PROPOSED AMBIENT AIR MONITORING PROGRAM for the 130 LIBERTY STREET DECONSTRUCTION PROJECT

Rev. 10 December 2004

Prepared for:

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INTRODUCTION

There will be multiple aspects and levels to the overall air monitoring program conducted during the deconstruction of 130 Liberty Street. Evaluation of airborne concentrations will start at the generation point and extend out into the community. The following is a brief summary of what these basic components ("4 levels") include:

- **"Level 1"**: The subcontractors performing aspects of Phase I deconstruction work (largely interior, non-structural efforts) will be responsible to collect air samples on their personnel directly performing various work activities to determine airborne levels of contaminates generated by the work at the source point (the worst case scenario).
- "**Level 2**":The next layer of sampling is performed by Gilbane's third party consultant who will sample the ambient air inside the building at several locations during Phase I work including just outside of work areas and at the exit points from contaminated spaces – namely the personnel and waste load out decontamination stations.
- "**Level 3**": Beyond that, Gilbane's consultant will also be continually monitoring the exterior ambient air within the boundaries of the site.
- "**Level 4**": The final element is the off-site evaluation component. LMDC and Gilbane in consultation with their third party consulting air specialists have proposed programs to perform exterior ambient air monitoring at various points outside of the project boundary – in the surrounding community. This air sampling is supported by concurrent, comprehensive meteorological monitoring to help both focus sampling efforts and interpret data collected.

This Ambient Air Monitoring Program (Section 2 of the overall Phase I Deconstruction Plan) documents Gilbane's proposed program of "Level 3 and 4" only. The other two "levels" of air monitoring outlined above are documented elsewhere in the Phase I Deconstruction Plan with the exception of LMDC's proposed "Level 4" program which exists as a separate document.

The goal of the "Level 3 and 4" programs (LMDC's and Gilbane's) are to ensure that the deconstruction operations undertaken due not have a negative impact on the airborne environment in the surrounding community. To that end, the Lower Manhattan Development Corporation (LMDC) and Gilbane Building Company (Gilbane) are working collaboratively along with the involved regulatory agencies to outline a program that meets that goal in a well thought out and coordinated fashion.

The program aspects of the first two "levels" of air monitoring are well delineated in other sections of the Deconstruction Plan. The applicability of existing air quality standards to the third and fourth "levels" of the overall air monitoring program is not straightforward and, therefore, requires additional research and consideration to finalize.

The sampling and analytical program presented herein, therefore, represents those elements which could be informative toward the program goal and may be included in the final Gilbane component of the program. The final elements of Gilbane's Ambient Air Monitoring Program

are yet to be determined and approved by all parties. Therefore elements outlined herein could be eliminated and others may be added.

This document includes Weston Solution's Inc.'s (Weston) proposed scope of work to Gilbane to provide technical and regulatory support services to perform an Ambient Air Sampling Program during the 130 Liberty Street Deconstruction Project. This scope of work is necessitated by the findings of the Initial Characterization Report for 130 Liberty Street indicating the existence of multiple contaminates at varying concentrations within the structure. The inclusion of this proposed scope in the overall deconstruction plan does not constitute a commitment of Weston or Gilbane's part to execute this work since authorization from the Lower Manhattan Development Corporation is required.

BACKGROUND

Referencing the Initial Building Characterization Study Report[1], Weston has developed the following scope of services to address the necessity for an Ambient Air Monitoring program. This proposed program is developed to monitor for contaminants of potential concern (COPC) identified in the afore-mentioned Characterization Report. With authorization, Weston will perform the following additional tasks that were not part of the base contract that was executed on 2 September 2004.

SCOPE OF WORK

The objectives of the Weston ambient air sampling and monitoring program during the 130 Liberty Street Deconstruction Project are to:

- Utilize meteorological instrumentation to record wind speed, wind direction and other pertinent conditions.
- Conduct real-time monitoring for off-site migration of fugitive emissions using continuous direct-read ambient air monitors.
- Conduct integrated air sampling for the following target compounds: Particulates as TSP (Total Suspended Particulates), Metals as TSP, Asbestos, Silica, PAH's (Polyaromatic Hydrocarbons), D/F's (Dioxins & Furans), and PCB's (Polychlorinated Biphenyls).
- Four phases of sampling will be conducted: Background (all target compounds), Phase out (all target compounds), Continuous (TSP, Metals, Asbestos, and real-time PM_{10} only), and Task Specific.

