WASTE SAMPLING AND MANAGEMENT PLAN
FOR THE
130 LIBERTY STREET
DECONSTRUCTION PROJECT

August 2005

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TABLE OF CONTENTS

ATTACHMENTS

Attachment	Title
1	List of Potential Hazardous and Universal Waste
2	Sample Management, Labeling and QA/QC
3	Preliminary List of Potential Disposal Facilities

1. OBJECTIVE

The objective of the Waste Sampling and Management Plan (Plan) is properly to classify, manage, containerize, transport**,** and dispose of (or recycle), in conformance with all applicable laws and regulations, waste streams that will be generated as part of the 130 Liberty Street - Deconstruction Project.

1.1. BACKGROUND

This plan covers all of 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 demolition (Phase II) portion of the project. The proposed cleanup and abatement will be conducted so that the Building can be safely deconstructed 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.

The information in the *Supplemental Investigation Summary Report - Preliminary Waste Characterization Sampling Summary Results* for 130 Liberty Street dated February 10, 2005 prepared for LMDC by TRC Environmental Corporation (Preliminary Waste Characterization) and the *130 Liberty Street Initial Building Characterization Study Report Volume I, September 14, 2004* by the Louis Berger Group, Inc. (Initial Building Characterization), as well as information in this Plan, will be utilized by the Contractor and its Subcontractors to determine the appropriate transportation and disposal for the generated waste in accordance with applicable federal, state and local regulations. The Environmental Consultant will characterize the waste streams to be generated. Based on the results of this characterization, once analytical results are received, the Environmental Consultant will issue an addendum to the Plan, if necessary. The Contractor or its authorized representative will ensure proper handling and disposal activities as described in this Plan.

1.2. ROLES AND RESPONSIBILITIES

Involved entities are identified in this Plan by title/responsibility. The roles and responsibilities identified below are provided for the generically identified organization rather than for specific corporate entities. It should be noted that these roles and responsibilities are provided for informational purposes herein, and should not be construed as being representative of contractual obligations, responsibilities or liabilities.

Within this Plan, the "Owner" is the Lower Manhattan Development Corporation (LMDC).

The "Deconstruction Team" for the Deconstruction Project is made up of the Contractor and the Contractor's subcontractors, including the Abatement Subcontractor and Environmental Consultant. The Contractor will have responsibility to propose to the Owner any additional subcontractors he intends to add to the Deconstruction Team. Upon approval of the Owner, additional subcontractors and their role in the project will be identified to the Regulators.

The "Contractor" is responsible for ensuring that the 130 Liberty Street Building Deconstruction Project is accomplished in a safe manner that complies with applicable federal, state and local laws and regulations. In addition, the Contractor is responsible for meeting the various waste management and disposal requirements of the Contract. The Contractor bears overall responsibility for implementing the Deconstruction Project.

The "Environmental Consultant" is a subconsultant of the Contractor and is responsible for providing technical support to the Deconstruction Team relating to regulatory environmental and health and safety aspects of the deconstruction.

The "Abatement Subcontractor" is a subcontractor of the Contractor and is responsible for abating asbestos-containing and contaminated materials pertaining to the 130 Liberty Street Building from areas included in the Phase I – Asbestos and COPC Abatement and Removal portion of the Deconstruction Project. The Abatement Subcontractor will conduct a dust clean-up, limited soft strip and interior gut (including, but not limited to suspended ceiling tiles, carpeting, fiberglass insulation, loose cabling/wiring above ceilings and under raised floors, etc.) and removal of ACBM pertaining to the 130 Liberty Street building in accordance with the Asbestos and COPC Abatement Plan of the Deconstruction Plan. The Abatement Subcontractor

is also responsible for proper disposal of wastes generated during these project activities. The "Abatement Subcontractor" shall be a New York State Department of Labor (NYSDOL) and New York City Department of Environmental Protection (NYCDEP) licensed asbestos handler. The Abatement Subcontractor, if designated by the Contractor, may also have responsibility for handling the certain potentially hazardous and/or regulated miscellaneous building components.

Hazardous waste generated at 130 Liberty during the Deconstruction will list LMDC as the generator. It will be the responsibility of the Contractor to determine the appropriate Treatment, Storage, and Disposal Facility (TSDF) to which the materials will be shipped based on waste profiles**,** subject to the approval of LMDC. In addition LMDC, as the current owner of the property, will file a hazardous waste notification revision with the EPA pursuant to the Resource Conservation and Recovery Act (RCRA).

2. BUILDING COMPONENTS

This Plan has been developed to address the components within the Building that will be cleaned and/or removed during project activities. At this time, the following list of anticipated waste streams has been identified and will be addressed in this Plan: Unless otherwise noted, these items will be removed and disposed or recycled in accordance with this Plan during Phase I– Asbestos and COPC Abatement and Removal.

- Dust
- Asbestos-Containing Building Materials (ACBM)
- Deconstruction Waste including:
  - Suspended ceiling tiles and support grid
  - Carpeting
  - Gypsum Wall Board (GWB) and associated metal studs
  - Sprayed-on fireproofing
  - Fiberglass insulation
  - Doors and frames
  - Raised flooring
  - Exterior mesh/netting currently covering the building façade
  - Mechanical Electrical Plumbing (MEP) components (heating, ventilation and air conditioning [HVAC] systems, elevators, plumbing, wiring, etc.)
  - Exterior building components (window and spandrel units, column coverings and fascia, louvers, etc.) (Phase II)
  - Concrete and masonry (Phase II)
  - Structural Steel (Phase II)

- Miscellaneous Other Building Related Regulated Components including:
  - Light ballasts and potting material
  - Lamps
  - Mercury-containing electrical switches
  - Mercury thermostats
  - Uninterruptible Power Supply (UPS) Lead-acid and other batteries located on the Mechanical Floor 40/41
  - Refrigerants
  - Bagged accumulated waste
  - Fuel
  - Fire extinguishers
  - Halon fire suppression systems

The following sections will outline the proposed steps for further characterization, removal and recycling or disposal of the above-mentioned components. The classification of building components and contents is an ongoing effort and has been and will be conducted in accordance with applicable New York City, New York State and federal laws, rules, and regulations. This Plan is intended as a working document to be used during ongoing operations at the Building and will be updated as necessary as new information becomes available.

3. GENERAL WASTE CHARACTERIZATION STRATEGY

Of the waste types identified above, some will require additional sampling and analysis to determine disposal routing while, for others, sufficient analytical data or other information already exists to determine disposal routing.

The TRC Preliminary Waste Characterization Study indicated the following:

Fourteen representative composite bulk dust (six samples) and anticipated waste stream/building material (eight) samples were collected on various floors of the Building and analyzed for Resource Conservation and Recovery Act (RCRA) Characteristics and full Toxicity Characteristic Leaching Procedure (TCLP) analysis. Results of the 14 samples were compared to criteria provided in 40 CFR Part 261 sections 21 through 24 and Environmental Protection Agency Publication SW 846 Chapter 7. None of the 14 samples collected exceed the criteria provided in 40 CFR Part 261 sections 21 through 23 or SW 846 Chapter 7. None of the eight building material samples exceeded the Maximum Concentration of Contamination for the

Toxicity Characteristics provided in 40 CFR section 261.24. One of the six composite bulk dust samples, collected in a mechanical room on the 40th floor, exhibited levels of cadmium that exceeded 40 CFR section 261.24. This sample exceeded the cadmium maximum concentration of 1.0 mg/L with a result of 6.2 mg/L. (Additional sampling will be conducted to determine whether specific equipment or surface coatings in the 40th Floor mechanical room contributed to the cadmium levels.)

In general:

- All waste materials generated in the work areas during the Deconstruction**,** including caulking, polyethylene sheeting, foam sealants, spray adhesive, spent filters, etc. will be disposed of as asbestos waste, at a minimum. (Note that non-porous items decontaminated in accordance with state and local requirements will not be treated as asbestos wastes.)

- Waste generated during the project will be characterized, managed, transported and disposed of in compliance with this Waste Sampling and Management Plan and applicable regulations.

- All dust, including but not limited to WTC dust, will be sampled and further characterized for waste classification relative to other identified contaminants (including COPCs) to determine if it must be handled as a hazardous waste in addition to being handled as an asbestos waste. In addition, an investigation of painted surfaces/mechanical equipment in the 40th floor mechanical room for the presence of cadmium in paint will be conducted to assess potential contribution of cadmium in paint to the cadmium result in dust for that location as identified in the TRC Preliminary Waste Characterization Study.

- TRC performed supplemental sampling and analysis of representative glass in the Building for the presence of selenium. Selenium was not detected in glass samples analyzed for total and TCLP selenium.

- Dust sampling for hazardous waste characteristics will be performed in advance of sampling of materials impacted by dust. If the dust classification sampling indicates that the dust is not a hazardous waste, then by extension, any non-hazardous materials potentially impacted by dust (e.g. fireproofing, GWB, carpets) would also not be a hazardous waste. Those materials would then not be sampled for hazardous waste characteristics unless there is an independent concern that they might be hazardous waste due to the inherent composition of the component, subcomponent or waste stream (e.g., light ballasts which may contain PCBs, items coated with lead-based paint, lead-sheathed electrical components, etc.).

- Porous Deconstruction Waste (including any associated dust remaining on it) will be sampled and tested for waste characterization relative to identified contaminants (COPCs

other than asbestos) through the collection of representative bulk and/or core samples of the materials including any settled/entrained dust as described in Section 4.2.3, only if the dust samples described in the above bullet indicate that the bulk dust meets any of the hazardous waste characteristics. Porous Deconstruction waste will be managed as described in Section 4.2 as well as consistent with any other waste classification that is identified by the analytical results of the waste classification sampling, if needed.

- ACBMs by their nature and definition will be disposed of in accordance with ACM disposal requirements outlined in Section 4 - Asbestos and COPC Abatement and Removal Plan of the Deconstruction Plan. Asbestos-containing materials that are both ACBM and hazardous waste will be managed in accordance with the requirements for both types of waste streams.

- Non-Porous Deconstruction Waste may be managed by either of two options. The Abatement Subcontractor may choose to clean the non-porous surfaces in accordance with procedures outlined in Section 4 - Asbestos and COPC Abatement and Removal Plan of the 130 Liberty Street Deconstruction Plan. The resulting cleaned material will not be sampled unless it is painted and is destined for diposal not metal recycling; in that instance, sampling will be performed as described in Section 4.3.3 of this Plan. Alternatively, based on field conditions and decisions regarding the use of its labor force, the Abatement Subcontractor may choose to not clean the surfaces and instead manage those non-cleaned non-porous materials as asbestos waste at a minimum or otherwise, if required, as determined by hazardous waste characteristics sampling.

- Miscellaneous Other Building Related Components can be characterized based on inherent composition and corresponding applicable waste standards, modified if necessary through the collection of representative bulk and/or core samples of the components including any settled/entrained dust as described in Section 4.2.3, should the dust samples described above indicate that the bulk dust meets any of the hazardous waste characteristics.

For materials requiring sampling, a random sampling strategy will be used and composite samples representative of the waste type and final waste streams will be collected. The locations and frequency of samples to be combined into composite samples shall be determined by the Environmental Consultant such that a representative sample of the waste type and final waste streams is obtained. The sampling schemes for various potential waste types are presented in this Plan. In cases where the characterization of potential waste types is not representative of the actual waste streams to be generated during the project implementation, additional sampling and analysis may be performed to characterize the actual waste streams. If sample results for a waste stream indicate hazardous characteristics, then further, more refined characterization sampling and testing may be performed to further segregate the hazardous portion of a non-homogeneous waste stream prior to disposal. Should additional wastes be identified or a proposed sampling

scheme require modification, the new and revised sampling scheme will be provided in advance to the Regulators for review and comment. All sampling personnel shall be familiar with sample collection and waste storage protocols and shall have undergone Hazard Communication training in accordance with 29 CFR section 1910.1200 as well as being trained appropriately per the Health and Safety Plan.

