

World Trade Center Indoor Dust Cleaning Program
Monitoring Contract Scope of Work

A. Introduction

All work performed under this contract entered into between the New York City Department of Environmental Protection (DEP) and the Monitoring Contractor must be in compliance with all applicable laws and regulations, including but not limited to regulations issued by 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), New York State Department of Health (NYS DOH) Environmental Laboratory Accreditation Program (ELAP) and the New York City Department of Environmental Protection (DEP).

The EPA 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 residences may have debris/dust from the collapse of the World Trade Center (WTC). A DEP/EPA telephone hotline has been established to receive requests from the public. The assistance will include various options, including cleaning within residences 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 cleaning 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 residences impacted by the collapse of the World Trade Center. The scope of work for the monitoring activities is identified below. The monitoring contractor shall supply all equipment and supplies necessary to perform the work specified in this contract.

B. Roles and Responsibilities

As provided in the instant contract, EPA's World Trade Center Dust Cleanup Field Personnel shall have the authority of Project Manager, in addition to DEP's Project Manager. As such, the authority of EPA World Trade Center Dust Cleanup Field Personnel shall include the following authority related to monitoring work conducted under this contract:

1. The authority to stop work for health and safety reasons.
2. The authority to stop work for non-compliance with the Scope of Work.
3. The authority to give technical direction to the contractor in the performance of the work.
4. The authority to review and approve or disapprove of the qualifications of the monitoring personnel involved in the work.

5. The right to inspect and accept or reject any work .

The Monitoring Contractor shall be responsible for:

1. Scheduling and coordinating the cleaning and monitoring work with residents, building owners, the Cleaning Contractor and EPA;
2. HVAC system evaluation and inspection;
3. Oversight of the Cleaning Contractor;
4. Inspection of the Cleaning Contractor's work;
5. Area air monitoring;
6. Wipe sampling; and
7. Personal air monitoring.

C. Qualifications

Proof of qualifications must be available on-site during the performance of work and shall be presented upon request.

Project Monitors

The Project Monitors shall be employees of the Monitoring Contractor. 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 25 asbestos abatement projects. Project Monitor must have performed final clearance inspections on at least 25 asbestos abatement projects. The Project Monitor must have access to translation services to schedule pre-cleaning unit inspections with residents. The Project Monitor shall be familiar with NYC DOH's Mold Assessment and Remediation Guidelines.

Air Monitoring 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.

Wipe Sampling Technicians

Wipe sampling technicians must have 1 year experience in wipe sampling for a variety of contaminants. Employees shall have received specific training in wipe sampling methods.

HVAC System Inspectors

HVAC assessments and cleanliness inspections shall be conducted by qualified personnel. At a minimum such personnel shall have an understanding of HVAC system operation and experience in utilizing accepted indoor environmental sampling practices, current industry HVAC cleaning procedures, and applicable industry standards. The HVAC System Inspection contractor shall be a certified member of National Air Duct Cleaners Association (NADCA).

Background Investigations

All contractors and subcontractors involved in the monitoring activities under this contract are responsible

for completing a background check on their employees and for screening unacceptable candidates from the pool of on-site workers. Background checks shall be completed with 30 days of the award of the contract. Thereafter, background checks shall be completed prior to employees beginning on-site work. EPA will provide guidelines for evaluating the background information collected. Contractors are required to maintain records of background checks for 4 years and to make them available to the DEP and EPA when requested. At a minimum, the background check must include:

1. Law enforcement checks (5 years)
2. Professional license and certification

D. Specifications

This contract between DEP and the monitoring contractor shall be in force for 24 consecutive months from the commencement date. The monitoring contractor must be prepared to mobilize within 72 hours of the contract award. Cleaning activities shall be scheduled for 20 residences per day. Air sampling shall be scheduled and completed within 24 hours of successful visual inspection by the project monitor. Air sampling shall also be provided at an additional 10 to 20 residences per day where cleaning activities are not scheduled (i.e., where residents have requested sampling only). Work shall be scheduled 7 days per week. A sufficient number of properly trained and certified personnel shall be available for project monitoring and sampling.

