vacuums.

NYS DOL licensed asbestos contractors shall perform clean-up activities for residents who wish to have their homes cleaned.

The purpose of this contract is to acquire project monitoring services including site inspections, surveys and assessments, scheduling, coordinating and monitoring the clean-up of dust/debris, and collecting samples from building apartments impacted by the collapse of the World Trade Center.

**B. Roles and Responsibilities**

The USEPA has overall responsibility for insuring that work conducted as part of the Indoor Air Residential Assistance Program is completed safely, efficiently and in a compliance with the Scope of Work. As such, EPA shall have the following authorities relating to work conducted under this contract:

1. The authority to stop work for health and safety reasons or for non-compliance with the Scope of Work.
2. The authority to direct the contractor in the performance of the work.
3. The authority to review and approve or disapprove of the qualifications of all contractor personnel involved in the work.
4. The right to receive, inspect and accept or reject any work.

### **C. Qualifications**

Proof of qualifications must be presented upon request, including qualifications for wipe sampling, personal monitoring and HVAC evaluations.

#### **Project Monitors**

The Project Monitors must possess valid NYS Asbestos Project Monitor certificates. The Project Monitors must have served as a third party project monitor on at least 20 asbestos abatement projects. Project Monitor must have performed final clearance inspections on at least 50 asbestos abatement projects. The Project Monitor must have access to translation services to schedule pre-cleaning unit inspections with residents.

#### **Technicians**

Air monitoring technicians must possess valid NYS Asbestos Project Sampling Technician (APST) certificates. Technicians must have performed air sampling for at least 6 months.

#### **Sampling Parameters**

#### **Methods**

- |                 |                           |
|-----------------|---------------------------|
| 1. Asbestos     | NIOSH Methods 7400 & 7402 |
| 2. Total Metals | EPA Method SW-846 6010B   |
| 3. Mercury      | EPA Method SW-846 7471A   |

### **D. Specifications**

Clean-up activities shall be scheduled for 20 units per day. Air sampling shall be scheduled and completed in these units within 24 hours of successful visual inspection by the Project Monitor. Air sampling shall also be provided at 10 to 20 units where clean-up activities are not scheduled. Sufficient personnel shall be available for project monitoring and sampling.

The contractor shall have available sufficient quantities of sampling equipment to provide the amount and type of samples required for this project. At a minimum the following equipment is required: air-sampling pumps with maximum flow rate capacities of 15 liters per minute, tripods, rotometers, sample cassettes with mixed cellulose ester filters having pore size of 0.8um.

The Monitoring Contractor shall prepare a Health and Safety Plan (HASP) in accordance with 29 CFR 1910.1001 and 29 CFR 1926.58. All personnel involved in residential cleaning and monitoring activities shall follow the Health and Safety Plan (HASP) prepared by their employer. EPA shall be provided with a copy of the employer HASP prior to the start of work.

The Project Monitor shall attend a kick off meeting prior to commencement of sampling activities. At this time, the Contractor shall, but not limited to, participate in scope of work discussions, sampling logistics, obtain resources for residential information provided by EPA and DEP, and demonstrate data acquisition procedures and software.

The Contractor shall attend meetings or conference calls with EPA and coordinate field activities, as requested.

All appropriate data, original field forms/data sheets, and chain-of-custody forms shall be completed in accordance with the instructions contained in the contract and provided to EPA. All samples and copies of necessary documentation shall be hand delivered to EMSL laboratories at: 307 W. 38<sup>th</sup> St., New York, New York 212-290-0051. This information may also be provided via FormsII Lite (F2L) or an alternative electronic format that is accessible by the laboratory.

## Deliverables

All deliverables shall be provided via F2L or an agreed upon alternative electronic format approved by USEPA and DEP.

The Project Monitor shall also maintain a copy of each deliverable and all filed documentation submitted under this contract for 365 days.