The waste classification samples will be sent to a New York State Environmental Laboratory Approval Program (ELAP) certified (6 NYCRR Section 370.1(f)) and qualified laboratory for waste classification analysis (e.g., TCLP and RCRA characteristics) to determine appropriate waste classification and handling requirements (40 CFR section 262.11). Other sampling and laboratory analysis may be required by the disposal facility prior to waste acceptance. The laboratory subcontracted to perform the analysis on behalf of the Owner or Contractor will be also be certified through the National Environmental Laboratory Accreditation Program (NELAP) for the analytical parameters being analyzed, so there is assurance that the laboratory has passed a nationally recognized quality assurance program that includes audits, analysis of blind performance samples to check data quality and meeting certain minimum technical standards for the qualifications of testing personnel.

Upon receipt and review of the analytical results and other available information concerning the waste, the Environmental Consultant will identify applicable regulatory requirements for waste handling, worker training and protection (e.g., specific training/certifications, personal protection equipment [PPE]), packaging (e.g., type of packaging, marking, labeling), transporting (e.g., placarding, shipping papers), waste routing and disposing of these wastes.

Determination of waste classification will be determined on the basis of the results of analytical testing of representative samples of waste streams and Owner and Contractor knowledge. If waste characterization testing is not required after removal of the material (i.e. the waste stream was pre-characterized), on-site storage of deconstruction wastes for waste classification will not be required. Rather, all removed materials will be placed into their applicable disposal containers/vehicles for off-site shipment. In other cases, materials may be removed prior to waste characterization and will therefore be stored until completion of the waste characterization process (e.g. interpretation of analytic test results) and subsequent off-site disposal. All

potentially hazardous waste will be managed as hazardous waste unless analytics prove otherwise.

Further detail for each of the anticipated categories of waste along with currently identified volume estimates is provided in Attachment 1. Greater detail regarding monthly estimated quantities of generated hazardous waste will be provided subsequent to detailed waste characterization sampling and analysis.

If greater than 100 kg/month of hazardous waste is generated during the deconstruction process, Contractor will comply with, among other things, 6 NYCRR Part 373, Subpart 373-3, section 373-3.3(b).

4. WASTE CHARACTERIZATION SPECIFICS

The LMDC retained Berger to conduct an Initial Building Characterization Study for the Building. These results were subsequently presented and discussed in the September 14, 2004 Initial Building Characterization Study Report (Initial Building Characterization). In addition the LMDC retained TRC Environmental Corporation to conduct a preliminary waste characterization in the Building. These results were presented and discussed in the TRC Preliminary Waste Characterization Study (Preliminary Waste Characterization).

In keeping with the procedures utilized during the Initial Building and Preliminary Waste Characterization studies, the Environmental Consultant will divide the Building into six zones for the purposes of waste characteristic sampling:

- Zone 1 - Mechanical Rooms on the 5th, 6th, 40th, and 41st Floors to include the air intakes, fan rooms, and air handling units of the HVAC system. Note, Zone 1 will be further divided into Zones 1A – 5th and 6th floors and Zone 1B – 40th and 41st floors.
- Zone 2 - Office Space located at or below the 24th Floor that may have been subjected to WTC dust entering the Building through an external breach (Gash Area), HVAC system (and possibly circulated through the HVAC system), vertical shafts, or broken windows.
- Zone 3 - Office Space located above the 24th Floor that may have been impacted by WTC dust distributed through the HVAC system, vertical shafts, or broken windows.
- Zone 4 - Gash Area that was cleaned by Deutsche Bank subsequent to September 11, 2001 to permit structural work to be performed.

- Zone 5 - Roof Area that may have been impacted by the settling or adhesion of WTC dust to the exterior surfaces.
- Zone 6 - Exterior Facade building materials.

These zones will be replaced by individual building floors and the building exterior for the sampling scheme described in this Plan for wastes that are ubiquitous to the deconstruction activities (e.g., settled dust, ACBM, deconstruction generated waste). For materials that are less prevalent throughout the 130 Liberty Street Building (e.g., transformers, batteries, mercury switches), waste management sampling, if required, will also be performed by floor, in the case of follow-up sampling as the result of settled dust exhibiting one or more hazardous waste characteristic. Based upon an evaluation of their inherent characteristics, these less prevalent materials will be segregated, handled, and disposed in accordance with the applicable requirements for each specific material, not by floor.

4.1. ASBESTOS-CONTAINING/CONTAMINATED WASTE

4.1.1. Definition

The Initial Building Characterization and the TRC Supplemental Investigation Summary Report – Summary of Results of Additional Asbestos Containing Building Material (ACBM) Inspection dated February 23, 2005 (Supplemental ACBM Inspection) identified various **ACBM materials present in the Building prior to September 11, 2001. These** materials are classified as "**asbestos material."** In addition, the Initial Building Characterization identified settled dust with visible accumulations of less than 0.25 inch throughout the Building in locations such as the top of radiator covers, carpets, concrete floors, door frames, reception desks and HVAC units. Above the suspended ceiling (plenum), visible dust was identified on top of ceiling tiles, ceiling grids, HVAC ductwork, electrical lighting fixtures and sheetrock ceilings.

The results of the Initial Building Characterization indicated that settled dusts had detectable levels of COPCs identified by EPA which included: asbestos, crystalline silica, PAHs, dioxins, PCBs and heavy metals (e.g., barium, beryllium, cadmium, copper, lead, manganese, mercury, nickel and zinc). The concentration of the COPCs found within the settled dust samples varied throughout the Building.

With the exception of non-porous deconstruction materials sufficiently wet-wiped/HEPA vacuumed in accordance with the Asbestos and COPC Abatement Plan to remove dust, WTC dust impacted materials must be handled as asbestos waste. Therefore, additional waste characterization sampling will not include asbestos as such testing is not necessary since all dust will be treated as asbestos waste**.** Instead, additional waste characterization testing will include analysis for the hazardous waste characteristics of ignitability, corrosivity, reactivity, and toxicity to determine if these materials must be managed as hazardous wastes as well as asbestos waste. All such potentially hazardous waste will be managed as hazardous waste unless analytics prove otherwise. If results of hazardous waste characterization sampling and analysis dictate that waste material must be managed and disposed of as both an asbestos and a hazardous waste, both asbestos and hazardous waste management and disposal requirements will be met. If there are conflicts between the requirements for asbestos and hazardous waste that preclude compliance with both, then the hazardous waste requirements will dictate specific management and disposal requirements.

4.1.2. Components

Settled dust and materials impacted by WTC dust, ACBMs, and wash-down water/liquids comprise the waste streams that will be handled as asbestos at the Site.

4.1.2.1 Settled Dust and Materials Impacted by WTC Dust

The Contractor will manage the disposal of all settled dust and materials impacted by dust as asbestos waste, at a minimum. For the purposes of this Plan, non-porous deconstruction materials sufficiently wet-wiped/HEPA vacuumed in accordance with the Asbestos and COPC Abatement Plan to remove dust (i.e. cleaned), will no longer be considered to be impacted by WTC dust. As part of the waste characterization process and prior to collection of waste classification samples from building materials impacted by settled dust, additional samples of the settled dust will be collected throughout the Building to determine the proper waste disposal options for the settled dust. Sample analysis will be limited to hazardous waste characteristics and exclude asbestos.

As one composite dust sample from the 40th floor mechanical floor subjected to TCLP analysis exhibited a concentration of cadmium that exceeded 40 CFR section 261.24 hazardous waste characteristic threshold, focused testing is warranted in this area. Zone 1 sampling will be further segregated into Zone 1A specific to Mechanical floors 5/6 and Zone 1B specific to Mechanical floors 40/41. In addition, an investigation with paint chip sampling for cadmium analysis will be performed on the 40th floor to assess potential contribution of cadmium in painted surfaces/mechanical equipment to the elevated cadmium result identified in the TRC Preliminary Waste Characterization Study. This additional testing will be completed prior to any abatement work on the 40th floor. Upon receipt of the analytic data, it will be determined whether the dust in the 40th floor mechanical room will be disposed of as asbestos waste only or as an asbestos and hazardous waste for cadmium (or other hazardous waste characteristic).

Analytical results for hazardous waste characteristics will be used to determine if the dust in an area is non-hazardous or must also be classified and subsequently managed as hazardous waste due to the influence of other COPCs.

4.1.2.2 Pre-September 11, 2001 Asbestos-Containing Building Materials

The Initial Building Characterization and Supplemental ACBM Inspection studies performed sampling of suspect ACBM found within the Building. The results of these studies indicate the majority of the building material samples tested negative for asbestos or were not asbestos containing material by regulation, including spray-on fire-proofing, wallboard, roofing materials, fire doors and most thermal insulation for piping and ducts. In the case of the fire doors, a New York State-certified Inspector and New York City-certified Investigator surveyed the doors through intrusive means and identified no suspect ACMs, rather the doors were found to be insulated with wood filler and fiberglass (see Supplemental Investigation Summary Report, Summary of Results of Additional Asbestos Containing Building Material (ACBM) Inspection, dated February 23, 2005). Other building materials tested and listed below contained greater than one percent asbestos and are considered ACMs by regulation. Refer to the Asbestos and COPC Abatement Plan for quantities and locations.

- Floor tiles
- Sealants

- Mastic
- Thermal pipe insulation (various sizes)
- Transite wallboard
- Transite wall material
- Linoleum flooring
- HVAC duct joint caulking
- Wall and joint tar paper
- Wall insulation material
- Exterior caulking materials

Since these building materials have previously been determined to contain asbestos at greater than one percent by weight, the Contractor will manage these wastes as asbestos waste, at a minimum.

If settled dust sample results collected from an ACBM indicate the dust also might be classified as hazardous waste (in addition to as asbestos waste**)**, then waste classification samples will be collected from impacted ACBM for analysis of hazardous waste characteristics**,** that were detected above regulatory limits in the dust. The results of the bulk ACBM waste classification samples will be used to determine if the ACBM must also be classified and subsequently managed as hazardous waste.

Should the Contractor or Subcontractors come upon any materials for which proper material sampling does not exist, the Owner, Contractor and Environmental Consultant shall be immediately contacted to arrange for appropriate testing.

4.1.2.3 Wash-Down Water/Liquids

In accordance with the NYCDEP Cleaning Procedure, free-flowing wash-down water/liquids are to be avoided. Therefore, a minimum of wash-down water/liquids requiring management are anticipated to be generated as a part of the Deconstruction. Any free-flowing wash-down water/liquids will be collected and containerized for further management. All wash-down water/liquids will be filtered to five microns to remove asbestos and other particulates. Filtered wash-down water/liquids will be sampled to determine their waste characteristics. All collected wash-down water/liquids will be subject to off-site disposal if indicated by the waste characterization results.

4.1.3. Analytical Methods and Sample Collection Frequency

The sampling strategy for each main category of asbestos-containing/contaminated material will be described in the following subsections of this Plan.

Analytical methods for the hazardous waste characteristics are as follows. Where more than one method is identified, each analytical method is valid per the regulations. All allowable methods are included in this plan to allow for flexibility in selecting an analytical laboratory(ies).

