



UNIVERSITY OF
NEW HAVEN

Construction Safety & Environmental Management Plan

Prepared By:
Triumvirate Environmental
January 2014

Program Approval

Associate Vice President of Public Safety & Administrative Services

Associate Vice President of Facilities

3-4-14

Date

3-3-14

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**University of New Haven
West Haven, CT**

CONSTRUCTION SAFETY & ENVIRONMENTAL MANAGEMENT PLAN

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1.0 INTRODUCTION

1.1 PURPOSE

The purpose of the University of New Haven (UNH) Construction Safety and Environmental Program is to inform UNH Project managers of, and ensure that all Contractors are responsible for performing work in conformance with all environmental health and safety laws, regulations and University Standards.

1.2 SCOPE

Contractors and University personnel are responsible for conforming to the provisions of the UNH Construction Safety and Environmental Management Plan, which has been prepared for the protection and safety of UNH students, faculty, staff, neighbors and property.

1.3 APPLICATION

This plan applies to Contractors working for UNH, including, but not limited to the following:

- Construction Managers
- General Contractors
- Inspection Contractors
- Service Contractors
- Sub-Contractors

This program also applies to task specific Contractors that are approved for specific contracted work at UNH. Task specific contractors include the following:

- Asbestos Abatement Contractors
- Hazardous Waste Hauling Contractors
- Underground Storage Tank Removal and Fuel Hauling Contractors
- Mold Remediation Contractors
- Industrial Hygiene Consultants
- Lead Abatement Contractors

This plan applies to UNH personnel including Construction Managers, Facilities Personnel, Planners, Project Managers or personnel who otherwise oversee or direct work being performed by Contractors.

This program applies to any property management company and their contractors and subcontractors who are working on UNH owned property.

1.4 SITE DESCRIPTION

The UNH campus consists of numerous buildings over an 82-acre campus located in West Haven, Connecticut. The main campus is shown on the Campus Map, included in Appendix A. UNH has a variety of off-campus sites including the graduate business program campus in Orange, CT, which includes a 70,000-square-foot facility on 47 acres.

Storage of oil on-site of the main campus includes eight oil aboveground storage tanks and eleven steel containers containing hydraulic oil for elevators. Facility systems on the interior of the UNH buildings are connected to the municipal sewer system. Runoff from exterior impermeable surfaces is directed to the campus storm water drainage system. Exterior permeable surfaces drain to the underlying soil and groundwater matrix. The UNH storm water drainage system consist of a series of storm water catch basins located throughout the campus that drain to the West Haven storm sewer system and eventually to Long Island Sound.

2.0 DEFINITIONS

AST – Aboveground Storage Tank

CFC Containing Units – Contain any ozone depleting refrigerants including, but not limited to, Chlorofluorocarbons (CFCs) and Hydro-chlorofluorocarbons (HCFC).

CGA – Compressed Gas Association

Confined Space – A space that (1) is large enough and configured in a way that an employee can enter and perform assigned work; (2) Has limited or restricted means for entry or exit (e.g. tanks, vessels, silos, storage bins, hoppers, vaults and pits); and (3) Is not designed for continuous human occupancy.

Contractor – Non-UNH personnel who have been hired to perform services for UNH.

DEEP – Department of Energy and Environmental Protection

DOH – Connecticut Department of Public Health

DOT – Department of Transportation

EPA – Environmental Protection Agency

Fuel Burning Equipment – Units that include, but are not limited to, boilers, hot water heaters, emergency generators and kilns.

Hazardous Substance – Any substance or chemical that poses a physical hazard or health hazard which has the ability to produce adverse effects on the health and safety of humans. In this Plan, the terms hazardous chemical and hazardous material are synonymous with hazardous substance.

HVAC – Heating Ventilation and Air Conditioning

Hot Work – A temporary operation involving open flames or which produces heat and/or sparks (e.g. brazing, cutting, grinding, soldering, thawing pipe, torch applied roofing, welding and the use of heat guns.

Laser – Light Amplified by Stimulated Emission of Radiation

NFPA – National Fire Protection Association

OSHA – Occupational Safety and Health Administration

PCBs – Polychlorinated biphenyls

Permit-Required Confined Space – As defined in OSHA 29 CFR 1910: a confined space that has one or more of the following characteristics: (1) Contains or has a potential to contain a hazardous atmosphere; (2) Contains a material that has the potential for engulfing an entrant; (3) Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or (4) Contains any other recognized serious safety or health hazard.

