AMBIENT AIR MONITORING PROGRAM
for the
130 LIBERTY STREET
DECONSTRUCTION PROJECT

June 13, 2005

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TABLE OF CONTENTS

Title **Page**

TABLES

FIGURES

APPENDICES

1.0 INTRODUCTION

1.1 Project Background and Evolution

This document entitled *Ambient Air Monitoring Program for the 130 Liberty Street Deconstruction* Project (Proposed Plan) represents a revised and combined air monitoring plan incorporating the following two prior plans: (i) the Draft Plan provided as Section 2 of the Draft Deconstruction Plan issued by Contractor on December 10, 2004 and (ii) the companion plan prepared by TRC Environmental Corporation (TRC) entitled *Proposed Enhanced Exterior Air Monitoring Approach and Conceptual Design 130 Liberty Street* (October 8 2004**.** Both of these documents were issued by the Lower Manhattan Development Corporation (LMDC) in December 2004 for review and comment by federal, state, and local regulators and the general public. At the time of release, readers of the two companion plans were advised by LMDC that, due to their independent development, there were redundancies and a good deal of overlap in the two plans. For this reason, LMDC intended to revise the two programs to ensure that the contractor's and property owner's monitoring programs were complementary and contained the necessary overlap to serve Quality Assurance/Quality Control purposes.

The December 2004 plans were submitted to regulatory agencies for review**.** Written responses from the United States Environmental Protection Agency (USEPA), the New York State Department of Environmental Conservation (NYSDEC)**,** and the New York State Department of Labor (NYSDOL) addressing the December 2004 plans were provided to LMDC on January 31, 2005. This Proposed Plan was prepared to address the agencies' January 31, 2005 responses.

Additionally, subsequent to release of the December 2004 air monitoring plans**,** an approved monitoring plan for the deconstruction of 4 Albany Street was issued. This plan**,** entitled *Specifications for Community Environmental Monitoring During Abatement and Demolition of 4 Albany Street* **(**December 22, 2004**),** was approved for use by many of the same regulatory agencies reviewing the deconstruction of 130 Liberty. Accordingly, and at the direction of the regulators, the Proposed Plan adopts many of the features of the 4 Albany Street monitoring program**.** Most notably, the Proposed Plan adopts the two tiered system of action levels approved for use at 4 Albany Street.

This Proposed Plan appropriately consolidates the monitoring features previously offered in the two December 2004 companion programs. Once approved, the Proposed Plan will be implemented and administered by the Deconstruction Contractor and its specialty sub-contractors during the Preparation Phase, Phase I and Phase II of the deconstruction of the 130 Liberty Street property. In addition, LMDC will utilize an independent Environmental Consultant to serve in an oversight role. Such oversight will include specified Quality Assurance/Quality Control measures. This document does not provide all of the details of the quality assurance/quality control measures that will be implemented by LMDC. These measures are more appropriately be addressed in a Quality Assurance Project Plan (QAPP) that will be prepared and issued at a later date after a final approved air monitoring program is in place.

1.2 Project Purpose and Objectives

The principal purpose of the air monitoring program is to monitor air quality in the vicinity of 130 Liberty Street during the deconstruction of the building on that property. The Proposed Plan consists of monitoring of fugitive dusts in the vicinity of the deconstruction site on both a real-time or continuous basis as well as a time-weighted or integrated basis.

Principal objectives of the program are as follows:

- Monitor dusts as PM_{10} on a real-time or continuous basis such that fugitive dusts associated with the building deconstruction are maintained below predetermined action levels.

- In the event that fugitive dusts levels exceed predetermined action levels, building deconstruction management personnel will be immediately notified so that all necessary corrective actions can be taken.

- Monitor PM_{10} on a time weighted or 24-hour average basis to provide assurances that levels of respirable particulate matter associated with the deconstruction are below National Ambient Air Quality Standards (NAAQS) of 150 ug/m^3.

- Collect particulate matter on a time-weighted or integrated basis such that samples are available for monitoring of target compounds potentially associated with World Trade Center dust (e.g., asbestos, lead).

- Compare measured concentrations of project target parameters to action levels established on a compound specific basis. In the event that measured concentrations exceed any project specific action level for one or more of these target compounds,appropriate corrective actions immediately will be taken.

1.3 Overview of Air Quality Monitoring Programs and Features

- There are multiple aspects and levels to the overall air monitoring program proposed for the deconstruction of 130 Liberty Street. The following is a brief summary of the three (3) components or levels of air monitoring proposed for the project:

- "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 contaminants potentitally generated by the work at the source as required by OSHA.

- "Level 2": The next layer of sampling is for ICR 56 compliance. ICR 56-required sampling will be performed by the Contractor third party consultant who will sample the ambient air inside the building during Phase I work outside of work areas, at the personnel and waste load out decontamination stations and other locations. In addition, samples will be collected outside the building within ten (10) feet of the negative pressure ventilation exhaust. This sampling is further described in the Asbestos and COPC Abatement and Removal Plan.