To accomplish these objectives, the ambient air sampling and monitoring program will consist of three major components: (1) meteorological monitoring, (2) continuous ambient air monitoring for PM_{10} and optionally one VOCs location, and (3) periodic integrated sampling for TSP,

[1] Initial Building Characterization Study Report, Prepared by The Louis Berger Group, Inc., 14 September 2004.

metals, asbestos, mercury, silica, PAH's, PCB's, and D/F's. Each of these components is briefly described below; more details are contained in Sections 1 through 3.

1.0 SAMPLING SITES

A total of six monitoring locations were selected around the perimeter of the 130 Liberty Street building:

- Location One: Southwest of building adjacent to column enclosure (Washington St./Albany St.) at ground level.
- Location Two: Southeast of building adjacent to Allied Security Post (Albany St./Greenwich St.) at ground level.
- Location Three: East of building on Greenwich Street at ground level.
- Location Four: Northwest of building adjacent to Pit (Washington St./Cedar St.) at ground level.
- Location Five: Fire station roof on Greenwich Street at an elevation of approximately 40 feet.
- Location Six: Apartment roof building behind fire station at an elevation of approximately 160 feet.

2.0 SAMPLING PHASES

Sampling phases will consist of the following segments: Background, Phase out, Continuous, and Task Specific.

2.1 Background

The background ambient air sampling will be conducted for 3 sampling days consisting of one (1) 8-hr sampling period each day. Sampling will be conducted under relatively dry conditions during days having predominant wind patterns occurring based on local climatological data. The background phase will also be conducted before deconstruction activities start.

Meteorological conditions during sampling may have a substantial effect on the ambient air sampling results. Wind speed and direction, temperature and rainfall are some variables that may effect target compound concentrations. These variables and their possible effects are described in more detail in Section 3.0. Attempting to collect all samples for the background phase under similar conditions will assist in comparing the data between background sample days, as well as, the samples collected during the phase out segment.

Ambient air samples will be collected at all six locations for the following types of compounds:

- Particulates as TSP (Total Suspended Particulates)
- Metals as TSP
- Asbestos – PCM with 5% of the samples as TEM
- PAHs (polyaromatic hydrocarbons)

- D/Fs (dioxins & furans)
- PCBs (polychlorinated biphenyls)
- Mercury and
- Silica

2.2 Phase Out

During the phase out segments ambient air sampling will be conducted for 3 sampling days consisting of one (1) 8-hr sampling period each day. Sampling will be conducted during the first few weeks of each new abatement task/deconstruction activities as per the Phase 1A and Phase 1B requirements listed below, on days of similar meteorological conditions that occurred during the background sampling segment, if possible (the length of the project and varying seasons may prevent having comparable meteorological conditions between background and phase out segments). A 3-day ambient air sampling phase out program will be conducted at the start of each of three (3) Phase I tasks as follows:

- Licensed abatement contractor performs abatement of identified ACBMs, cleaning of the dust and removal of limited Phase IA soft strip/interior gut items (i.e., ceiling tiles, carpet, loose wiring/cabling, fiberglass insulation, doors, etc.);
- Phase IB non-asbestos performs majority of soft strip/interior gut - removes gypsum wall board (except perimeter walls), fireproofing (except behind perimeter walls), small scale MEP, toilet fixtures, etc.
- Erection of the crane and hoist

There will be a total of three (3) phase-out segments as per the tasks above conducted for 3 days each for a total of nine (9) days.

Ambient air samples will be collected at all six locations for the following types of compounds:

- Particulates as TSP
- Metals as TSP
- Asbestos – both by PCM and TEM
- PAHs
- D/Fs
- PCBs
- Mercury and
- Silica

2.3 Continuous

During the continuous segment, ambient air sampling will be conducted for one (1) 8-hr period each day (assuming a 5-day work week) for the duration of the project. Ambient air samples will be collected at all six locations for the following types of compounds:

- Particulates as TSP

- Metals as TSP and
- Asbestos – PCM with 5% of the samples as TEM

Real-time particulate monitoring will also be conducted at all six locations for PM_{10} (Particulate Matter less than 10 microns), which is considered respirable dust. Real-time data for PM_{10} will be monitored 24/7 for the duration of the project.

