HEALTH AND SAFETY PLAN

for the

130 LIBERTY STREET BUILDING DECONSTRUCTION PROJECT

September 7, 2005

LOWER MANHATTAN DEVELOPMENT CORPORATION
1 Liberty Plaza
New York, New York 10006

HASP approved by: _____ Date: _____

Affiliation: _____

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Revised by: _____ Date: _____

Affiliation: _____

Revised by: _____ Date: _____

Affiliation: _____

NYCSSM approval: _____ Date: _____

Affiliation: _____

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ABIH	American Board of Industrial Hygiene
ACGIH	American Conference of Governmental Industrial Hygienists
AL	Action Level
ANSI	American National Standards Institute
APR	Air-Purifying Respirator
CFR	Code of Federal Regulations
CGI	Combustible Gas Indicator
CIH	Certified Industrial Hygienist
COPCs	Contaminants of Potential Concern
CPR	Cardiopulmonary Resuscitation
CRZ	Contamination Reduction Zone
dBA	decibels adjusted (decibels on the "A" scale)
EC	Emergency Coordinator
EMS	Emergency Medical Service
EMT	Emergency Medical Technician
ER	Emergency Response
ERT	Emergency Response Team
EZ	Exclusion Zone
f/cc	Fibers per cubic centimeter
FEC	Facility Emergency Coordinator
GFCI	Ground Fault Circuit Interrupter
H&S	Health and Safety
HAZWOPER	Hazardous Waste Operations and Emergency Response
HCP	Hazard Communication Program
HCS	Hazard Communication Standard
HEPA	High Efficiency Particulate Air
HMTA	Hazardous Materials Transportation Act
IC	Incident Commander
IDLH	Immediately Dangerous to Life and Health
lbs	pounds
LEL	Lower Explosive Limit
LMDC	Lower Manhattan Development Corporation
MAWP	Maximum Allowable Working Pressure

mg/m^3	milligrams per cubic meter
MSDS	Material Safety Data Sheet
MSHA	Mine Safety and Health Administration
NIOSH	National Institute for Occupational Safety and Health
NYCDEP	New York City Department of Environmental Protection
NYCSSM	New York City Site Safety Manager
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limits
PM	Project Manager
ppm	parts per million
psia	pounds per square inch, absolute
psig	pounds per square inch, gauge
Q&P	Quality and Protection
SAR	supplied air respirator
SCBA	self-contained breathing apparatus
SOW	Scope of Work
SSHO	Site Safety and Health Officer
STEL	Short-Term Exposure Limit
SZ	Support Zone
TWA	Time-Weighted Average
WTC	World Trade Center

1.0 INTRODUCTION

This Health and Safety Plan (HASP) presents the practices and procedures that the Contractor shall implement and enforce during the deconstruction of the building located at 130 Liberty Street in New York City (the Building). This HASP will be applicable to all persons entering the Building and to all persons working in and around the Building.

This HASP covers the activities to be undertaken during the Deconstruction Project, which will occur in the following three phases:

- Phase I - Preparation Phase
- Phase I – Asbestos and COPC Abatement and Removal
- Phase II – Structural Deconstruction

The Phase I - Preparation Phase includes the erection of scaffolding and hoists on the full extent of the exterior of the building, construction of interior hoist vestibules, erection of sidewalk sheds and perimeter fencing, exterior negative pressure tent enclosures to implement the Pilot Program, localized roof, façade and general exterior area clean-up and the removal of existing netting on the exterior of the building.

Phase I – Asbestos and COPC Abatement and Removal Phase includes the cleaning and removal of all interior surfaces and non-structural elements within the building under containment. The cleanup and abatement will be conducted so that the building at 130 Liberty (Building) can be safely deconstructed to allow for redevelopment of the WTC Site. Phase I of the Deconstruction Project will occur while the work area is placed under negative pressure containment and includes the following general categories: (a) the general area cleanup of WTC dust and debris, (b) removal and disposal of installed porous and certain non-porous building materials and components, (c) cleaning and salvage of certain installed non-porous building equipment and components, (d) 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, (e) packaging of asbestos and other regulated waste including, but not limited to light bulbs, lighting ballasts, batteries, mercury-containing thermostats, etc.) at generation points, movement of containers to the decontamination unit and movement of decontaminated containers to waste loading using an exterior hoist or crane, (f) cleaning of exterior surfaces of the Building (i.e. building washdown), and (g) installation of tower crane.

During all Phase I activities, a minimum buffer zone of three floors initially for the top three floors and then two floors thereafter, will be maintained between the active abatement and clean-up (Phase I– Asbestos and COPC Abatement and Removal) area and the structural deconstruction (Phase II) portion of the project. The proposed clean-up and abatement will be

conducted so that the Building can be safely deconstructed in Phase II of the Deconstruction Project in compliance with applicable law to allow for redevelopment of the WTC site.

Phase II will include the systematic floor-by-floor deconstruction and removal of the remaining "clean" building components including the clean exterior curtain wall, roof, CMU shafts, concrete deck, large scale mechanical equipment components and structural steel components. Included in Phase II will be the abatement and removal of roof-top asbestos-containing cooling tower transite materials, rooftop caulking and asbestos-containing caulking found on the aluminum column covers and fascia. For each specific floor or regulated abatement work area, all Phase II asbestos abatement work must be completed prior to commencement of any Phase II floor-by-floor deconstruction for that floor or work area.

The Contractor shall be supported on this project by various subcontractors. Subcontractors shall:

- Provide environmental testing, air sampling and asbestos and COPC project monitoring (Contractor's Environmental Consultant including the function of Environmental Consultant Project Monitor)
- Perform cleaning activities to remove WTC dust, perform ACBM abatement and removal of building materials/components (Abatement Subcontractor)
- Provide miscellaneous support of Deconstruction activities, e.g., plumbers, electricians, elevator operators; service personnel, etc.

Organization charts for the 130 Liberty Street Deconstruction Project can be found in Attachment-1. The Contractor's and first tier Subcontractors' Standard Safety Operating Procedures will be submitted to the Owner prior to start of work.

1.1 Background

The events of September 11, 2001, which caused the destruction of the WTC Towers, physically destroyed portions of the interior and exterior of the 130 Liberty Street Building. The massive debris generated from the collapse of the WTC South Tower broke numerous windows and opened a gash ("Gash Area") in the Building's north wall extending from the 7th to 24th floors, thereby exposing portions of the interior of the north side of the Building allowing dust and debris to enter into the Building. The Building has remained idle since September 11, 2001.
Subsequent to September 11, 2001, operations were undertaken to clear debris from the plaza in front of the building, lobby and interior spaces in the Gash Area. Porous geosynthetic mesh or "netting" was hung on the outside of the Building. The Gash Area was cleaned to permit the construction of columns, beams and floor decks to stabilize the Gash Area. Once the initial limited cleaning and stabilization measures were in place, the majority of the office furniture,

equipment and other non-attached items in the Building were removed and disposed of by then-owner Deutsche Bank.

As part of the WTC area redevelopment, the Lower Manhattan Development Corporation (LMDC) purchased the Building from Deutsche Bank. The LMDC plans call for removing the Building and using the property for the development of the WTC complex.

1.1.1 Environmental Study

LMDC retained The Louis Berger Group, Inc. to conduct an Initial Building Characterization Study for the 130 Liberty Street building. As part of that characterization, the settled dust in and on the Building was sampled throughout the Building and analyzed for five Contaminants of Potential Concern (COPCs) designated by the United States Environmental Protection Agency (USEPA) as being associated with the WTC dust (i.e., asbestos, dioxin, lead, polycyclic aromatic hydrocarbons [PAHs] and crystalline silica) as well as other contaminants suspected of being present in the Building including polychlorinated biphenyls (PCBs) and heavy metals (barium, beryllium, cadmium, copper, manganese, mercury, nickel and zinc). The findings of the characterization concluded that COPCs in varying concentrations are present throughout the WTC dust found within and on the Building.

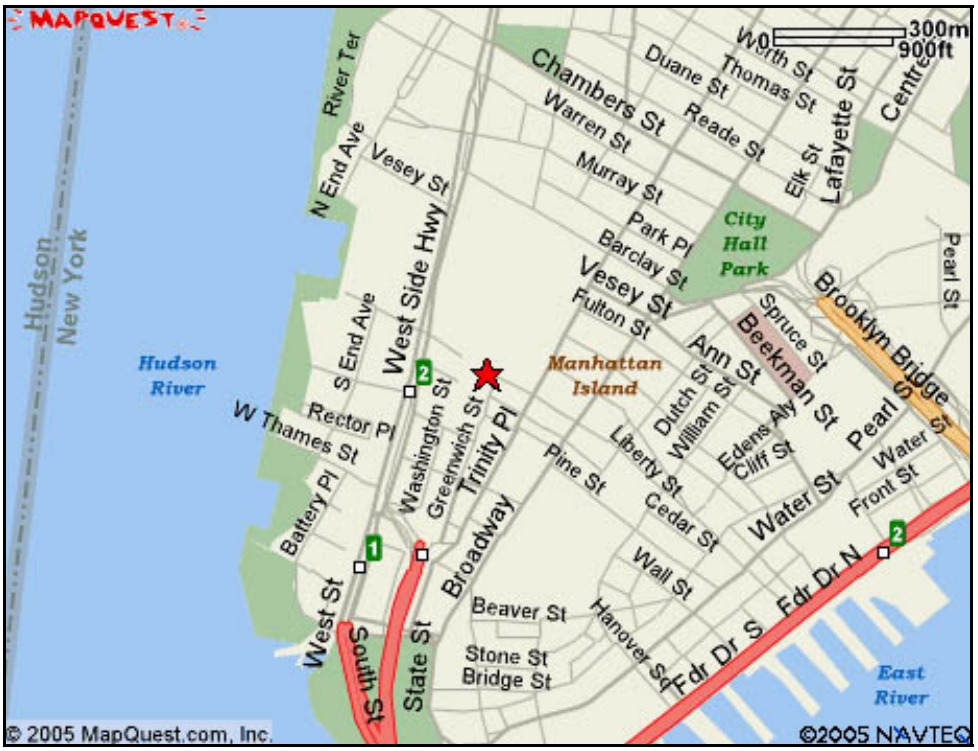
To supplement the data collected in the Initial Building Characterization Study, LMDC retained TRC Environmental Corporation (TRC) to conduct a Supplemental Investigation of the Building. This Supplemental Investigation included a survey sampling for additional unidentified asbestos-containing building materials (ACBM) as well as WTC dust impacted surfaces (both accessible and inaccessible and interior and exterior) and mold, and included a preliminary waste characterization of the WTC dust, glass and WTC dust contaminated porous building materials. The findings of this report identified (i) additional ACBM, (ii) additional surfaces with COPC contamination, (iii) additional mold contamination, and (iv) in one composite sample collected from the 40th floor mechanical space, cadmium within the dust in excess of 40 CFR 261.24 limits. TRC's preliminary waste characterization testing within the small number of samples collected and analyzed revealed no COPCs within dust contaminated porous materials that were above the 40 CFR 261.24 limits. The Supplemental Investigation also determined that the exterior glass (once cleaned) associated with the Building would not be considered a hazardous waste for selenium.

The requirements outlined within this Health and Safety Plan are based upon the data collected to date. As additional information is obtained during the course of the Deconstruction Project activities, these requirements will be amended if necessary to protect workers or the public.

1.2 Site Description

130 Liberty Street is a 40-story, 565 foot tall, approximately 1.4 million square foot (SF) office building, with two basement levels, located in Lower Manhattan, one block south of the WTC site. Until 1999, the Building, which was built between 1973 and 1974, was owned by the Banker's Trust Corporation. In 1999, Deutsche Bank acquired the Building and owned it until August 31, 2004, when it was sold to LMDC.

Figure 1-1
Site Location Map



1.3 Purpose

This document presents the safety procedures and practices to be followed during all Deconstruction Project site activities to ensure the safe completion of tasks. The procedures and practices herein are designed to prevent occupational injuries and exposures to chemical, physical and biological hazards to workers at the Site. The procedures are presented to ensure compliance with all applicable government agencies and regulations, including requirements and protocols established by: the Occupational Safety and Health Administration (OSHA); the National Institute of Occupational Safety and Health (NIOSH); the United States Environmental Protection Agency (USEPA); the New York State Department of Conservation (NYSDEC); the

State of New York, New York State Department of Labor (NYSDOL); the New York City Department of Environmental Protection (NYCDEP); and the City of New York.