- "Level 3": Beyond that, Contractor 's consultant will also be continually monitoring the exterior ambient air within the site boundaries and at specific elevated locations across the street from of the site, as described in this Ambient Air Monitoring Program.

While various parties will have responsibility for diligently executing different components of the program information will flow through Contractor to the LMDC and their consultants as part of a coordinated review and quality control process. Additionally, all monitoring results requested by the various regulators overseeing this project will be provided to them on a timely basis.

This Ambient Air Monitoring Program documents Contractor 's proposed program of "Level 3" only. The other two "levels" of air monitoring outlined above are documented in the Health and Safety Plan and The Asbestos and COPC Abatement and Removal Plan Sections of the Phase I Deconstruction Plan.

In addition, the Lower Manhattan Construction Command Center ("LMCCC") will conduct an air quality monitoring program throughout the Lower Manhattan rebuilding process. The program will begin during the summer of 2005 and will be administered by the LMCCC in consultation with the United States Environmental Protection Agency (EPA), New York State Department of Environmental Conservation (DEC), and New York City Department of Environmental Protection (DEP).

The LMCCC's program will focus on preventing elevated concentrations of particulate matter in surrounding neighborhoods during construction and will inform measures to minimize potential impacts. The LMCCC will analyze both short-term and long-term data throughout the rebuilding process in order to take appropriate mitigation action and enforcement if necessary. The air monitoring program will consist of $PM_{2.5}$ and PM_{10} fixed air samplers located in the neighborhoods surrounding the sites of major construction activities in Lower Manhattan including the World Trade Center Site redevelopment, the deconstruction of 130 Liberty Street, the Route 9A reconstruction, Fulton Street Transit Center, and the World Trade Center Transportation Hub. The proposed vicinities of the air monitoring locations include: northern Battery Park City/Tribeca, southern Battery Park City, Park Row/City Hall Park, and the Financial District.

The LMCCC's plan also includes project environmental performance commitments such as the use of ultra-low sulfur diesel fuel in off-road construction equipment. Construction sites will be encouraged to use electrically powered equipment instead of diesel powered equipment where practical. Idling times on diesel powered engines will be restricted to three minutes. Dust control measures will be enforced at construction sites, limiting the release of particulate matter. The LMCCC will also have ability to monitor and enforce these environmental performance commitments.

2.0 SAMPLING SITES

2.1 Network Design

Due to the unique circumstances associated with this deconstruction project two different types of monitoring sites are recommended for inclusion in the active monitoring network as follows:

- **Street Level Stations-** These locations essentially represent sidewalk settings situated around the perimeter of the building.

- **Upper Level Stations-** While extremely unlikely, it is not impossible for dusts to be released during building deconstruction at upper levels of the 40-story structure.. Accordingly, the proposed network will make use of a number of monitoring sites in place at elevated locations above street level. Three (3) such stations will be included in the monitoring network as shown in Figure 1.

2.2 Siting Criteria and Network Operations

The proposed network will be comprised of seven (7) stations in simultaneous operation at all times that building deconstruction activities are in progress, four (4) street level and three (3) elevated. The placement of sampling stations will follow USEPA and United States Army Corps of Engineers (ACOE) siting criteria for ambient particulate sampling systems to the extent possible. Strict adherence to these criteria at all stations may not be possible given the topography and logistics of the urbanized environment characteristic of the Lower Manhattan setting.

All four (4) of the ground level stations in the vicinity of the deconstruction site will be connected to a central computer housed in the site vicinity. The three (3) stations situated at elevated sites above street level will collect data continuously and telemeter (wirelessly transmit) the data to the central computer. All seven (7) of the monitoring stations in the immediate vicinity of the deconstruction site will monitor particulate as PM10 on a real-time basis. These data will be logged continuously at each of the sites as well as on the data logger contained in the on site computer center. These data will be stored and archived as 5-minute averages for each of the seven (7) stations.

2.3 Locations of Monitoring Stations

The list of proposed monitoring locations is provided in Table 1. These include four (4) stations situated at ground or street level and three (3) stations situated at elevated locations atop buildings adjacent to the 130 Liberty Street property. Actual stations pending access will be placed on roof-tops or setbacks of buildings directly across the street along the perimeter of the deconstruction site. The approximate locations of each of these stations in relation to the 130 Liberty Street Site are shown in the site schematic provided as Figure 1. Figure 1 also includes a composite wind rose representative of the New York Metropolitan area noting predominant wind directions likely to be characteristic of the project work zone during the term of the deconstruction project. These wind directional data were taken into consideration in the actual placement of monitoring stations around the 130 Liberty Street Site.

Table 1. Locations of Monitoring Stations – 130 Liberty St. Deconstruction Air Monitoring Network

Location #	Description
1	Southwest of building (Washington St./Albany St.) at ground level.
2	Southeast of building (Albany St./Greenwich St.) at ground level.
3	Northeast of building (Greenwich St) at ground level.
4	Northwest of building (Washington St./Cedar St.) at ground level.
5	Fire station (10-10 House) roof on Greenwich Street at an elevation of approximately 40 feet.
6	Apartment building (125 Cedar St) roof behind fire station at an elevation of approximately 160 feet.
7	Apartment building (120 Greenwich St) roof at corner of Albany St./Greenwich St. at an elevation of approximately 200 feet.