One optional additional location will monitor for VOCs from the truck traffic coming from the 130 Liberty Place Deconstruction activities using a real-time Photo Ionization Detector (PID).

2.4 Task Specific

During the task specific segment, ambient air sampling will be conducted for one (1) 8-hr period each day (assuming a 5-day work week) for the duration of the task. The only task specific compounds of concern known are silica. Ambient air samples will be collected at all six locations for Silica during specific remedial activities that might generate it.

3.0 SAMPLING AND MONITORING

3.1 Continuous Screening Monitors

The monitors selected to continuously measure PM_{10} are beta-attenuation monitors manufactured by Met One Instruments, Inc. (Met One). The Met One E-BAM will be used for continuous PM_{10} measurements. The instrument operates on the principle of beta attenuation.

The E-BAM has not been officially designated by U.S. EPA as either a Reference or Equivalent Method. However, the E-BAM design is descended directly from the BAM-1020 (which has received EPA's designation as an Automated Equivalent Method - EQPM-0798-100), modified to provide portable battery operation and produce measurements in real-time (averaging times less than 1 hour). The accuracy and precision of the E-BAM are consistent with US-EPA requirements for Class III designation for PM_{10}. Class III equivalent method instruments include any candidate instruments that cannot qualify as Class I or Class II instruments. These may either be filter-based integrated samplers not meeting Class I or Class II criteria, or filter or non-filter based continuous or semi-continuous samplers. Other methods include all non-FRM or non-equivalent measurement methods capable of characterizing fine particles that may not be or have not yet been classified as an equivalent method. Existing manual and continuous analyzers are in this category include the dichotomous sampler, IMPROVE samplers, nephelometers, beta attenuation monitors, and Tapered Element Oscillating Microbalances (TEOMs). Such instruments are not precluded from becoming equivalent on a site-specific, regional or national basis.

The beta attenuation process uses a small source of beta particles (carbon-14, 60 microcuries) is coupled to a sensitive detector that counts the emitted beta particles. The dust particles are collected on a filter tape that is placed between the beta source and the detector. Dust on the filter will intercept some of the beta particles. The reduction of beta particles is proportional to the

amount of dust on the filter, which allows the mass of dust to be determined from the beta particle counts. The dust mass is combined with the air volume collected during the filter exposure time to determine the PM concentration.

The E-BAM monitors will be equipped with particle size selective inlets. The design of the inlets is such that particles larger than the desired size range will be removed from the air flow, based on the air flow rate. The units will be equipped with an inlet head to separate PM_{10}. Sampling flow rate is critical to maintain the proper particle size cut points of the inlets. Flow rates are maintained at 16.7 liters per minute (LPM) in the E-BAM monitors using an integral flow meter, pressure sensor, and ambient temperature sensor on board each monitor.

The data from the E-BAM units will be recorded by digital data loggers using the analog signal outputs of the monitors. The PM_{10} data from the E-BAM monitors will be recorded as 5-minute, hourly, and daily (midnight-to-midnight) averages.

The equipment selected to continuously monitor VOCs will be the RAE Systems ModuRAE Model PDM-10A Photo-Ionization Detector (PID) Module. The ModuRAE PID uses an ultraviolet (UV) light source to ionize VOC molecules, and a detector to sense the electric current generated by the ions. The units will be equipped with a 10.6 electron-volt (eV) lamp, which is a moderate energy lamp typically used to detect a wide range of VOCs. The PID samplers draw air at the rate of 40 milliliters per minute (ml/min), and can measure VOCs over a range of concentration from 0 – 200 parts per million (ppm), with a sensitivity of 0.1 ppm.

The data from the Dust Monitor and PID units will be recorded by CSI CR510 digital data loggers, and telemetered back to Weston via CDMA cellular modems. The loggers on-board the units will act as backup to the CSI loggers.

