Regulatory Submittal Part II – Environmental Community Air Monitoring Program

Remediation and Deconstruction of
Fiterman Hall – 30 West Broadway
New York, NY

Prepared for:

The Dormitory Authority of the State of New York
City University of New York

Prepared by:

Pei Cobb Freed Team

Airtek Environmental Corp.
39 West 38th Street
New York, NY 10018

212-768-0516

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Environmental Community Air Monitoring Program

1.0 General:

Environmental air monitoring and visual observation will be conducted during the remediation and deconstruction of Fiterman Hall located at 30 West Broadway (The Site) by the Airtek Environmental Corp. (Airtek), the Pei Cobb Freed & Partners Architects, LLP (PCF-P) Team Environmental Consultant (EC). The proposed program consists of two primary forms of environmental monitoring: Work Area Monitoring required by law for environmental remediation projects and intended to monitor the efficacy of project engineering controls; and Community Air Monitoring intended to ensure that the engineering controls designed to protect the community from fugitive releases are functioning properly and, should any such releases occur, ensure immediate notice thereof so that appropriate abatement actions may be implemented.

1.1 Operations to Be Monitored

The project schedule includes scaffold erection, six months of gut-strip contaminants of potential concern (CoPC) abatement and removal, asbestos abatement and removal under a variance from the NYS DOL, and five months of conventional deconstruction. The EC' Site Hygienist (SH) will monitor all work for visible emissions. The Remediation Phase regulated under NYS DOL will be monitored under both a Community Air Monitoring Program, and a Work Area Monitoring Program. The Deconstruction phase of the project will be monitored under the Community Air Monitoring Program. All air monitoring conducted under this plan will be conducted by the EC's New York State DOL certified air sample technicians under the supervision of the EC's Site Hygienist (SH) and Certified Industrial Hygienist (CIH).

1.2 Project Monitoring

Monitoring of this project will include all standard monitoring functions for environmental remediation projects including observations for visible emissions, air sampling and analyses, inspection and monitoring of the contractor's work practices, and reporting to the Owner and the Regulators. These general monitoring functions will be applied to both the Remediation Phase and Deconstruction Phase of this project.

1.3 Environmental Sampling and Analytical Methodologies

Sampling and analytical methodologies utilized for this Project will comply with published protocols from EPA and/or National Institute of Occupational Safety and Health ("NIOSH"). Where appropriate other published standards may be

substituted and project-specific adjustments to protocols may be made. Generally, sampling will be conducted once every 24-hour work period, except asbestos (TEM analyses), which will be taken for the duration of every work shift and once a day during non-work days during the Remediation phase. Real-time particulate monitoring will be on a continuous basis. Instantaneous mercury readings will be obtained to evaluate the air quality around the work site at multiple locations each work day.

2.0 Visible emissions

2.1 Remediation Phase

At the commencement of each work shift, the SH will conduct a thorough inspection of all engineering control systems including containment barriers, and negative air control systems, and exterior. If any visible emission is noted on the exterior of the work area, all work will be stopped and not restarted until an evaluation of engineering controls has identified and corrected the cause of the emission. The evaluation may include, but is not limited to, work activities and smoke testing of the isolation barriers. Any damaged or malfunctioning engineering control will be repaired immediately. The work will not be restarted until engineering controls are repaired or determined to be functioning properly.

2.2 Deconstruction Phase

During each work shift, the SH will observe deconstruction operations to monitor visible dust in the air and suppression measures being applied by the deconstruction contractor. The SH may, depending on the severity and duration of dust condition, order a stoppage of the work or require modified work practices to reduce visible dust.

2.3 Notification

The EPA Region 2 office and NYSDOL will be notified promptly of any visible emission observed by the EC to cross the property line of the Buildings. The EC will promptly advise the EPA Region 2 office and the NYSDOL of the corrective actions taken. A report of inspection results and corrective actions taken will be provided to the EPA Region 2 office and NYCDOL within 2 business days of any incident showing any visible emissions.

3.0 Remediation Phase Air Monitoring

3.1 Visible Emissions

Monitoring for visible emissions will be conducted as described above in Section 2.0 of this specification.

3.2 Community Air Monitoring

Prior to the commencement of any site work, one week of background community air monitoring will be conducted as detailed in *Table 1 – Community Air Monitoring* in Attachment A (Community Monitoring) to this specification. Community Air Monitoring as detailed in Table 1 will continue through the Remediation Phase and until completion of the Deconstruction Phase.