This document incorporates relevant health and safety guidance outlined in the August 2003 "Health and Safety Plan for Protection Against Environmental Contaminants," written by RJ Lee Group, Inc., and amended by TRC Environmental Corporation in August 2004 (known as the "Site Specific Health and Safety Plan For 130 Liberty Street"). All relevant hazards and protective standards referenced therein are incorporated into this document.

Once this HASP is approved by the regulators as part of the Deconstruction Plan, the requirements outlined in the Site Specific Health and Safety Plan for 130 Liberty Street will be superseded by the requirements of this HASP. This HASP is no less stringent than the current Site Specific Health and Safety Plan for 130 Liberty Street. The Contractor's New York City Site Safety Manager (NYCSSM) is responsible for its implementation (directly or through a subcontractor) and enforcement.

Compliance with this HASP is required due to structural and environmental damage suffered by the Building on September 11, 2001, hazards associated with the Building's current condition and anticipated abatement and deconstruction activities. This HASP is based upon current knowledge of conditions at the Site and shall be updated as new information becomes available and/or conditions change within the Building.

1.4 Objectives

This HASP addresses activities in all three phases of the deconstruction including the Phase I - Preparation Phase, Phase I - Asbestos and COPC Abatement and Removal and Phase II - Deconstruction. This HASP has been developed to provide the minimum requirements for protecting the workers and the public from the hazards that may exist during the Deconstruction project. This HASP must be supplemented with a Contractor Site Specific Safety Plan to address the site construction safety issues associated with this project.

The Phase I - Preparation Phase includes the erection of scaffolding and hoists on the full extent of the exterior of the building, construction of interior hoist vestibules, erection of sidewalk sheds and perimeter fencing, exterior negative pressure tent enclosures to implement the Pilot Program, localized roof, façade and general exterior area clean-up and the removal of existing netting on the exterior of the building.

The entire interior of the Building with the exception of the steel, concrete deck, non-porous stairs, shafts and MEP components that can be removed manually will be removed under Phase I– Asbestos and COPC Abatement and Removal. During all Phase I activities, a minimum

buffer zone of three floors initially for the top three floors and then two floors thereafter, will be maintained between the active abatement and clean-up (Phase I) area and the structural deconstruction (Phase II) portion of the project.

It is anticipated that approximately four floors shall be placed under containment in accordance with Section 4 - Asbestos and COPC Abatement and Removal Plan, at any given time. Additionally, the Abatement Subcontractor shall coordinate with all involved parties to assure that a three-floor buffer zone is maintained for the initial top three floors and there after a two-floor buffer zone will be maintained between the work activities of the Abatement Subcontractor and the Deconstruction Subcontractor. Both Subcontractors must closely coordinate to ensure that the Phase II work that will be occurring above poses no potential for negative impact to the Phase I operations and protective measures.

The Environmental Consultant Project Monitor (as defined in Section 4 - Asbestos and COPC Abatement and Removal Plan) shall conduct regular safety inspections to assure that the work is conducted in accordance with this HASP. During all three phases, the Abatement Subcontractor shall perform personnel air sampling for asbestos and COPCs, as required by OSHA, to evaluate the exposures to all personnel and to ensure use of the proper personal protective equipment (PPE), i.e., respirators, gloves and protective clothing. Additionally, the Environmental Consultant Project Monitor shall collect daily area air samples for asbestos as required by NYSDOL and as described in Section 4 - Asbestos and COPC Abatement and Removal Plan.

Phase II deconstruction activities impacting potential hazardous materials are largely a subset of those encountered in Phase I. In addition, work activities of concern specific to Phase II, which are addressed in this HASP, include torch cutting of structural steel members that may be painted with coatings containing lead and other heavy metals, emissions from work on steel including torch cutting, as well as exposure to silica during concrete removal operations.

2.0 HEALTH AND SAFETY PROCEDURES

This section identifies the principle hazards associated with the tasks to be performed during the Deconstruction Project, and establishes standard safety and health procedures for the Contractor, the Subcontractors and anyone who comes onto the site. The content of this HASP is designed to anticipate, identify, evaluate, and control safety and health hazards for the work activities to be performed during this project. All on-site work activities by any Subcontractors and their designees shall be performed in accordance with this HASP, and in accordance with applicable federal, state, and local regulations.

The levels of personal protection and the procedures specified in this Plan are based on the best information available from validated reference sources (i.e., OSHA, NIOSH) and current site data. Therefore, the guidelines presented in this HASP represent the minimum health and safety requirements to be observed by all on-site personnel engaged in this project. Discovery of currently unknown site conditions or changes in the scope of work will necessitate the reassessment of the protection levels, controls, and procedures stated herein. All amendments to this HASP must have prior written approval by the Environmental Consultant's Certified Industrial Hygienist (CIH) and the Contractor's Project Manager; all modifications/amendments shall be enforced by Contractor's New York City Site Safety Manager (NYCSSM).

2.1 Personnel Responsibilities

The Contractor, Subcontractor and other personnel on-site shall review and understand this document prior to working on-site. All personnel shall:

- Participate in initial site orientation/training as described in Section 2.9.1, and daily safety meetings, and shall provide any required documentation, medical clearance, fit test, asbestos certification, etc. prior to starting work on the site. Documentation requirements are determined by activities to be performed.
- Sign the HASP Acknowledgement Form and other required documents after orientation to indicate that they participated in orientation and understood the information presented in orientation.
- Follow the designated safety and health procedures; be alert to the hazards associated with working on the site, and exercise reasonable caution at all times.

Any questions or concerns about this HASP shall be directed to the on-site Contractor NYCSSM and/or HASP Administrative Monitor.

The Contractor and Subcontractors personnel involved in the 130 Liberty Street deconstruction project are responsible for:

- Taking all reasonable precautions to prevent injury to themselves and to their fellow employees, and being alert to potentially harmful situations.
- Obeying all applicable laws and regulations relating to health and safety.
- Ensuring that activities do not impact the neighboring community.
- Performing only those tasks that they have been trained to complete and can do safely.
- Notifying their supervisor of any special medical conditions (i.e., allergies, contact lenses, diabetes) that may affect their ability to perform certain tasks.
- Notifying their supervisor of any prescription and/or non-prescription medication that they may be taking that might cause drowsiness, anxiety, or other unfavorable side affects.
- Learning and complying with Site security requirements.
- Complying with the Site's prohibition on drug and alcohol use, smoking, horseplay, and restricted eating/drinking areas.
- Practicing good housekeeping by keeping the work areas neat, clean and orderly.
- Immediately reporting all injuries, incidents and near-misses to the designated supervisor.
- Properly using PPE specified by the contractor and this HASP, based on the results of air monitoring.
- Properly maintaining their designated PPE per manufacturers' recommendations.
- Complying with the HASP and all health and safety recommendations and precautions.
- Notifying their supervisor of any Site conditions or concerns which are not addressed by the protective measures specified in this HASP, or which are addressed but the employee does not understand the protective requirements specified herein.

2.1.1 Contractor

The Contractor Project Manager shall have overall responsibility for ensuring health and safety protection on the site and for ensuring that all elements of the HASP are implemented during all phases of the daily on-site activities of this project.

A licensed NYCSSM shall be on-site throughout the project and shall have the primary daily responsibility for ensuring the implementation of this HASP. The Contractor NYCSSM shall notify the Environmental Consultant's CIH of any need to change or amend any aspect of this

HASP and/or seek input with regard to interpretations of the HASP in concert with the designated Safety Officers of the Subcontractors. The Contractor NYCSSM shall coordinate the health and safety activities of all the Contractor and Subcontractor personnel to ensure the requirements of the HASP are followed and shall communicate with all parties when changes occur on-site or when conditions impacting the site occur concerning the response actions to be taken.

2.1.2 Subcontractors

Each Subcontractor on the job is responsible for:

- Preparing a Subcontractor HASP specific for their scope of work (SOW)
- Having a supervisor on-site who understands the scope of the work to be performed, potential health and safety issues associated with that SOW and the strategies for managing and controlling the health and safety issues.
- Planning all work activities to prevent personal injury, health impairment and property damage.
- Providing a Subcontractor Safety Officer and Alternate Safety Officer who shall remain on-site for the entire duration of the Subcontractor's SOW and ensure employee compliance with the provisions of this HASP and the Subcontractor HASP.
- Ensuring that Subcontractor personnel are qualified to perform the SOW that they are assigned.
- Communicating with the Contractor NYCSSM and other potential affected Subcontractors when work on-site conditions are identified that can impact health and safety on the job.
- Ensuring training (asbestos, HAZWOPER, Hazard Communication, etc.) of the Subcontractor's employees in the recognition, avoidance and control of chemical, biological and physical hazards present at the Site.
- Maintaining records for Subcontractor employees as required by this HASP (including but not limited to) medical, training and fit-test records.
- Providing daily health and safety briefings to their personnel.
- Providing specified PPE, including training for correct use and maintenance of that equipment.
- Providing adequate weather protective gear for their personnel as required for their work activities.

- Maintaining a system of prompt detection and correction of unsafe practices and conditions for their SOW and employees.
- Ensuring that Subcontractor's subcontractors and suppliers comply with the conditions of this HASP upon entrance to the Site.
- Collecting personal air samples for both asbestos and other COPCs for HASP and OSHA compliance. Each Subcontractor's CIH or qualified Industrial Hygienist (IH) is responsible for the development and implementation of a personal air-monitoring program in accordance with OSHA Standard 29 CFR§1926.1101 and 29 CFR §1910.1000 and good industrial hygiene practices.

2.1.3 New York City Site Safety Manager (NYCSSM)

The Contractor NYCSSM is an experienced safety and health professional who maintains current HAZWOPER training, American Red Cross Cardiopulmonary Resuscitation (CPR) training, first aid certification and automated external defibrillator (AED) training, and has completed at least eight hours of Safety Officer training. Additionally, the Contractor NYCSSM has the relevant site experience and training (with respect to asbestos and other hazardous materials identified) as necessary to oversee all work activities associated with the cleaning and deconstruction effort.
The Contractor NYCSSM has the following responsibilities:

- Direct the implementation and enforcement of this HASP and consult with the Subcontractors regarding the health and safety procedures and practices to be used on this project.
- Enforce the requirements of this HASP with respect to health and safety, air monitoring requirements and waste management requirements.
- Have the authority to suspend work activities if actions occur that may affect safety and health conditions for personnel or the environment. The Contractor NYCSSM shall act as the primary contact during any on-site emergency situation.
- Assist and represent the Contractor Project Manager in performing on-site training and the day-to-day on-site implementation and enforcement of the HASP.
- Be on-site during the project on a full time basis for the entire duration of on-site field activities. If operations are performed during more than one work shift per day, a qualified Contractor NYCSSM shall be present for each shift.
- Ensure site compliance with federal/state/local regulations and all aspects of this HASP including, but not limited to:
  - Performing activity hazard analyses
  - Providing guidance concerning the use of PPE

- Ensuring site control
- Developing standard operating procedures to minimize hazards such as the use of engineering controls

- The authority to stop any and all work activities if unacceptable health and safety conditions exist.

- Consult with and coordinate any modifications to the HASP with the Contractor Project Manager and the Environmental Consultant's CIH; recommend corrective actions for identified deficiencies; and oversee the implementation of any corrective actions.

- Conduct accident investigations and prepare accident reports.

- Investigate and analyze "near-miss" incidents.

- Prepare and maintain records of corrective actions taken on-site and document safety and health findings into a project-dedicated logbook.

2.1.4 Administrative Monitor

The Administrative Monitor (AM) is a support position provided by the Environmental Consultant. The AM performs all orientation regarding on-site health and safety procedures for new employees and visitors. Additionally, the AM is responsible for logging all site visitors, checking for current medical and fit test certifications and applicable federal/state/local asbestos training for all those entering containment. The AM does not provide specialized training for specific cleaning, abatement or interior component removal portions of the work. This shall be provided by each Subcontractor for its personnel.