Because the real-time dust monitors are not an EPA reference method. One reference method PM_{10} sampler will be collocated along side the real-time PM_{10} monitors as a quality assurance (QA) check. The QA sampler will rotate daily through all real-time PM_{10} monitor locations for the duration of the monitoring.

3.2 Integrated Samplers

3.2.1 TSP, Metals, and Silica Samplers

Each site will have one (1) General Metal Works (GMW) model 1200 high volume air sampler equipped with a flow controller. This will be used for the collection of 8-hour samples of TSP (Total Suspended Particulates). These are the same FRM samplers used routinely by EPA and state agencies to measure compliance with the Ambient Air Quality Standards. The TSP is collected on an 8–inch x 10-inch micro-quartz filter. The sampler flow rate is set to run at 40 actual cubic feet per minute (acfm) and held at a constant flow rate by a volumetric flow orifice for the sample period.

The TSP filter will be analyzed using inductively coupled plasma spectroscopy (ICP) for eight trace metals: aluminum (Al), arsenic (As), cadmium (Cd), copper (Cu), iron (Fe), manganese (Mn), lead (Pb), and zinc (Zn). The TSP filter will also be gravimetrically analyzed for TSP and Silica mass.

3.2.2 Mercury Sampling Units

A separate sampling and analysis method is required for mercury, as field studies have indicated that atmospheric mercury is generally greater than 95% in the vapor phase. The TSP filter would be ineffective at capturing vapor-phase mercury. An iodated carbon trap will be analyzed for elemental mercury using cold vapor atomic fluorescence (CVAF). The carbon trap is a proven and sensitive method for detecting trace ambient levels of atmospheric mercury. To collect the mercury sample, a high volume pump will be attached to the carbon trap and set at a flow rate of approximately 4 liter per minute.

3.2.3 Semi-Volatile Monitoring Equipment

Each site will have two (2) General Metal Works (GMW) model PS-1 high volume air samplers to collect 8-hour samples of PAH, Dioxin/ Furan & PCBs, following EPA Method TO-13A, TO-4a, and TO-9A, respectively. One sampler will be used for PAHs. A second sampler will be use for both PCBs and D/Fs. Method TO-13A, TO-4A, and TO-9A use the PS-1 samplers to draw air through a sampling train consisting of a 102 millimeters diameter microquartz filter first to collect the semivolatile PAH particulates and then a glass cylinder holding a polyurethane foam (PUF) plug (1 inch of XAD-2 adsorbent resin is used in the middle of the PAH sampling media) to collect the semi-volatile vapors. The entire sampling train (filter, XAD-2, and PUF plugs) are extracted together and analyzed for speciated PAH, PCBs, and D/Fs compounds using gas chromatography/mass spectrometry. The samplers will be set to run at 250 liters per minute for a total volume of 120 cubic meters over the 8-hour period.

3.2.4 Asbestos Sampling Units

Asbestos sampling will be collected according to NIOSH 7400 using Light Microscopy, Phase Contrast. Filter sampling media is a 0.45 micron Cellulose ester membrane, 25mm in a

conductive cowl on a cassette. Sample volumes will be around 4,800 liters at a flow rate 10 L/min using a high volume pump over an 8-hr period.

3.3 Meteorological Monitoring

The meteorological monitoring component of the air sampling and monitoring program will consist of equipment designed to continuously record wind speed, wind direction, standard deviation of wind direction, precipitation, and air temperature from a 10-foot tripod or roof mount tower. Monitoring will be done from the roof of the building at 130 Liberty Street until deconstruction activities warrant its physical removal when the roof is removed or access is denied. After removal of the roof mounted station, local airport meteorological data will be used for the remaining program, if no other valid location can be found to collect data.

Meteorological variables and their importance in air quality modeling and ambient air monitoring is provided below as follows:

- Wind Speed: The wind speed is a major determinant of the travel distance and travel time of the contaminant. For example, in the air quality models, concentration is inversely proportional to the wind speed. Wind speed also affects the volatilization of contaminants from a work zone and thus influences the ambient air concentrations.