- The characteristic of ignitability carries the RCRA waste code of D001, and may be analyzed for using American Society of Testing Materials (ASTM) method D-93-79 or D-93-80 or D-3278-78. Additionally, an oxidizer as defined by DOT (49 CFR 173.127) is also a D001 hazardous waste.

- The characteristic of corrosivity carries the RCRA waste code of D002, and may be analyzed using Method 9045D or 9040C as set forth in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846. SW-846 method 9040 C is for aqueous wastes and multiphase waste where the aqueous phase constitutes at least 20% of the total volume of the waste; 9045D is for soils and waste samples where the waste may be solids, sludges, or non-aqueous liquids. The aqueous phase must be less than 20% of the total volume of the waste. National Association of Corrosion Engineers (NACE) Standard TM-01-69 as standardized in SW-846, shall be utilized to evaluate corrosion rate if the suspected corrosive hazardous waste is a liquid.

- The characteristic of reactivity carries the RCRA waste code of D003, and may be analyzed using the analytical methods outlined in sections 7.3.3.2 or 7.3.4.2 of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846. The referenced sections are from SW-846 Chapter Seven: Characteristics Introduction and Regulatory Definitions. They are specifically for Reactivity. Chapter Seven was revised to reflect the withdrawal of the reactive cyanide and sulfide guidance in sections 7.3.3 ("Interim Guidance for Reactive Cyanide") and 7.3.4 ("Interim Guidance for Reactive Sulfide"), and to replace certain characteristic explanatory text with referrals to the regulations themselves. This change can be found in the Proposed Update IIIB to SW-846.

- The characteristics of toxicity carry the RCRA waste codes of D004 through D043. Each waste code identifies the specific chemical component for which the waste is classified as toxic. The samples to be analyzed for the characteristic of toxicity must be prepared using the Toxicity Characteristic Leaching Procedures (TCLP) per Method 1311 in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846. The analytical method applied to the resulting leachate depends on the type of chemical being analyzed for, as follows:

  - Volatile organic compound (VOC) toxic constituents will be analyzed by Method 8260B of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods,"

EPA Publication SW-846. VOC toxic constituents include benzene (D018), carbon tetrachloride (D019), chlorobenzene (D021), chloroform (D022), 1,4-dichlorobenzene (D027), 1,2-dichloroethane (D028), 1,1-dichloroethylene (D029), methyl ethyl ketone (D035), tetrachloroethylene (D039), trichloroethylene (D040), and vinyl chloride (D043).

- Semivolatile organic compound (SVOC) toxic constituents will be analyzed by Method 8270C of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846. SVOC toxic constituents include 2,4-dinitrotoluene (D030), hexachlorobenzene (D032), hexachlorobutadiene (D033), hexachloroethane (D034), o-cresol (D023), m-cresol (D024), p-cresol (D025), cresol (D026), nitrobenzene (D036), pentachlorophenol (D037), pyridine (D038), 2,4,5-trichlorophenol (D041), and 2,4,6-trichlorophenol (D042).

- Pesticide toxic constituents will be analyzed by Method 8081A of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846. Pesticide toxic constituents include chlordane (D020), endrin (D012), heptachlor and its epoxide (D031), lindane (D013), methoxychlor (D014), and toxaphene (D015).

- Herbicide toxic constituents will be analyzed by Method 8151A of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846. Herbicide toxic constituents include 2,4-D (D016) and 2,4,5-TP (also known as Silvex, D017).

- Mercury (D009) will be analyzed by Method 7470A (aqueous samples) of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846.

- Metals/inorganics other than mercury will be analyzed by Method 6010B of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846. These constituents include arsenic (D004), barium (D005), cadmium (D006), chromium (D007), lead (D008), selenium (D010), and silver (D011).

Generally, building components would not be considered as possible RCRA characteristic wastes except for the potential that exists due to impacts by WTC dust. The notable exceptions to this would be painted surfaces, which will typically be sampled for TCLP metals analysis as well as miscellaneous materials containing hazardous components prior to WTC impact (such as transformers, ballasts, lamps, etc.).

The results of hazardous waste characteristic analyses, the classification of the waste material based on historical information regarding the inherent waste composition, as well as the

material's status as presumptively asbestos-contaminated, will be used as the basis for the Waste Profile for the particular waste stream.

4.1.3.1 Waste Characteristics Sampling Frequency for Settled Dust

Two composite samples of the settled dust will be collected from each interior floor of the building and the building exterior (i.e. roof and exterior building facades), provided that there is sufficient quantities of dust to comprise the samples (i.e. 400 grams per composite sample). . Each composite sample will consist of, at a minimum, ten grab samples (five from porous locations and five from non-porous locations), but the number of grab samples may increase based on field conditions to achieve a representative sample. If there is insufficient dust in either the porous or non-porous locations, grab samples will be collected where there is adequate dust in order to have ten complete grab samples per composite sample. The composite samples will be analyzed for all hazardous waste characteristics as identified in Section 4.1.3 of this Plan to determine if the dust must be managed as hazardous waste (as well as asbestos waste) and identify whether other deconstruction wastes might be hazardous pending additional waste characterization testing.If less than 400 grams of material is obtained for any one sample, then the laboratory will be instructed to perform as many analyses as possible with the material volume provided. Analyses will be done in the following order of precedence: TCLP, corrosivity, ignitability, and reactivity. If less than 400 grams of sample material is obtained and full hazardous waste characterization testing is therefore not able to be performed, dust characterization will be based on the available data that is generated.

In addition to dust sampling, paint chip sampling of painted surfaces for cadmium analysis will be performed on the 40th floor to assess the potential contribution of cadmium in painted surfaces/mechanical equipment to the elevated cadmium result identified in the Preliminary Waste Characterization Study. Paint chip samples will be collected and submitted to a certified independent laboratory for analysis.

A unique sample identifier for each sample along with requested analytical parameters will be tracked and recorded using a Chain-of-Custody (COC) form. Sample management, labeling and quality assurance/quality control (QA/QC) procedures are outlined in Attachment 2 to this Plan.

The results of the laboratory analyses performed under this subsection will be conveyed for review to the Regulators in written form, prior to the next phase of activities in the work area (e.g. conducting waste characterization sampling of building components).

4.1.3.2 Waste Characteristics Sampling Frequency for Asbestos-Containing Building Materials

Waste classification samples for hazardous waste characteristics of ACBM will only be collected on floors where the analytical sampling results for the settled dust samples indicate that the dust exceeds the regulatory limits for RCRA characteristic waste or there is another reason to suspect the ACBM is hazardous (e.g. painted with suspected lead-based paint). In those instances, the sample analysis will be limited to only those hazardous waste characteristics identified in the dust on that floor or otherwise suspected.

For porous ACBM identified in the previous studies (e.g., thermal pipe insulation, transite wallboard, transite wall material, HVAC duct joint caulking, wall insulation material,), three composite samples will be collected from those porous ACBMs that are present on each floor where testing identified dust exceeding the regulatory limits for RCRA characteristic waste. Each composite sample will consist of a minimum of four grab samples; however, the number of grab samples per composite may be increased based on field conditions. Each grab sample will consist of a bulk or core sample that collects both the ACBM and any entrained dust. The samples will be analyzed for RCRA characteristics as identified in Section 4.1.3 of this Plan to determine if these materials must be managed as hazardous waste (in addition to being managed as asbestos waste).

For non-porous ACBM identified in the previous studies (e.g., floor tiles, linoleum flooring, wall and joint tar paper, sealants, exterior caulking material, and mastic) from each floor with dust exhibiting hazardous characteristics, one composite sample will be analyzed in accordance with the procedure defined in the paragraph above.

The Environmental Consultant will collect composite samples that are representative of each type of ACBM. The representative composite samples will consist of a minimum of 400 grams of material to provide adequate sample size necessary for chemical analysis. A unique sample

identifier for each sample along with requested analytical parameters will be tracked and recorded using a COC form.

4.1.3.3 Waste Characteristics Sampling Frequency for Wash-Down Water /Liquids

Filtered wash-down water/liquids will be periodically sampled for waste characterization on the basis of the generation rate and disposal frequency. Generally, a representative sample of the wash-down water/liquids will be obtained for a particular anticipated disposal batch. If the disposal batch is composed of more than one container, a composite sample consisting of a grab sample from each container will be tested. The composite samples will be analyzed for hazardous waste characteristics in accordance with Section 4.1.3 of this Plan and any other specific disposal facility testing requirements.

4.1.4. Disposal.

4.1.4.1 Settled Dust and Materials Impacted by WTC Dust

Settled dust**,** and materials known or presumed to have been impacted by WTC dust, will be managed as asbestos waste, at a minimum. (For the purposes of this Plan, non-porous deconstruction materials sufficiently wet-wiped/HEPA vacuumed in accordance with the Asbestos and COPC Abatement Plan to remove dust, will no longer be considered to be impacted by WTC dust.) Should results of the waste characterization sampling described in Section 4.1.3 and 4.1.3.1 of this Plan indicate that the settled dust exceeds the regulatory threshold for one or more hazardous waste characteristics, the dust represented by the sample(s) that exceeded the threshold(s)**,** as well as materials impacted by such dust and not confirmed through additional testing in accordance with Section 4.2.3 or 4.3.3 of the plan to be a part of a non-hazardous waste stream, will be managed as both a hazardous waste of the appropriate waste code and asbestos waste. Potential disposal facilities are identified in Section8 and Attachment 3 of this Plan. All final disposal facilities must be approved by the Owner before waste is shipped.

Representative TCLP testing of the dust in the 40th floor Mechanical room will occur prior to disposal. Until results of that additional sampling and analysis are available, the dust in the 40th

Floor Mechanical room will be presumed hazardous for cadmium, in addition to being an asbestos waste.

4.1.4.2 Asbestos-Containing Building Material

As part of the Deconstruction Project, a New York State Licensed Asbestos Abatement Contractor, prior to building demolition, will remove the ACBM identified throughout the Building. All ACBM will be removed, packaged, transported, and disposed of in accordance with the Asbestos Abatement Plan.

The disposal of all removed non-hazardous ACBM will be at an approved, licensed and permitted asbestos landfill. Should results of the waste classification sampling described in Section 4.1.3.1 and 4.1.3.2 of this Plan indicate that the waste classification sample results exceed the regulatory threshold for one or more hazardous waste characteristics, the waste stream represented by the sample that exceeded the threshold will be disposed as both a hazardous waste of the appropriate waste code, as well as an asbestos waste.

4.1.4.3 Wash-Down Water /Liquids

The disposal of filtered wash-down water/liquids will be on the basis of the hazardous waste characterization sampling results described in Section 4.1.3.3.

Potential disposal facilities are identified in Section 8 and Attachment 3 of this Plan. All final disposal facilities must be approved by the Owner and its insurer before waste is shipped.

4.2. POROUS DECONSTRUCTION WASTE

4.2.1. Identification

Porous deconstruction wastes are those interior building components that have porous surfaces and that have not been identified as ACBM. In addition, exterior netting removed during Phase I - Preparation Phase activities is included in the porous deconstruction waste category.

4.2.2. Components

At this time, the following Porous Deconstruction waste streams have been identified as being associated with the deconstruction process:

- Suspended ceiling tiles
- Carpeting
- Fiberglass Insulation
- GWB
- Sprayed-on fireproofing
- Exterior mesh/netting currently covering the building façade

All porous materials will be disposed of as asbestos waste at a minimum. Should results of the waste classification sampling indicate that a porous material waste stream exceeds the regulatory threshold for one or more hazardous waste characteristics, the porous materials that exceeded the threshold(s) will be managed as both a hazardous waste of the appropriate waste code and asbestos waste. Exterior mesh/netting will require characterization prior to disposal. Representative samples of the mesh/netting will be collected and analyzed for hazardous waste characteristics and asbestos. The results of the sampling will determine the final disposition of the material.