The AM documents each orientation performed and requires that each person receiving the orientation complete, sign and date the HASP acknowledgement form. The AM receives the following documentation from each Subcontractor to complete the administrative record for the site: name of Subcontractor's safety officer; list of emergency contact phone numbers; confirmation of current worker fit tests, medical clearances and asbestos training for each Subcontractor employee; and Subcontractor HASP, including Hazard Communication Program, Fall Protection Program, Respiratory Protection Program, personal air monitoring program, and confined space program (when necessary).

The AM is responsible for the execution and monitoring of any health and safety activities at the Site related to Environmental Consultant activities.

2.2 Health and Safety Hazard Analysis and Risk Assessment

2.2.1 Preliminary Evaluation

The work to be conducted at 130 Liberty Street comprises construction activities and, as such, falls under Title 29 of the Code of Federal Regulations, Part 1926 (29 CFR 1926), the OSHA Construction Standard.

An evaluation of the anticipated general work activities was performed (discussed later in this section) that included a Hazard Analysis for each general task/activity to identify associated hazardous conditions, appropriate employee protection methods and PPE requirements. The evaluation of potential site conditions and activity hazards is an ongoing process and shall continue throughout the duration of the project.

Potential hazards during the Deconstruction Project include the following:

- Physical – Excessive noise; inclement weather; heat stress; cold stress; manual lifting; slips and falls; structural integrity; working at elevation; electrical safety; heavy equipment operation; and other general construction hazards.
- Chemical – Asbestos, silica, PAHs, dioxins, man-made vitreous fibers (MMVF), antimony, cadmium, nickel, lead, barium, chromium, zinc, manganese, copper, beryllium, PCBs, mercury, copper, zinc, cristobalite and quartz.
- Biological – Mold; rodents; insects; Legionella.
- Radiological – None anticipated.

2.2.2 Task Hazard Analysis

The scope of work for the 130 Liberty Street project consists of five (5) general tasks, as follows:

Task 1: Environmental Consultant monitoring including work area air sampling during Phase I and Phase II activities; clearance air sampling upon completion of asbestos and COPC abatement and removal activities; and waste characterization sampling.

Task 2: Maintain temporary services including water risers, fire protection systems building communication system, GFCI protected electrical systems and elevator operation.

Task 3: Preparation for and general area cleanup of WTC dust and debris, which as stated by the regulators must be treated as asbestos (at a minimum) and which may contain other COPCs; removal and disposal of installed porous and certain non-porous building materials and components contaminated by settled dust and debris; cleaning and salvage of certain installed non-porous building equipment and components contaminated by settled dust and debris; removal of ACBM from the Building; packaging of regulated waste as identified during the implementation of the Waste Sampling and Management Plan found within Section 1 of the Deconstruction Plan at generation points movement of containers to decontamination unit and movement of decontaminated containers to waste loading area; cleaning of limited, designated exterior surfaces to facilitate the erection of the man-hoist and the crane; and cleaning of the Building exterior (i.e., building washdown).

Task 4: Phase II Deconstruction activities including the systematic floor-by-floor deconstruction and removal of the remaining "clean" building components including exterior curtain wall, concrete deck, large mechanical equipment and structural steel components. Included in Phase II will be the abatement and removal of roof-top asbestos-containing cooling tower transite materials, rooftop caulking and asbestos-containing caulking found on the aluminum column covers and fascia. Also included in Phase II is removal of metals-containing coatings from cut-lines prior to torch cutting, as required. For each specific floor or regulated abatement work area, all Phase II asbestos abatement work must be completed prior to commencement of any Phase II floor-by-floor deconstruction for that floor or work area.

Task 5: General site work, including fencing, erecting scaffolding/hoists, paving, if any, and drainage.

Summaries of the potential physical, chemical and biological hazards that may be encountered during these tasks and the associated hazard control methods are presented in Table 2-1.

If site conditions change during the course of the deconstruction project, the Environmental Consultant's Safety Officer shall evaluate the new conditions and discuss appropriate amendments to the HASP with the Contractor NYCSSM. The proposed amendments shall be reviewed and approved by the Environmental Consultant's CIH and the Contractor Project Manager.

2.2.3 Physical Hazards

The damage suffered by the building at 130 Liberty Street has resulted in numerous physically hazardous conditions, including damaged electrical sources and components, falling hazards due to openings in the floors, or the possibility of materials falling from overhead. The primary physical hazards that may be encountered during this project include: heavy equipment

operation; excessive noise; excessive heat or cold; inclement weather; manual lifting/handling of heavy objects; poor housekeeping; rough terrain; compromised structural integrity; traffic; cranes, hoists and other lifting equipment; aerial lifts and manlifts; working at elevation; use of scaffolding; hazardous materials use; potential utility and electrical sources; use of hand and power tools; slips and falls; etc.

Table 2-1 Activity Hazard Analysis

Task 1: Environmental Consultant Air Monitoring and Waste Charac**terization**

Equipment Required: Air sampling equipment, Waste Characterization e.g. (scoops, bowls, scale, safety blades, sample containers), PPE

Subtask #	Activities	PPE Requirements*	Hazards	Preventative Mechanism	Procedure**
1	Mobilization (Transporting employees, materials and equipment to site)	Level D	Use of vehicles	Vehicle and driving safety	Contractor Specific
2	Unloading equipment on the ground level	Level D	Lifting	Proper lifting techniques	Contractor Specific
			Site security	Site security	Contractor Specific
			Pinch points	Materials handling	Contractor Specific
			Insects	Biological hazard monitoring	
3	Waste characterization sampling	Level C***	Chemical COPC	Hazard Communication PPE	Contractor Specific
			Heat stress	Heat monitoring	Contractor Specific
			Cold stress	Cold monitoring	Contractor Specific
			Slip/trip/fall	Housekeeping	Contractor Specific
			Trespassers	Site security	Contractor Specific
			Pinch points	Materials handling	Contractor Specific
			Hand tools	Proper use techniques	Contractor Specific
			Inadequate lighting	Illumination	Contractor Specific
4	Area air sampling during abatement activities	Level C***	Asbestos	Avoidance/monitoring	Contractor Specific
			Noise	Hearing protection	Contractor Specific
			Heat stress	Heat monitoring	Contractor Specific
			Cold stress	Cold monitoring	Contractor Specific
			Slip/trip/fall	Housekeeping	Contractor Specific
			Trespassers	Site security	Contractor Specific
			Pinch points	Materials handling	Contractor Specific
			Hand tools	Proper use techniques	Contractor Specific
			Inadequate lighting	Illumination	Contractor Specific
			Mold	Avoidance	Contractor Specific
			Asbestos	Avoidance/Monitoring	Contractor Specific

Task 1: Con't

Subtask #	Activities	PPE Requirements*	Hazards	Preventative Mechanism	Procedure**
5	Clearance air sampling	Level C***	Chemical COPC	Hazard Communication PPE	Contractor Specific
			Heat stress	Heat monitoring	Contractor Specific
			Cold stress	Cold monitoring	Contractor Specific
			Slip/trip/fall	Housekeeping	Contractor Specific
			Trespassers	Site security	Contractor Specific
			Pinch points	Materials handling	Contractor Specific
			Hand tools	Proper use techniques	Contractor Specific
			Inadequate lighting	Illumination	Contractor Specific
			Asbestos	Avoidance/monitoring	Contractor Specific

*As described in Section 2.5
** Procedures are part of Contractors Safety Program
***Per 2.7.2Personal Monitoring

Task 2: Maintaining Temporary Services
Equipment Required: Hand and power tools, ladders, PPE

Subtask #	Activities	PPE Requirements*	Hazards	Preventative Mechanism	Procedure**
1	Mobilization (Transporting employees, materials and equipment to site)	Level D	Vehicle Incidents	Vehicle and driving safety	Motor Vehicles and Equipment Program
2	Unloading equipment on the ground level	Level D	Lifting	Proper lifting procedures	
			Heat Stress	Heat monitoring	
			Cold Stress	Cold monitoring	
			Slip/trip/fall	Housekeeping	Housekeeping Program
			Trespassers	Site security	
			Pinch points	Materials handling	
			Hand tools	Proper use techniques	
3	Maintain basic utilities to include: – Temporary GFCI protected electrical systems – Elevator Operation – stand pipe – Building communication system, etc.	Level C ***	Chemical COPC plus plumbing chemicals	Hazard Communication PPE	Hazard Communication Program, **29 CFR 1910.120 (a) (i)**
			Slip/trip/fall	Housekeeping	Housekeeping Program
			Pinch points	Materials handling	
			Work from elevation	Fall protection. Proper ladder use.	Elevated work-Fall Protection Program
			Hand tools	Proper use techniques	
			Hot Work	Hot Work permitting Fire prevention	Welding, Cutting and Burning - Hot-Work Procedure
			Wet feet	Avoidance/techniques	
			Electrical safety	Electrical safety - LO/TO	Electric -Temporary
			Stored hazardous energy	LO/TO program	Lockout/Tagout Procedures
			Elevator malfunction	Maintain certification and operate according to manufacturer instructions	

*As described in Section 2.5
** Procedures are part of Contractor's Project Safety Plan
*** Per 2.5.2 Personal Monitoring

Task 3: General area cleanup of WTC dust and debris, as stated by the regulators must be treated as asbestos (at a minimum) and which may contain other COPCs; removal and disposal of installed porous and certain non-porous building materials and components contaminated by settled dust and debris; cleaning and salvage of certain installed non-porous building equipment and components contaminated by settled dust and debris; removal of ACBM within the Building; packaging of regulated waste as identified during the implementation of the Waste Sampling and Management Plan found within Section 1 of the Deconstruction Plan at generation points movement of containers to decontamination unit and movement of decontaminated containers to waste loading area; and cleaning of exterior surfaces of building.

Equipment Required: Heavy cleaning equipment, HEPA vacuums, hand/power tools, ladders, scaffolding, lifting equipment, PPE

Subtask #	Activities	PPE Requirements*	Hazards	Preventative Mechanism	Procedure**
1	Mobilization (Transporting employees, materials and equipment to site)	Level D	Vehicle use	Vehicle and driving safety	Contractor Specific
2	Unloading equipment on the ground level	Level D	Lifting	Proper lifting techniques	Contractor Specific
			Heat Stress	Heat monitoring	Contractor Specific
			Cold Stress	Cold monitoring	Contractor Specific
			Slip/trip/fall	Housekeeping	Contractor Specific
			Trespassers	Site security	Contractor Specific
			Pinch points	Materials handling	Contractor Specific
			Hand tools	Proper use techniques	Contractor Specific
3	Constructing containment areas and placing air handling units on the floors	Level C***	Chemical COPC plus adhesives	Hazard Communication PPE	Contractor Specific
			Heat Stress	Heat monitoring	Contractor Specific
			Cold Stress	Cold monitoring	Contractor Specific
			Use of ladders	Ladder safety	Contractor Specific
			Noise	Hearing protection	Contractor Specific
			Slip/trip/fall	Housekeeping	Contractor Specific
			Electrical sources	Electrical safety - LO/TO	Contractor Specific
			Lifting	Proper lifting techniques	Contractor Specific
			Pinch points	Materials handling	Contractor Specific
			Work from elevation	Fall protection	Contractor Specific
			Use of scaffolds	Scaffold safety	Contractor Specific
			Hand and power tools	Proper use techniques	Contractor Specific
			Inadequate lighting	Illumination	Contractor Specific

Task 3: Cont'd:

Subtask #	Activities	PPE Requirements*	Hazards	Preventative Mechanism	Procedure**
4	Area cleanup of WTC dust and debris, which as stated by the regulators must be treated as asbestos at a minimum	Level C***	Chemical COPC	Hazard Communication PPE	Contractor Specific
			Heat Stress	Heat monitoring	Contractor Specific
			Cold Stress	Cold monitoring	Contractor Specific
			High pressure water	Pressurized systems	Contractor Specific
			Electrical sources	Electrical safety - LO/TO	Contractor Specific
			Pinch points	Materials handling	Contractor Specific
			Use of ladders	Ladder safety	Contractor Specific
			Hand tools	Proper use techniques	Contractor Specific
			Noise	Hearing protection	Contractor Specific
			Inadequate lighting	Illumination	Contractor Specific
			Asbestos	Avoidance/monitoring/PPE	Contractor Specific
			Lead	Avoidance/monitoring/PPE	Contractor Specific
			PCBs	Avoidance/monitoring/PPE	Contractor Specific
			Mercury	Avoidance/monitoring/PPE	Contractor Specific
			Other chemicals	Avoidance/monitoring/PPE	Contractor Specific
			Mold	Avoidance/monitoring/PPE	Contractor Specific
			Cranes/Lifting Equipment	Crane/lifting safety	Crane, Hoist, and Rigging Standard Operating Procedure

Task 3: Cont'd:

Subtask #	Activities	PPE Requirements*	Hazards	Preventative Mechanism	Procedure**
5	Removal and disposal of installed porous and certain non-porous building materials and components contaminated by settled dust and debris	Level C***	COPC, silica and lead	Follow procedures	Contractor Specific
			Lifting	Proper lifting techniques	
			Noise	Hearing protection	
			Heat stress	Heat monitoring	
			Cold stress	Cold monitoring	
			Slip/trip/fall	Housekeeping	
			Structural damage	Structural integrity / PE inspection	
			Deconstruction	Follow deconstruction plan	General Safety Regulations
			Pinch points	Materials handling	
			Work at elevation	Fall protection	Fall Protection Plan
			Hand tools	Proper use techniques	
			Inadequate lighting	Illumination	
			Cranes/Lifting Equipment	Crane/lifting safety	Crane, Hoist, and Rigging Standard Operating Procedure
6	Cleaning and salvage of certain installed non-porous building equipment and components contaminated by settled dust and debris	Level C ***	COPC, silica and lead	Follow procedures	Contractor Specific
			Lifting	Proper lifting techniques	
			Noise	Hearing protection	
			Heat stress	Heat monitoring	
			Cold stress	Cold monitoring	
			Slip/trip/fall	Housekeeping	
			Structural damage	Structural integrity / PE inspection	
			Deconstruction	Follow deconstruction plan	General Safety Regulations
			Pinch points	Materials handling	
			Work at elevation	Fall protection	Fall Protection Plan
			Hand tools	Proper use techniques	
			Inadequate lighting	Illumination	
			Cranes/Lifting Equipment	Crane/lifting safety	Crane, Hoist, and Rigging Standard Operating Procedure

			Torch Cutting	Generation of lead or other toxics, Fire	Compliance with OSHA Lead and cadmium in Construction Standard, Hot work procedures, Cutting procedures

Task 3: Cont'd:

Subtask #	Activities	PPE Requirements*	Hazards	Preventative Mechanism	Procedure**
7	Removal of building materials contaminated with asbestos and ACBM.	Level C***	Chemical COPC	Hazard Communication PPE	Contractor Specific
			Working from Elevations	Fall Protection	Contractor Specific
			Heat Stress	Heat monitoring	Contractor Specific
			Cold Stress	Cold monitoring	Contractor Specific
			High pressure water	Pressurized systems	Contractor Specific
			Electrical sources	Electrical safety - LO/TO	Contractor Specific
			Pinch points	Materials handling	Contractor Specific
			Use of ladders	Ladder safety	Contractor Specific
			Hand tools	Proper use techniques	Contractor Specific
			Noise	Hearing protection	Contractor Specific
			Inadequate lighting	Illumination	Contractor Specific
			Asbestos	Avoidance/monitoring/PPE	Contractor Specific
			Lead	Avoidance/monitoring/PPE	Contractor Specific
			PCBs	Avoidance/monitoring/PPE	Contractor Specific
			Mercury	Avoidance/monitoring/PPE	Contractor Specific
			Other chemicals	Avoidance/monitoring/PPE	Contractor Specific
			Mold	Avoidance/monitoring/PPE	
			Cranes/Lifting Equipment	Crane/lifting safety	Crane, Hoist, and Rigging Standard Operating Procedure

Task 3: Cont'd:

Subtask #	Activities	PPE Requirements*	Hazards	Preventative Mechanism	Procedure**
8	Packaging of regulated waste as identified during the implementation of the Waste Management and Sampling Plan found within Section 1 of the Deconstruction Plan at generation points, movement of containers to decontamination unit and movement of decontaminated containers to waste loading area.	Level C***	Chemical COPC	Hazard Communication PPE	Contractor Specific
			Working from Elevations	Fall Protection	Contractor Specific
			Heat Stress	Heat monitoring	Contractor Specific
			Cold Stress	Cold monitoring	Contractor Specific
			High pressure water	Pressurized systems	Contractor Specific
			Electrical sources	Electrical safety - LO/TO	Contractor Specific
			Pinch points	Materials handling	Contractor Specific
			Use of ladders	Ladder safety	Contractor Specific
			Hand tools	Proper use techniques	Contractor Specific
			Noise	Hearing protection	Contractor Specific
			Inadequate lighting	Illumination	Contractor Specific
			Asbestos	Avoidance/monitoring/PPE	Contractor Specific
			Lead	Avoidance/monitoring/PPE	Contractor Specific
			PCBs	Avoidance/monitoring/PPE	Contractor Specific
			Mercury	Avoidance/monitoring/PPE	Contractor Specific
			Other chemicals	Avoidance/monitoring/PPE	Contractor Specific
			Mold	Avoidance/monitoring/PPE	
			Cranes/Lifting Equipment	Crane/lifting safety	Crane, Hoist, and Rigging Standard Operating Procedure

Task 3: Cont'd:

Subtask #	Activities	PPE Requirements*	Hazards	Preventative Mechanism	Procedure**
9	Cleaning of walker ducts and raceways as per procedures in the 130 Liberty Street Asbestos and COPC Abatement Plan, Section 4 of the Deconstruction Plan	Level C***	Chemical COPC	Hazard Communication PPE	Contractor Specific
			Working from Elevations	Fall Protection	Contractor Specific
			Heat Stress	Heat monitoring	Contractor Specific
			Cold Stress	Cold monitoring	Contractor Specific
			High pressure water	Pressurized systems	Contractor Specific
			Electrical sources	Electrical safety - LO/TO	Contractor Specific
			Pinch points	Materials handling	Contractor Specific
			Use of ladders	Ladder safety	Contractor Specific
			Hand tools	Proper use techniques	Contractor Specific
			Noise	Hearing protection	Contractor Specific
			Inadequate lighting	Illumination	Contractor Specific
			Asbestos	Avoidance/monitoring /PPE	Contractor Specific
			Lead	Avoidance/monitoring /PPE	Contractor Specific
			PCBs	Avoidance/monitoring /PPE	Contractor Specific
			Mercury	Avoidance/monitoring /PPE	Contractor Specific
			Other chemicals	Avoidance/monitoring /PPE	Contractor Specific
			Mold	Avoidance/monitoring /PPE	
			Cranes/Lifting Equipment	Crane/lifting safety	Crane, Hoist, and Rigging Standard Operating Procedure

Task 3: Cont'd:

Subtask #	Activities	PPE Requirements*	Hazards	Preventative Mechanism	Procedure**
10	Bulk removal of sprayed on fire proofing using manual and mechanical means, i.e. scraping or a pressure wash system.	Level C***	Chemical COPC	Hazard Communication PPE	Contractor Specific
			Working from Elevations	Fall Protection	Contractor Specific
			Heat Stress	Heat monitoring	Contractor Specific
			Cold Stress	Cold monitoring	Contractor Specific
			High pressure water	Pressurized systems	Contractor Specific
			Electrical sources	Electrical safety - LO/TO	Contractor Specific
			Pinch points	Materials handling	Contractor Specific
			Use of ladders	Ladder safety	Contractor Specific
			Hand tools	Proper use techniques	Contractor Specific
			Noise	Hearing protection	Contractor Specific
			Inadequate lighting	Illumination	Contractor Specific
			Asbestos	Avoidance/monitoring/PPE	Contractor Specific
			Lead	Avoidance/monitoring/PPE	Contractor Specific
			PCBs	Avoidance/monitoring/PPE	Contractor Specific
			Mercury	Avoidance/monitoring/PPE	Contractor Specific
			Other chemicals	Avoidance/monitoring/PPE	Contractor Specific
			Mold	Avoidance/monitoring/PPE	
			Cranes/Lifting Equipment	Crane/lifting safety	Crane, Hoist, and Rigging Standard Operating Procedure

Task 3: Cont'd

Subtask #	Activities	PPE Requirements*	Hazards	Preventative Mechanism	Procedure**
11	Clean exterior surfaces of building and installation of interior concrete chute	Level C*** for exterior cleaning and concrete chute construction+	Working from Elevations	Fall Protection	Fall Protection Plan
			Heat Stress	Heat monitoring	
			Cold Stress	Cold monitoring	
			Slip/Trip/Fall	Housekeeping	
			Lifting	Proper lifting techniques	
			Electrical Sources	Electrical Safety/LOTO	Lock-Out/Tag-Out Program
			Pinch Points	Materials Handling	
			Hand Tools	Proper use techniques	
			Inadequate Lighting	Illumination	
			COPCs and asbestos	Hazard Communication/PPE	Hazardous Materials Communication Program and **29 CFR 1910.120 (a) (i)**
			Structural damage	Structural integrity/PE inspection	
			Noise	Hearing protection	
			Deconstruction	Follow deconstruction plan	
			Stored hazardous energy/Gravity	Follow proper procedures	
			Materials handling	Materials handling	
			Cranes/Lifting Equipment	Crane/lifting safety	

*As described in Section 2.5
** Procedures are part of Contractors Project Safety Plan
***Per 2.52
+Due to enclosure and unknown airborne silica concentrations work will have to be performed using PAPR with P100 cartridges and local exhaust ventilation or work will be performed under Level B until air sampling allows otherwise.

Task 4: Phase II Deconstruction activities including the systematic floor-by-floor deconstruction and removal of the remaining "clean" building components including exterior curtain wall, concrete deck, large mechanical equipment and structural steel components. Included in Phase II will be the abatement and removal of roof-top asbestos-containing cooling tower transite materials, rooftop caulking and asbestos-containing caulking found on the aluminum column covers and fascia. Also included is removal of heavy metals-containing coatings from cut-lines prior to torch cutting, as required. For each specific floor or regulated abatement work area, all Phase II asbestos abatement work must be completed prior to commencement of any Phase II floor-by-floor deconstruction for that floor or work area.