Community Monitoring locations will be determined in cooperation with the USEPA, and will be identified on a drawing to be included in Attachment C (Monitoring Locations) to this specification.

If the environmental air monitoring locations need to be changed during the Remediation phase due to site conditions, NYS DOL and USEPA Region 2 office will be notified promptly. The community air monitoring locations will not be moved until NYS DOL and the USEPA Region 2 office accept the change.

3.3 Abatement Work Area Monitoring

Air monitoring per the requirements of NYRR ICR 56 will be conducted. Transmission Electron Microscopy (TEM) will be utilized as the analytical method for asbestos. Sample locations will be selected by the SH in accordance with ICR 56-17, and based on the configuration of the abatement containment areas. Containment area monitoring of additional Contaminants of Potential Concern (CoPCs) that are not regulated under ICR-56 will be conducted by the Owner's EC. The COPCs to be monitored are: Asbestos (TEM), Metals (ICP-AES) and crystalline silica (XRD).

This monitoring is detailed in *Table 3 - Abatement Work Area Monitoring* in Attachment B (Work Area Monitoring) to this specification.

4.0 Deconstruction Phase Air Monitoring

4.1 Visible Emissions

Monitoring for visible emissions will be conducted as described above in Section 2.0 of this specification.

4.2 Community Air Monitoring

Community Air Monitoring will be conducted as detailed in *Table 1 – Community Air Monitoring* in Attachment A (Community Monitoring) to this specification. Community Air Monitoring will continue through the completion of the Deconstruction Phase.

Initial Community Air Monitoring locations are identified on the drawing included in Attachment A (Community Monitoring) to this specification. If the environmental air monitoring locations need to be changed during the Deconstruction phase due to site conditions, NYS DOL and USEPA Region 2 office will be notified promptly. The community air monitoring locations will not be moved until NYS DOL and the USEPA Region 2 office accept the change.

5.0 Interpretation of Sample Data

The Target Air Quality Levels and EPA Site Specific Trigger Levels for the Site are set forth in Attachment A, Table 2.

The following actions will be taken if there is an exceedance of Target Air Quality Level. If there is an exceedance of both the Target Air Quality Level and the EPA Site Specific Trigger Level, actions under the EPA Site Specific Trigger Level heading below will govern.

5.1 Target Air Quality Levels

Any 24-hour $PM_{2.5}$ and PM_{10} value in excess of the Target Air Quality Level will be considered an "exceedance" and the actions described below will be taken.

During the first week of sampling any sample of an analyte other than $PM_{2.5}$ and PM_{10} in excess of 3 times the Target Air Quality Level for that analyte, unless superceded by an EPA Site-Specific Trigger Level, will be considered an exceedance and the actions described below will be taken.

Following the first week of sampling, a "rolling average" will be established based initially on the first week's results, to which will be added daily values as results are received from the laboratory. A rolling average value for any analyte, other than $PM_{2.5}$ and PM_{10}, in excess of the relevant Target Air Quality Level will be considered an exceedance of Target Air Quality Level and the actions described below will be taken.

Exceedance of an established Target Air Quality Level for any analyte calculated as provided above will result in an evaluation of engineering controls and work techniques in the source area. This evaluation shall include but not be limited to the evaluation of work activities that may be causing the exceedance, smoke testing of the isolation barriers in question, and inspection and repair of any faulty isolation barriers.

5.2 EPA Site Specific Trigger Levels

Any 24-hour value (work shift value on work days or four hour value on non-work days in the case of asbestos) in excess of the EPA Site Specific Trigger Level will be considered an "exceedance." Exceedances of EPA Site Specific Trigger Levels will result in a stoppage of work associated with the exceedance until an evaluation of emission controls is performed and corrective action is in place. The EPA Site Specific Trigger Levels are applicable to individual sample result. If any of the individual sample results exceed an EPA Site Specific Trigger Level, then notification must be made to the USEPA Region 2 office and the NYCDEP. Work will be reinitiated once the USEPA Region 2 office has agreed (and NYS DOL during the Abatement Phase in the case of asbestos exceedances) to the corrective action(s) proposed to prevent the potential for exceedances in future work and such corrective actions have been implemented.

5.3 Notification

The US EPA Region 2 office and the NYCDEP (and NYS DOL during the Abatement Phase in the case of asbestos exceedances) will be notified promptly of any exceedance of either a Target Air Quality Level or an EPA Site Specific Trigger Level and will be notified promptly of any corrective actions taken in connection with a Target Air Quality Level exceedance and the implementation of corrective actions in connection with an EPA Site Specific Trigger Level exceedance.