4.2.3. Porous Deconstruction Waste Sampling Frequency

Waste classification samples of Porous Deconstruction Waste for hazardous waste characteristics will only be collected if the analytical sampling results for the dust samples indicate that the dusts exceeded the regulatory limits for RCRA characteristic waste. In that instance, only those hazardous waste characteristics identified in the dust will be analyzed for in the samples collected from the porous deconstruction waste/dust matrix.

The Environmental Consultant will collect composite samples that are representative of each type of porous deconstruction generated waste. The representative composite samples will consist of a minimum of 400 grams of material to provide adequate sample size necessary for chemical analysis. A unique sample identifier for each sample along with requested analytical parameters will be tracked and recorded using a COC form.

Sampling frequencies for each porous deconstruction waste stream are described in the following sections.

4.2.3.1 Waste Sampling Frequency for Suspended Ceiling Tiles, Gypsum Wallboard, Carpeting and Fiberglass Insulation

For each of these materials (i.e. suspended ceiling tiles, gypsum wallboard, carpeting and fiberglass insulation), three composite samples of the above materials that are present on each floor where testing identified dust exceeding the regulatory limits for RCRA characteristic waste will be collected. Each composite sample will consist of a minimum of four grab samples; however, the number of grab samples per composite may be increased based on field conditions. Each grab sample will consist of a representative bulk sample that collects both the porous deconstruction waste and any entrained dust on/in the porous deconstruction waste.

4.2.3.2 Waste Sampling Frequency for Sprayed-on Fireproofing

The fireproofing will be managed as asbestos waste without additional sampling, unless bulk dust samples indicate the dust exceeds one or several hazardous waste characteristics. In that instance, three composite samples will be collected from each floor where testing identified dust exceeding the regulatory limits for RCRA characteristic waste. Each composite sample will consist of a minimum of four grab samples; however, the number of grab samples per composite may be increased based on field conditions. Each grab sample will consist of a representative bulk sample that collects both the dust and the spray-on fireproofing; analysis will be limited to those hazardous waste characteristic(s) that were determined to be of concern in the bulk dust samples discussed in Section 4.1.3.1.

4.2.3.3 Waste Sampling Frequency for Exterior Mesh/Netting

Two waste classification composite samples have already been collected from the exterior mesh/netting. One composite sample was comprised of netting samples at street level on the West, East, and North building faces and the second composite sample was comprised of netting at different elevations from the West side of the building. No results exceeded the laboratory reporting limit for Toxicity Characteristic Leaching Protocol (TCLP) or exhibited characterisitics of reactivity, corrosivity, or ignitability. Ten microvacuum samples were collected and sampled

for Asbestos. These results are summarized in the Supplemental Investigation Summary Report, Building Netting Sampling Summary Results, prepared by TRC, April 25, 2005.

Additional waste classification samples will be collected from the netting for hazardous waste characteristics. One composite sample, comprised of a minimum of four grab samples, will be collected from the north face of the building and a second composite sample will be collected from the east face. The south face will be excluded since it has no netting present. To achieve a representative composite sample, each grab sample will be collected from a different building elevation (e.g. 1st floor, 14th floor, 27th floor, 40th floor). The results of the hazardous waste characteristic analysis will establish whether the netting will be disposed of as a hazardous waste, in addition to an asbestos waste.

4.2.4. Disposal

As described above, the suspended ceiling tiles, carpeting, gypsum wall board, fiberglass insulation, sprayed on fireproofing, and exterior netting will be disposed of as asbestos waste at a minimum, unless hazardous waste characterization testing (if required based on dust sample results) indicates that the material must be managed as a hazardous waste as well as an asbestos waste. If the material is determined to be RCRA hazardous, then it will be handled, packaged, labeled, transported, and disposed of in accordance with appropriate regulatory requirements determined to apply to the waste.

The waste stream(s) will be managed as asbestos waste, and material will be removed, packaged, transported and disposed of in accordance with the Asbestos and COPC Abatement Plan, New York State and New York City Regulations, and relevant variances. All removed porous building materials will be disposed at an approved, licensed and permitted asbestos landfill. Potential disposal facilities are identified in Section 8 and Attachment 3 of this Plan. Should results of the waste characterization sampling described in Section 4.2.3 of this Plan indicate that the waste characterization sample results exceed the regulatory threshold for one or more hazardous waste characteristics, the waste stream represented by the sample that exceeded the threshold will be disposed as both a hazardous waste of the appropriate waste code, as well as an asbestos waste. All final disposal facilities must be approved by LMDC and its insurers before waste is shipped.

4.3. NON-POROUS DECONSTRUCTION WASTE

4.3.1. Characterization/Identification

Non-porous building materials, by definition, will not have WTC dust entrained within the material matrix. Therefore, if non-porous building materials are sufficiently wet-wiped/HEPA vacuumed in accordance with the Asbestos and COPC Abatement Plan to remove dust, this material would not be classified as asbestos waste. By extension, if dust is removed, any COPCs associated with WTC dust will also be removed, thereby eliminating the need to perform waste sampling for hazardous waste characteristics associated with WTC dust. For cleaned non-porous deconstruction waste, only those components that are painted and disposed of (i.e. not recycled) will be sampled prior to disposal. Metal components painted and recycled will not be sampled. Components to be sampled will be analyzed for the hazardous waste characteristics via TCLP metals analysis of a representative sample of the waste stream to determine if the painted surfaces would cause the material to be classified as a hazardous waste.

In addition, TRC collected nine (9) TCLP for selenium and three (3) total selenium samples of glass at 130 Liberty Street. Glass included tinted vision glass, spandrel glass and plate glass. Selenium was not detected in any of the twelve (12) glass samples analyzed.

If the Abatement Subcontractor chooses to dispose of non-porous deconstruction waste without first wet-wiping/HEPA vacuuming, then the non-porous deconstruction waste would be classified as asbestos waste as discussed above. Additionally, due to the fact that the dust will remain on its surface, the waste material would also be classified and managed based on the settled dust hazardous waste characterization results for the floor from which the non-porous deconstruction waste originated. The core material itself need not be tested as, due to its non-porous nature, the dust will not have impacted the matrix of the material/component. However, the presumption that the non-porous material should be classified as hazardous if impacted by settled dust classified as hazardous waste shall be overridden if subsequent bulk sampling and testing of the non-porous material indicates no hazardous waste characteristics. The results of hazardous waste characteristic analyses of the settled dust or alternatively the bulk material, as well as the uncleaned material's status as asbestos waste, will be used as the basis for the Waste Profile for the particular waste stream.

4.3.2. Components

At this time, the following non-porous deconstruction waste streams have been identified as being associated with the deconstruction process:

- Raised flooring
- MEP components (HVAC systems [including filter banks, variable air volume chambers, mixing chambers, fans, and diffusers] , plumbing, conduit, wiring, etc.)
- Doors and door frames
- Suspended ceiling support tracking/grid
- Exterior building components - window and spandrel units, column covers and fascia, louvers, etc.
- Concrete and masonry
- Elevators
- Structural Steel

4.3.3. Analytical Methods and Sample Collection Frequency

For cleaned (wet-wiped/HEPA-vacuumed) non-porous deconstruction waste, samples will not be collected unless the non-porous components are painted and to be disposed of. Cleaned, painted scrap metals that are recycled are exempt from the below described waste characterization sampling and analysis. For non-porous components that are painted, one composite sample made up of a minimum of four grab samples of each distinct painted non-porous building component (based on paint color, building component type, and zone in which the component is located) will be collected for TCLP metals analysis. Each grab sample will be collected as a core sample (i.e., both painted surface and building component matrix) and sent to the lab under COC for analysis.

For non-cleaned, non-porous deconstruction material identified, one composite sample will be collected from the porous ACBMs that are present on each floor where testing identified dust exceeding the regulatory limits for hazardous characteristic waste. Each composite sample will

consist of a minimum of four grab samples; however, the number of grab samples per composite may be increased based on field conditions. Each grab sample will consist of a bulk or core sample that collects both the non-porous deconstruction material and any entrained dust. The samples will be analyzed for RCRA characteristics as identified in Section 4.1.3 of this Plan to determine if these materials must be managed as hazardous waste (in addition to being managed as asbestos waste).

4.3.4. Disposal

Cleaned, unpainted, non-porous deconstruction waste will be classified, managed and recycled/disposed of as non-hazardous construction and demolition (C&D) debris. Likewise, cleaned, painted, non-porous deconstruction waste with TCLP metals results of less than applicable standards will also be classified, managed and recycled/disposed of as non-hazardous C&D debris.

Cleaned, painted, non-porous deconstruction waste with TCLP metals results greater than applicable standards would be classified, managed and disposed of as hazardous waste with the toxicity characteristic of lead, chromium and/or cadmium.

Non-cleaned, non-porous deconstruction waste will be disposed of as asbestos waste at a minimum for the reasons indicated previously. Should results of the settled dust classification sampling indicate that the dust results exceed the regulatory threshold for one or more RCRA characteristics, the waste will be managed as both a hazardous waste of the appropriate waste code, as well as asbestos waste, unless bulk sampling and analysis of the waste indicates otherwise.

Potential disposal facilities are identified in Section 8 and Attachment 3 of this Plan subject to approval by LMDC and its insurers prior to usage**.**

4.4. MISCELLANEOUS BUILDING COMPONENTS

4.4.1. Definition/Characterization

Miscellaneous building components, as listed in Section 2 above have been identified throughout various portions of the Building. Prior to the commencement of the Deconstruction activities,

the Environmental Consultant will conduct a detailed survey of the Building to confirm that the current inventory is complete and accurate and to identify and classify the Miscellaneous Building Components contained in the Building.

All characterization information obtained during the detailed survey will be documented in a spreadsheet. This spreadsheet will include an inventory by major category and will be used to help determine sampling requirements, specific handling requirements (including applicable worker training and/ or licensing requirements), disposal classification, disposal status and disposal procedure. The spreadsheet will summarize and document the means of determining the waste classification and indicate if the knowledge is based on laboratory analysis or inherent waste composition.

With few exceptions, as noted below, these components will not require any additional characterization prior to handling, packaging, removal and/or disposal. Instead, these materials can be classified based upon their inherent composition. Any material classified as "unknown" during the survey will require sample collection and analysis for full hazardous waste characteristics in accordance with 40 CFR Part 261 (as described in Section 4.1.3 of this Plan) and will be disposed of based upon the results of that sampling. If the material is classified as a hazardous waste, additional sampling may be required for "total" concentrations of specific contaminants to determine whether the waste may be land filled or is "land banned"; the contaminants to be analyzed for will depend on the specific waste classification of the waste.

Classification for disposal of Miscellaneous Building Components will also be determined on the basis of the characterization of the settled dust. Miscellaneous building components that are wet wipe/HEPA vacuumed in accordance with the Asbestos and COPC Abatement Plan will be classified, managed and recycled/disposed on the basis of the classification of the component only and will not be presumed to be asbestos or hazardous waste.