Electricity and water necessary to conduct the work required under this contract will be provided by the owner or occupant of the work area.

The Monitoring 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 0.8 micron.

The Monitoring Contractor shall attend the mandatory pre-bid meeting and project kick off meeting prior to the start of work. The agenda for the kick off meeting shall include scope of work, sampling logistics and resource requirements and procedures for data acquisition and submittal. The monitoring contractor will demonstrate data acquisition procedures and software to be employed for this project. In addition, the Monitor Contractor shall attend meetings or conference calls with EPA to coordinate field activities, as requested.

The Monitoring Contractor shall adopt and follow the Quality Assurance Project Plan prepared by EPA for all environmental data collection activities performed under this contract. All appropriate data, original field forms/data sheets, and chain-of-custody forms shall be collected and completed in accordance with the instructions contained in the contract and provided to EPA. This information shall be provided via FormsII Lite (F2L) or an alternative electronic format that is accessible by the laboratory. All clearance air samples and copies of necessary documentation shall be hand delivered daily to EMSL Laboratories

at: 307 W. 38th St., New York, New York 212-290-0051. All wipe samples and copies of necessary documentation shall be shipped daily by courier for next day delivery to Paradigm Analytical Laboratories at: 2627 Northchase Parkway SE, Wilmington NC 28405, 910-350-2839.

Copies of all invoices for work conducted under this contract shall be provided to EPA. EPA will review submitted invoices to confirm that the work has been completed and forward the invoices to DEP for processing. Decisions regarding the reimbursement of costs will be made by DEP.

Deliverables

All deliverables shall be provided via F2L or an agreed upon alternative electronic format approved by EPA and DEP. The Project Monitor shall also maintain a copy of each deliverable and all field documentation submitted under this contract for 365 days. 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 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, schedule pre-cleaning inspections and schedule cleaning activities and air sampling with the tenants/owners, asbestos abatement contractors and air monitoring technicians for the various residences. 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. All data shall be maintained as confidential.

Deliverable

The Project Monitor shall provide validated addresses 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 Monitoring Contractor will schedule and conduct pre-cleaning or pre-sampling inspections of the residences, common spaces and heating, ventilation and air conditioning systems (HVAC) based on the requests for assistance from individual residents and building owners made through the DEP/EPA hotline.
 - a. Inspections are to be conducted in accordance with inspection checklists prepared by EPA.

- b. Residents will be provided with a fact sheet and information prepared by EPA regarding sampling options (aggressive and modified aggressive air sampling protocols) and the handling of valuable personal items (money, jewelry , heirlooms, etc.) and fragile objects during work.
- c. The Project Monitor will obtain written authorization for access for all work to be performed for this project including inspection, sampling and cleaning of residences, common spaces and HVAC systems using the Access Agreement (to be provided).
- d. The Project Monitor will advise EPA and NYC DOH or DEP accordingly if any of the following conditions are observed:
 - i. mixed residential and commercial use within a building;
 - ii. dust and/or debris in common spaces;
 - iii. the presence of mold on building components (walls, support beams, ceiling tiles, HVAC systems)(NYC DOH notification);
 - iv. the presence of peeling, flaking or chalking paint (NYC DOH notification);
 - v. the presence of potential asbestos-type insulation (e.g., fibrous materials)(NYC DOH notification if damaged);
 - vi. residents with special needs or medical conditions that may be aggravated by exposure to airborne contaminants; or
 - vii. other circumstances that may require deviation from the procedures specified in the scopes of work for the cleaning and monitoring contracts.
- e. 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

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.