3.0 SAMPLING PHASES

Sampling phases will consist of the following segments: Background, Preparation Phase, Phase I – Asbestos and COPC Abatement, and Phase II - Structural Deconstruction. General descriptions of the work included in each phase are presented below.

3.1 Background

The background ambient air sampling period will consist of two weeks (14 consecutive calendar days) of monitoring performed prior to the start of Preparation Phase activities. Samples will be collected using all seven (7) stations in the monitoring network. Target parameters and the frequency of sample collection will follow measures presented in Sections 4 and 6, respectively.

3.2 Preparation Phase

The Preparation Phase includes the erection of scaffolding and hoists on the full extent of the exterior of the building, erection of sidewalk sheds, and the removal of existing netting on the exterior of the building.

3.3 Phase I - Asbestos and COPC Abatement

Phase I of the Deconstruction Project includes the cleaning and removal of all interior surfaces and non-structural elements within the building under containment. During the Phase I cleanup and abatement, a minimum buffer zone of two floors, will be maintained between the active abatement (Phase I) area and the exterior abatement/structural demolition (Phase II) portion of the project. The proposed Phase I cleanup and abatement will be conducted so that the Building can be safely deconstructed to allow for redevelopment of the WTC Site. This Phase I project entails:

- The use of a licensed abatement contractor to perform Phase I work within a negative pressure enclosed work area;
- Work includes the removal and disposal of soft strip/interior gut items and general area cleanup of dust and debris;
- Removal and disposal of installed porous and certain non-porous building materials and components. Work includes removal and disposal of all interior non-structural elements including but not limited to ceiling tiles, carpet, gypsum wall board, mechanical, electrical and plumbing, wiring/cabling, fiberglass insulation, doors, fireproofing, toilet fixtures;
- Cleaning and salvage of certain installed non-porous building equipment and components contaminated by dust and debris;

- Removal of building materials containing asbestos which were present in the Building prior to September 11th, 2001 (referred to herein as "ACBM"), primarily within the Building interior; and

- Erection of the crane and hoist.

3.4 Phase II – Structural Deconstruction

Phase II – Structural Deconstruction includes the cleaning of building exterior (i.e. building washdown), the structural deconstruction of the remaining cleaned steel, large MEP, concrete, and curtain wall and curtain wall components as well removal of exterior and roof, and roof equipment. Phase II will follow successful completion of Phase I work on a floor. Phase II of this project entails:

- Removal of cooling tower transite ACBM materials, rooftop ACBM caulking, and exterior façade aluminum panel ACBM caulking and localized removal of exposed exterior spray-on fireproofing**,**

- Structural deconstruction of the Building including but not limited to the cleaning of the exterior of the building (i.e. building washdown), removal of cleaned roof, roof equipement, curtain wall components, structural steel, concrete and large equipment requiring the use of the tower crane for removal; and

- Backfilling site**.**

4.0 TARGET PARAMETERS/COPCs

In February 2002, a multi-agency task force headed by the USEPA was formed to evaluate indoor environments for the presence of contaminants related to the WTC terrorist attacks that might pose long-term health risks to local residents. As part of this evaluation, a task force sub-committee was established to identify Contaminants of Potential Concern (COPC Committee) that are likely associated with the WTC disaster and establish health-based benchmarks for those contaminants in support of planned residential cleanup efforts in Lower Manhattan.

In addition, a number of other studies conducted by USEPA (EPA/600/R-03/142 December 2003) and (work performed by Louis Berger Group) were examined as a means of establishing a listing of target parameters appropriate to satisfy the purpose and objectives of the current deconstruction project. These objectives include active real time monitoring of fugitive dusts potentially related to the deconstruction as well as identifying levels of COPCS associated with the materials at 130 Liberty. In this manner the deconstruction project can proceed while providing an ample margin of safety for human health and the environment in the vicinity of the project site.

Most recently, USEPA approved an air monitoring program for use during the deconstruction of 4 Albany Street, another building contaminated by WTC dust as a result of the WTC disaster. This Plan entitled *"Specifications for Community Environmental Air Monitoring During the Abatement and Demolition of 4 Albany Street"* was issued as approved for use by USEPA and NYDEC on December 22, 2004. The target parameters identified for monitoring during this abatement and demolition program were also considered in the course of developing the list of target parameters for the 130 Liberty Street property.

Based upon these criteria the following target parameters were selected for inclusion in the monitoring program:

- PM_{10}-Respirable Particulate
- Asbestos
- Crystalline Silica
- PCDDs/PCDFs
- PAHs
- PCBs
- Metals (antimony, barium, beryllium, cadmium, chromium, copper, lead, mercury (gaseous and particulate bound) manganese, nickel and zinc).