Non-cleaned, Miscellaneous Building Components will be disposed of as asbestos waste at a minimum for the reasons indicated previously. Should results of the settled dust classification sampling for dust from the building floor from which the components originated indicate that the dust results exceed the regulatory threshold for one or more hazardous waste characteristics, the components will be managed as a hazardous waste of the appropriate waste code and as asbestos

waste, unless sampling of the component itself indicates it is not a hazardous waste. The presumption that a Miscellaneous Building Component impacted by dust proved to be hazardous waste is itself hazardous waste on the basis of the presence of hazardous settled dust, shall be overridden if subsequent bulk sampling and testing of the Miscellaneous Building Components indicates no hazardous waste characteristics.

Further detail on the anticipated materials is provided below.

4.4.2. Components

4.4.2.1 PCB Light Ballasts and other PCB Wastes

4.4.2.1.1 Definition

PCBs are a family of man-made chemical compounds that do not exist in nature, but are manufactured by the replacement of hydrogen atoms on the biphenyl molecule by chlorine. Because of their physical properties, PCBs are commonly found in electrical equipment that requires dielectric fluid such as transformers and capacitors as well as hydraulic machinery, vacuum pumps, compressors and heat exchanger fluids. Other uses include fluorescent lighting ballasts and a caulking plasticizer.

4.4.2.1.2 Characterization/Analytical Method

During deconstruction activities, as ballasts are removed from lighting fixtures, the Abatement Subcontractor shall clean the surfaces of dust and containerize ballasts for disposal as PCB waste. All ballasts, including those labeled “No PCB” will be containerized for disposal as PCB waste due to the presence of potting material. For potentially PCB-containing equipment other than ballasts, representative PCB samples may be required to determine whether the dielectric fluid contains more than 50 parts per million (ppm) PCBs, which would make the equipment subject to the PCB regulations. Similarly, representative samples of caulking material that are collected during the deconstruction will be tested to determine the concentration of PCBs. SW-846 Method 8082, Analysis of Polychlorinated Biphenyls by Gas Chromatography is specified by regulation for determining the concentration of PCBs in wastes.

4.4.2.1.3 Components

Materials that have the potential to be PCB-containing (e.g., electric oil-filled switches, transformers, capacitors, caulking, etc.) will be tested for PCB concentration. If 50 ppm or more PCBs are detected in the waste stream the materials will be classified as both federal Toxic Substances Control Act (TSCA) waste and New York State hazardous waste. Potential PCB wastes will be sampled in accordance with TSCA (40 CFR Part 761). At the time this Plan was being developed it was not possible to determine the number of samples to be collected since the detailed waste survey has not yet been performed. Once the survey is completed and prior to off-site disposal of PCB-containing materials other that light ballasts, the Owner will provide the Regulators with specific details on its proposed sampling scheme for potentially PCB-containing materials and on the sequence and timing of the sampling relative to the deconstruction activities.

4.4.2.1.4 Disposal

Ballasts (all assumed to contain PCBs) and any caulking determined to contain greater than 50 ppm PCBs shall be handled, packaged and labeled as required for disposal as a PCB regulated waste. All hauler, transportation and disposal facility requirements shall also conform to the requirements for this category of waste.

Shipments of PCB waste must be in properly labeled and marked containers, the waste must be shipped under a properly executed manifest and Land Disposal Restriction (LDR) form, the transporter must have a valid EPA Identification number and must have a valid New York State Part 364 transporter permit as well as the latest version of U.S. Department of Transportation's Emergency Response Guide (2004). The vehicle in which PCB wastes are being shipped must be properly placarded and marked to reflect that it is transporting PCBs and must also be marked with the New York State waste transporter permit number on its sides and rear.

Disposal facilities that accept PCB wastes must have an EPA Identification number and have received TSCA authorization from the EPA and any additional state permits for the disposal/management of PCBs applicable to the state in which the facility is located. The

disposal facility must comply with all manifesting requirements specified in the regulations and must prepare a certificate of destruction and send it to the generator or the generator's agent.

For fluids sampled, wastes containing less than 50 ppm PCBs are generally not considered PCB wastes and would therefore not be classified as TSCA waste nor would they be classified as New York hazardous waste unless they were classified as a hazardous waste for a component other than PCBs. Electrical equipment containing 50 ppm or more but less than 500 ppm PCBs is considered PCB-contaminated electrical equipment. Electrical equipment containing 500 ppm or more PCBs is considered PCB equipment. The waste disposal options available depend on the type of equipment and the PCB concentration found in the equipment.

Once the presence/absence of PCBs has been confirmed, the specific disposal requirements for the equipment based on the concentration and equipment type will be identified. Disposal will be consistent with the regulations set forth at Title 40 Code of Federal Regulations Part 761 (40 CFR Part 761) and Title 6 New York Code of Rules and Regulations Chapter 371.4(e) [6 NYCRR Section 371.4(e)].

4.4.2.2 Universal Waste

4.4.2.2.1 Definition

40 CFR Part 273 and 6 NYCRR Section 374.3 establish requirements for managing universal wastes. Universal wastes are those wastes that would reasonably be expected to be classified as hazardous wastes but, due to their universal use in industrial and residential properties, regulations were created that would ensure that they were managed in a manner that prevented harm to the environment while reducing the regulatory burden on generators of these wastes.

Universal wastes include the following waste types:

(1) Batteries as described in 40 CFR section 273.2 and 6 NYCRR Section 374-3.1(b)

(2) Pesticides as described in 40 CFR section 273.3 and 6 NYCRR Section 374-3.1(c)

(3) Mercury thermostats as described in 40 CFR section 273.4 and 6 NYCRR Section 374-3.1(d)

(4) Lamps as described in 40 CFR section 273.5 and 6 NYCRR Section 374-3.1(e)

It is assumed that pesticides will not be generated during the 130 Liberty deconstruction project; the requirements for mercury thermostats, lamps, and batteries will be discussed in the following sections.

It should be noted that universal waste may be managed according to hazardous waste regulations; however, it is assumed that all materials that are eligible for management as either universal wastes or hazardous waste will be managed as universal waste.

4.4.2.2.2 Analytical Method

Per the universal waste regulations, analytical testing is not required to determine classification as universal waste.

4.4.2.2.3 Disposal

All hauler, transportation and disposal facility requirements shall also conform to the requirements for this category of waste.

Anyone who generates universal waste is either classified as a large-quantity handler of universal waste (accumulates 5,000 kilograms or more aggregate of all universal waste at any one time) or a small-quantity handler of universal waste (accumulates less than 5,000 kilograms of universal waste). Prior to accumulating 5,000 kilograms of universal waste at any given facility/location, written notification must be sent to the EPA to apply for an EPA hazardous waste identification number. Universal waste handlers may only send or transport universal waste to another universal waste handler or to a destination facility permitted to accept that specific type of universal waste. 40 CFR Part 273 and 6 NYCRR Section 374-3 establish the specific storage, management, shipping and recordkeeping requirements for universal waste.

4.4.2.3 Universal Waste –Lamps

4.4.2.3.1 Definition

See Section 4.4.2.2.1 of this Plan.

4.4.2.3.2 Components

Anticipated lamp types generated during the 130 Liberty Street Building Deconstruction Project include fluorescent lamps, neon lamps, high-pressure sodium lamps, mercury vapor lamps and metal halide lamps.

4.4.2.3.3 Disposal

All collected lamps shall be handled, packaged and labeled as required for disposal as a universal waste. All hauler, transportation and disposal facility requirements shall also conform to the requirements for this category of waste.

4.4.2.4 Universal Waste –Mercury Thermostats

4.4.2.4.1 Definition

See Section 4.4.2.2.1 of this Plan.

4.4.2.4.2 Components

Mercury is commonly used in thermostats. Mercury-containing electrical switches are not a universal waste and must be managed as a hazardous waste in accordance with Section 4.4.2.6.

4.4.2.4.3 Analytical Method

Per the universal waste regulations, analytical testing for thermostats is not required to determine classification as universal waste. A hazardous waste determination shall be made for all non-thermostat mercury switches prior to disposal.

4.4.2.4.4 Disposal

All collected thermostat mercury switches shall be handled, packaged and labeled as required for disposal as universal waste. All hauler, transportation and disposal facility requirements shall also conform to the requirements for this category of waste.

Anyone who generates universal waste is either classified as a large-quantity handler of universal waste or a small-quantity handler of universal waste. Prior to accumulating 5,000 kilograms of universal waste at any given facility/location and thus changing from small-quantity handler to

large-quantity handler classification, written notification must be sent to the EPA to apply for an EPA hazardous waste identification number. Universal waste handlers may only send or transport universal waste to another universal waste handler or to a destination facility permitted to accept that specific type of universal waste. 40 CFR Part 273 and 6 NYCRR Section 374-3 establish the specific storage, management, shipping and recordkeeping requirements for universal waste.

4.4.2.5 Universal Waste - Batteries

4.4.2.5.1 Definition

See Section 4.4.2.2.1 of this Plan.

4.4.2.5.2 Components

Anticipated battery types generated during the 130 Liberty Street Building Deconstruction Project include lead acid batteries, nickel cadmium (NiCad) batteries, lithium batteries and silver oxide batteries as well as any other batteries present in the building.

4.4.2.5.3 Analytical Method

Per the universal waste regulations, analytical testing is not required to determine classification as universal waste.

4.4.2.5.4 Disposal

All collected batteries shall be handled, packaged and labeled as required for disposal as a universal waste. All hauler, transportation and disposal facility requirements shall also conform to the requirements for this category of waste.

Anyone who generates universal wastes is either classified as a large-quantity handler of universal waste or a small-quantity handler of universal waste. Prior to accumulating 5,000 kilograms of universal waste at any given facility/location, written notification must be sent to the EPA to apply for an EPA hazardous waste identification number. Universal waste handlers may only send or transport universal waste to another universal waste handler or to a destination

facility permitted to accept that specific type of universal waste. 40 CFR Part 273 and 6 NYCRR Section 374-3 establish the specific storage, management, shipping and recordkeeping requirements for universal waste.

4.4.2.6 Mercury-Containing Electrical Switches

4.4.2.6.1 Definition

Mercury may be contained in temperature-sensitive switches and mechanical tilt switches. Mercury tilt switches are small tubes with electrical contacts at one end of the tube. As the tube tilts, the mercury collects at the lower end, providing a conductive path to complete the circuit. Reed switches are small circuit controls that are used in electronic devices. Their electronic contacts are wetted with mercury to provide an instantaneous circuit when the switch is closed and then an instantaneous current interruption when the circuit is broken. A third type, float switches, are used in sump pumps and bilge pumps to turn the equipment off when water reaches a certain level. A mercury tilt switch is usually present when no switch is visible. They are used in silent light switches, clothes washer lids, and chest freezers. Float switches, on the other hand, are visible.

4.4.2.6.2 Components

Anticipated mercury-containing electrical switches generated during the 130 Liberty Street Building Deconstruction Project include temperature-sensitive switches and tilt switches.

4.4.2.6.3 Analytical Method

Mercury-containing in electrical switches will be submitted for Toxicity Characteristic Leaching Procedure (TCLP) analysis. If mercury concentrations exceed the level of 0.2 mg/L, then the waste will be identified as a hazardous waste based on the toxicity characteristic. A specific "D" waste code for a waste which exhibits the toxicity characteristic for mercury (D009) will apply.

Analytical testing would not be required if manufacturer information or generator knowledge provides sufficient information to determine if the concentration of mercury in the electrical switch exceeds the level of 0.2 mg/L.

4.4.2.6.4 Disposal

Mercury-containing electrical switches will either be recycled or disposed at a permitted facility.