The Project Monitor shall direct and coordinate all services and report all findings to EPA. The scope of this project will be as follows:

1. The Project Monitor shall be responsible for accessing a secure EPA Website (url, user name and password to be provided by EPA) to obtain requestor information (address, building identification numbers, etc.). In coordination with the EPA, the Project Monitor will access residential services requested from the Website and schedule clean-up activities and air sampling with the tenants/owners, asbestos abatement contractors and air monitoring technicians for the various apartments. The Project Monitor will then supply relevant information on activities for the EPA Indoor Air database via the secure EPA website. Data to be input may include but is not limited to start and completion dates for the cleaning, sampling dates and sample identification numbers.

## Deliverable

The Project Monitor shall review all deliverables prior to submission to EPA. The review shall assure that each deliverable is accurate and complete, technically sound, and free of clerical errors.

The Project Monitor shall provide a validated address and scheduling information into the EPA Indoor Air web database via F2L or an agreed upon alternative electronic format or website approved by EPA within 24 hours of activity.

2. The Project Monitor will schedule and conduct pre-cleaning or pre-sampling building inspections of the residential units, heating, ventilation and air conditioning systems (HVAC) and common spaces based on the information and requests from the residents and building owners. Residents will be provided with information prepared by EPA regarding sampling

options (aggressive and modified aggressive sampling protocols) and the handling of valuable personal items (money, jewelry, heirlooms, etc.) and fragile objects during work. **The Project Monitor will obtain written access and authorization for all work to be performed for this project including sampling and cleaning the apartments, HVAC systems and common spaces using the EPA Access Agreement (to be provided).** The Project Monitor will advise EPA if any of following conditions are observed: mixed residential and commercial use within a building; dust and/or debris in common spaces; the presence of mold that may pose a hazard to residents or workers (guidelines to be provided); residents with special needs; potential asbestos-type insulation (e.g., fibrous materials); or other circumstances that may require deviation from the procedures specified in the Scope of Work. In consultation with EPA, the Project Monitor will make a determination of the appropriate Cleaning Contract Scope of Work (i.e. Scope A or B) to be implemented. This determination is to be made based on the descriptions included in the Cleaning Contract Scope of Work and best professional judgement.

## Deliverables

The Project Monitor shall review all deliverables prior to submission to EPA. The review shall assure that each deliverable is accurate and complete, technically sound, and free of clerical errors.

Data to be input shall include, but is not limited to, start and completion dates for cleaning the sample media, flow media type, flow rates (start/final, flow rate (average), time (start/finish), total elapsed time (min), calculated sample volume (L), pump fault, weather, units, QC samples (lot blank), sampling dates, sample identification numbers, sampling technique (aggressive or modified aggressive), residential use (commercial/residential), dust (low/high), mold, residents with special needs, clean-up method (Scope A or B), written access authorizations, and identification of areas to be cleaned.

The Project Monitor shall record all pre-cleaning and pre-inspection information in the EPA Indoor Air database or using an agreed upon electronic format. This information shall include, but is not limited to, actual sampling date and time, exterior evaluation (pass/fail), type of HVAC system (central, individual or none), HVAC impacted (Y/N), occupant present (Y/N), written access authorizations (Y/N), EPA approval (Y/N), space occupied (Y/N), mold present (Y/N). Dates and times shall be associated with all activities including start and finish date.

All deliverables shall be provided in the EPA Indoor Air web database via F2L or an agreed upon alternative electronic format or website approved by EPA within 24 hours of activity.

## 5. Sampling without cleaning

- a. Based on consultation with resident or owner, aggressive or modified aggressive air sampling will be conducted. Residents shall not be present in their apartment during aggressive air sampling activities.