5.4 Monitoring Data

All sampling results collected pursuant to this specification, in suitable electronic form, will be promptly provided to the USEPA Region 2 office weekly and exceedances will be reported as provided above. The EC will provide 24 hour averages and graphical data for all continuous sampling data collected.

Attachment A

Table 1 – Community Air Monitoring

Location	Parameter(s)	Sample Frequency	Sample Collection Flow Rate and Duration	Analysis Method	Comment
Site Area	Mercury	Each work day	Real –Time: 3 site tours per work shift	Lumex, portable mercury analyzer	Lumex results are real-time data logged
Site Area	Particulate (Visible dust emissions)	Continuous during working shifts	Visual	Visual Observation	Visual Notations on site log
Site Perimeter- four fixed locations listed below	Particulate PM-2.5, PM-10	Daily	Continuous Real-time data-logging	Laser dispersion Real time analysis, Met One E-BAM	
Site perimeter- one of the fixed locations below	Particulate PM-2.5, PM-10 reference testing	Each work day, rotated bi-weekly to one of the fixed locations	Continuous Real-time data-logging	R&P TEOM	Comparison data for E-BAMs.
Station #1: Ground Level at the northwest corner of the Building Station #2: 5th Floor Setback Roof – southwest corner Station #3: East end of Park Place Sidewalk Bridge Station #4: East end of Barclay St. Sidewalk Bridge	1. Asbestos 2. Mercury 3. Metals 4. Silica 5. Organics	1. ACM each work shift, and each off-day. 2. Daily 3. Daily 4. Daily 5. Organics – Weekly [2]	1. 6.0 LPM/8hr 2. 0.4 LPM/24hr 3. 4.0 LPM/24hr 4. 2.0 LPM/8hr 5. 200-300LPM	1. TEM/PCMe 2. EPA 324/1631 3. ICP/MS 4. XRD 5. PCB (EPA TO-7A) Dioxin (EPA T0-9A (mod)) and PAH (EPA TO-13A)	Sampling durations may be modified based on Site Conditions.[1]

Footnote 1: Sampling duration and/or flow rates may be modified to provide optimum analyte loading for analysis based on results of ongoing analyses. Initial Sampling flow rates should be in accordance with rates prescribed in the sampling method.

Footnote 2: Organics will be sampled as provided below under "Notes on the Community Air Monitoring Table" below.

Notes on Community Air Monitoring Table:

Asbestos:

Asbestos sample collection will be performed in accordance with NIOSH 7402, "Asbestos by TEM". Asbestos analysis will be performed utilizing Transmission Electron Microscopy ("TEM") analysis specified in 40 CFR Part 763, Asbestos Hazard Emergency Response Act, ("AHERA"), with the following modifications:

1. The sensitivity on TEM air samples will be less than 0.002 s/cc.
2. Both the length and width of all asbestos fibers will be recorded.
3. Confirmation by EDS and/or SAED will be performed for each fiber analyzed.
4. The mineralogy of the fibers will be noted and recorded.

Dust:

Airborne dust and particles at the Site will be monitored using real-time air monitoring instrumentation. Real-time air monitoring for PM-2.5 and PM-10 will be accomplished with direct reading particulate in air monitors (Met One E-BAM). Data from E-BAMs are to be data logged. At one location the Met One E-BAM data will be compared against PM-2.5 results from a Rupprecht and Patashnick TEOM instrument. At another location, the E-BAM data will be compared against PM-10 results from another Rupprecht and Papashnick TEOM instrument. This equipment will be operated for at least two weeks before the Remediation Phase begins. Prior to the commencement of the Remediation Phase, the EPA Region 2 office will be provided with the results of comparing the data from the E-BAM with the TEOM and the proposal of a correction factor, if needed.

Respirable Crystalline Silica – Metals:

Respirable crystalline silica sampling will be performed according to NIOSH Method 0600 protocol with analysis following NIOSH Method 7500 (XRD).

Metals sampling and analysis will be performed following NIOSH 7300 "Elements by ICP," except that ICP-MS will be utilized. A hot block/acid digestion will be utilized. Metals to be analyzed by ICP-MS and reported are: Antimony, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Manganese, Mercury (particulate), Nickel and Zinc.

Mercury:

In addition to metals monitoring for mercury particulate using Iodated Carbon Traps (ICT), real-time monitoring will be performed. The readings will be entered into an electronic format for inclusion with the daily download of sample collection data.