Management requirements for mercury switches will be determined in part on the generator's (i.e. Owner's) status. The generator will either be classified as a conditionally exempt small quantity generator (accumulating less than 100 kilograms of hazardous waste in one month), small quantity generator (accumulating 100 to 1,000 kilograms of hazardous waste in one month) or large quantity generator (accumulating more than 1,000 kilograms of hazardous waste in one month).

Conditionally exempt small quantity generators (CESQG) must comply with packaging requirements as determined by the DOT (49 CFR 173.164 paragraph (d)); do not need to use a hazardous waste manifest when shipping the mercury switches to a recycling or disposal facility; and must use Part 364 permitted hazardous waste haulers.

Small quantity generators (SQG) and large quantity generators (LQG) must use hazardous waste labeling on accumulation containers; use Part 364 permitted hazardous waste haulers; and use a NYSDEC hazardous waste manifest in shipping the mercury switches to a permitted disposal or recycling facility.

USEPA incorporated mercury-containing equipment as universal waste in July 2005. Mercury-containing equipment includes devices, items, or articles that contain varying amounts of elemental mercury, including several types of instruments that are used throughout electrical utilities and other industries. NYSDEC is expected to incorporate mercury-containing equipments to the universal waste definition in 2005. Pending NYSDEC authorization of mercury-containing equipment to the universal waste rule, management of mercury-containing electrical switches will be handled in the manner described above.

4.4.2.7 Used Oil

Used oil must be collected, stored, managed and disposed of in accordance with the regulations found at 6 NYCRR Sections 374-2, Standards for the Management of Used Oil, and Section 360-14, Used Oil. Unless and until testing determines that the used oil is on-specification, it shall be managed as off-specification. Generally, used oil will be stored in closed steel drums and ultimately transported for recycling or burning for energy. If disposed (i.e. incinerated) rather than recycled or burned for energy, the used oil must be characterized as hazardous or non-hazardous waste oil, and managed accordingly.

4.4.2.8 Refrigerant-Containing Equipment

Non-hazardous construction and demolition materials may contain regulated refrigerant including, but not limited to, possible refrigerant in the air conditioning and refrigeration systems. The refrigerant will be removed prior to disposal. Refrigerant-containing equipment would be considered an appliance and is excluded from definition of C&D debris. For refrigerant-containing equipment the following procedures shall be followed:

- Verify refrigerant has been removed. If not, a licensed refrigerant removal service must be called to properly dispose of refrigerant.
- Equipment that contains refrigerant and will be staged in a clearly demarcated on-site area until the refrigerant has been removed by a licensed refrigerant removal service.
- Remove all doors on refrigerators and freezers.
- After removal of refrigerant and otherwise rendering the appliance safe, recycle or dispose of the appliances as scrap metal or as municipal solid waste, respectively.

4.4.2.9 Bagged Accumulated Waste

The building currently contains miscellaneous bagged accumulated waste, primarily associated with previous studies conducted by the previous building owner and its insurers, as well as decontamination chamber and spandrel glass removal generated waste. These materials will be disposed of as asbestos-containing wastes, at a minimum.

The waste within the bags also may contain WTC dust or miscellaneous building components. These bags will be subject to visual inspection of the content of at least 25% of the bags to

evaluate the presence of any miscellaneous building components. If practical, any identified miscellaneous building components will be segregated from the other bagged waste for management with other similar components generated during the reconstruction. Alternatively, the entire bag may be disposed of as asbestos-containing waste, as well as in accordance with requirements for the miscellaneous building component(s). Additionally, sampling and analysis for hazardous waste characteristics at a rate of one analysis for every twenty bags of waste will be performed. Four grab samples from separate bags comprising a twenty-bag sampling lot will be composited by weight to form the sample to be analyzed. The lot will additionally be disposed in accordance with the results of the hazardous waste characterization.

4.4.2.10 Diesel Fuel

Diesel fuel need not necessarily be viewed as a waste. Any remaining diesel fuel may be used to run equipment on site. If not used on site, other recycling opportunities will be explored. If the diesel fuel is to be transported off site as waste oil, it must be handled, packaged, hauled, transported and recycled as regulated oily hazardous or non-hazardous material. The determination as to the hazardous or non-hazardous nature of the waste oil will be determined on the basis of analytic testing of a representative sample for the hazardous waste characteristic of ignitability.

4.4.2.11 Fire Extinguishers

In the case of both discharged and undischarged fire extinguishers, the supplier or manufacturer of the fire extinguisher should be contacted for the proper discharge, recycling, or disposal. Alternately, local fire department(s) may be contacted to determine if they would like to acquire the charged fire extinguishers in volunteer or community training exercises. If the above approaches prove impractical, fire extinguishers shall be depressurized in accordance with manufacture's recommendations and all regulatory requirements. Contained media shall be collect upon depressurization, characterized, and recycled or disposed, if and as required. Empty extinguisher bodies shall be rendered inoperable by cutting in half or puncturing, then recycling as scrap metal or disposing as municipal solid waste.

4.4.2.12 Halon Fire Suppression Systems

This information serves as guidance, but may need to be reevaluated prior to recovery and management of Halon from the fire suppression systems in the 130 Liberty Street Building.

4.4.2.12.1 Definition

Halon is the manufacturer's registered name for a class of low-molecular weight halogenated organic compounds that have been classified by EPA as Ozone Depleting Substances (ODSs). Specifically, Halon-1211, Halon-1301, and Halon-2402 are identified as Group II ODSs in the Clean Air Act. Under the Clean Air Act, venting refrigerant ODSs is prohibited. These types of materials must be recycled to the maximum extent possible. Although Halon in a fire suppression system is not classified as a refrigerant, and thus is not included in the prohibition, these materials should be managed in a way consistent with refrigerants of similar chemical composition.

4.4.2.12.2 Characterization/Analytical Method

Analytical sampling for disposal parameters is not necessary since any recovered Halon will be recycled. Characterization of the specific Halon formulation will be performed by obtaining information from the existing Halon fire suppression system within the 130 Liberty Street Building.

4.4.2.12.3 Components

Halon may be present in two forms: (1) within cylinders connected to the fire suppression piping systems, and (2) dispersed throughout the piping systems. A determination will have to be made as to whether the fire suppression system meets the regulatory definition of a high-pressure or low-pressure system to determine the certification requirements for the technician who will be contracted to recover the Halon from the system. The Contractor must assure that an EPA-certified technician, with the appropriate level of certification for the system, will be utilized for recovery and management of Halon from the fire suppression system. If the Halon is dispersed throughout the system, the Contractor shall develop and submit to the Owner for its review and

acceptance prior to work a detailed description of the means and methods to be employed in the recovery.

4.4.2.12.4 Disposal

Since recovered Halon may not be released to the atmosphere and hazardous materials disposal facilities are prohibited from accepting pressurized gases, management of recovered Halon must be through direct recycling or reclamation. Refrigerants may only be sold to certified technicians and only EPA-certified reclaimers are permitted to reclaim recovered ODSs. Reclaimers must return the ODSs to the purity level specified in the applicable American Refrigerant Institute Standards, at which point they may sell the reclaimed material to an EPA-certified technician.

Unused Halon removed from the fire suppression system in their original cylinders may be sold to EPA-certified technicians or may be managed/reclaimed by an EPA-certified reclaimer as a method of disposal. Halon recovered from the fire suppression system shall be managed through an EPA-certified reclaimer as a method of disposal.

4.4.2.13 Miscellaneous Stored Containers

4.4.2.13.1 Background/Definition

No miscellaneous stored containers have been identified within the building. However, if containers of materials are encountered during the course of work, arrangements will be made to have these materials packaged, labeled, and marked by waste classification in accordance with appropriate RCRA and both New York State Department of Transportation (DOT) and U.S. DOT requirements. These items will be “lab packed” or alternatively transferred to larger containers with other similar wastes per waste classification in preparation for transportation.

4.4.2.13.2 Characterization/Analytical Method

Initial characterization may be identified by reviewing any existing labels and/or Material Safety Data Sheets (MSDSs) for each identified material if they can be obtained. Specific requirements beyond initial characterization are found in the applicable federal, state and city solid and hazardous waste and DOT regulations. The specific regulatory programs applicable to specific

waste types have not yet been determined since the detailed waste survey has not yet been conducted.

4.4.2.13.3 Components

Components of the Miscellaneous Stored Containers of Product and/or Waste category include antifreeze, cleaning solutions, paint, corrosion inhibitor, neutralizing acid, coolant, water treatment, joint compound, absorbent material and other various materials which may be found in the building that do not fit into the other defined waste categories as described within this Plan.

4.4.2.13.4 Disposal

The identified materials will be handled, packaged, labeled transported and disposed of in accordance with the appropriate regulatory requirements for the waste type determined to apply to that waste stream. A generator who transports or offers for transportation hazardous waste for off-site treatment, storage or disposal must prepare a hazardous waste manifest. Non-hazardous wastes must be shipped under a shipping paper. Items that are "lab packed" are often sent to a permitted incinerator or another approved treatment, storage and disposal facility (TSDF) for disposal

5. STORAGE

An enclosed, locked area will be maintained on site for the storage of waste material prior to off-site disposal. The waste storage area will be enclosed and located away from the point of waste generation. Ignitable and/or reactive waste shall not be stored within 50 feet of the property line. The details of the waste storage area construction and layout will be developed by the Contractor and submitted to the Regulators prior to its use. Waste streams will be separated and stored as described below. Incompatible wastes will not be stored next to each other and will be physically isolated from one another. Containers of incompatible wastes will be segregated. All containers in the waste storage area will have proper labeling, which will include information such as waste type and accumulation start date. Weekly inspections will be conducted to confirm that containers are properly stored. The condition of each individual container, any secondary containment within the storage area, posted signs, labeled accumulation start dates,

labeled description of the waste, aisle space, proper segregation of incompatible and or/ignitable waste, etc. will be inspected. Each inspection will be documented on a weekly inspection log to demonstrate compliance.

5.1. Hazardous Waste

Hazardous waste will be placed in containers made of or lined with materials which will not react with, and are otherwise compatible with, the hazardous waste to be stored so that the ability of the container to contain the waste is not impaired (e.g., USDOT approved drums, bags, roll-off containers) and transferred to the waste storage area prior to off-site disposal. Containers will be clean or have most recently held only compatible waste. Drums will be closed at all times during storage, except when waste is added or removed. Drums in the waste storage area will be stored in manner to prevent ruptures or leaks. Containers will be inspected at least weekly to identify any leaks, and/or deterioration caused by corrosion or other factors, and to ensure containers are not over-packed. While being accumulated on-site, each container shall be labeled or marked clearly with the words, “Hazardous Waste”.

Hazardous waste may be accumulated in the waste storage area without a storage permit for a maximum of 90 days from the accumulation start date. If the generator status should change from large quantity generator to small quantity generator, then a maximum of 13,200 pounds of hazardous waste may be accumulated in the waste storage area without a storage permit for a maximum of 180 days from the accumulation start date.

5.2. Universal Waste

Universal waste will be placed in containers and stored in the waste storage area prior to transport to the off-site disposal facility. Duration of accumulation of universal waste shall not exceed one year after the accumulation start date documented on the container.

5.3. Asbestos

Waste containing asbestos will be wet down to prevent visible emissions of asbestos dust into the air. The asbestos waste will be sealed while wet in a leak-tight container. A supply of leak tight containers will be kept in the waste storage area to provide adequate repackaging if a break in the

container should occur. Storage area shall be maintained under a negative pressure ventilation system. Daily inspections of the waste storage area shall be required.