- i. Before beginning aggressive air sampling, forced air equipment (such as a 1 horsepower electric leaf blower) shall be used to direct exhaust air against walls, ceilings, floors and other surfaces. When directing the exhaust, caution shall be taken to minimize disturbance and potential damage to furnishings and personal belongings.
- ii. For modified aggressive air sampling forced air equipment shall not be employed.
- iii. All other procedures are identical for aggressive and modified aggressive air sampling.
- b. One 20-inch fan shall be installed per 10,000 cubic feet of room space and run at low speed. The fan shall operate continuously throughout sampling and shall not be turned off until sampling is completed.
- c. For studio apartments 3 samples shall be collected. For 1-bedroom apartments and above 5 samples shall be collected. Sampling equipment shall be placed in living areas and away from obstructions. The sampling cassette must be placed on a tripod and not taped to existing surfaces.
- d. Common spaces will be sampled without the use of forced air devices (fans, leaf blowers etc). For small spaces, less than 160 square feet, 3 samples will be collected. For large spaces greater than 160 square feet and less than 25,000 square feet 5 samples will be collected. For spaces greater than 25,000 square feet, 1 sample will be collected for each 5,000 square feet. Sampling equipment shall be placed away from obstructions. The sampling cassette must be placed on a tripod directed downward at a 45 degree angle and not taped to existing surfaces.
- e. Air samples shall be collected in accordance with the procedures specified in NIOSH 7400 Method for PCM and 7402 for TEM. Air sampling cassettes need to be monitored to ensure pumps are not clogging by monitoring flow rates. The minimum sample volume required is 3600 liters.
- f. Wipe samples will be collected at 10 percent of the residences where sampling only has been requested, up to a maximum of 50 units, as instructed by EPA. **This sampling will consist of the collection of one wipe sample each for dioxin, total metals and mercury (a separate wipe sample is required for each parameter). Metals and mercury wipe samples will be collected in accordance with procedures specified in HUD Appendix 13.1. Dioxin wipe samples will be collected in accordance with the procedures specified in ASTM D 6661-01.**
- g. The contractor shall document all the necessary information regarding sampling activities, fill out all field logs, data sheets, and chain-of-custody forms. The contractor shall use F2L for all sample and chain-of-custody documentation. Samples must be labeled and accompanied with completed chain-of-custody forms before shipping to the designated laboratory. The label must include the EPA Project Tracking Number. Samples will be packed, sealed and shipped to EPA Contract Laboratory for analysis.
- h. All information must be maintained using the secure EPA website (url, user name and password to be provided by EPA). Dates for monitoring and/or cleaning shall be provided to EPA electronically in an EPA approved format within 24 hours. Information on sampling activities (date, sample ID) shall be provided to EPA, via the

website, within 24 hours of completion of sampling.

#### Deliverables

The Project Monitor shall review all deliverables prior to submission to EPA. The review shall assure that each deliverable is accurate and complete, technically sound, and free of clerical errors.

The Project Monitor shall record equipment used to collect the sample (leaf blower, fan, etc.) and size of space daily in the field notebook. In addition, date, start and completion dates for the cleaning, sample media, flow media type, flow rates (start/final), flow rate (average), time (start/finish), total elapsed time (min), calculated sample volume (L), pump fault, weather, units, QC samples (lot blank) sampling dates and sample identification numbers (sample IDs), complete chain-of-custody forms, EPA Project Tracking Numbers and laboratory address shall be entered into an agreed upon electronic format or website approved by EPA within 24 hours of activity.

#### Pre-cleaning and Post-cleaning Wipe Sampling Procedures

- a. The Project Monitor will collect pre-cleanup and post-cleanup wipe samples at 5 percent of the residences cleaned up to a maximum of 50 units per quadrant as instructed by EPA. This sampling will consist of the collection of 3 pre clean-up and 3 post clean-up wipe samples for dioxin, total metals and mercury (Note: a separate wipe sample is required for each parameter). **Metals and mercury wipe samples will be collected in accordance with procedures specified in HUD Appendix 13.1. Dioxin wipe samples will be collected in accordance with the procedures specified in ASTM D 6661-01.**
- b. The contractor shall document all the necessary information regarding sampling activities, fill out all field logs, data sheets, and chain-of-custody forms. The contractor shall use F2L for all sample and chain-of-custody documentation. Samples must be labeled and accompanied with completed chain-of-custody forms before shipping to the designated laboratory. The label must include the EPA Project Tracking Number. Samples will be packed, sealed and hand-delivered for analysis to EMSL laboratories at: 307 W. 38<sup>th</sup> St., New York, New York 212-290-0051. Metals samples will be analyzed using EPA Method SW-846 6010B. Mercury samples will be analyzed using EPA Method SW-846 7471A.