Powder Actuated Fastening Tool – A tool or machine that utilizes an explosive charge to drive a stud.

Project Manager – Refers to the UNH Project Manager, Construction Manager, Engineer, Planner, or other University staff who oversee or direct work being performed by Contractors.

Public – Refers to UNH faculty, staff and students not associated with the construction project, as well as non UNH related individuals such as neighbors, pedestrians and by passers.

PPE – Personnel Protective Equipment

PPM – Parts Per Million

RSR – Remediation Standard Regulation

SPCC – Spill Prevention Control and Countermeasures

Task Specific Contractors – Contractors that provide services that require specialized skills, licensed or training, but also require specific approval from UNH.

TSCA – Toxic Substances Control Act

UST – Underground Storage Tank

3.0 PROCEDURES

3.1 EMERGENCY PROCEDURES

Police, fire or medical emergencies related to construction projects at UNH may be reported to the local emergency agency (i.e., 911) or as specified in the Contractor's own safety

manual/emergency plan. In addition, police, fire or medical emergencies related to construction projects at UNH must be reported to a UNH response coordinator.

3.2 EMERGENCY COORDINATORS

Primary On-Site Emergency Response Coordinator:

Louis Annino Jr. , Associate Vice President of Facilities

(Work).....(203) 932.7153

(Cell).....(203) 627.3573

(Email)..... mlannino@newhaven.edu

Alternate On-Site Emergency Response Coordinators:

Richard Rutherford, Maintenance Operations Manager

(Work).....(203) 479.4993

(Cell)..... (203) 410.4972

(Email)..... rrutherford@newhaven.edu

Alternate On-Site Emergency Response Coordinator:

Ronald Quagliani, Associate Vice President of Public Safety and Administrative Services

(Work).....(203) 932.7147

(Cell).....(203) 627.8562

(Email)..... rquagliani@newhaven.edu

3.3 ENVIRONMENTAL MANAGEMENT PROCEDURES

UNH has developed an Environmental Checklist to assist Project Managers and Contractors in complying with the requirements of the Environmental Management Plan. The Environmental Checklist is located in Appendix B. The Environmental Checklist must be completed by the Construction Manager or Contractor for each project, and submitted to UNH prior to the start of work and will be included as part of the contract documentation. If changes in the work affect the status of the Environmental Checklist, the Construction manager is responsible for updating UNH as changes are made. The Environmental Checklist can be submitted electronically to Ron Quagliani rquagliani@newhaven.edu or delivered to the campus security building at 300 Boston Post Road.

3.4 BASIC EXPECTATIONS FOR CONTRACTOR PERSONNEL

UNH has basic expectations for Contractor Personnel. The following list contains several reasons for temporary or permanent removal of a Contractor and/or its employee(s) from UNH.

- Deliberate violation of safety or security rules.
- Possession or use of alcoholic beverages or illegal drugs not prescribed by a physician.
- Possession of explosives, firearms, ammunition and/or other weapons.
- Destruction of property, without proper written permission, of any property belonging to UNH, the property owner/resident, employee or other contractor's employees.
- Illegal dumping, handling or disposal of hazardous materials.

- Harassing, threatening, impeding, intimidating or interfering with an inspector, security officer or UNH employee, student, designated representative or the public.
- Unauthorized blocking emergency exits or using emergency exits other than for emergencies.
- Unauthorized tampering or disabling of fire prevention, detection or suppression equipment.
- Unauthorized removal or destruction of a safety barricade, handrail, guardrail, warning sign, fall protection or other warning devices intended to protect UNH faculty, staff, students, property or the public.
- Performing any laboratory analysis of samples collected from UNH owned property.

3.5 WEAPONS POLICY FOR CONTRACTORS

UNH maintains a weapons policy that applies to employees, students, contractors, vendors and any visitors. This policy applies to any UNH premise and/or in any building under University control including branch campuses, satellite locations (including UNH non-U.S. locations) and vehicles located on UNH property. Contractors must comply with the UNH weapons policy, which can be viewed on the UNH website (<http://www.newhaven.edu/student-life/police/clery-disclosure/policies/firearms-weapons-explosives/>). Any work which requires the use of powder actuated nail guns, insulator knives with blades greater than 4" and/or explosives for excavating rock or building, must have approval obtained from the Project Manager prior to mobilizing the equipment or supplies to any UNH property.