The Project Monitor shall record all pre-cleaning and pre-sampling inspection information in the EPA Indoor Air database or using an agreed upon electronic format. This information shall include, but is not limited to, building cleaned or inspected by DEP (Y/N), type of HVAC system (central, individual or none), HVAC impacted (Y/N), occupant present (Y/N), written access obtained (Y/N), space occupied (Y/N), dust present (low/high), presence of mold on building components (Y/N), peeling /flaking/chalking paint present (Y/N), suspected ACM present (Y/N), residential use (commercial/residential), residents with special needs, cleaning method (Scope A or B). Dates and times shall be associated with all activities including start and finish date.

- 3. In the event that mold or flaking, peeling or chalking paint is observed on building components (walls, support beams, ceiling tiles, HVAC systems) in areas where work has been requested, the Monitoring Contractor will notify EPA and fax a written request for assistance in evaluating

potential health hazard to NYC DOH at 212-442-3378. Cleaning will not proceed in areas where mold or flaking, peeling or chalking paint is observed until potential hazards are evaluated and addressed as necessary. The Project Monitor shall be familiar with NYC DOH's Mold Assessment and Remediation Guidelines.

Deliverables

The Project Monitor shall record if mold or flaking, peeling or chalking paint 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.

4. The presence of in-place materials suspected to contain asbestos shall be identified and quantified. The condition of the material shall be evaluated to identify damaged, deterioration, delamination, etc.
5. In the event that damaged, deteriorated, delaminated, etc. suspected ACM is observed, the monitoring contractor will notify EPA and fax written notification to the NYC DOH. Cleaning or air monitoring will not proceed in areas where such suspected ACM is observed until instructed otherwise.

Deliverables

The Project Monitor shall record if damaged, deteriorated, delaminated, etc. suspected ACM is observed and notify EPA and fax written notification to the NYC DOH. 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.

6. The Monitoring Contractor shall evaluate HVAC systems in 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.
 - a. In cases where cleaning is requested for an individual residence, portions of the HVAC system dedicated to that residence will be evaluated.
 - b. In cases where cleaning is requested for a whole building, the building's HVAC system will be evaluated as a whole.
 - c. HVAC assessments 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).
 - d. The results of the whole building HVAC system evaluations shall be documented in a letter report. This report shall be provided to EPA within 2 business days of the completion of the evaluation. If the whole system requires cleaning, a copy of the report shall be sent to

DEP within 2 business days of the completion of the evaluation. This report shall include the name and qualifications of inspector, date of inspection, building location, a description of the HVAC system, the basis for the determining whether or not the system was impacted by the collapse of the WTC and if the system requires cleaning.

- e. If a HVAC system requires cleaning, then the Monitoring Contractor shall prepare a scope of work for the cleaning the HVAC system or portion thereof. The scope of work shall be provided to EPA for approval within 2 business days of the completion of the HVAC system evaluation. A copy of the scope of work shall also be provided to DEP.
- f. If the Monitoring Contractor is not a member of the NADCA, a subcontractor that is a member may perform the HVAC system evaluation and inspection.

Deliverables

The Project Monitor shall record if the HVAC systems has been impacted by dust or debris from the collapse of the WTC, if the HVAC system has been evaluated and cleaned subsequent to September 11, 2001 (if yes, then when and by whom) and if the HVAC system requires cleaning. This information shall be provided via F2L or an agreed upon alternative electronic format or website approved by EPA within 24 hours of activity.