#### Deliverables

The Project Monitor shall review all deliverables prior to submission to EPA. The review shall assure that each deliverable is accurate and complete, technically sound, and free of clerical errors.

The Project Monitor shall complete chain-of-custody forms and record the number of wipe

samples, EPA Project Tracking Numbers, the laboratory address, date, and sample IDs in an agreed upon electronic format or website approved by EPA within 24 hours of activity.

5. The Monitoring contractor shall evaluate all HVAC systems in all residential buildings where cleaning will take place to determine if these systems have been impacted by dust or debris from the collapse of the World Trade Center and if these systems require cleaning. In cases where cleaning is requested for a whole building, the building's HVAC system will be evaluated as a whole. In cases where cleaning is requested for individual residential unit, portions of the HVAC system dedicated to that unit will be evaluated. No residential or common space shall be cleaned until the HVAC system has been evaluated and cleaned as necessary.

The Monitoring contractor shall inspect HVAC systems or portions thereof cleaned to verify cleanliness.

HVAC assessments, cleaning, and cleanliness inspections shall be conducted in accordance with the National Air Duct Cleaners Association (NADCA) General Specification for the Cleaning of Commercial Heating, Ventilating and Air Conditioning Systems and the NADCA Assessment, Cleaning and Restoration Standard (ACR 2002). Qualified personnel shall perform the HVAC evaluation and cleanliness inspections. At a minimum such personnel shall have an understanding of HVAC system design and experience in utilizing accepted indoor environmental sampling practices, current industry HVAC cleaning procedures, and applicable industry standards.

#### Deliverables

The Project Monitor shall review all deliverables prior to submission to EPA. The review shall assure that each deliverable is accurate and complete, technically sound, and free of clerical errors.

The Project Monitor shall record if the HVAC systems have been evaluated and cleaned subsequent to September 11, 2001. If yes, when and by whom. This information shall be provided via F2L or an agreed upon alternative electronic format or website approved by EPA within 24 hours of activity.

6. In the event that mold is observed in a residence during the pre-cleaning inspection, the Monitoring Contractor will contact the NYCDOH and EPA.

#### Deliverables

The Project Monitor shall record if mold is present and notify the NYCDOH and EPA. This information shall be provided via EPA Indoor Air web database or an agreed upon alternative electronic format or website approved by EPA within 24 hours of activity.

7. The Project Monitor shall schedule and oversee the cleaning operations of the Cleaning Contractor. No residential, common space or HVAC system shall be cleaned until the exterior of the building has been cleaned or approved by EPA. If a scheduling problem arises the Project Monitor should contact EPA. The Project Monitor shall coordinate daily access for cleaning and sampling with residents, owners, the Cleaning Contractor and sampling technicians.
8. The Monitoring Contractor shall provide sufficient personnel to provide periodic (3-4hours/unit) oversight of the Cleaning Contractor to verify that work is being conducted in accordance with the Cleaning Contact Scope of Work.
9. The Project Monitor shall verify that the Cleaning Contractor is using properly trained and certified NYSDOL and NYCDEP certified workers.
10. The Project Monitor shall conduct routine quality assurance inspections during the course of cleaning and concur by initialing the Cleaning Checklist (to be developed) for tasks completed satisfactorily.

#### Deliverables

The Project Monitor shall review all deliverables prior to submission to EPA. The review shall assure that each deliverable is accurate and complete, technically sound, and free of clerical errors.

The Project Monitor shall submit the completed Cleaning Checklist via F2L or an agreed upon alternative electronic format or website approved by EPA within 24 hours of activity.