Equipment Required: Heavy equipment, HEPA vacuums, hand/power tools, ladders, scaffolding, lifting equipment, PPE

Subtask #	Activities	PPE Requirements*	Hazards	Preventative Mechanism	Procedure**
1	Mobilization (Transporting employees, materials and equipment to site)	Level D	Vehicle use	Vehicle and driving safety	Contractor Specific
2	Unloading equipment on the ground level	Level D	Lifting	Proper lifting techniques	Contractor Specific
			Heat Stress	Heat monitoring	Contractor Specific
			Cold Stress	Cold monitoring	Contractor Specific
			Slip/trip/fall	Housekeeping	Contractor Specific
			Trespassers	Site security	Contractor Specific
			Pinch points	Materials handling	Contractor Specific
			Hand tools	Proper use techniques	Contractor Specific
3	Constructing abatement areas for rooftop transite and caulking and aluminum column covers and fascia	Level C***	Heat Stress	Heat monitoring	Contractor Specific
			Cold Stress	Cold monitoring	Contractor Specific
			Use of ladders	Ladder safety	Contractor Specific
			Noise	Hearing protection	Contractor Specific
			Slip/trip/fall	Housekeeping	Contractor Specific
			Electrical sources	Electrical safety - LO/TO	Contractor Specific
			Lifting	Proper lifting techniques	Contractor Specific
			Pinch points	Materials handling	Contractor Specific
			Work from elevation	Fall protection	Contractor Specific
			Use of scaffolds	Scaffold safety	Contractor Specific
			Hand and power tools	Proper use techniques	Contractor Specific
			Inadequate lighting	Illumination	Contractor Specific

Task 4: Cont'd:

Subtask #	Activities	PPE Requirements*	Hazards	Preventative Mechanism	Procedure**
4	Removal of building materials contaminated with ACBM.	Level C***	Working from Elevations	Fall Protection	Contractor Specific
			Heat Stress	Heat monitoring	Contractor Specific
			Cold Stress	Cold monitoring	Contractor Specific
			High pressure water	Pressurized systems	Contractor Specific
			Electrical sources	Electrical safety - LO/TO	Contractor Specific
			Pinch points	Materials handling	Contractor Specific
			Use of ladders	Ladder safety	Contractor Specific
			Hand tools	Proper use techniques	Contractor Specific
			Noise	Hearing protection	Contractor Specific
			Inadequate lighting	Illumination	Contractor Specific
			Asbestos	Avoidance/monitoring/PPE	Contractor Specific
			Lead	Avoidance/monitoring/PPE	Contractor Specific
			Other chemicals	Avoidance/monitoring/PPE	Contractor Specific
			Cranes/Lifting Equipment	Crane/lifting safety	Crane, Hoist, and Rigging Standard Operating Procedure

*As described in Section 2.5
** Procedures are part of Contractor's Project Safety Plan.
*** Per 2.5.2 Personal Monitoring

Task 4 Cont'd:

Subtask #	Activities	PPE Requirements*	Hazards	Preventative Mechanism	Procedure**
5	Packaging of asbestos waste at generation points, movement of containers to decontamination unit and movement of decontaminated containers to waste loading area.	Level C***	Working from Elevations	Fall Protection	Contractor Specific
			Heat Stress	Heat monitoring	Contractor Specific
			Cold Stress	Cold monitoring	Contractor Specific
			High pressure water	Pressurized systems	Contractor Specific
			Electrical sources	Electrical safety - LO/TO	Contractor Specific
			Pinch points	Materials handling	Contractor Specific
			Use of ladders	Ladder safety	Contractor Specific
			Hand tools	Proper use techniques	Contractor Specific
			Noise	Hearing protection	Contractor Specific
			Inadequate lighting	Illumination	Contractor Specific
			Asbestos	Avoidance/monitoring/PPE	Contractor Specific
			Cranes/Lifting Equipment	Crane/lifting safety	Crane, Hoist, and Rigging Standard Operating Procedure
6	Deconstruction of Concrete slabs	Level D	Deconstruction	Follow deconstruction plan	Safety Regulations
			Heat Stress	Heat monitoring	Contractor Specific
			Cold Stress	Cold monitoring	Contractor Specific
			Electrical sources	Electrical safety - LO/TO	Contractor Specific
			Pinch points	Materials handling	Contractor Specific
			Hand tools	Proper use techniques	Contractor Specific
			Noise	Hearing protection	Contractor Specific
			Construction Equip	Deconstruction Safety	Contractor Specific
			Silica	Avoidance/monitoring/PPE	Contractor Specific
			Cranes/Lifting Equipment	Crane/lifting safety	Crane, Hoist, and Rigging Standard Operating Procedure

*As described in Section 2.5
** Procedures are part of Contractor's Project Safety Plan.
*** Per 2.5.2 Personal Monitoring

Task 4: Cont'd:

Subtask #	Activities	PPE Requirements*	Hazards	Preventative Mechanism	Procedure**
7	Removal of Curtain Wall, Large MEP, Structural Steel	Level D	Lifting	Proper lifting techniques	
			Noise	Hearing protection	
			Heat stress	Heat monitoring	
			Cold stress	Cold monitoring	
			Slip/trip/fall	Housekeeping	
			Structural damage	Structural integrity / PE inspection	
			Deconstruction	Follow deconstruction plan	General Safety Regulations
			Pinch points	Materials handling	
			Work at elevation	Fall protection	Fall Protection Plan
			Hand tools	Proper use techniques	
			Inadequate lighting	Illumination	
			Torch Cutting (see subtask 8/9)	Generation of lead or other toxics, Fire	Compliance with OSHA Lead and cadmium in Construction Standard, Hot work procedures, Cutting procedures
			Cranes/Lifting Equipment	Crane/lifting safety	Crane, Hoist, and Rigging Standard Operating Procedure
8	Metals-Containing Coatings Removal prior to Torch Cutting	Level C***	Working from Elevations	Fall Protection	Contractor Specific
			Heat Stress	Heat monitoring	Contractor Specific
			Cold Stress	Cold monitoring	Contractor Specific
			Electrical sources	Electrical safety - LO/TO	Contractor Specific
			Pinch points	Materials handling	Contractor Specific
			Use of ladders	Ladder safety	Contractor Specific
			Hand tools	Proper use techniques	Contractor Specific
			Noise	Hearing protection	Contractor Specific
			Inadequate lighting	Illumination	Contractor Specific
			Heavy Metals	Avoidance/monitoring/PPE	Contractor Specific

*As described in Section 2.5
** Procedures are part of Contractor's Project Safety Plan.
*** Per 2.5.2 Personal Monitoring

Task 4: Cont'd:

Subtask #	Activities	PPE Requirements*	Hazards	Preventative Mechanism	Procedure**
9	Torch Cutting of Steel	Level B – Note Level B required for exposure assessment when torch cutting on heavy metals coated materials	Deconstruction	Follow deconstruction plan	Safety Regulations
			Heat Stress	Heat monitoring	Contractor Specific
			Cold Stress	Cold monitoring	Contractor Specific
			Pinch points	Materials handling	Contractor Specific
			Hand tools	Proper use techniques	Contractor Specific
			Noise	Hearing protection	Contractor Specific
			Construction Equip	Deconstruction Safety	Contractor Specific
			Torch Cutting (see subtask 8/9)	Generation of lead or other toxics, Fire	Compliance with OSHA Lead and cadmium in Construction Standard, Hot work procedures, Cutting procedures
			Materials Handling	Proper Materials handling protocols	Contractor Specific
			Cranes/Lifting Equipment	Crane/lifting safety	Crane, Hoist, and Rigging Standard Operating Procedure

Task 5: Site Work (Fencing, Back filling, Paving, and Drainage)

Equipment Required: Trackloaders, Skidsteer Loaders, Small Tilt Sladers, Vibratory Rollers, Roller Compactor Truck

Paving: Asphalt Paving Equipment, Smooth Barrel Roller, Forklift, Crane, Area lift.

Subtask #	Activities	PPE Requirements	Hazards	Preventative Mechanism	Procedure
1	Installation of Site fences	Level D	*Moving Equipment *Open excavation * Evacuation of excavations before backfilling	* Hand signals * Barricades * Safety watch	See Items 1-5 Below
2	Back filling	Level D	*Moving Equipment *Open excavation * Evacuation of excavations before backfilling	* Hand signals * Barricades * Safety watch	See Items 1-5 Below
3	Paving	Level D	*Moving Equipment *Open excavation * Evacuation of excavations before backfilling	* Hand signals * Barricades * Safety watch	See Items 1-5 Below
4	Drainage	Level D	*Moving Equipment *Open excavation * Evacuation of excavations before backfilling	* Hand signals * Barricades * Safety watch	See Items 1-5 Below

General Precautions- Site specific precautions to be determined as the detailed scope and schedule are developed.
Care must be taken to reduce the risk of worker injury and property damage during backfilling or paving operations.

1. No backfill shall commence until all workers are clear of the working areas.
2. The operators of any machines or vehicles being used in backfilling operations shall keep other employees in sight at all times.
3. The operators of any truck employed in backfilling operations shall ensure that all workers are in the clear before approaching the ditch or dumping the load.
4. No equipment shall back closer than 1 meter to the edge of any excavation and this set-back shall be increased commensurately with the depth of the excavation unless trenching sleds or other retention devices are employed.
5. No equipment shall dump material closer than 1 meter to the edge of an excavation.

Due to the existence of these hazards, the Contractor NYCSSM shall ensure that all site employees receive hazard awareness training. Additionally, the Contractor NYCSSM shall insure that Subcontractors perform the following operations under the direct on-site supervision of OSHA Competent Persons (provided by the Subcontractors for each task as necessary):

- General Construction (29 CFR 1926.20)
- Unsanitary Conditions (29 CFR 1926.27)
- Rigging (29 CFR 1926.251)
- Scaffolding (29 CFR 1926.450)
- Ladders (29 CFR 1926.1053)
- Personal Fall Arrest Systems (29 CFR 1926.500 and .502)
- Ear Protection (29 CFR 1926.101)
- Cranes and Derricks (29 CFR 1926.550)
- Materials Hoists, Personnel Hoists and Elevators (29 CFR 1926.552)
- Demolition (29 CFR 1926.850)
- Welding/Cutting on surfaces covered by protective coatings (29 CFR 1926.354)
- Excavation (29 CFR 1926.650)
- Lead (29CFR 1926.62)
- Asbestos (29 CFR 1926.1101)
- Cadmium 1926.1127
- Powered Platforms for Building Maintenance, 29 CFR 1910.66
- Hazardous Waste Operations and Emergency Response, 29 CFR 1926.65

2.2.4 Chemical Hazards

A chemical hazard that may be encountered during this project is asbestos. Based upon the most recent pre-deconstruction asbestos survey conducted by TRC, approximately 2,336,407 square feet of asbestos-containing material, including WTC dust with varying concentrations of some COPCs, has been identified. Therefore, the Contractor NYCSSM shall ensure that all site employees receive the required training concerning asbestos as well as all applicable Hazard Communication training.

In addition, personnel who have the potential to disturb ACBM shall be trained concerning the procedures to be used and requirements for notifications in accordance with federal, state and local regulations. Personnel who handle ACBM on this job shall have the required documented training and certificates. Each employee involved in abatement activities must have completed City of New York asbestos training, shall be a certified asbestos worker and/or supervisor by the City of New York, and shall be certified asbestos handler and/or supervisor by the New York State Department of Labor. Additionally, personnel who will conduct cleaning and abatement

activities must have additionally received the required 40-hour training as outlined by 29 CFR 1910.120(a) (i) (HAZWOPER requirement) and appropriate annual refresher training as required. This HAZWOPER training requirement may be removed, should sampling indicate training requirement downgrade is appropriate. Training, medical and license documentation for each Subcontractor employee shall be verified by the HASP AM prior to start of work by the Subcontractor.

2.2.4.1 Additional Identified Chemicals

Other chemicals identified as potential contaminants that may be encountered during the initial site cleaning activities are PAHs, dioxins, antimony, lead, cadmium, nickel, barium, chromium, zinc, manganese, copper, beryllium, PCBs, mercury, copper, zinc, cristobalite and quartz. Environmental sampling in the 130 Liberty Street Building has verified the presence of these chemical contaminants in concentrations exceeding USEPA's Residential Cleanup Criteria as discussed in Berger's September 2004 "Initial Building Characterization Study Report."

Additional chemical hazards generated from deconstruction activities would be lead, cadmium, and chromium from coated surfaces. Subcontractors shall perform personnel monitoring for all COPCs as required by OSHA. In addition, Subcontractors must provide applicable OSHA training for the identified hazards. Documentation of this training must be provided by the Subcontractor.

Additional precautions to be taken in work areas with these contaminants include personnel and area air monitoring. Any torching or cutting of painting surfaces creates risk of lead, cadmium and chromium release. During these operations, additional monitoring and PPE will be necessary as required by the Lead in Construction Standard [29 CFR 1926.62(d)(2)(iv)] and the Cadmium in Construction Standard [29 CFR 1926.112].

Precautions to be taken during the removal of miscellaneous hazardous materials (bulbs, ballasts, batteries, mercury-containing thermostats, etc) are found in Table 2-1, Task 3.

Respiratory protection, as identified within Table 2-1, represents the minimum level of protection for all identified tasks.

There may also be hazardous chemicals brought on-site and used in the deconstruction. The requirements of the OSHA Hazard Communications Standard (29 CFR 1910.1200) shall apply. Section 2.8 provides information concerning the management of hazardous chemicals on-site and the site Hazard Communication Program.

2.2.5 Biological Hazards

Biological concerns in the work area are primarily, insects, rodents, mold/fungi, and Legionella.