- 7. HVAC systems that have been impacted by dust or debris from the collapse of the World Trade Center will be cleaned. In the event that a HVAC system for an entire building requires cleaning, a separate, site specific contract will be awarded by DEP for this work. If only a portion of a HVAC system requires cleaning, then the Cleaning Contractor will conduct the cleaning utilizing specialized labor trained and experienced in duct cleaning.
 - a. The monitoring contractor shall schedule and oversee the cleaning of HVAC systems.
 - b. The Monitoring Contractor shall inspect HVAC systems or portions thereof cleaned to verify cleanliness. If visible dust or other contaminants are evident through visual inspection or testing, then the Monitoring Contractor will direct the HVAC Cleaning Contractor to reclean those portions of the system where dust or other contaminants are present and reinspect.
 - c. HVAC 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).
- 8. Sampling of residences and common spaces where cleaning has not been requested
 - a. Based on consultation with resident, aggressive or modified aggressive air sampling will be conducted.
 - i. Before beginning aggressive air sampling, a 1 horsepower electric leaf blower shall be used to direct exhaust air against walls, ceilings, floors and other surfaces. This shall continue for at least five minutes per 1,000 square feet of floor. When directing the exhaust, caution shall be taken to minimize disturbance and potential

- ii. Residents shall not be present in their residence during aggressive air sampling activities.
 - iii. Personal protective equipment including disposable clothing, gloves, and respirators shall be worn during aggressive air sampling activities.
 - iv. HVAC systems shall be shut down or isolated locally during aggressive air sampling.
 - v. Room and window air conditioners shall not be operated during aggressive air sampling.
 - vi. Leaf blowers shall not be employed for modified aggressive air sampling.
 - vii. All other procedures are identical for aggressive and modified aggressive air sampling, unless otherwise noted.
- b. At least one 20-inch fan shall be placed in the center of each room sampled. One fan per 10,000 cubic feet of room space shall be used. The fans shall be operated on slow speed and pointed toward the ceiling. The fans shall run for at least 15 minutes prior to the start of sampling. The fans shall operate continuously throughout sampling and shall not be turned off until sampling is completed.
 - c. For studio apartments 3 air samples shall be collected. For 1-bedroom apartments and above, 5 air 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, not taped to existing surface and should be directed downward at a 45 degree angle.
 - 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, not taped to existing surfaces and directed downward at a 45 degree angle.
 - e. Air samples will be collected in accordance with the procedures specified in NIOSH 7400 Method and analyzed by phased contrast microscopy (PCM) followed by Asbestos Hazard Emergency Response Act (AHERA) transmission electron microscopy (TEM). The flow rate for collection of air samples shall be at least 10 liters per minute and no more than 15 liters per minute. Air sampling cassettes need to be monitored to ensure that cassettes are not clogging by monitoring flow rates. The minimum sample volume required is 3600 liters. These air samples and copies of necessary documentation shall be hand delivered daily to EMSL Laboratories at: 307 W. 38th St., New York, New York 212-290-0051.
 - f. Wipe samples will be collected at 10 percent of the residences where sampling only has been requested, up to a maximum of 13 residences, as instructed by EPA. This sampling will consist of the collection of 3 wipe samples each for dioxin, total metals and mercury (Note: a separate wipe sample is required for each parameter at each location). 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. Wipe samples and copies of necessary documentation will be packed, sealed and shipped daily by courier for next day delivery to Paradigm Analytical Laboratories at: 2627 Northchase Parkway SE, Wilmington NC 28405.

- g. 24-hour turn-around time shall be specified for the analysis of all samples collected using the aggressive air sampling method. Standard turn-around time shall be specified for analysis of modified aggressive air samples and wipe samples.
- h. The Monitoring Contractor will document all the necessary information regarding sampling activities, fill out all field logs, data sheets, and chain-of-custody forms. The Monitoring Contractor will 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.
- i. All information must be maintained using the secure EPA website (url, user name and password to be provided by EPA). Information on sampling activities (date, sample ID) shall be provided to EPA, via the website, within 24 hours of completion of sampling. All data shall be maintained as confidential.

Deliverables

The Project Monitor will keep a field notebook, document the size of the sampled area, sampling locations (including a field sketch) and equipment used during the collection of samples (leaf blower, fan, etc.). 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, quality assurance 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.