5.0 SAMPLING AND ANALYSES METHODOLOGY

A summary of all sampling and analyses methods proposed for use during the deconstruction of 130 Liberty Street is provided in Table 2. All analytes will be measured at each of the seven (7) stations identified in Section 2.0 of this plan during all three (3) of the program phases. These phases as defined in Section 3.0 of this plan include background monitoring (2 weeks prior to Phase I), Preparation Phase, Phase I - Asbestos and COPC Abatement, and Phase II - Structural Deconstruction. As noted, all samples in Table 2 will be collected over 24-hour integrated time periods with the exception of asbestos, PM_{10} and mercury vapor employing the Lumex device. Asbestos samples will be collected over 4-12 hour averaging periods, while PM_{10} measurements will be collected on a continuous near "real time" basis. Proper chain of custody procedures will be employed for all intregrated samples collected. Details regarding the sampling and analyses methods planned for each type of target parameter is provided in the following sections.

Table 2. Summary of Sampling and Analyses Methods

Analyte	Sampling Method	Sample Rate*	Duration Per day	Comments
Metals				
Antimony, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Manganese, Nickel, and Zinc	TSP High Volume Air Sampler 40 CFR Part 50 App B	1000 lpm	24 hours	XRay-Fluoresence (XRF) EPA Method IO 3.3
Mercury (Gas)	Ohio Lumex RA 915+ Direct Read	20 lpm	Instantaneously	Elemental (gas) Mercury Analysis
Mercury (Total)	Iodated Carbon Trap with CVAF	4 lpm	24 hours	
Particulate and Dust				
Asbestos	NIOSH 7402	2-6 lpm	Minimum of 4 hours	Analysis via AHERA Mod. Methodology
Particulate PM_{10}	Met One EBAM	16.7 lpm	24 hours	
Respirable Crystalline Silica and Dust	NIOSH 0600/7500	2.5 lpm	24 hours	SKC Aluminum Cyclone
Organics (semivolatile)				
Dioxins/Furans (PCDDs/PCDFs)	EPA TO 9A	200-300 lpm	24 hours	Quartz Fiber Filter and PUF Cartridge
Polychlorinated biphenyls (PCB)	EPA TO 4A	200-300 lpm	24 hours	Quartz Fiber Filter and PUF Cartridge
Polycyclic Aromatic Hydrocarbons (PAH)	EPA TO 13A	200-300 lpm	24 hours	Quartz Fiber Filter and PUF/XAD-2 "Sandwich" Cartridge

*lpm = liters per minute

5.1 PM_{10} Monitoring ("Real-Time"/Continuous)

5.1.1 Beta – Attenuation PM_{10} Monitors (All Sites)

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 USEPA as either Reference or Equivalent Method. However, the E-BAM design is descended directly from the BAM-1020 (which has received USEPA'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 USEPA 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 samples 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 in this category include the dichotomous sampler, IMPROVE samplers, nephelomethers, 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 data from the Dust Monitors will be recorded by CSI CR510 digital data loggers, and telemetered back via CDMA cellular modems. The loggers on-board the units will act as backup to the CSI loggers.

5.1.2 USEPA Reference Method PM_{10} Monitor

One reference method PM_{10} sampler will be collocated along side the real-time PM_{10} monitors as a quality assurance (QA) check. The sampler will rotate on a monthly basis through all real-time PM_{10} monitor locations for the duration of the monitoring program. It is proposed that a filter based PM10 EPA Reference Sampler be used such as an Andersen RAAS or performance equivalent system. In this manner the 24-hour average PM10 concentration (ug/m3) measured gravimetrically using the filter collection method can be directly compared to the average PM10 concentration measured using the collocated EBAM sampling system. The latter value will be expressed as a 24-hour average representing a composite of all 5-minute average values.

5.2 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:

- The sensitivity on TEM air samples will be less than 0.002 s/cc.
- Both length and width of all asbestos fibers will be recorded.
- Confirmation by Energy Dispersive Spectroscopy (EDS) and/or Selected Area Electron Diffraction (SAED) will be performed for each sample.
- The morphology of the fibers will be noted and recorded.

5.3 Metals

- Metals sampling and analysis will be performed following EPA Reference Methods for the collection of Total Suspended Particulate (TSP) and lead (40 CFR Part 50 App B) in combination with EPA Method IO 3.3 for the analyses of metals by X-Ray fluorescence.

- Metals to be analyzed by XRF and reported are: Antimony, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Manganese, Nickel and Zinc.

5.4 Mercury (Gas/Vapor)

Real-time monitoring for mercury will be performed utilizing a Lumex RA 915+ direct read instrument. The readings will be included with the daily download of sample collection data.

The Lumex RA 915+ 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 each of the fixed air monitoring locations (seven during Abatement Phase and Demolition Phases). At the discretion of the Environmental Consultant and as daily site conditions may dictate, additional mercury readings may be taken.

5.5 Mercury (Vapor/Gas)

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. An iodated carbon trap will be analyzed for total elemental mercury (particulate associated/vapor) 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.