2.2.5.1 Insects

The presence of insects shall be addressed by personnel as the insects are encountered. When a stinging or poisonous insect, such as a bee or spider, is identified, personnel should exercise caution to avoid being bitten or stung for example by using tools to move material. In the event that a person is stung or bitten, the incident shall be reported to the Site Manager for the Subcontractor who shall report the incident to the Contractor NYCSSM. The Site Manager for the Subcontractor shall initiate actions to manage and address the bite or sting. Personnel who are allergic to insect bites and stings should identify their allergy to their employer.

2.2.5.2 Rodents

In the event that rodents or animal pests are identified or observed on-site, the Subcontractor Manager should report the incident to the Contractor NYCSSM. The Contractor NYCSSM shall be responsible for evaluating the condition and implementing steps to eliminate rodents on the site.

2.2.5.3 Mold/Fungi

The Initial Building Characterization Study prepared by Berger and the Supplemental Investigation Report prepared by TRC identified mold contaminated building materials/components within the Building. The identification of additional mold/fungi on-site will be made based on visual inspections of building materials. When mold/fungi are identified, the removal of impacted materials shall be addressed concurrently with Asbestos Abatement Activities. Removal and handling measures shall be consistent with the NYC Department of Health and Mental Hygiene "Guidelines on Assessment and Remediation of Fungi in Indoor Environments."

2.2.5.4 Legionella

The presence of legionella, disease-causing bacteria, has been previously identified in the Northeast secondary water supply on site through historical sampling data. At no time shall any person utilize water from any remnant building structure, including sinks, showers, water fountains or fire connections. Only city supplied water shall be used for Site clean-up activities. No persons shall use any water source that has not been pre-approved and marked for potable use by the Contractor NYCSSM.

2.3 Engineering Controls

Engineering controls will be used as primary protective mechanisms to protect the safety and health of all employees whenever technically feasible, and prior to the implementation of Administrative Controls and/or personal protective equipment. Each Subcontractor shall be responsible for the provision and implementation of the following:

- HEPA-filtered air filtration devices to reduce area dust levels.
- Vacuum cleaners equipped with HEPA filters.
- Fume eductors attached to HEPA filters for all hand-powered tools.
- Removal of all lead-based painted materials (if necessary), and adequate exhaust ventilation provided during torching or cutting activities.
- A buffer zone of at least two (2) floors will be maintained between the work activities of the Abatement Subcontractor and the Deconstruction Subcontractor on the top three floors, thereafter the buffer zone will be two floors.
- Barricades, railings or other devices to prevent employee exposure to fall hazards or moving equipment per 29 CFR 1926.
- Other task-specific engineering controls as recommended by OSHA guidelines or as recommended by the Contractor NYCSSM.

2.4 Administrative Controls and Work Practices

Each Subcontractor shall utilize administrative controls and work practices as a secondary means of ensuring worker health and safety when engineering controls do not provide sufficient protection or are technically infeasible. Each Subcontractor shall be responsible for the provision and/or implementation of the following:

- Ensuring all employees are enrolled in a medical monitoring program as required by OSHA, including medical monitoring for blood lead levels as outlined in Section 2.13 of this HASP.
- Ensuring all employees have current fit-test and training certifications.
- Implementing work practices that avoid generating dust whenever possible.
- Requiring that all employees implement decontamination procedures, including washing hands, face, hair and neck upon leaving the work area and before eating, drinking or smoking.

- Removing lead based paint or coatings before cutting, grinding or other activities that would be expected to disturb the lead-based materials, or complying with the provisions of 29 CFR 1926.62.
- Use of the Buddy System will be required for all employees working within the Exclusion Zone, as defined in Section 2.8.1 below, or while performing non-standard

2.5 Personal Protective Equipment (PPE)

Personal protective equipment will be used to provide adequate personnel protection only after feasible engineering and administrative control options have been exhausted. All personnel engaged in the project work activities will use the appropriate level of protection as required by the activity to be performed and are presented in the "Activity Hazard Analysis" presented in Table 2-1.

All PPE requirements for site activities are based upon available historical site characterization data and knowledge of the anticipated hazards. Changes in levels of PPE and changes in the PPE requirements for specific areas shall be made based upon the results of monitoring, visual observations and the nature of the site operations, including the presence of or potential for previously unidentified chemicals or conditions.

In accordance with OSHA 29 CFR 1910.132-138 and 1926.28 (Personal Protective Equipment), all PPE shall be provided, used, and maintained in a sanitary and reliable condition. All PPE shall be of construction, design, and material to protect employees against known or anticipated hazards. PPE shall be selected that properly and appropriately fits the employee.

2.5.1 Basic PPE Requirements

Each employee will wear a hard hat and safety glasses or other eye protection at all times while on-site, except for designated "safe" areas. Eye protection includes safety glasses, safety goggles, welding goggles, welding hoods, or full-face respirators. Prescription or non-prescription eyeglasses and sunglasses are not approved for eye protection. All acceptable eye protection must include side shields and must be ANSI-approved.

Unless in designated safe locations, all personnel shall have with them and/or wear the following PPE when entering the site:

- Work clothes without loose sleeves and cuffs
- American National Standards Institute (ANSI) - approved safety boots
- ANSI - approved safety glasses

- ANSI - approved hard hat with bill facing forward
- Work gloves (either leather or cotton)
- Hearing protection (as necessary)

The above listed PPE ensemble, defined as Level D, shall be worn during all outdoor site activities and inside of the building after clearance testing has been completed.

2.5.2 Level C PPE

Level C PPE shall be worn when working inside of the building (with the exception of previously cleaned areas such portions of the basement occupied by field offices) during all Phase I– Asbestos and COPC Abatement and Removal and some Phase I - Preparation Phase and Phase II activities. Level C PPE consists of:

- Full-face powered air-purifying respirator (PAPR) with HEPA filter approved by the National Institute for Occupational Safety and Health (NIOSH)/Mine Safety and Health Administration (MSHA)[1]. Half-face air-purifying respirators (APR) may be used during work preparation activities.
- Gloves - nitrile inner; chemical resistant outer (nitrile or neoprene)
- ANSI-approved safety boots
- ANSI–approved Eye protection – safety glasses or goggles
- ANSI-approved Hard hat with bill facing forward
- Tyvek coveralls with head cover (Two layers Tyvek or equivalent)
- Water-resistant overboots which are treaded to provide slip protection
- Hearing protection (as necessary)

2.5.3 Level B PPE

Level B PPE will be required during the exposure assessments when torch cutting of steel with heavy-metal containing coatings and may be required during jack hammering concrete in enclosures during the installation of the concrete chute. Level B will be required until an exposure assessment including personal air monitoring confirms that the downgrade of protection is appropriate. Level B PPE consists of:

[1] If air sampling data proves that the level of asbestos and COPCs are consistently below the action level, respiratory protection may be downgraded to an appropriate level of protection.

- Self-Contained Breathing Apparatus (SCBA) or combination airline/SCBA approved by the National Institute for Occupational Safety and Health (NIOSH)/Mine Safety and Health Administration (MSHA).
- Gloves - nitrile inner; chemical resistant outer (nitrile or neoprene)
- ANSI-approved safety boots
- ANSI–approved Eye protection – safety glasses or goggles
- ANSI-approved Hard hat with bill facing forward
- Tyvek coveralls with head cover (Two layers Tyvek or equivalent)
- Water-resistant overboots which are treaded to provide slip protection
- Hearing protection (as necessary)

2.5.4 Level A PPE

Use of this type of PPE is not anticipated at this site. Should work conditions and personnel sampling exceed action levels for a PPE upgrade to Level A, operations shall cease in that area until site conditions can be re-evaluated by the Contractor NYCSSM and the Environmental Consultant's CIH.

2.6 Safety Equipment

The requirements for PPE on this job may be refined and changed to address the conditions identified when tasks are performed. The Subcontractors will work with the Contractor NYCSSM to ensure the proper PPE is maintained and available on-site at all times, and that personnel are trained to use the PPE and understand the procedures and practices for the safe and effective use of PPE. The Subcontractors will provide the required PPE for their employees.

The PPE requirements presented in this HASP are the minimally acceptable for the specified activity. Subcontractors can make individual decisions to upgrade the equipment requirements for each PPE level to ensure the hazards presented by an activity are controlled and exposure is minimized. Engineering and administrative controls will be identified and implemented for each activity prior to use of PPE.

2.6.1 Respiratory Protection Program

Respiratory protection is required whenever work is performed inside the building to protect the workers from exposures to contaminants, primarily asbestos, that may be present. Half-

face negative pressure air purifying respiration particulate filters that are HEPA or P100 shall be required during abatement work preparation activities (i.e. installation of isolation barriers) and exterior work (excluding exterior fireproofing removal). PAPR protection will be used during all interior abatement and exterior fireproofing removal activities, unless Level B is required. Qualified subcontractor IH personnel will evaluate the need for additional protection such as adding organic vapor cartridges based on their respiratory protection programs and chemicals they may be using. The following practices will be conveyed to all employees and enforced by the Contractor NYCSSM and the HASP AM with respect to respiratory equipment for this project:

- Subcontractors whose personnel may have the need to wear respiratory protection on this job, shall have a written respiratory protection program that meets the requirements of the OSHA Standard (29 CFR 1910.134) and has been developed by a Competent Person as defined by OSHA.
- Personnel who may need to wear respiratory protection shall be fit-testing, medically qualified and trained, as required by the Standard, to use respiratory protection. The Subcontractor shall identify personnel who may use respiratory protection and documentation of fit-testing, medical qualification and training shall be provided for each person who may need to wear respiratory protection on the job.
- The Subcontractor shall review with the Contractor NYCSSM the procedures for the handling, storage and maintenance of respiratory protective equipment to be used on-site, including the process for reporting and repairing or replacing defective equipment and the locations where respiratory equipment will be stored.
- Subcontractors will provide employees with adequate respiratory protection as required by each task.
- A respirator of lesser protection than is required for the task/activity may not be used.
- Each employee will change his/her respirator filter at the end of each work shift. The Subcontractor will provide an adequate supply of approved filters for daily replacement for each employee's respirator.
- Each Subcontractor will ensure the adequacy of respiratory protection for his employees based upon the verified results of personal air sampling.
- If at any time air sampling data indicates airborne exposures exceeding one-half the OSHA Permissible Exposure Limit, all affected employees' respiratory protection will be upgraded.

2.6.1.1 Respirator Testing

Each individual who must wear a respirator will be required to be clean-shaven where the sealing areas of the respirator face piece contacts the face. Each respirator user will be respirator fit-tested in accordance with 29 CFR 1910.134 at least annually. Upon donning the respiratory device or before entering any restricted work area, each respirator wearer will be required to perform a manual negative and positive-pressure test. Subcontractor employees who fail the negative/positive pressure test because they are not clean shaven will be required to leave site for the day or to shave on-site immediately preceding entry into the work area.

2.6.1.2 Respirator Inspection, Sanitization, and Maintenance

All respirators will be cleaned, sanitized, inspected, assembled, and maintained ready for use on a daily basis. Each respirator will be stored in a clean and sanitary container. Prior to use, the wearer will inspect the respirator, including the valves, valve covers, nosepiece, straps, eyepiece (for full-face respirators), face piece and its snaps, cylinders, and canisters to insure that the respirator can be worn. The Subcontractor will provide initial training concerning the use of respirator equipment, but each employee will be responsible for cleaning, inspecting, maintaining, sanitizing, and storage of his/her respirator equipment.

If a respirator becomes chemically contaminated or malfunctions, the respirator will be replaced by the employer with a clean and sanitized respirator, and the contaminated/defective respirator shall be decontaminated and repaired before reuse, or tagged "out of service" and disposed of. The respirator wearer shall inspect the replacement respirator for defective parts and leaks and will be fit tested if the replacement respirator is of a different make, model or size than the original.

2.6.2 Medical Response Equipment

The following medical response equipment shall be available on-site for the duration of the site activities. The locations of these equipment stations shall be determined at the site and incorporated into this HASP upon initiation of each task. The Contractor NYCSSM shall maintain responsibility for the incorporation of this information into this HASP.