3.6 SAFETY PERMITS AND APPROVAL PROCEDURES

There are specific work permits and approvals that must be obtained prior to starting certain potentially hazardous activities. Contractors must obtain approval from the Project Manager prior to performing the following activities. These requests from contractors shall be supported with a completed job hazard analysis (Appendix C):

- Performing hot work (see Section 5.0).
- Working in confined space on campus (see Section 6.0).
- Working with compressed air or gas (see Section 10.0).
- Working with or impacting suspect asbestos-containing materials (see Section 11.0).
- Working with or impacting suspect lead paint coated surfaces (see Section 12.0).
- Working on suspect PCB containing building materials (see Section 13.0).
- Working on electrical, steam, high temperature hot water, chilled water systems or other energized systems.
- Working on heating, ventilation or air conditioning equipment.
- Working on security systems.
- Performing any indoor air quality sampling.
- Installing any air monitoring equipment on University Property.
- Shipping of hazardous waste (including waste oil and lead-containing materials)
- Performing any sub-surface, excavation, trenching or dewatering operations.
- Modifying an egress pathway.
- Using propane powered engine indoors. Use of gas or diesel engines indoors is prohibited.

- Shut down of any utilities.
- Working on fire detection or suppression systems.
- Working on a public or University roadway.
- Working with any other hazardous materials.

3.7 SITE SAFETY AND SECURITY

It is the responsibility of the Contractor for ensuring work areas are completely secured at all times. Exterior work sites shall be secured by fully encompassing physical barriers that are appropriate for the work site location (e.g. fences, barricades, safety markers, tape barriers, blinker lights). All machinery, equipment and hoisting/staging areas must be maintained with a physical barrier. All open holes, manholes, trenches or excavations must be covered and/or guarded by a railing system, unless someone is actively working in the space. All personnel working within the site boundaries must be wearing appropriate PPE as necessary. All work areas must be secured during off work hours to prevent unauthorized access. Work being conducted on a public roadway must be approved by the Project Manager. The Contractor is responsible for contacting the city and coordinating all arrangements for police details, flaggers and/or street closures. The Contractor must ensure the proper way-finding signage is in place to direct both vehicular and pedestrian traffic safely around and through the work area.

3.8 HOUSEKEEPING FOR CONSTRUCTION AREAS

The Contractor is responsible for ensuring and maintaining good housekeeping while at UNH. Work areas must be kept neat, clean, orderly and free of excess trash and debris. Walkways, stairs, and exits must never be blocked and must remain free of a tripping hazard. Work must never be performed over the heads of people, and tools or equipment must not be kept overhead. Materials that are stored or actively being used on elevated surfaces (i.e., roofs) must be secured by the Contractor at all times.

3.9 CONSTRUCTION IN OCCUPIED BUILDINGS

Construction in occupied buildings requires additional safeguards to eliminate exposures and complaints from occupants. Particulates and dusts from demolition, sanding and other construction activities must be controlled by containment and negative air ventilation systems. Similar controls must be utilized for similar odorous activities (e.g. carpet adhesive, painting, welding and coatings). Particulates and dust control of all buildings also must be controlled to prevent the contamination of HVAC systems. The Contractor is responsible for ensuring that the HVAC system in the work area is turned off and sealed to prevent contamination. Negative air ventilation systems must have appropriate filtration and be exhausted outside the building.

3.10 CONSTRUCTION IN RESEARCH FACILITIES

Construction in research and laboratory facilities requires additional safety precautions to ensure worker safety and that all hazardous materials impacted by laboratory renovation are handled and disposed of safely and in accordance with all federal, state and local laws and regulations. Prior to any renovation or demolition activities, laboratories must be decommissioned by an approved Task Specific Contractor. The Contractor shall perform a

survey to identify any residual hazardous substances on surfaces and hazardous building materials (e.g., asbestos, PCB light ballasts, mercury containing devices, duct work, sink traps etc.). Any hazardous building materials identified must be abated or decontaminated by a licensed contractor. All hazardous waste must be removed from the area prior to construction activities. These may include biological (biologic safety cabinets and biosafety level labs), radiological (radioactive materials), nanomaterial, and chemical (fume hoods and associated ductwork, lab waste water piping) hazards. If any hazardous materials are uncovered during construction activities, all work shall stop immediately and the Project Manager shall be notified.