5.6 Respirable Dust and Crystalline Silica

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

5.7 Semivolatile Organics (PCDDs/PCDFs, PAHs, PCBs)

Each site will have two (2) General Metal Works (GMW) model PS-1 high volume air samplers to collect 24-hour samples of PAH, Dioxin/Furan and PCBs, following USEPA Method TO-13A, TO 9A, and TO-4A, respectively. One sampler will be used for PAHs. A second sampler will be use for both PCBs and D/Fs. Method TO-13A, TO4A, 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 semivolatile 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 approximately 250 liters per minute resulting in a total air volume of 360 m^3 over the prescribed 24-hour sampling period.

6.0 SAMPLING FREQUENCY

6.1 Background

The background ambient air sampling period will consist of two weeks (14 consecutive calendar days) of monitoring performed immediately prior to the start of abatement activities. Samples will be collected using all seven (7) stations in the monitoring network. All target parameters will be collected over a 24-hour integrated period with the exception of asbestos, PM10 and mercury utilizing the Lumex instrument. PM10 will be monitored continuously at each of the seven (7) sites while asbestos measurements will be taken at a frequency of once per every eight (8) to twelve (12) hours at each of the sites.

6.2 Preparation Phase

The Preparation Phase air monitoring will follow the same schedule and frequency as described below in Phase I and will commence with the start of Preparation Phase site work.

6.3 Phase I – Asbestos and COPC Abatement Phase

During Phase I (abatement phase) air monitoring will take place at all seven (7) stations each day. During the first three (3) days only of Phase I work, samples will be collected for semivolatile organics to include PCDDs/PCDFs, PAHs and PCBs. After this first three (3) day period, samples for semivolatile organics will be reduced to a single location per week employing the seven (7) station network**.** More specifically, samples will not be collected using all seven (7) stations each day; rather a single set of samples will be collected each day at a single station in the network. This sequence will be repeated each day using a different station each day until all of the seven (7) stations have been used. In this manner a set of samples will be collected at each location every seven (7) days. The schedule will be repeated until project completion.

The semivolatile organic samples collected employing this weekly sampling frequency will not be processed for analyses; rather they will be placed in archival storage at the laboratory. A single set of samples will be selected from each sample set representing seven (7) days to undergo analyses for PCDDs/PCDFs, PAHs and PCBs. The station with the highest 24-hour average PM10 concentration (ug/m3) recorded with a collocated organic sample each week will be selected for semivolatile organic analyses.

A summary of sampling frequencies on a target parameter specific basis applicable to the abatement phase of the deconstruction program is provided in Table 3.

Table 3. Phase I -Abatement Phase Sampling and Analysis Summary

Location	Parameter(s)	Sample Frequency	Analysis Method
Site Area	Mercury (vapor/gas)	Each Day	Lumex, portable mercury analyzer
Site Area	Visible dust emissions	Each Day	Visual observation

Table 3. Phase I -Abatement Phase Sampling and Analysis Summary			
Location	**Parameter(s)**	**Sample Frequency**	**Analysis Method**
Ground/Street Level (4 Locations)	1. Asbestos 2. Silica 3. Metals	Each Day, asbestos is sampled each work shift	1. TEM 2. XRD 3. XRF
	4. PCDDs/PCDFs 5. PAHs 6. PCBs	Each Day (24 hr. Basis)	4. TO 9 A (HRGC/HRMs) 5. TO 13 A (GC/MS) 6. TO 4 A (GC/MS)
	7. PM10 8. Mercury (vapor/gas)	Continuously "Real-Time" Each Day	7. EBAM 8. IodatedCarbon Trap/CVAF
Roof Top (3 Locations)	1. Asbestos	Each Day	1. TEM
	2. Silica 3. Metals 4. PCDDs/PCDFs 5. PAHs 6. PCBs	Each Day (24 hr. Basis)	2. XRD 3. XRF 4. TO 9 A (HRGC/HRMS) 5. TO 13 A (GC/MS) 6. TO 4 A (GC/MS)
	7. PM10 8. Mercury (vapor/gas)	Continuously "Real-Time" Each Day	7. EBAM 8. Iodated Carbon Trap/CVAF

6.4 Phase II – Structural Deconstruction

During Phase II of the deconstruction project, air monitoring will take place at all seven (7) stations each day. During the first three (3) days only of Phase II, samples will be collected for semi-volatile organics to include PCDDs/PCDFs, PAHs and PCBs. After this first three (3) day period, samples for these organic parameters will be reduced to a single location per week frequency employing the seven (7) station network. More specifically, samples will not be collected using all seven (7) stations each day; rather a single set of samples will be collected each day at a single station in the network. This sequence will be repeated each day using a different station each day until all of the seven (7) stations have been used. In this manner a set of samples will be collected at each location every seven (7) days.The schedule will be repeated until project completion.

The semivolatile organic samples collected employing this weekly sampling frequency will not be processed for analyses; rather they will be placed in archival storage at the laboratory. A single set of samples will be selected from each sample set representing seven (7) days to undergo analyses for PCDDs/PCDFs, PAHs and PCBs. This sample set will be selected after consideration of the PM10 data corresponding to the sites and days where organic samples were collected. The station with the highest 24-hour average PM10 concentration (ug/m3) recorded with a collocated organic sample each week will be selected for analyses.