- Eyewash Stations: The location of emergency eyewash stations shall be determined. Each station shall provide a continuous spray of a rate of 0.4 gallons per minute for at least 15 minutes. This station shall be inspected daily to ensure proper operation.
- First Aid Kits: The locations of fixed and/or portable kits shall be determined. As a general guideline, each Subcontractor shall provide, at minimum, one first aid kit for every 20 employees and shall station it within the work area (for Level D operations) or

directly outside the decontamination area (contaminant reduction zone) (for Level C or Level B operations).

- Automated External Defibrillator (AED): an AED shall be located within the

The locations of eyewashes, first aid kits, AED, and the procedures for using and reporting an incident shall be presented during the initial on-site training. The Contractor NYCSSM shall make all personnel aware of the locations and use of this equipment prior to engaging in site work activities.

2.7 Personal Air Monitoring

Each Subcontractor and trade employer shall perform personnel air sampling for the following contaminants during Phase I of the project: particulates as TSP, metals as TSP, asbestos, PAHs, D/Fs, PCBs, mercury, lead and silica. Additionally, representative daily personnel sampling for lead, cadmium, chromium and mercury shall be performed during all cutting and torching operations as required by 29 CFR 1926.62(d)(2)(iv) and the Cadmium in construction standard [29 CFR 1926.112] and silica sampling during concrete hammering and removal operations. The results of personnel monitoring will be reviewed on a daily basis by the Subcontractor Safety Officer to determine if current levels of respiratory protection are adequate. The subcontractor safety officer shall provide written documentation of this review to Contractor's NYCSSM and the subcontractor must immediately report any results that trigger PPE upgrades. The following table lists the OSHA PEL, site specific Action Level, and trigger levels:

Table 2-2 OSHA PEL, Action Level, and Trigger Levels

Contaminants	OSHA PEL	Action Level (Half value of OSHA PEL)	10 X OSHA PEL (Protection factor for Half-face APR)	100 X OSHA PEL (Protection Factor for Full-face PAPR)
Asbestos	0.1 f/cc	0.05 f/cc	1 f/cc	10 f/cc
Antimony	0.5 mg/m^3	0.25 mg/m^3	5 mg/m^3	50 mg/m^3
Barium	0.5 mg/m^3	0.25 mg/m^3	5 mg/m^3	50 mg/m^3
Beryllium	0.002 mg/m^3	0.001 mg/m^3	0.02 mg/m^3	0.2 mg/m^3
Cadmium	0.005 mg/m^3	0.0025 mg/m^3	0.05 mg/m^3	0.5 mg/m^3
Chromium (III)	0.5 mg/m^3	0.25 mg/m^3	5 mg/m^3	50 mg/m^3
Copper	1 mg/m^3	0.5 mg/m^3	10 mg/m^3	100 mg/m^3
Lead	0.05 mg/m^3	0.025 mg/m^3	0.5 mg/m^3	5 mg/m^3
Manganese	5 mg/m^3	2.5 mg/m^3	50 mg/m^3	500 mg/m^3
Mercury	0.1 mg/m^3	0.05 mg/m^3	1 mg/m^3	10 mg/m^3
Nickel	1 mg/m^3	0.5 mg/m^3	10 mg/m^3	100 mg/m^3
Zinc	5 mg/m^3	2.5 mg/m^3	50 mg/m^3	500 mg/m^3

2.8 Site Control

Site control measures shall be implemented to protect the public and personnel working on-site. The aspects of site control shall address:

- General access to the site; and
- Access to the building and site during the deconstruction phase.

Fences, guardrails and access devices, including ladders, stairways, and walking surfaces shall be provided and maintained throughout the project activities in accordance with 29 CFR 1926. In addition, barricades, warning signs and devices, temporary lighting and other safety measures shall be provided, as required, to protect site personnel.

All visitors to the site shall report first to the Contractor field office. Visitor access shall be limited to the Support Zone and Level D operation areas only, and shall be allowed only with the prior consent of the Contractor NYCSSM and the Contractor Site Manager. No visitor shall enter a work area unescorted by a Subcontractor or Contractor representative. The presence of any regulatory agency on-site shall be reported immediately to the Contractor Site Manager.

2.8.1 Work Zones

For Phase I and Phase II Abatement activities, entry into the work zones begins once a person comes on-site. This approach reflects the dynamic nature of the operations and the need for everyone to be aware of the conditions while on-site. Using the concept of three zones for the site, the following areas are identified on each individual floor:

- Support Zone – This area starts at the project/property fence line and extends to the entry to where personnel enter the building to complete the work tasks. This area includes the ground outside of the building and any office spaces. In this area all personnel shall wear Level D PPE. Within this area exclusion zones may be established depending on the operations, for example: where material handling is performed, where hoisting equipment is located or where equipment is staged.

- Contamination Reduction Zone (CRZ) – Subject to approval of the variance, this area shall be located attached to the exclusion zone or at the pre-existing Personnel and Waste Decontamination Facilities located in Cellar "A" and the 1st floor will be utilized for the duration of this project.

  Personnel shall be aware of and follow all site control procedures with respect to entering and exiting the CRZ, to ensure that they are not exposed to contaminants and to minimize

the potential for contamination of personnel and the spread of contamination outside the Exclusion Zone (EZ). These measures include having personnel follow the proper procedures for donning and doffing PPE and washing in the CRZ. The measures also address the decontamination procedures for use when moving equipment between zones.

The CRZ shall consist of an area to drop off equipment, plastic bags to dispose of protective clothing, adequate soap and water for personnel and equipment decontamination and a means of capturing wash water generated during decontamination. The CRZ shall also have a first-aid kit, fire blanket and fire extinguisher (20-lb ABC-type).

- Exclusion Zone (EZ) – This area extends from the side of the CRZ facing the building and includes all areas on each floor of the building. This definition of the EZ shall remain effective until Phase I– Asbestos and COPC Abatement and Removal activity on each floor is completed. No employee shall enter the Exclusion Zone without the required training and PPE. No employee shall eat, drink, chew gum, apply cosmetics, smoke or use other tobacco products while in the Exclusion Zone. The employee must first exit the Exclusion Zone and follow decontamination procedures (Section 2.8.2.1) in the CRZ before engaging in any of the above actions. In the event that an employee in the EZ requires a replacement or his/her protective suit or respirator filters, the employee shall exit the EZ and utilize proper decontamination procedures in the CRZ, replace or repair the defective PPE, then re-enter the EZ.

2.8.2 Personnel and Equipment Decontamination

When exiting the EZ, personnel shall be aware of and follow the procedures used to decontaminate personnel, equipment, and sampling containers. Subcontractors shall ensure that their employees follow proper decontamination and waste disposal procedures. Disposal of PPE and other items shall be performed in accordance with Section 3 of this HASP, with material placed in appropriately sized and labeled containers. Specific decontamination procedures are presented in the following subsections.

2.8.2.1 Personnel Decontamination Procedure

Personnel entering containment are required to follow proper decontamination procedures. All employees who leave the Exclusion Zone shall follow the decontamination process as outlined below.

All employees shall remove all gross contamination and debris from disposal protective clothing and equipment by vacuuming prior to leaving the EZ. All employees must be HEPA vacuumed before entering the elevator that leads to the CRZ. Upon entering the CRZ, each employee shall

remove the first layer of protective clothing and place it in the appropriate container. If the employee performs duties and becomes "grossly contaminated", the decontamination procedure will include an Alconox (soapy) wash and a tap water rinse of the outer suit, gloves and overboots prior to removal of the outer layer.

After employees remove the first layer of tyvek and gloves, they shall then move into a second decon area where the second tyvek and gloves shall be removed and placed in the appropriate waste container. After this decontamination, personnel shall proceed to a washing facility to take full showers. The employee shall dispose of all protective clothing upon exiting the decontamination unit; all half-face APR respirator cartridges, if used, shall be changed out, as needed, but on a daily basis at a minimum. Full-face PAPR cartridges may be utilized more than one day if functioning as designed and sealed and decontaminated after each use.

2.8.2.2 Equipment Decontamination Procedure

Since equipment decontamination is difficult, unnecessary equipment shall not be brought into the controlled areas. All materials used in the regulated area shall be properly HEPA vacuumed and wet-wiped before leaving the first decontamination zone. All equipment that becomes "grossly contaminated", will require an Alconox wash and tap rinse.

2.8.3 Safety Meetings

A safety meeting shall be held each day with the Contractor and each Subcontractor prior to initiating the scheduled activities and at the beginning of each day. The topics and content for the Safety Meeting shall be prepared in advance by the subcontractors and submitted to the Contractor NYCSSM for approval. The safety meeting shall review elements in the site HASP and the procedures for working on-site, and address the impacts of changes to the site conditions. Topics to be addressed include:

- Use and maintenance of PPE
- Evacuation routes;
- Warning signals;
- Maintaining line-of-sight and communications;
- Rehearsal of scheduled activities;
- Hospital routes;
- Locations of safety equipment;

- Previous violations of the safety plan and procedures or changes to the program to correct the violation;
- Anticipated hazards for the day's work activities;
- Any changes to the requirements for levels of PPE;
- The locations of work zones; and
- General site conditions.

All safety meetings shall be documented in the site H&S logbook. Meeting participants shall sign an attendance sheet.

2.9 Training Plan

All personnel directly involved in the project site activities shall be trained for the tasks they will perform, as required by applicable federal/state/local regulations. Refresher training will be performed at least yearly. In addition, all site personnel shall participate in site-specific training and participation of personnel in training shall be documented, with proof of training maintained on-site. The topics of training required are dependent on the SOW. This training shall be administrated by the Contractor, the Subcontractor, or certified training facilities.

2.9.1 Health and Safety Awareness Training

Each Subcontractor shall be responsible for presenting and discussing the elements of this HASP with their personnel and subcontractors, and ensuring that personnel follow the elements of this HASP when working on-site. Prior to the start of work activities, or whenever a new hazard is introduced into the work area, employees shall be provided with the information indicated below. The Contractor NYCSSM or HASP AM shall be available to address any questions or assist in the presentation of the HASP information to project employees. Information to be addressed during this training shall include, but not be limited to:

- Hazardous chemicals present at the work site and their associated health risks.
- Potential physical hazards associated with the work activities, and proper safe working practices.
- Proper use of all tools and equipment to complete the scope of work activities.
- Requirements of the site Hazard Communication Program, including the labeling of containers.
- Site alarm system, emergency response procedures, and location of emergency lay down area.

- Proper PPE to be used during work activities.
- Location of the MSDS files.
- How to reduce or prevent exposure to hazardous chemicals through the use of controls procedures, work practices, and personal protective equipment.

2.9.2 Asbestos Training

ACBM was determined to be in several building components per the Berger "Initial Building Characterization Study Report" and as verified by TRC. Personnel entering containment shall be trained to identify ACBM and the hazards associated with asbestos in accordance with the OSHA Asbestos Standards (29 CFR 1910.1001 and 29 CFR 1926.1101) and state/local certification requirements. This training provides personnel with a better understanding of asbestos and the steps to be taken to protect themselves and the public. In areas that ACBM was identified, required NYSDOL and NYCDEP procedures shall be followed.

2.9.3 HAZWOPER Training

Personnel entering the exclusion or contamination zones for the purpose of performing cleanup-abatement activities must have received the required 40 hour training as outlined by 29 CFR 1910.120(a) (i) and appropriate annual refresher training as required. This HAZWOPER training requirement may be removed, should sampling indicate training requirement downgrade is appropriate.

2.10 Personal Protective Equipment Training

Each Subcontractor shall provide training concerning the use of PPE to their personnel, as specified by this plan, to address the general PPE requirements and any specific requirements for PPE they may use, such as fall protection. The Contractor NYCSSM or HASP AM can assist with this training, and any concerns regarding the use of appropriate PPE shall be brought the attention of the Contractor NYCSSM. Further discussion of the types of PPE is presented in Subsection 2.5 of this HASP.