- Wind Direction: The wind direction indicates the direction in which contaminants will be transported. For example, ambient air quality models use hourly averages of wind direction to determine which location specific concentrations. The observed wind directions during ambient air sampling will be used to designate samples as upwind, downwind, or crosswind relative to potential contaminant emissions sources.

- Standard Deviation of Wind Direction: can be used to perform stability calculations for air contaminant transport calculations.

- Barometric Pressure: can be used in the calibration of the high-volume samples.

- Ambient Temperature: The ambient temperature is used in determining the rise of a buoyant plume. The plume rise calculated by an air quality model determines the final height above ground of the centerline of the pollutant plume from a point source. Ambient temperature can be helpful in quantifying the degree of contaminant volatilization.

- Rainfall: rainfall and moisture may have the effect of scrubbing particulates from the air.

The data from the meteorological station units will be recorded by a CSI CR510 digital data logger, and telemetered back to Weston via CDMA cellular modems. More detail is described in Section 4 of this proposed scope of work.

4.0 ELECTRONIC DATA ACQUISITION AND MANAGEMENT

4.1 Data Acquisition Systems

The primary data acquisition system for the continuous monitors and the meteorological system will be the CSI CR510 data logger. The data logger has inputs for 4 single-ended analog channels. Each data channel will be sampled once per second with an accuracy of ± 0.1 percent of full scale. Both 5-minute and hourly averages will be calculated. The data loggers are programmable, and additional information such as maxima, minima, and frequency histograms can be collected.

4.2 Data Management

Weston has developed an ensemble of systems for electronic data management of nearly all phases of environmental monitoring projects that will be used to manage the collection and reporting of data from this project:

- EnviroData® provides a standardized means for porting laboratory electronic data deliverables (EDDs) into Microsoft® Access© databases;
- MonitorFast℠ provides a framework for automated data retrieval from monitoring stations to standardized SQL Server databases either periodically or in real-time;
- FieldFast enables direct electronic entry of field sampling data from the Asbestos, PUF and TSP samplers; and
- TeamLink℠ provides a secure Web-based data access portal and project management tool.

Each of these technologies is described further in appendix of this proposed scope of work.

5.0 QUALITY ASSURANCE AND QUALITY CONTROL

Quality Assurance (QA) includes the planned and systematic actions necessary to provide adequate confidence that a measurement of process will satisfy a given requirement for accuracy. Quality Control (QC) is the operational techniques and activities that are used to fulfill requirements for quality. The QC procedures for the ambient air monitoring component of the program include planned calibrations, audits, preventive maintenance, collocated sampling to evaluate precision and accuracy, and analysis of QC samples (field/trip blanks). Procedures are described in the following subsections.

5.1 Calibration: TSP High-Volume Samplers

The calibration of the TSP samplers is a single point calibration of the volumetric flow controller on the TSP sampler. The calibration is performed to confirm the sampler is set to the actual airflow rate of 40 acfm. An adapter plate, National Institute for Standards and Technology (NIST) -traceable orifice calibration unit, and a manometer are used to measure the pressure drop in inches of water across the calibration orifice. The pressure drop for a calibration orifice

corresponds to a specific flow rate. The calibration results are used to determine the flow rate of the TSP sample. Calibration of the sampler will be performed at the start-up of program, and at quarterly intervals throughout the program

5.2 Calibration PUF High-Volume Samplers

The calibration of the PUF samplers is a multi-point calibration of the flow indicator on the PUF sampler. A multi-point calibration is performed because the sampler is not equipped with a mass or volumetric flow controller. The calibration is performed at several flow rates to determine the actual airflow rates corresponding to readings on the flow indicator device (magnetic gauge) attached to the sampler venturi. An adapter plate, NIST-traceable orifice calibration unit, and a manometer are used to measure the pressure drop in inches of water across the calibration orifice. The pressure drop for a calibration orifice corresponds to a specific flow rate. The calibration results are used to determine the flow rate of the PUF sample. Calibration of the sampler will be performed at each PUF sampling phase.