Storage of asbestos waste will not exceed 50 cubic yards. Authorization from the New York City Department of Sanitation (NYCDOS) and additional requirements, per code, will be required if accumulation of asbestos is anticipated to be greater than 50 cubic yards. Containers holding asbestos waste will be inspected daily to ensure no visible emissions of asbestos dust in the air or breaks in the container.

5.4 PCBS

Non-leaking waste PCB waste will be placed in containers and maintained in the waste storage area prior to disposal. Any leaking PCB articles, containers or over-pack containers will be transferred to properly marked, non-leaking containers or an over-pack containers. Leaking waste PCB articles and equipment that cannot be transferred to a non-leaking container or over pack container will be placed in a containment pad with sorbent material and tarp. PCB bulk product waste, including fluorescent light ballasts, may be kept in the waste storage area up to 180 days.

6. TRANSPORTATION REQUIREMENTS

All waste materials will be transported in accordance with applicable local, state and federal DOT regulations including, but not limited to, bills of lading, manifests, placards, etc. All wastes will be shipped using properly permitted vehicles operated by drivers with Commercial Drivers Licenses (CDLs) and Hazardous Materials endorsements. All hazardous waste will be shipped using transporters with RCRA identification numbers. The actual modes of transportation to be utilized will be determined following the identification of all anticipated waste streams and will take into account the location and distance to the selected disposal facility as well as cost considerations. Site-specific transportation requirements are in the process of being developed. Once they have been finalized, those requirements will be provided to the Regulators prior to initiating off-site transportation of waste. All off-site shipments of waste will adhere to the site-specific transportation requirements. As required by NYSDEC (6 NYCRR

Part 364) all hazardous and asbestos wastes will be transported using Part 364 permitted haulers. All haulers will be required to submit for approval and follow a Spill Contingency Plan.

7. TRAVEL ROUTES

Travel route(s) will be determined following discussion with the appropriate regulatory agencies (e.g., New York City Department of Transportation). The selected waste transporter(s) will follow the designated travel routes. The Abatement Subcontractor has submitted to the Contractor for acceptance waste removal and transportation procedures, which are currently under review. Upon approval of the proposed Abatement Subcontractor's *Proposed Waste Removal and Transportation Procedures*, the approved procedures will be provided to the Regulators for review and acceptance and appended to this plan and incorporated by reference prior to off-site transportation of waste. All waste travel routes will be consistent with the approved procedures.

8. DISPOSAL FACILITIES

Waste recycling/disposal facilities will be selected based on several factors including waste types, facility acceptance criteria, regulatory compliance history, etc. Only those facilities that have valid federal/state/local permits to accept the waste type proposed for recycling/disposal at the facility will be used. A list of potential disposal facilities is provided as Attachment 3 of this Plan; however, it should be noted that this list is not inclusive nor does identification of these facilities imply an endorsement of the suitability of these facilities at this time.

Following initial selection of potential disposal facilities, the facilities that may be used for waste recycling/disposal will be contacted to determine if they have any facility-specific waste sampling requirements that were not met during the initial waste sampling effort. Based on facility-stated needs, additional sampling may be required. Any additionally required sampling will be performed and the results provided to the disposal facility prior to final acceptance and off-site transportation of the waste. Disposal facilities will be chosen based on their ability to accept the different types of waste that this Deconstruction Project will generate, as well as other factors identified above.

All proposed disposal facilities must be approved by LMDC and its insurers prior to shipment of any waste.

9. DOCUMENTATION

All applicable local, state and federal documentation and record keeping requirements/guidelines will be followed. Documentation for hazardous waste disposal includes Hazardous Waste Manifesting, EPA Generator ID, EPA transporter ID, EPA ID for waste disposal facility and waste storage locations and capacities. Also documented will be emergency notification and operating procedures, worker training records (HAZWOPER, Asbestos, etc.), organizational chart, unexpected waste procedures, contractor involvement list and copies of the regulatory requirement certifications of transporters, disposal facilities, etc.

Specific regulatory documentation may change depending on the types and amounts of waste to be generated. The Contractor shall be responsible for document management.

For generators of asbestos waste, refer to the Asbestos and COPC Abatement and Removal Plan, for information detailing what documents must be created/maintained.

For generators of non-hazardous (C&D debris) waste, the following documents must be created/maintained:

- Waste determination records (to confirm that the material is not hazardous waste)
- Shipping papers (non-hazardous waste manifests, bills of lading)

For generators of hazardous waste, the specific reporting and recordkeeping requirements depend on whether the project generates waste in the quantities that would classify the generator of the waste (the Owner) as a Large Quantity Generator (LQG), a Small Quantity Generator (SQG), or a Conditionally-Exempt Small Quantity Generator (CESQG). Reports/Documents that may be required include the following:

- Notification of Regulated Waste Activity (required of LQG and SQG)
- Exception Reports (required of LQG and SQG)
- Incident Reports (required for LQG)
- Hazardous Waste Reduction Plan (required of LQG that generates more than 25 tons of hazardous waste per year)

- Annual Hazardous Waste Generator Report (required of generators that are classified as LQG for at least one calendar month in the year)
- Proof of Small Quantity Generator Status (required of SQG and CESQG)
- Hazardous Waste Determination Records (required of LQG, SQG, and CESQG)
- Weekly Inspection Logs (required of LQG and SQG)
- Hazardous Waste Manifests (required of LQG and SQG, best management practice for CESQG)
- LDR Forms (required of LQG and SQG, best management practice for CESQG)
- Exception Reports (required of LQG and SQG)
- Contingency Plan (required of LQG)
- Personnel Training Documentation (required of LQG best management practice for SQG and CESQG)

In New York State, PCB waste (greater than 50 parts per million PCB) is also New York State hazardous waste. Therefore, the documentation specified for hazardous waste above will also apply to PCB waste. In addition, for each facility that uses/stores at any one time 45 kilograms of PCBs in containers or one or more PCB transformers or 50 or more large high- or low-voltage capacitors must develop and maintain an annual document log. At this time, since the waste survey has not yet been performed, it is not known if this requirement applies to the Building. If PCB transformers are present at the Building, weekly inspections must be performed and inspection logs created/maintained. Certificates of disposal must be obtained for all PCB wastes disposed and large-volume PCB waste generators must also develop and maintain an annual document log.

For generators of universal waste, the specific reporting and recordkeeping requirements depend on whether the project generates waste in the quantities that would classify the generator of the waste (the Owner) as a Large Quantity Handler of Universal Waste (LQHUW) or a Small Quantity Handler of Universal Waste (SQHUW). Reports/Documents that may be required include the following:

- Notification of Universal Waste Management (required of LQHUW that have not already received an EPA Identification number)
- An inventory by type of universal waste including quantity and accumulation times.
- Records of shipment of universal waste to another facility (non-hazardous waste manifest, bill of lading, universal waste manifest, etc.) and records of receipt of universal wastes from another facility (required of LQHUW)
- Personnel Training Documentation (required of LQHUW and SQHUW, personnel training in proper handling and emergency procedures)

ATTACHMENT 1
LIST OF POTENTIAL HAZARDOUS AND UNIVERSAL WASTE

ATTACHMENT 1 LIST OF POTENTIAL HAZARDOUS AND UNIVERSAL WASTE (SEE NOTE 1)				
Potential Waste Stream	**Preliminary Waste Characteristics**	**Characterization Process**	**Disposal Options**	**Approximate Quantity**
Lamps	Universal Waste	None Required	Shipment to a Large Quantity Handler of Universal Waste (LQHUW)	100,000
Batteries	Universal Waste	None Required	Shipment to a LQHUW	Not Quantified
Mercury Thermostats	Universal Waste	None Required	Shipment to a LQHUW	Not Quantified
Ballasts and associated potting material	Note 2	Note 2	Shipment to a licensed TSDF as selected by the Contractor and approved by LMDC. Note 2.	25,200
PCB-containing equipment, e.g. oil-filled switched, transformers, capacitors	NYS Hazardous Waste, TSCA waste	40 CFR 761	Note 3	Not Quantified
Mercury-containing Switches	Hazardous - toxicity	40 CFR 261.24	Shipment to a licensed TSDF as determined by LMDC	Not Quantified or Identified
Used Oil	Hazardous - ignitability	6 NYCRR Subparts 360-14 and 374-2	Note 4 (if used oils are classified as hazardous, it would be as likely due to their halogen content (see federal rebuttable presumption (40 CFR 279.10 (b)(ii))	Not Quantified
Used Fuel Oils (i.e. Waste Oil)	Hazardous - ignitability	40 CFR 261.21	Dispose as either a non-hazardous waste or hazardous waste oil on the basis of analysis for the hazardous waste characteristic of ignitability.	Not Quantified
Refrigerants	Ozone-depleting compound	None required	Note 5	Not Quantified
Fire Extinguishers		None required – supplier or manufacturer will be contacted for proper characterization	As determined by the applicable supplier or manufacturer	Not Quantified
Halon Fire Suppression Systems	Ozone-depleting compound	None required – Halon information will be obtained from equipment	Note 6	Not Quantified
Miscellaneous Stored Containers: • Oxidizer • Anti-freeze • Cleaning Solutions • Paints • Corrosion Inhibitors • Neutralizing Acid • Joint Compound • Coolant • Water Treatment	Note 7	Note 7	Note 8	Most materials removed prior to LMDC ownership.

LIST OF POTENTIAL HAZARDOUS AND UNIVERSAL WASTE (cont'd)

WTC Dust	Note 9	Note 9	Shipment to a licensed TSDF as determined by the generator	Unknown
Miscellaneous Bagged Accumulated Waste	Asbestos Waste	40 CFR 261.24 Note 12	Asbestos waste at a minimum. Potentially hazardous waste dependent on the results of characterization testing.	[#] Bags

NOTES:

Note 1	A complete waste characterization of 130 Liberty Street has not been conducted. This waste characterization will be conducted prior to the commencement of any deconstruction activities. As such, the potential waste streams and associated quantities are only approximations. A more definitive inventory will be provided on the basis of the waste characterization results.
Note 2	All fluorescent light fixture ballasts and associated potting material, regardless of labeling or age, will be classified as PCB- containing and managed as such. Disposal will be in accordance with 40 CFR 761 and 6 NYCRR Subpart 371.4(e).
Note 3	Specific disposal requirements will be based upon the concentration of PCBs identified within the applicable equipment. Disposal will be in accordance with 40 CFR 761 and 6 NYCRR Subpart 371.4(e).
Note 4	Used oils that are not hazardous wastes and cannot be recycled under 6 NYCRR Subpart 374-2 will be disposed in accordance with the requirements of Part 360 of Title 6. Used oils that are identified as a hazardous waste and cannot be recycled in accordance with 6 NYCRR Subpart 374-2 or Subpart 360-14 of Title 6 will be managed in accordance with the hazardous waste management requirements of Parts 370 through 374-1 and 376 of Title 6.
Note 5	A licensed refrigerant technician will be contracted to recover all refrigerant contained within applicable building components/equipment. All refrigerant will be recycled.
Note 6	A licensed technician will be contracted to recover all Halon contained within applicable fire suppression systems. All Halon will be recycled.
Note 7	MSDS information will be used to characterize material found within miscellaneous stored container. If MSDS are not available a complete RCRA hazardous waste determination will be conducted.
Note 8	All miscellaneous materials will be segregated according to their waste characterization designation (e.g. using either MSDS information or complete RCRA hazardous waste analysis) and disposed accordingly pursuant to its waste designation. When possible, bulk materials will be shipped in their original containers, provided that the containers meet the minimum requirements set forth by Department of Transportation packaging rules for the hazardous substance it contains. If this is not possible, like materials will be "lab-packed" and sent off site for disposal per their waste designation. Alternatively, like materials may also be transferred to DOT-approved shipping container (e.g., those waste streams in drum quantities).