A summary of sampling frequencies on a target parameter specific basis applicable to the demolition phase of the deconstruction program is provided in Table 4.

Table 4. Phase II – Structural Deconstruction Phase Sampling and Analysis Summary			
Location	**Parameter(s)**	**Sample Frequency**	**Analysis Method**
Site Area	Mercury (vapor/gas)	Each Day	Lumex, portable mercury analyzer
Site Area	Visible dust emissions	Each Day	Visual observation
Ground/Street Level (4 Locations)	1. Asbestos 2. Silica 3. Metals	Each Day, asbestos is sampled each work shift	1. TEM 2. XRD 3. XRF
	4. PCDDs/PCDFs 5. PAHs 6. PCBs	Each Day (24 hr. Basis)	4. TO 9 A (HRGC/HRMS) 5. TO 13 A (GC/MS) 6. TO 4 A (GC/MS)
	7. PM10 8. Mercury (vapor/gas)	Continuously "Real-Time" Each Day	7. EBAM 8. Iodated Carbon Trap/CVAF
Roof Top (3 Locations)	1. Asbestos	Each work shift	1. TEM
	2. Silica 3. Metals 4. PCDDs/PCDFs 5. PAHs 6. PCBs	Each Day (24 hr. Basis)	2. XRD 3. XRF 4. TO 9 A (HRGC/HRMs 5. TO 13 A (GC/MS) 6. TO 4 A (GC/MS)
	7. PM10 8. Mercury (vapor/gas)	Continuously "Real-Time" Each Day	7. EBAM 8. Iodated Carbon Trap/CVAF

7.0 METEOROLOGICAL MONITORING

Due to the complex nature of wind movement in an around buildings in the urbanized setting of Lower Manhattan, monitoring of wind velocity and direction on a continuous basis is warranted. Data available from regional National Weather Stations (NWS) such as Newark Airport, LaGuardia and Kennedy Airports can be used to complement the localized data but is likely NWS data may not always representative of conditions in and around the 130 Liberty Street site. A meteorological station will be deployed in the immediate vicinity of the site. The actual station will initially be located at roof top level at the deconstruction site.

The on site meteorological station will be connected directly to the computer station situated at ground level. Data will transmitted continuously and recorded as 5-minute average values. Data from the roof top station will be logged continuously at the unit's data logger and also transmitted via telemetry to the street level computer station.

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 due to ongoing construction activities. The 130 Liberty Street roof mounted station, will then be collocated with one of the air monitoring stations..

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. A 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 via CDMA cellular modems.

8.0 ACTION LEVELS AND MITIGATION MEASURES

A two tiered system will be in place during the entire term of the deconstruction project. This system includes use of both Target Air Quality Levels and USEPA Site Specific Trigger Levels for each of the target parameters identified previously in Section 4. A summary listing of these Action Levels provided on a parameter specific basis is shown in Table 5.

Table 5. Target Air Quality Levels and USEPA Site Trigger Levels[a]

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

[a]All values listed in Table 5 are consistent with Target Air Quality Levels and USEPA Site Trigger Levels adopted for use during 4 Albany Street deconstruction project. As such these levels represent USEPA/NYDEC sanctioned values.

8.1 Action Levels

The following actions will be taken if there is an exceedance of any Target Air Quality Level. If there is an exceedance of both the Target Air Quality Level and USEPA Site Specific Trigger Level, actions associated with the USEPA Site Specific Trigger Level will govern.

8.1.1 Target Air Quality Levels

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

Any sample of an analyte, other than PM_{10}, in excess of 3 times the Target Air Quality level for that analyte will be considered an exceedance and the actions described below will be taken.

Following the first week of sampling, a cumulative 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.

Exceedance of an established target Air Quality Level for any analyte calculated as shown 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.

8.1.2 USEPA Site Specific Trigger Levels

Any 24-hour value (work shift value on days or four hour value on non-work days in the case of asbestos) in excess of the USEPA Site Specific Trigger Level will be considered an "exceedance" and the actions described below will be taken.

Exceedance of USEPA 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 USEPA Site Specific Trigger Levels are applicable to individual sample results. If any of the individual sample results exceed an USEPA Site Specific Trigger level, then notification must be made to the USEPA Region 2, NYCDEP, NYSDOL and NYSDEC. Work will be reinitiated once the USEPA Region 2 has agreed (and NYSDOL 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.

9.0 EXCEEDANCE NOTIFICATION

Notification

The USEPA Region 2, NYCDEP, NYSDEC and the NYSDOL will be notified as promptly as reasonably possible via phone and electronic mail of any exceedance of either a Target Air Quality Level or a USEPA Site Specific Trigger Level and will be notified promptly of any corrective actions taken in connection with a Target Air Quality Level exceedance or an USEPA Site Specific Trigger Level exceedance.

Monitoring Data

All Sampling results collected pursuant to this specification, in suitable electronic form, will be promptly provided to the USEPA Region 2, NYCDEP, NYSDEC and NYSDOL offices weekly and exceedances will be reported as provided above.