5.3 Precision and Accuracy

Precision and accuracy checks are both elements of QA. Precision checks are a measure of agreement among individual measurements of the same parameter, usually under prescribed similar conditions. Accuracy is the degree of agreement between an accepted reference measurement and the field measurement. Accuracy may be expressed as a total difference, or as a percentage of the reference value, or as a ratio. Precision checks are performed as collocated measurements. Due to the limited number of samples locations, collocated samples will not be collected.

Accuracy checks of the PM_{10} samplers are limited to verifying the flow rates of the samplers because it is difficult to introduce a known concentration of contaminant in air to the samplers. Therefore, the accuracy checks are performed as part of the calibrations/audits of the sampler flow rates.

5.4 QC Samples

QC field blank samples will be collected to measure for possible contamination introduced by field sampling procedures, sampling media, sampling equipment, or shipment of the samples. Field blanks are handled in the same manner as actual samples, undergoing the same preparation, installation in the sampler module, and cleanup procedures.

One field blank for each pollutant type will be collected. Each field blank will be shipped to the field, prepared and handled as the other samples, and returned to the laboratory without drawing air through the sampler. Blanks will be collected at a frequency of 10 percent of samples spread uniformly throughout the sampling program. Table 5-1 shows the sample frequency for collection of QA/QC samples.

Table 5-1
Summary of QC Samples and Frequency of QC Checks

QA Samples	**Frequency***
Trip blanks	1 for every 20 samples
Field blanks	1 for every 20 samples
QC Checks	**Frequency**
PUF/TSP/PM10 Calibration	Start-up/End of Program & Quarterly

* 10% of total samples

6.0 REPORTING

Samples will be shipped overnight to the laboratory the day after the sample period. The samples are to be analyzed on turn-around-time (TAT) of 5 days.. Asbestos, TSP, PAHs, PCB, and D/F's data collected are loaded to the EnviroData® database on Weston's server within 48 hours of receipt of the EDD from the laboratory. The data can be viewed in tabular format through the Teamlink℠ Web site.

For continuous monitors and the meteorological station, the data loggers will record data at 5-minute and 60-minute intervals. The data will be downloaded from the loggers to the MonitorFast℠ databases on a minimum of once daily, and reviewed by Weston Project Scientists. The frequency of data retrieval can be increased in MonitorFast℠ to obtain access to results in near-real time.

A data analysis report will be submitted to Gilbane at the end of the program. Data will be stored in a central database in a standard format. The data analysis will review the meteorological, PM, PAH's, PCB, and D/Fs data.

The data collected during the continuous segment of the monitoring program will be primarily used for real-time data display and triggering notification when action levels are exceeded (action levels are discussed in Section 5). All continuous monitoring data will be archived in Microsoft SQL Server databases maintained on a secure Internet server in Weston's West Chester offices.

Basic summary information and real-time displays of the monitoring data will be available interactively on-line through the TeamLink Web site. The Web site will allow Weston personnel to interactively view the monitoring data via charts, maps, or tables. Reports viewed in tabular format on the Web can also be saved to Excel spreadsheets. Additional required information, such as daily calibration information and wind roses, will also be available on the Web site.

Electronic Communication Equipment and Software

As previously described, communications with the CSI data loggers will be via cellular CDMA modems at each station. The loggers will be polled automatically from Weston's West Chester, PA office by CSI's LoggerNet software, and the retrieved data will be automatically uploaded immediately after receipt by the MonitorFast^{SM} upload software. From the MonitorFast^{SM} database, all monitoring data are available via interactive TeamLink^{SM} Web pages. Data can be downloaded by TeamLink^{SM} users directly to Microsoft® Excel® or Access®.

7.0 ALARMS AND ACTION LEVELS

Weston will set action levels for target compounds based on consultation with Gilbane and with input from LMDC, their consultants and the involved regulatory agencies. The action level for the real-time monitoring for PM_{10} will be based on the NAAQS for PM_{10} of 150 ug/m^3 over a 24-hour averaging period. Two (2) alarm (action) levels for PM_{10} will be established, 1-hour average of 150 ug/m3 and a 5-minute average of 300 ug/m^3. The MonitorFast^{SM} data telemetry system will gather data from each of the monitors and process the information every 5-minutes. If either the 1-hour or 5-minute action level is exceeded the system will automatically notify designated site personnel via e-mail pager/cell phone of the monitor(s) registering the elevated reading(s) and the associated result. Automated alarms allow the ambient air monitoring professionals in concert with site personnel to investigate the elevated reading immediately and, if the reading is determined to be related to site activities, to implement timely control measures to reduce emissions.