9. 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 residences as instructed by EPA. This sampling will consist of the collection of 3 pre cleaning and 3 post cleaning 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 Monitoring Contractor will document all the necessary information regarding sampling

activities, will ensure personnel complete all field logs, data sheets, and chain-of-custody forms. The Monitoring 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 daily by courier for next day delivery to Paradigm Analytical Laboratories at: 2627 Northchase Parkway SE, Wilmington NC 28405

- c. Personnel collecting wipe samples shall be familiar with and experienced in the collection of wipe samples using the specified sampling method.

Deliverables

The personnel collecting the samples will keep a field notebook and document sampling locations (including a field sketch). The personnel collecting the samples 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.

- 10. The Project Monitor shall schedule and oversee the cleaning operations of the Cleaning Contractor. Prior to initiating the cleaning of any residence, common space or HVAC system the Monitoring Contractor shall verify that the exterior of the building has been cleaned or has been inspected and found to be free of debris from the collapse of the WTC or shall obtain written authorization from EPA to proceed. No residential or common space shall be cleaned until the HVAC system has been evaluated and cleaned as necessary. 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.
- 11. The Monitoring Contractor shall provide sufficient personnel to provide periodic (2-4 hours/unit) oversight of the Cleaning Contractor to verify that work is being conducted in accordance with the Cleaning Contract Scope of Work.
- 12. The Project Monitor shall verify that the Cleaning Contractor is using properly trained and certified NYS DOL and NYC DEP asbestos certified workers.
- 13. The Project Monitor shall conduct routine quality assurance inspections during the course of cleaning and concur by initialing the Cleaning Checklist (to be provided by EPA) for tasks completed in compliance with the Cleaning Contract Scope of Work.

Deliverables

The Project Monitor shall maintain information on the status of cleaning activities using the secure

EPA website (url, user name and password to be provided by EPA). Cleaning tasks completed in accordance with the Cleaning Contract Scope of Work shall be documented on the Cleaning Checklist and reported to EPA via the website within 24 hours. The Project Monitor shall record daily activities in the field notebook.

14. Personal Air Monitoring

Personal air monitoring shall be performed by the Monitoring Contractor in accordance with US DOL OSHA requirements. The person who conducts sampling shall possess a valid NYS DOL APST certificate. Personal air monitoring will be performed on a minimum of one employee of the Cleaning Contractor per shift per residence during for the first 6 weeks of cleaning operations. This may be extended based on a determination made by EPA and OSHA. Thereafter personal air monitoring samples will be taken at one sample per day. Air samples will be collected in accordance with the procedures specified in NIOSH 7400 Method and analyzed by phased contrast microscopy (PCM) followed by Asbestos Hazard Emergency Response Act (AHERA) transmission electron microscopy (TEM). Analysis of these samples shall be the responsibility of the Monitoring Contractor. Results of analysis shall be provided to EPA by the Monitoring Contractor in an approved electronic format within 24 hours of collection. Copies of the results shall also be sent immediately to OSHA and the Cleaning Contractor. The Cleaning Contractor will make these results available to the employees or their designated representatives for their review in accordance with 29 CFR 1910.1020 and 29 CFR 1926.1101.

The Monitoring Contractor shall document all the necessary information regarding sampling activities, fill out all field logs, data sheets, and chain-of-custody forms. The Monitoring 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 submit upon request a field package consisting of field sheets, field notes (copy), and chain-of-custody forms (copy), which shall be delivered to the EPA via fax, or an alternative format agreed upon. The Monitoring Contractor must sign and date all field sheets, field logbooks and chain-of-custody forms. This data shall be provided upon request.

15. The Project Monitor shall perform final visual inspections within 2 hours of the completion of the cleaning. If all areas are not dust free at that time, 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 submit to EPA, upon request, copies of the field notebook pages via e-mail, fax, or alternative agreed upon format.