1. **Personal Air Monitoring**  
Personal air monitoring shall be performed by the Monitoring Contractor in accordance with USDOL OSHA requirements. The person who conducts sampling shall possess a valid NYS DOL certificate. Personal air monitoring will be performed on a minimum of one worker per shift per apartment during for the first 6 weeks of cleaning operations. This may be extended based on a determination made by EPA, DEP and OSHA. Thereafter personal air monitoring samples will be taken at one sample per quadrant per day. All samples shall be collected and analyzed in accordance with NIOSH 7400 Method for PCM and 7402 for TEM. Analysis of these samples shall be the responsibility of the Monitoring Contractor. **Results of analysis shall provided to EPA by the laboratory in an approved electronic format within 24 hours of collection. Copies of the results shall also be sent immediately to DEP, OSHA and the employer. The employer will make these results available to the employees or their designated representatives for their review in accordance with 29 CFR1910.1001 and 29 CFR 1926.58.**

**The contractor shall document all the necessary information regarding sampling activities, fill out all field logs, data sheets, and chain-of-custody forms. The contractor**

**shall use F2L for all sample and chain-of-custody documentation. This data shall be provided to EPA within 24 hours of completion of the sampling.**

#### **Deliverables**

The Project Monitor shall review all deliverables prior to submission to EPA. The review shall assure that each deliverable is accurate and complete, technically sound, and free of clerical errors.

The Project Monitor shall submit upon request a field package consisting of field sheets, field notes (copy), and chain-of-custody forms (copy) shall be delivered to the EPA via email, or an alternative format agreed upon. The Contractor must sign and date all field sheets, field logbooks and chain-of-custody forms. This data shall be provided daily upon request at the activity completion.

2. The Project Monitor shall perform final visual inspections upon completion of the cleaning. If all areas are not dust free then the Project Monitor will direct the Cleaning Contractor to reclean as necessary. If all areas are dust free then the Project Monitor will authorize final air sampling. Final inspections shall be documented using the Cleaning Checklist.

#### **Deliverables**

The Project Monitor shall review all deliverables prior to submission to EPA. The review shall assure that each deliverable is accurate and complete, technically sound, and free of clerical errors.

The Project Monitor shall submit upon request to EPA copies of the log book pages via email, fax, or alternative format agreed upon.

3. The Project Monitor will conduct a post-cleaning inspection of the apartment with the resident at the completion of the sampling. The resident should inspect the apartment and identify any damage at this time and sign-off on the Project Completion Form. Any damage or loss to an apartment or its contents shall be documented on this form.

#### **Deliverables**

The Project Monitor shall review all deliverables prior to submission to EPA. The review shall assure that each deliverable is accurate and complete, technically sound, and free of clerical errors.

The Project Monitor shall submit upon request to the EPA copies of the log book as requested via fax or alternative format agreed upon and within two days of request. Final air sampling shall be performed with 24 hours of final visual inspection.