The goal of the overall 130 Liberty Street project ambient air monitoring program is to ensure that the deconstruction operations undertaken due not have a negative impact on the airborne environment in the surrounding community. Any actions levels that may be established and utilized for the target compounds of concern would be solely for that purpose rather than proving for compliance with any known health standards.

PM_{10}, lead (from TSP) and asbestos have federal standards such as the NAAQS for PM_{10} of 150 ug/m3. Actions Level for PM_{10}, lead, and asbestos will be derived from these standards. The remaining target compounds for this study have multiple or varying guidelines established by regional, state and local agencies. These guidelines use varying calculations based on length of exposure, age and individual or multiple risk quotations of a compound. One possible scenario to bridge this gap in directly relatable standards is that each target compound of concern listed in the 130 Liberty Street Initial Building Characterization report could be evaluated based on the concentration expected to be found in the source (building materials or dust). These materials could then be evaluated to determine the amount of contamination as related to dust in the ambient air. Under this possible scenario, the multiple EPA and State guidelines could then be compared to these expected target compound concentrations to develop appropriate action levels, if necessary, for each compound.

TASKS

Task 1 – Work Plan & Project Planning

Weston will prepare a work plan describing the ambient air monitoring. Weston will setup the laboratory subcontracts. Work plan and project planning will take approximately 2-3 days.

Task 2 – Equipment Preparation & Testing

Weston will provide all necessary sampling equipment for the ambient air program. Equipment will be tested and calibrated prior to onsite setup at 130 Liberty Street.

Equipment preparation and testing will take approximately 2-3 days for the background and phase out segments covering the integrated sampling. Equipment preparation and testing will occur over the same time period as the work plan and project planning phase.

The continuous phase will take approximately 3-4 weeks to begin in order and prepare the equipment necessary for real-time monitoring.

Task 3 – Mobilization & Onsite Setup

Weston will mobilize and setup the equipment at 130 Liberty Street. The mobilization task will take approximately 2-3 days onsite.

Task 4 – Background Sampling

Background sampling will be conducted as described in Section 2.1 of this proposed scope of work. Background sampling will be conducted over a 3-day period.

Task 5 – Phase Out Sampling

Phase out sampling will be conducted as described in Section 2.2 of this proposed scope of work. Phase out sampling will be conducted over a 3-day period.

Task 6 – Continuous Sampling

Continuous sampling will be conducted as described in Section 2.3 of this proposed scope of work. Continuous sampling will be conducted with one (1) 8-hr sample period each day (assuming a 5-day work week) for the duration of the project, as well as, 24/7 real-time monitoring for PM_{10} data. Sampling for silica will be done under this task. The only additional costs will be for the laboratory costs for silica analysis.

Task 7 – Project Management

Weston will provide project management and weekly QA on all phases of the ambient monitoring program.

Task 8 – Meteorological Monitoring

Meteorological monitoring will be conducted as described in Section 3.3 of this proposed scope of work. Monitoring will be done from the roof of the building at 130 Liberty Street until deconstruction activities warrant its physical removal when the roof is removed or access is denied. At that time a good comparison from the 130 Liberty Street data with local airport data may allow the use the airport's meteorological data instead.

Task 9 – VOC Monitoring

VOC monitoring will be conducted as described in Section 2.3 and 3.1 of this proposed scope of work. Monitoring will start and continue at one location as long as truck traffic from the deconstruction activities is ongoing.

Task 10 – Demobilization & Reporting

Weston will demobilize the equipment from the site in two (2) parts. The first demobilization will occur after the phase out work is completed and lab data has been review and submitted to Gilbane for comments. The second demobilization will occur at the end of the continuous monitoring phase. Reporting will be as described in Section 6.0 of this proposed scope of work.