16. Post Cleaning 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. Upon completion of the cleaning, air sampling will be conducted to verify attainment of the clean-up criteria. Based on consultation with the resident or owner, aggressive or modified aggressive air sampling will be conducted. Residents shall not be present during aggressive air sampling.
 - i. Before beginning aggressive air sampling, a 1 horsepower electric leaf blower shall be used to direct exhaust air against walls, ceilings, floors and other surfaces. This shall continue for at least five minutes per 1,000 square feet of floor area. When directing the exhaust, caution shall be taken to minimize disturbance and potential damage to furnishings and personal belongings
 - ii. Residents shall not be present in their residence during aggressive air sampling activities.
 - iii. Personal protective equipment including disposable clothing, gloves, and respirators shall be worn during aggressive air sampling activities.
 - iv. HVAC systems shall be shut down or isolated locally during aggressive air sampling.
 - v. Room and window air conditioners shall not be operated during aggressive air sampling.
 - vi. Leaf blowers shall not be employed for modified aggressive air sampling.
 - vii. All other procedures are identical for aggressive and modified aggressive air sampling, unless otherwise noted.
- d. At least one 20-inch fan shall be placed in the center of each room sampled. One fan per 10,000 cubic feet of room space shall be used. The fans shall be operated on slow speed and pointed toward the ceiling. The fans shall run for at least 15 minutes prior to the start of sampling. The fans shall operate continuously throughout sampling and shall not be turned off until sampling is completed.
- e. For studio apartments 3 air samples shall be collected. For 1-bedroom apartments and above, 5 air 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, not taped to existing surface and should be directed downward at a 45 degree angle.
- f. 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.

- g. Air samples will be collected in accordance with the procedures specified in NIOSH 7400 Method and analyzed by phased contrast microscopy (PCM) followed by Asbestos Hazard Emergency Response Act (AHERA) transmission electron microscopy (TEM). The flow rate for collection of air samples shall be at least 10 liters per minute and no more than 15 liters per minute. Air sampling cassettes need to be monitored to ensure that cassettes are not clogging by monitoring flow rates. The minimum sampling volume required is 3600 liters. All clearance air samples and copies of necessary documentation shall be hand delivered daily to EMSL Laboratories at: 307 W. 38th St., New York, New York 212-290-0051.
- h. 24-hour turn-around time shall be specified for the analysis of all post-cleaning air samples for Scope B cleanups and for all samples collected using the aggressive air sampling method. Standard turn-around time shall be specified the analysis of air samples collected for Scope A cleanups using the modified aggressive air sampling method.
- i. The Monitoring Contractor shall document all the necessary information regarding sampling activities, fill out all field logs, data sheets, and chain-of-custody forms. The Monitoring 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.
- j. 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) will be provided to EPA, via the website, within 24 hours of completion of evaluation. All data shall be maintained as confidential.

Deliverables

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 cleaning 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 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 name 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.

17. The residence 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 criterion may be reevaluated and revised, if determined necessary based on field conditions and analytical limitations.
18. The Project Monitor will conduct a post-cleaning inspection of the residence with the resident at the completion of the sampling. The resident should inspect the residence and identify any damage at this time and sign-off on the Project Completion Form. Any damage or loss to a residence or its contents shall be documented on this form.

Deliverables

The Project Monitor shall submit upon request to the EPA copies of the field notebook 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. The Project Monitor shall ensure that the Project Completion Form is completed for each residence cleaned or sampled.

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

Deliverables

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

20. EPA will notify residents of the results of sampling conducted as part of this project. No other party is authorized to release residential or common area sampling results.
21. Any damage to or loss of private property that occurs during sampling or is caused by the Monitoring Contractor or its employees while engaged in activities covered by this scope of work is the responsibility of the Monitoring Contractor. The Monitoring Contractor is not responsible for damage or loss caused by the acts of third parties not involved in activities covered by this scope of work.
22. Copies of all reports, Cleaning Checklist, Inspection Checklists, Project Completion Forms and

chain-of-custody forms shall be submitted daily to the EPA .