10.0 QUALITY ASSURANCE/QUALITY CONTROL

10.1 Overview

The program described herein will be performed by the Environmental Subcontractor under subcontract to Contractor, the overall general contractor for the 130 Liberty Street Deconstruction Project. The Contractor Environmental Subcontractor will assume responsibility for the collection and analyses of all samples identified previously in Sections 5 and 6 of this plan. The Contractor Environmental Subcontractor/Contractor Team will assume responsibility for the quality of all data to be collected in the conduct of the deconstruction project. LMDC in its role as property owner will utilize its independent Environmental Consultant to serve in an oversight role to the Contractor monitoring activities. This oversight role will include additional QA/QC measures to be implemented by LMDC and its consultants to further insure that all monitoring data meet predetermined data quality goals and objectives. A separate document or Quality Assurance Project Plan (QAPP) will be prepared and issued for agency review and comment. This QAPP will provide details on all QA/QC measures to be put in place by the Contractor Environmental Subcontractor/Contractor Team for the deconstruction monitoring program. This QAPP will also identify all of the additional QA/QC measures to be undertaken by the LMDC consultant to fulfill its oversight function for this program.

10.2 Contractor Environmental Subcontractor/Contractor Quality Assurance/Quality Control

The Contractor Environmental Subcontractor/Contractor Team will have primary responsibility for implementation of all program Quality Control measures identified in the QAPP. These will include but not be limited to the following types of QA/QC features:

- Data Quality Objectives
- Detection Limit Goals
- Data Capture Goals
- Chain of Custody
- Calibration Procedures and Frequencies
- Field Blanks
- Lab Blanks
- Collocated Samples
- Matrix Spikes
- Lab Control Spikes
- Lab Method Blanks
- Field Surrogate Spikes
- Lab Surrogate Spikes
- Corrective Action Measures

Elements of QA/QC typically contained in a QAPP are listed in Table 6.

Table 6. Elements Typically Contained in a Quality Assurance Project Plan (QAPP)

Title Page. Should include the name of the document and the date it was prepared. The QA officer should sign the title page, ensuring that field and laboratory personnel are aware of the requirements for precision, accuracy, completeness, representativeness, and comparability. *Table of contents*. Includes a listing of the QAPP elements and any appendices, figures, and tables. A list of the recipients of official copies of the QAPP should also be provided. *Project description*. Consists of a general paragraph describing the scope of work, general objectives, and required measurements. (If the project description is discussed in the field sampling plan, it does not need to be repeated in the QAPP.) *Proved organization and responsibility*. Identifies key field and laboratory personnel or organizations that are necessary for each analytical activity during the study. A table or chart showing the organization and lines of authority should be included. The organizational chart should also include all subcontractors and their key points of contact. The QA officer should be organizationally independent of project management so that the risk of conflict of interest is minimized. *Data quality objectives.* Describes the QA objectives for the data so that the data can achieve their intended use. Project-specific data quality objectives that have been identified for the project, short-term decisions that will be made during the project planning phase, and long-term decisions that will be made prior to project closeout should be highlighted. *Sampling locations and procedures*. References the sections of the field sampling plan that discuss the general rationale for choosing sampling locations and the sampling procedures proposed for each matrix. *Sample custody and holding times*. References the appropriate sections (e.g., sample custody/ documentation) of the field sampling plan for all custody and holding requirements pertaining to the field and laboratory activities. *Sampling and analytical procedures*. Identifies the appropriate sampling and analytical test methods that should be used for each environmental sample.	*Calibration procedures and frequencies*. Discusses the calibration procedures to be used, the number and concentration of calibration standards, and the calibration range and procedures to establish and verify the calibration of instruments. *Internal QC checks*. Identifies the specific internal QC methods to be used, including analyses of method blanks; use of laboratory control samples, and use of environmental samples as duplicates, matrix spikes, and duplicates. *Calculation of data quality indicators*. Discusses how precision, accuracy, completeness, representativeness, and comparability goals are to be calculated from the project data. *Corrective actions*. Addresses corrective actions that must be implemented if QA specifications are not met. Corrective actions could include resampling, reanalyzing samples, or auditing laboratory procedures. Persons responsible for initiating these actions should be identified. *Data reduction, review, validation and reporting*. Discusses the data review process that is required to assure the validity of the data. Data reduction procedures should be summarized and the persons responsible for data reduction identified. The format for reporting the data and the data reporting schedule should be specified. *Preventive maintenance*. Discusses the preventive maintenance plan that will be implemented to minimize downtime of field and laboratory instrumentation. *Audits*. Describes the performance, systems, data quality, and management audits that will be performed onsite and at the laboratory. *QC reports to management*. Discusses QC reports that will be prepared. These reports typically include an assessment of accuracy, precision, completeness, representativeness, and comparability; audit results; and significant QA problems encountered.