Real-time monitoring will be performed daily throughout the project. Mercury monitoring will be performed utilizing a Lumex RA 915+ direct read instrument.

The Lumex RA915+ will be utilized to obtain detection levels below established Site air contaminant criteria. At a minimum, mercury readings will be taken twice a shift at the fixed air monitoring locations. At the discretion of the EC and as daily Site conditions may dictate, additional mercury readings may be taken.

Organic Compounds (Dioxin/PCBs/PAHs):

Organic compounds samples will be collected at specified points along the project schedule as follows:

1. On the first day of the Background Phase, one sample of each organic compound at each community monitoring location will be collected (three total samples per location). The samples from the location with the highest particulate readings will be analyzed.
2. Organics samples will be collected weekly during the Abatement Phase and Deconstruction Phase. Samples from the location with the highest particulate readings for that day will be submitted for analysis. This will result in the processing of the samples that have the best likelihood of representing the "worst case." A total of three samples per week, one Dioxin, one PCB, one PAH will be analyzed.
3. Samples for organic compound analyses will be analyzed within fourteen days under normal laboratory analysis turn-around time

Attachment A

Table 2- Data Reference Levels for Community Monitoring

Analyte	Target Air Quality Levels See Note 1	EPA Site Specific Trigger Levels – See Note 2
Metals		
Antimony	5 ug/m3	14 ug/m3
Barium	5 ug/m3	5 ug/m3
Beryllium	0.02ug/m3	0.2ug/m3
Cadmium	0.04 ug/m3	2 ug/m3
Chromium – See Note 3	0.6 ug/m3	60 ug/m3
Chromium VI		0.6 ug/m3
Copper	10 ug/m3	100 ug/m3
Lead	1.5 ug/m3	5 ug/m3
Manganese	0.5 ug/m3	0.5 ug/m3
Mercury	0.3 ug/m3	3 ug/m3
Nickel	0.2ug/m3	28 ug/m3
Zinc	16 ug/m3	160 ug/m3
Particles and Dusts		
Asbestos	0.0009 f/cc (PCMe fibers)	70 S/mm2 (TEM AHERA structures)
Particulate PM-10 (24 hour average)	150 ug/m3	150 ug/m3
Particulate PM-2.5 (24 hour average)	40 ug/m3	65 ug/m3
Respirable Silica (crystalline)	10 ug/m3	10 ug/m3
Organics (semi-volatiles)		
Dioxins/Furans (2,3,7,8 – TCDD equiv.)	0.00025 ng/m3	0.025 ng/m3
PCB (total Aroclors)	0.12 ug/m3	12 ug/m3
PAH (benzo-a-pyrene equivalent)	0.034 ug/m3	3.4 ug/m3

Note 1: A rolling average after the first week of sampling, except for PM-10 and PM-2.5.
Note 2: A 24-hour value.
Note 3: If a chromium value is in excess of the Target Air Quality Level (0.6 ug/m3), this will result in a stoppage of work; and, that sample will be speciated for chromium VI to determine that its concentration does not exceed the USEPA Site Specific Trigger Level for chromium VI, and the appropriate actions pertaining to an exceedance of the USEPA Site Specific Trigger Level will continue to be conducted.

Attachment B

Table – 3: Remediation Phase Work Area Monitoring

Location	Parameter(s)	Sample Frequency	Analysis Method	Comment
Site Area	Visible Dust emissions	Each Work Day	Visual Observation	
All sample points required by NYS DOL Regulations for ACM as determined by Site Hygienist	Asbestos	Work shifts and once a day on non-work days	1. TEM	
Waste Decon Clean-rooms	1. Asbestos 2. Silica 3. Metals	ACM each work day. Alternate Silica & Metals	1. TEM 2. XRD 3. ICP/AES	
Personnel Decon Clean Rooms	1. Asbestos 2. Silica 3. Metals	ACM each work day. Alternate Silica & Metals	1. TEM 2. XRD 3. ICP/AES	
Negative Air Exhaust Manifolds	1. Asbestos 2. Silica 3. Metals	ACM each work day. Alternate Silica & Metals	1. TEM 2. XRD 3. ICP/AES	
Blanks	1. Asbestos 2. Silica 3. Metals	2 blanks per day 1 blank per week 1 blank per week	1. TEM 2. XRD 3. ICP/AES	