PERSONNEL

- Daniel B. VanVoorhis, PhD, Client Services Manager
- Bruce S. Ehrich, CSP, CIE, Senior Project Manager
- Nelson Feick, Senior Project Meteorologist
- Pete Virag, Team Leader; Quality Assurance Officer

LABORATORY

Severn Trent Laboratory (STL) is the anticipated laboratory of choice to conduct the analysis. Attached is qualifications and general information about the laboratory.

ATTACHMENT 1

EnviroData®

EnviroData® is an environmental data management program developed by Geotech Computer Systems (Geotech) of Englewood, Colorado. This new program facilitates the processing of current and historical analytical data collected across multiple work areas. Weston has partnered with Geotech in an effort to make EnviroData® a corporate-wide standard.

Severn Trent Laboratories (STL), chosen by WESON for this project, will provide analytical sampling results via EDD's compatible with EnviroData®. The EnviroData® database is a proprietary format, but can easily export results to a standardized Microsoft® Access datamart for end-users of the data. The datamarts can be accessed via TeamLink℠ to provide interactive data queries, charting, and summaries.

The many benefits of EnviroData® include:

- Speeding up report production time.
- Allowing multiple users to access the data, rather than just one individual who understands the project's specific data management system.
- Reduce errors in EDD through use of a single standard for electronic data submission from laboratories.
- Increase available time to analyze data versus handling data, resulting in better decision-making and quality assurance.

MonitorFast℠

Weston's MonitorFast℠ system will be used to automate data collection from the real-time monitoring network (PM_{10} monitors, as well as the meteorological station) by sending the data via a wireless phone connection to a secure Internet database. The data can then be viewed in real time over secure Web pages in tabular, graphical, and spatial formats. The MonitorFast℠ system architecture consists of three tiers: field data collection, database storage, and Web-based data access and reporting.

The MonitorFast℠ system uses digital data loggers and software for data collection and retrieval. These loggers were described previously and will transmit their data to Weston via wireless modems.

Weston developed a standard database structure that is the system's foundation for maximizing efficient transfer and management of data. For example, the database uses stored procedures to send e-mail notifications when incoming data trigger alarm conditions, and to warn when data are not received on schedule. Because monitoring data are stored in standardized databases, information retrieval and editing processes are very efficient. Data reside on a secure server that is backed up daily and stored off-site. Through Weston's TeamLink℠ system, data can be manipulated and viewed in real time in tabular, graphical, or spatial formats.

FieldFast℠

Weston has developed FieldFast℠, a software program for tracking samples and data, electronically generating chain-of-custodies (COC) and sample labels, data reports, and capturing sample attributes and field parameters. FieldFast℠ operates in tandem with personal computers (generating labels and COCs, and managing the database) and portable digital assistants (PDAs) for collecting data in the field. FieldFast℠ eliminates most typographical errors in the field and ensures that laboratories and engineering staff can clearly read paperwork and data. Additional data such as field measurements can be exported from FieldFast℠ to various environmental data management systems (EDMS), including Geographical Information Systems (GIS), Microsoft® Access© and Excel©, and more.

TeamLink℠

TeamLink℠ is Weston's Web-based collaborative workspace that is accessible from a computer with Internet access, a Web browser, and a user account. Project data can be viewed from office or home 24 hours a day. Through the TeamLink℠ application, data can be manipulated and viewed in real time in tabular, graphical, or spatial formats enabling easier reporting of data. TeamLink℠ charts and data can be imported into other programs such as Microsoft® Excel, Word, and PowerPoint.

Data are secured by Secured Socket Layer (SSL) encryption technology and by individual member IDs and passwords, making the site as secure as an online banking account. TeamLink℠ will be used to:

- Organize, store, and review electronic files, including documents, photos and video, maps, and data.
- View and query data in tabular and spatial formats.
- Manage project schedules, contractor invoices, resource management, and commitment tracking/scheduling.
- Submit and receive reports and invoices from subcontractors (if requested).

TeamLink℠'s Filing Cabinet provides a project-specific organizational structure for easier management of project documents and includes the following features:

- Multiple Security Levels—Various levels of security control which team, subgroup, or user can view which information.
- Document Response/Review Capabilities—Each document's complete lifecycle can be managed by posting responses/reviews to documents in a threaded hierarchy structure.