Source: Design, Installation and Utilization of Fixed-Fenceline Sample Collection and Monitoring System, US Army Corps. of Engineers, EM 200-1-5 – 1 October 1997

10.3 LMDC Oversight Role

LMDC, through its consultants, will conduct specified oversight of the Quality Assurance/Quality Control measures to be implemented by Contractor /Contractor Environmental Subcontractor in performance of the 130 Liberty Street Deconstruction Ambient Air Monitoring Program. The specific responsibilities of LMDC and its consultants will be identified in more detail in the QAPP. These will include but not be limited to the following types of activities and measures:

- Collocated Field Samples
- Data Validation
- Field Systems and Calibration Audits
- Data Quality Audits
- Performance Evaluation Samples (" Blind" Reference Samples NIST/EPA)

11.0 ELECTRONIC DATA MANAGEMENT AND REPORTING

11.1 Data Acquisition Systems

The primary data acquisition system for the continuous monitors and the meteorological system will be the CSI CR510 data logger, or equivalent. 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.

11.2 Data Management

The current Contractor Environmental Subcontractor 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. These systems, or equivalent for the purposes of this project, will be utilized for the management of data:

- 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 A of this document.

11.3 Reporting

Samples will be shipped overnight to the laboratory the day after the sample period. Please refer to Table 7 for proposed laboratory turnaround times on a parameter specific basis. Data reporting schedules and frequencies are also provided. PAHs, PCB, and D/F's data collected are loaded to the EnviroData® database, or equivalent on Contractor Environmental Subcontractor's server within 48 hours of receipt of the EDD from the laboratory. The data can be viewed in tabular format through the Teamlink℠ Website, or equivalent.

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

A data analysis report will be submitted to Contractor 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 demolition segment of the monitoring program will be primarily used for real-time data display and triggering notification when action levels are exceeded (See Sections 7 and 8). All continuous monitoring data will be archived in Microsoft SQL Server databases maintained on a secure Internet server in the Contractor Environmental Subcontractor's offices.

Basic summary information and real-time displays of the monitoring data will be available interactively on-line. The Website will allow the Contractor Environmental Subcontractor 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 website.

Authorized personnel from USEPA Region 2, NYCDEC, NYSDEC and NYSDOL will also be provided direct access to the website where all air monitoring data will be posted. In addition, once the air monitoring data has been subject to QA/QC review validated results will also be posted on the website in a dedicated location for direct access by the general public.

11.3.1 Electronic Communication Equipment and Software

As previously described, communications with the CSI data loggers will be via cellular CDMA modems, or equivalent at each station. The loggers will be polled automatically from Contractor Environmental Subcontractor's office and the retrieved data will be automatically uploaded immediately after receipt. Data can be downloaded by users directly to Microsoft® Excel® or Access®.

Table 7. Data Reporting Schedule and Frequency for Each Program Phase			
Analyte	**Lab Turnaround Time (TAT)**	**Reporting Frequency**	**Sample Period**
Background Phase			
Metals	3 Days	Every Day	24 Hours
Asbestos	24 Hours	Every Day	Work Shift
Semivolatiles	5 Days	Every Day	24 Hours
Silica	3 Days	Every Day	24 Hours
Real-time PM_{10}	NA	Every Day	Continuous 24/7
Real-time Hg	NA	Every Day	Instantaneously
Phase I - Abatement			
Metals	3 Days	Every Day	24 Hours
Asbestos	24 Hours	Every Day	Work Shift
Semivolatiles	5 Days	Every Day	24 Hours
Silica	3 Days	Every Day	24 Hours
Real-time PM_{10}	NA	Every Day	Continuous 24/7
Real-time Hg	NA	Every Day	Instantaneously
Phase II – Structural Deconstruction			
Metals	3 Days	Every Day	24 Hours
Asbestos	24 Hours	Every Day	Work Shift
Semivolatiles	5 Days	Every Day	24 Hours
Silica	3 Days	Every Day	24 Hours
Real-time PM_{10}	NA	Every Day	Continuous 24/7
Real-time Hg	NA	Every Day	Instantaneously

APPENDIX A
ELECTRONIC COMMUNICATION-SOFTWARE TOOLS

Data Management Program

An environmental data management program will be provided that facilitates the processing of current and historical analytical data collected across multiple work areas. Contractor Environmental Subcontractor will provide analytical sampling results via EDD's compatible to export results to a standardized Microsoft® Access datamart for end-users of the data. The datamarts can be accessed to provide interactive data queries, charting, and summaries.

Automated Data Collection

Contractor Environmental Subcontractor's 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 system architecture consists of three tiers: field data collection, database storage, and Web-based data access and reporting.

The system uses digital data loggers and software for data collection and retrieval. These loggers were described previously and will transmit their data to Contractor Environmental Subcontractor via wireless modems.

Contractor Environmental Subcontractor 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 Contractor Environmental Subcontractor's system, data can be manipulated and viewed in real time in tabular, graphical, or spatial formats.

Data Tracking Software

Contractor Environmental Subcontractor will utilize 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. The program 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. The Program 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 to various environmental data management systems (EDMS), including Geographical Information Systems (GIS), Microsoft® Access® and Excel®, and more.

Virtual Private Network

The Contractor Environmental Subcontractor will develop a 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. The data can be manipulated and viewed in real time in tabular, graphical, or spatial formats enabling easier reporting of data. 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.
This system 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.