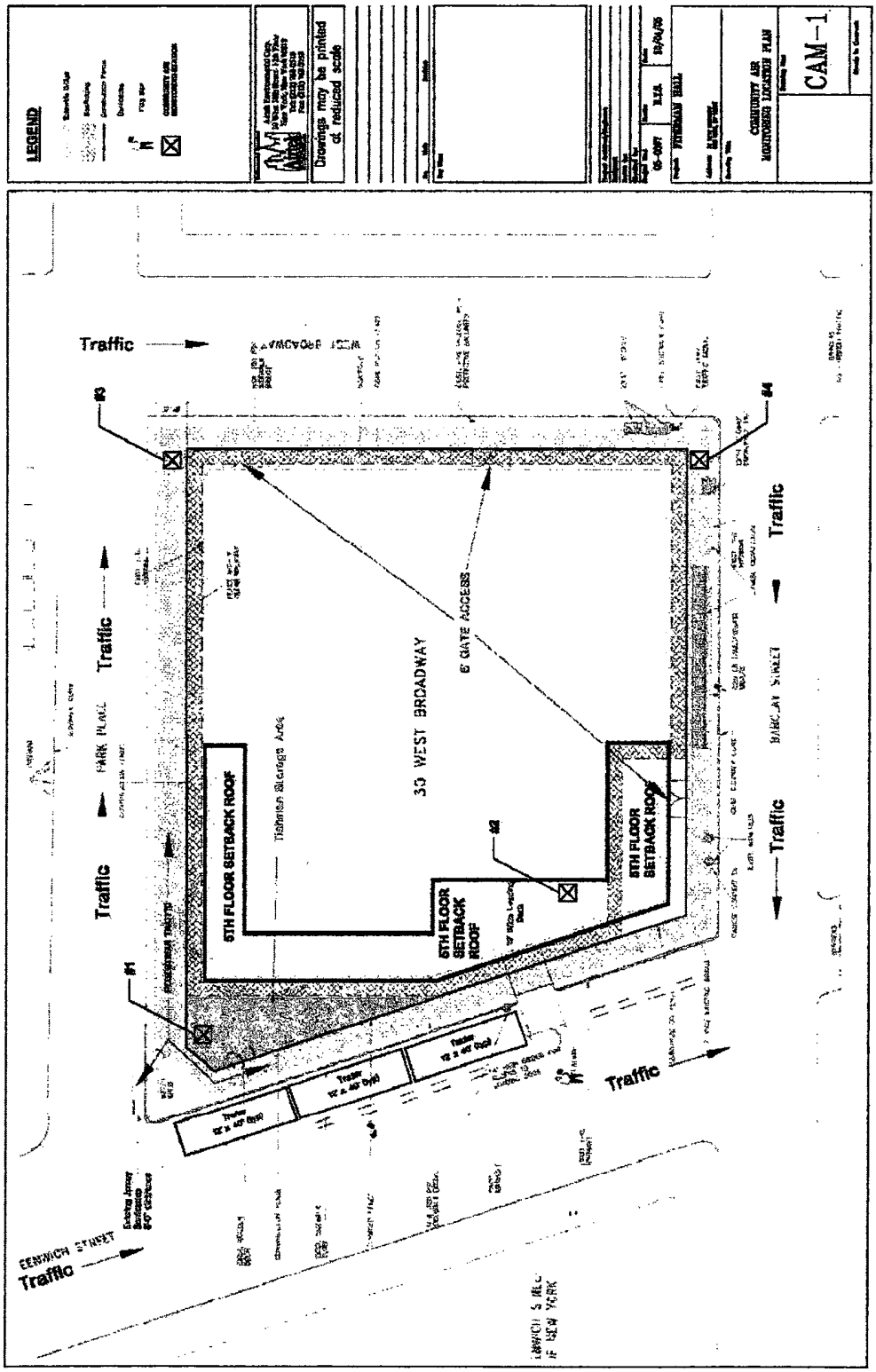
Notes to Table 3:

Work Area Monitoring for Asbestos will be conducted under AHERA Rules and referenced to the 70 s/cc EPA Site Specific Trigger Level.

Work Area Monitoring for all CoPCs will be referenced to the applicable OSHA Standard and the EPA Site-Specific Trigger Levels (Table 2).

Attachment C:

Community Monitoring Locations



Attachment D:

Quality Assurance Project Plan

(QAPP is under development per new QAPP Guidance provided by EPA 11/22/05. The QAPP will be finalized based upon the specifics of Regulator comments on the proposed ECAMP).