2.10.1 Emergency Response Training

Emergency response training, in accordance with the Emergency Action Plan found within Section 3 of the Deconstruction Plan, shall be provided to all on-site-personnel as part of the site-specific safety and health awareness training. The emergency response training shall be conducted by each Subcontractor's Safety Officer for his/her respective employees. At a minimum, the topics of this training shall include the following:

- Location of all site emergency equipment
- Response procedures for fires
- Response procedures for injuries and accidents
- On-site/off-site response resources
- Emergency site operations shut down procedures
- On-site "Chain of Command"
- Designated on-site emergency meeting location
- Recognition of evacuation signals and alarms

2.10.2 Visitor Training

Site visitors are defined as persons who are not employed at the project site, who do not routinely enter restricted work areas, or whose presence is of short duration (i.e., one to two days per month). During Phase I, all visitors entering the EZ must provide proof of an up-to-date fit-testing and medical clearance, and completion asbestos certifications required for the employee's scope of work. In addition each visitor will receive site-specific training by the Contractor NYCSSM or HASP AM that includes:

- Location and description of potential hazards and risks
- Required PPE
- Areas of the site that may be closed to visitors
- The site evacuation plan and emergency procedures
- Other topics as deemed appropriate by the Contractor NYCSSM

2.10.3 Other OSHA Specific Standard Training

Because of lead and cadmium being identified as COPCs and the potential for lead fumes or dust to be produced in deconstruction from building materials, subcontractors will provide proof of training required in OSHA Specific Standards 29 CFR1926.65 (Lead in Construction) and 1926.1127 (Cadmium)

2.11 Hazard Communication

The Contractor and Subcontractors shall notify the Contractor NYCSSM of any hazardous products prior to bringing the chemical on site and shall provide a MSDS for each product.

These MSDSs shall be maintained by the Contractor NYCSSM and shall be kept in a site master file. In addition, each Subcontractor shall maintain a copy of the MSDS for each product that they bring on-site.

The Subcontractor shall review with the Contractor NYCSSM the procedures for handling, using and storing the chemicals brought on-site, and shall review with their personnel the proper procedures for handling, using and storing the chemicals before the product is used on-site. This includes but is not limited to all commercial products brought on-site by Subcontractors, including commercial cleansers, degreasers, lubricants and paints.

2.11.1 Container Labels

All containers of hazardous materials shall be labeled in accordance with the requirements of New York State law as well as all other appropriate rules, regulations, and standards. The labels on containers provided by the manufacturer, importer, or distributor shall be used. Labels affixed to containers of hazardous materials shall:

- Identify content, hazard and storage prohibitions, such as those relating to temperature range and chemical incompatibility with other materials and/or wastes.
- Identify the material using a name with which workers are familiar.
- Identify the hazards associated with the material, including toxicity information that indicates symptoms and target organs.
- Identify the name, address, and telephone number of the manufacturer, importer, or distributor where more information may be obtained.
- Containers of hazardous waste shall be labeled or marked clearly with the words “Hazardous Waste”.

Labels shall not conflict with Hazardous Materials Transportation Act (HMTA) labeling requirements and shall meet the requirements of OSHA substance-specific health standards, where required.

Labeling is required for all portable/temporary hazardous material containers at all times with “Hazardous Waste” or “Hazardous Material” on the container and the specific content of the container (e.g., diesel fuel). The subcontractor shall prepare a container label when the contents of the container are not used on the shift during which the container was filled and when the container label is defaced or illegible. The prepared temporary label shall indicate pertinent chemical identification and health information as required by OSHA.

2.11.2 Material Safety Data Sheets (MSDSs)

All MSDSs shall be submitted by the Subcontractors and shall be maintained by the Contractor NYCSSM within a site master file. In addition, each Subcontractor shall maintain a copy of the MSDS for each product that they bring on-site. In addition, each Subcontractor shall also retain a log of MSDSs for chemicals used on this project and this log shall be kept on-site. The location of the MSDS folder shall be made known to all project employees.

Each Subcontractor shall review incoming MSDSs for new or significant health and safety information and shall ensure that any new information is communicated to affected employees, the Contractor NYCSSM and other subcontractors. If an MSDS is not received at the time of initial shipment of materials, the material may not be used until the MSDS has been obtained from the manufacturer.

Employees shall be instructed to notify their Site Manager if an MSDS is not available. When a revised MSDS is received, the Site Manager shall immediately replace the old MSDS. Subcontractors shall insure that the MSDSs on file for their chemicals are current (updated within last two years).

2.12 Accident Prevention & Investigation

A vital element of maintaining safe work practices is accident prevention. The following four actions are instrumental to accident prevention, and shall be communicated to all project personnel:

- Eliminate unsafe conditions. Efforts shall be initiated and implemented throughout the project to identify conditions that can contribute to an accident, and to remove exposure to these conditions. Each Subcontractor Safety Officer shall audit the work area prior to each shift to identify and correct any unsafe conditions.
- Reduce unsafe acts. Personnel shall make a conscious effort to work safely. A high degree of safety awareness shall be maintained so that safety factors are an integral part of each task. Daily safety briefings shall be designed to heighten general safety awareness and will be tailored to the individual audiences and tasks each day.
- Inspect frequently. Regular safety inspections of the work site, material, equipment, and operations by qualified persons (i.e., Contractor NYCSSM) shall be performed to ensure early detection of unsafe conditions. Safety and health deficiencies shall be corrected as soon as possible, or site activities shall be suspended. All inspections shall be documented and the records retained by the Subcontractor for, at a minimum, the duration of the project. Copies of the inspection reports shall be provided to the Contractor NYCSSM or Contractor Project Manager upon request,

- Educate personnel concerning the requirements of the HASP. The HASP and all site health and safety education shall be provided by each Subcontractor, the Contractor NYCSSM and HASP AM.

All minor accidents (i.e., small fires, injuries, and near misses) shall be investigated by the Subcontractor Site Manager or Safety Officer and communicated to the Contractor NYCSSM immediately when reported to the Subcontractor. The Contractor should also be contacted as soon as possible. An accident investigation shall include reviewing the accident/incident report, questioning the injured employee(s) as well as other personnel witnessing the occurrence, identifying all contributing acts and conditions, determining underlying reasons for their existence or occurrence, and implementing corrective actions. A report documenting the investigation shall be written and forwarded by the Subcontractor to the Contractor NYCSSM and the Contractor Project Manager. Recommendations for accident prevention shall also be made in the report and communicated to all site personnel during periodic safety briefings and training sessions.

2.13 Medical Surveillance Plan

All persons involved shall be enrolled in an HAZWOPER and/or asbestos medical monitoring program, as appropriate, prior to working on-site. This requirement ensures that personnel are protected from asbestos and other COPCs that have been identified. In the event that air sampling confirms the presence of air-borne asbestos and workers are exposed to asbestos levels above the OSHA PEL, then guidance concerning the requirements for annual medical examinations shall be provided by the Contractor NYCSSM.

The "Initial Building Characterization Study Report", dated September 14, 2004, and published by The Louis Berger Group, Inc. shows elevated levels of lead; therefore, all employees shall also take part in biological monitoring for lead in accordance with 29 CFR 1926.62. This includes baseline blood work within 48 hours of the start of exposure and every 2 months for the first 6 months of exposures over the action level for more than 30 days per year. After the first 6 months, the blood levels should be checked every 6 months. This shall insure that the levels of respiratory protection used by employees properly protect them from lead exposure.

In addition, medical monitoring will be conducted for any COPCs that have an OSHA standard.

2.13.1 Respiratory Protection

All personnel having to wear a respirator must have a medical evaluation as required by 29 CFR 1910.134 to determine fitness to use respiratory protective equipment prior to initiation of work activities. Documentation indicating medical clearance for respirator use must be provided to the

HASP AM by each Subcontractor prior to entrance into the work area, should respirator use be required by that employee. Each Subcontractor shall maintain a written Respiratory Protection Program developed by a Competent Person as required by 29 CFR 1926.103.

2.13.2 Hearing Conservation

All personnel exposed to noise levels above 85 dBA must have a baseline audiometric evaluation in accordance with 29 CFR 1926.52 and 101. Personnel shall receive awareness training concerning the hazards of noise and the procedures to properly use and maintain hearing protection. If any Subcontractor exposes his employees the noise levels above 85 dBA, the Subcontractor must establish a written Hearing Conservation Program developed by a competent person as required by 29 CFR 1926.101 and 29 CFR 1910.95

2.13.3 First Aid

On-site First Aid/CPR/AED support shall be provided by the Contractor NYCSSM. Additionally, each Subcontractor shall have on-site at least one person who has current training in first aid, CPR, and AED use.

2.13.4 Medical Emergency and Personal Injury

The first worker who notices that a medical emergency or personal injury has occurred shall immediately make a subjective decision as to whether the emergency is life threatening and/or otherwise serious.

Life-Threatening and/or Otherwise Serious Incident

If a life-threatening incident occurs, those persons recognizing the situation should do whatever actions in their capabilities to reduce the threat and then the Contractor NYCSSM shall be contacted. The Contractor NYCSSM shall immediately notify 911 and implement emergency action procedures to have someone meet and guide the responder(s) to the incident location. The Contractor shall be notified of the incident as early as possible.

The Contractor NYCSSM shall be kept apprised of the situation and the location of the victim(s). As the Contractor NYCSSM proceeds to the accident scene, communications channels shall be opened and kept on standby until the Contractor NYCSSM has surveyed the scene and performed a primary survey of the victim.

The Contractor NYCSSM shall provide emergency action guidance consistent with the injury and shall relay the appropriate information to the site person meeting the responder(s).

Depending on the nature of the injury and the location at which the injury occurred, the Contractor NYCSSM shall determine whether the person can be moved or whether the responder(s) will need to come into the work area to assist the victim. Should the victim be injured in the Exclusion Zone, all appropriate life-saving methods shall be exercised in that area before attempting decontamination of the victim. The extent of emergency decontamination performed shall depend on the severity of the injury or illness and the nature of the contamination. If the emergency is such that emergency decontamination cannot be performed safely, the victim shall be given necessary first-aid treatment and wrapped in a blanket prior to transportation by the responder(s). If heat stress is a factor in a victim's injury/illness, all protective clothing shall be removed from the victim immediately.

Non-Life-Threatening Incident

Should it be determined that no threat to life is present, a co-worker will assist the injured person and contact the Contractor NYCSSM as soon as reasonably possible. Should the victim be injured in the Exclusion Zone, a rapid decontamination consisting of Tyvek, glove and respirator removal shall be performed in the Contamination Reduction Zone prior to initiation of medical assistance. For all non-life-threatening injuries, all medical assistance shall be provided in the Support Zone to reduce the spread of contamination to medical personnel or equipment.

2.13.5 Bloodborne Pathogens

When an emergency occurs that involves the potential for contact with bodily fluids, personnel shall use procedures and PPE that minimize the potential for exposure.

All personnel who provided direct support to an injured person shall participate in a post-incident exposure review during which their role in the event and the potential for contact with bodily fluids shall be evaluated. The information relating to exposure shall be documented for each individual. The procedures for the post-exposure consultation identified in the OSHA Bloodborne Pathogens Standard (29 CFR 1910.1030) shall be followed.

All personnel on-site shall receive awareness training concerning Bloodborne Pathogens (BBP) and the procedures to be followed to respond to emergencies that occur on-site. This awareness training shall be provided by each Subcontractor prior to the initiation of work activities and when new employees are introduced to the Site. In addition, each Subcontractor must have a BBP plan.

3.0 DOCUMENTATION

Each Subcontractor shall maintain documentation, as established by the Contractor, which shall record, at a minimum, the following information:

- The Subcontractor employees on Site, including arrival and departure times and their destination at the Site.
- Information required to be maintained by the OSHA respiratory protection standard, including medical clearance documents, training and certification records, fit-test records, and the results of personal air monitoring used to determine employee exposures. Additionally, all medical and sampling documentation required by OSHA's Lead in Construction standard must be maintained.
- Area air testing results
- Incidents and unusual activities that occur at the Site, including but not limited to injuries, illnesses, accidents, spills, breaches of security, equipment failures, weather-related problems and near-misses.
- Records of daily safety briefings, including attendance documentation for all employees required to attend.
- Records of health and safety inspections by governmental agencies.
- Records of corrective actions performed in response to any deficiencies noted through government agency inspection or by the Contractor NYCSSM.

ATTACHMENT 1