4. Post Clean-up Air Sampling Procedures

- a. Sampling shall not begin until a visual inspection confirms the absence of visible dust and debris. Post cleaning air sampling shall be performed upon successful visual inspection and completed within 24 hours. A successful visual inspection shall be an inspection that verifies the absence of dust and debris.
- b. All surfaces must be completely dry prior to the start of sampling.
- c. Window air conditioning units where applicable shall be run/operated at least 15 minutes prior to the start of sampling. The air conditioning units shall operate continuously throughout the sampling.
- d. **Upon completion of the cleaning, either aggressive or modified aggressive air sampling procedures will be conducted to verify attainment of the clean-up criteria. Aggressive or modified aggressive air sampling will be used for Scope A clean-ups, based on consultation with resident.** In aggressive air monitoring sampling situations, before the start of sampling, a 1 horsepower electric leaf blower will be used to direct exhaust air against walls, ceilings, floors and other surfaces. When directing the exhaust, caution shall be taken to minimize disturbance and potential damage to furnishings and personal belongings. The procedure described below for modified aggressive sampling techniques will also be employed
- e. In modified aggressive sampling, one 20-inch fan shall be installed per 10,000 cubic feet of room space and run at low speed. The fan shall operate continuously throughout sampling and shall not be turned off until sampling is completed.
- f. For studio apartments 3 samples shall be collected. For 1-bedroom apartments and above 5 samples shall be collected. Sampling equipment shall be placed in living areas and away from obstructions. The sampling cassette must be placed on a tripod and not taped to existing surfaces.
- g. Common spaces will be sampled without the use of forced air devices (fans, leaf blowers etc). For small spaces, less than 160 square feet, 3 samples will be collected. For large spaces greater than 160 square feet and less than 25,000 square feet 5 samples will be collected. For spaces greater than 25,000 square feet, 1 sample will be collected for each 5,000 square feet. Sampling equipment shall be placed away from obstructions. The sampling cassette must be placed on a tripod directed downward at a 45 degree angle and not taped to existing surfaces.
- h. Air samples shall be collected in accordance with the procedures specified in NIOSH 7400 Method for PCM and 7402 for TEM. Air sampling cassettes need to be monitored to ensure pumps are not clogging by monitoring flow rates. The minimum sampling volume required is 3600 liters.
- i. 24-hour turn-around-time shall be specified for the analysis of all post-cleaning air samples for Scope B cleanups.
- j. The contractor shall document all the necessary information regarding sampling activities, fill out all field logs, data sheets, and chain-of-custody forms. The contractor shall use F2L for all sample and chain-of-custody documentation. Samples must be labeled and accompanied with completed chain-of-custody forms before shipping to the designated laboratory. The label must include the EPA Project Tracking Number. Samples will be packed, sealed and for analysis to EMSL laboratories at: 307 W. 38<sup>th</sup> St., New York, New York 212-290-0051.
- k. All information must be maintained using the secure EPA website (url, user name and

password to be provided by EPA). Dates for monitoring and/or cleaning shall be provided to EPA and DEP electronically in an EPA approved format within 24 hours. Information on sampling activities (date, sample ID) will be provided to EPA, via the website, within 24 hours of completion of evaluation.

#### Deliverables

The Project Monitor shall review all deliverables prior to submission to EPA. The review shall assure that each deliverable is accurate and complete, technically sound, and free of clerical errors.

The Project Monitor shall record all post-cleaning information in the EPA Indoor Air database or an agreed upon electronic format. This information shall include, but is not limited to sampling technique (aggressive or modified aggressive), visually cleaned (Y/N), damage claim (Y/N), and post clean-up status (pass/fail). Dates and times shall be associated with all activities including start and finish date.

Additional information including but not limited to, absence of dust/debris, equipment used (leaf blower, fan etc.), size of space, start and completion dates for the cleaning, sample media, flow media type, flow rates (start/final, flow rate (average), time (start/finish), total elapsed time (min), calculated sample volume (L), pump fault, weather, units, QC samples (lot blank), sampling dates, sample IDs, complete chain-of-custody forms, EPA Project Tracking Numbers and laboratory address shall be entered into an agreed upon electronic format or website approved by EPA within 24 hours of activity. Dates and times shall be associated with all activities including start and finish date.

15. The Project Monitor will complete a daily report which documents cleaning starts, continuations, completions, air sampling, recleaning and any delays or difficulties encountered.

#### Deliverables

The Project Monitor shall review all deliverables prior to submission to EPA. The review shall assure that each deliverable is accurate and complete, technically sound, and free of clerical errors.

The Project Monitor shall submit upon request the completed Project Completion Form to the into the EPA Indoor Air web database or an agreed upon alternative electronic format or website approved by EPA within 24 hours of activity.

16. EPA will notify residents and owners of results of sampling conducted as part of this project. No other party is authorized to release residential or common area sampling results.

17. Copies of all reports, Cleaning Checklist, Project Completion Forms and chain-of-custody forms shall be submitted daily to the EPA and DEP.

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