LIST OF POTENTIAL HAZARDOUS AND UNIVERSAL WASTE - NOTES (cont'd)	
Note 9	The results of a preliminary waste characterization conducted by TRC, documented within a report dated 2-10-05, indicated that a composite bulk dust sample collected from the 40th floor mechanical room contains cadmium above the hazardous waste threshold. All other preliminary sample data collected from other portions of the building has indicated that the WTC dust can be managed as a non-hazardous asbestos-containing waste. Therefore, unless additionally required hazardous waste characterization indicates otherwise, WTC dust as a separate stand alone waste stream collected from the 40th floor mechanical room, will be managed as a hazardous waste and other WTC dust will be managed as a non-hazardous asbestos-containing waste.
Note 10	All hazardous and universal waste will be transported to their applicable disposal facilities utilizing transporters possessing a valid New York State Part 364 Waste Transporter Permit.
Note 11	A list of potential licensed disposal facilities is contained within Attachment 3. The Contractor will select disposal facilities. LMDC will approve of all disposal facilities prior to the shipment of any wastes.
Note 12	Miscellaneous accumulated bagged waste will be subject to inspection and sampling in accordance with Section 4.4.2.9 of this Plan.

ATTACHMENT 2
SAMPLE MANAGEMENT, LABELING AND QA/QC

When samples are collected by the Environmental Consultant they will be designated by an alpha-numeric code that will identify the sample location and sample type. The sample code will consist of five sub-codes as follows: a sample phase code; floor location; a unique sequential sample number; a matrix code; and a QA/QC code. The sample phase code designates the sampling phase in which the sample was collected ("1" for Phase 1, "2" for Phase 2, etc.); the floor code designates the floor from which the sample was collected; the matrix code designates the sampled matrix; the unique sequential sample number provides a unique three-digit identifier for each sample, and the QA/QC code denotes the sample classification (i.e., normal or type of QA/QC). All samples collected at the Building will be designated with the building code "130." The QA/QC codes will be as follows:

▪ QA/QC Codes: 01 – Normal Sample 02 – Duplicate Sample 03 – Equipment Blank 04 – Trip Blank	▪ Matrix Codes: D – Floor Dust C – Composite Sample W – Surface Wipe

A typical sample may be identified as 2-40-005-D-01. The "2" code indicates the samples was collected during Phase 2 of the sampling, the "40" code indicates that the sample was collected from the 40th floor, the "005" indicates that it is the fifth sample collected, the "D" indicates it is a floor dust sample, and the "01" code classifies it as a "normal" sample.

Each sample collected from the Building as part of this sampling program will be identified with a unique, sequential sample ID reflecting the floor the sample was taken and the sequential number of the sample. Sample labeling procedures are specified in the EPA Standard Operating Procedure (SOP) for Sample Labels. This SOP will be utilized for this sampling program.

In general, each sample container will be labeled with the following information:

- Project name.
- Project number.
- Location/site ID.
- Date of sample collection.
- Time of sample collection.
- Sampler initials.
- Media sampled.
- Analyses to be performed.
- Container type.

- Preservatives (if applicable).
- The number of containers for the sample (1 of 2, 2 of 2, etc.).

A Chain-of-Custody (COC) form will be completed and will accompany each separate shipping package to the laboratory. In summary, the following information will be contained on each completed COC:

- Site name – 130 Liberty Street.
- Laboratory name and contact.
- Turn-around time (TAT) requested.
- Sample ID, matrix, date, and time.
- Parameters and analytical methods.
- Unique courier-assigned package tracking number.
- Sample technician name(s) and release signature.

The field personnel will notify the laboratory 24 to 48 hours in advance of sample shipment so that the laboratory personnel may get prepared for the sample receipt and analysis. Samples will be packed and shipped in accordance with applicable U.S. Department of Transportation (DOT) regulations, Environmental Consultant Corporate Guidelines, and International Air Transport Association (IATA) standards (if shipped by air carrier, as detailed in the most current edition of IATA Dangerous Goods Regulations for hazardous materials shipments). Samples will be prepared and shipped to the laboratory according to the following procedures:

- All sample jars, once cleaned and labeled, will be placed in clean plastic re-sealable bags. Medium or high concentration samples (determined through field observations, field screening, air monitoring, or all three) will also be packaged in metal cans. The lids of the metal cans will be secured with at least three metal lid clips. The exterior of the metal cans will be labeled in the same fashion as the sample jar.

- Place samples in a cooler and surround them with vermiculite (or equivalent) packing material for moisture absorption and stability during transport.

- Place sufficient double-bagged ice in the cooler to maintain 4°C temperature.

- Place a "temperature blank", consisting of a water-filled plastic container, in each cooler. The temperature blank will be recorded by the laboratory upon receipt to ensure adequate sample temperature.

- Place completed COC form inside a re-sealable plastic bag, and tape the bag to the inside of the cooler lid.

- Secure the cooler lid with packing tape. Place signed and dated custody seals on two opposite sides of the lid and secure with clear tape.

- If applicable, tape the drain plug closed so that it will not open.
- Place upward-pointing arrow label on two opposing vertical sides of the cooler.
- Label the cooler with laboratory address, name of laboratory contact, telephone number, and project identification.
- Attach applicable IATA and/or DOT identification labels.
- Attach a completed courier shipping label (if applicable).

Samples will be classified as environmental samples unless there is evidence of high concentrations of chemical constituents, based on visual observations, odors, previous sample data, or other criteria. All waste liquid, waste solid, tank, drum, and other container samples will be considered hazardous material samples and will be packaged and transported in conformance with the U.S. DOT, U.S. Postal Service (USPS), and the IATA Dangerous Goods Regulations if shipped by air carrier. These regulations/requirements have de minimus exemptions for small volume samples; they will be referred to prior sample shipment to ensure all requirements are being met.

The United States Environmental Protection Agency's Environmental Response Team (EPA ERT) publishes sampling SOPs for sampling at CERCLA hazardous waste sites. These SOPs will be followed during the sampling at this site.

QA/QC samples will be collected to assist in the interpretation and validation of the laboratory analytical results. The QA/QC samples that will be collected during this characterization sampling program include field duplicates or co-located samples. Field duplicate samples will be collected as a check on laboratory accuracy and precision. Four duplicate dust samples will be collected from the bulk dust and or high-efficiency particulate air (HEPA) filters. The duplicate sample will be placed in the appropriate, clean, laboratory-prepared sample containers and analyzed for the same parameters.

ATTACHMENT 3
PRELIMINARY LIST OF POTENTIAL DISPOSAL FACILITIES

Please note that the disposal facilities listed herein are provided for informational purposes only. The list consists of permitted facilities that may be used for disposal of the indicated waste streams. The Contractor and their Subcontractors reserve the right to respond to market and other relevant conditions in the selection of the disposal facilities and to utilize disposal facilities other than those indicated herein provided they are properly permitted to receive said waste type(s). The Contractor also reserves the right to audit said facilities prior to final selection

None of the following facilities, or any other facility, may be used without prior written approval by LMDC**.**

The following facilities may be used for disposal of asbestos-containing and contaminated materials:

- Meadowfill Landfill (304) 842-2784
  Bridgeport, WV
- Cumberland County Land (717) 423-5917
  Newburgh, PA
- Imperial Landfill (724) 695-0900
  Imperial, PA
- Grows Landfill (215) 736-9475
  Morrisville, PA
- Tullytown Landfill (215) 943-9732
  Tullytown, PA

The following facilities may be used for disposal of construction and demolition (C&D) materials:

- Cumberland County Landfill (717) 423-5917
  Newburgh, PA
- Hakes C&D Landfill (585) 466-7271
  Painted Post, NY

The following facilities may be used for disposal of hazardous and miscellaneous materials:

- American Re-Fuel Company (516) 683-5443
  Westbury, NY
- American Re-Fuel Company (973) 344-0900

Newark, NJ

- BDT, Inc. (716) 634-6794
  Clarence, NY EPA ID No. NYD000632372
- Bethlehem Apparatus (215) 838-6333
  Hellertown, PA EPA ID No. PAD602390961
- BFI Conestoga Landfill (610) 266-6844
  Morgantown, PA
- Central Waste, Inc. (330) 823-6220
  Alliance, OH
- Chemical Waste Management (716) 754-8231
  Model City, NY EPA ID No. NYD049836679
- Clean Earth of North Jersey
  Kearny, NJ EPA ID No. NJD991291105
- CWM-SRR (513) 859-6101
  W. Carrolton, OH EPA ID No. OHD093345293
- Dupont Chamberworks (609) 299-5000
  Deepwater, NJ EPA ID No. NJD002385730
- Ensco, Inc (501) 863-7173
  El Dorado, AR EPA ID No. ARD069748192
- Envirite of Pennsylvania (717) 846-1900
  York, PA EPA ID No. PAD010540045
- Envirosafe Services of Ohio (800) 537-0426
  Oregon, OH EPA ID No. OHD045243706
- Giant Cement Company (803) 496-5033
  Harleyville, SC EPA ID No. SCD003351699
- G.R.O.W.S (215) 736-9475
  Morrisville, PA EPA ID No. PAD000429589
- Horizon Environment, Inc. (888) 767-0088
  Grandes-Piles, Quebec, Canada EPA ID No. 1142031856
- Inmetco (412) 758-2819
  Elwood City, PA EPA ID No. PAD087581015
- Keystone Potrland (215) 837-2240
  Bath, PA EPA ID No. PAD002389559
- Maplewood Recycling, Inc. (604) 561-5787
  Jetersville, VA
- Marisol, Inc. (732) 469-5100
  Middlesex, NJ EPA ID No. NJD002465655
- Meadowfill Landfill (304) 842-2784

Bridgeport, WV

- Phillip Services Corp. (215) 822-6996
  Hatfield, PA EPA ID No. PAD085690592
- Revere Smelting & Refining (914) 592-4414
  Middletown, NY
- Ross Incineration (440) 748-2200
  Grafton, OH EPA ID No. OHD048415655
- Stablex Canada (800) 782-2539
  Blainville, Quebec, Canada EPA ID No. NYD980756415
- Taylor County Landfill (476) 862-2504
  Mauk, GA
- Trade Waste Incineration (618) 271-2804
  Sauget, IL EPA ID No. ILD098624424
- T.R.R.F. (Tullytown) (215) 736-9400
  Tullytown, PA
- Waste Technologies, Inc. (216) 385-7337
  East Liverpool, OH EPA ID No. OHD980613541
- White Pines Landfill (717) 458-4602
  Millville, PA

The following facilities/services may be used for metal salvage:

- Mid Island Salvage Co.
  1007 Long Island Avenue
  Deer Park, NY 11729

- Aleris International Inc.
  368 West Garfield Road
  Cold Water, Michigan 49036

- Wabash Alloy
  4525 West Old 24
  Wabash, IN 46992

- Ohio Valley Aluminum Company
  1100 Brooks Industrial Road
  Shelbyvulle, Kentucky, 40065

- Weirton Steel Corporation
  400 Three Springs Drive
  Weirton, West Virginia 26062

- Nucor Steel Auburn, Inc.
  25 Quarry Road
  Auburn, NY 13021

- Gerdau Ameristeel
  225 Elm Street
  Perth Amboy, NJ 08862