4.0 PERSONAL PROTECTIVE EQUIPMENT FOR CONTRACTORS

Contractors are responsible for following the requirements of OSHA (OSHA 29 CFR 1910.132), the UNH PPE Policy and supplying their employees with the appropriate PPE. According to the UNH PPE policy, protective equipment, including personal protective equipment for eyes, face, head, and extremities, protective clothing, respiratory devices and protective shields and barriers, shall be provided, used and maintained in a sanitary and reliable condition whenever it is necessary by reason of hazards, of process or environment, chemical hazards, biological hazards, radiological or mechanical hazards encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact. At all times a contractor shall wear a hard hat, safety glasses and, when working outside, high visibility clothing.

5.0 HOT WORK

Contractors must notify the Facilities Department a minimum of 24 hours in advance of proposed hot work. Hot work may only begin once a Hot Work Permit has been issued by the Manager of Maintenance Operations. Each hot work permit obtained at UNH must be signed by either the Director of Facilities; Manager of Maintenance Operations or designee and also signed by the Associate Vice President of Public Safety & Administrative Services or designee. UNH has a written hot work policy and procedure developed in accordance with OSHA regulations. All Contractors performing hot work must review and comply with the UNH hot work policy and procedure. A copy of the hot work policy must be obtained from the Project Manager.

6.0 CONFINED SPACES

Contractors are responsible for following the requirements of OSHA's Confined Space Standards when entering confined spaces, including permit-required confined spaces as described in 29 CFR 1910.146. The Contractor is responsible for developing, implementing and maintaining their own Confined Space Entry Program, including training for staff, use of an entry permit and provisions for emergency rescue as it applies to the work of the contract. Advanced noticed to the Project Manager of an entry is always required before entering a confined space. The Contractor must provide the Project Manager with the following:

- The exact location of the confined space.
- The time of entry and approximate entry duration.
- The names of trained attendants and entrants.

- The time the entry is complete and that all entrants are safely out.
- A description of any hazards confronted or created in the space.

7.0 FALL PROTECTION

Contractors are responsible for following the requirements of OSHA's Fall Protection Standards described in 29 CFR Subpart M – Fall Protection and University protocols when working on elevated surfaces. Elevated surfaces include, but are not limited to, ramps, runways, excavations, hoist areas, holes, formwork and reinforcing steel, leading edge work, unprotected sides and edges, overhand bricklaying and related work, roofing work, precast concrete erection, wall openings, residential construction and other walking/working surfaces. The OSHA standard sets a uniform threshold height of 6 feet and above needing consistent protection. The Contractor must protect their employees from fall hazards and falling objects whenever an affected employee is 6 feet or more above a lower level.

8.0 SCAFFOLDING

Contractors are responsible for following the requirements of OSHA's Scaffolding Standards (OSHA 29 CFR 1926.451) and University protocols when working with scaffolding. Contractors are responsible for utilizing qualified persons to design scaffolding and erect/move/dismantle scaffolding under the supervision of a competent person, which may require the hiring of a professional engineer for more complex projects. Contractors are required to provide adequate anchorage, foundation, bracing, pinning, support, access, working surface, fall protection and training for employees working on suspended scaffolding. Contractors are required to provide fall protection for employees erecting or dismantling supported scaffolds. Contractors are responsible for ensuring that the scaffolding is inspected daily by the construction manager.

9.0 EXCAVATION

9.1 INTRODUCTION

Contractors are responsible for following the requirements of OSHA's Excavation Requirements (OSHA 29 CFR 1926.650, 1926.651 and 1926.652). Prior to the start of any excavation, the contractor is responsible for identifying and informing all applicable utilities that excavation work is being performed. The Contractor is required to contact Call Before You Dig at 811 or 1-800-922-4455 and any other utility that cannot be contacted by Call Before You Dig. Contractors must be aware that Call Before You Dig will not cover work on private property, including UNH property, except when they interface with other utilities. University and private utilities must be identified by the Project Manager prior to excavation by contacting Butch Rector, the Manager of Facilities of Maintenance and Mario Pierce, Director of Space Management and Technical Service to obtain an underground site plan. Contractors must provide Call Before You Dig confirmation numbers and an underground site plan to the Project Manager prior to the start of any excavation. The Contractor must ensure that adequate work areas around all excavations are provided, and remain in compliance with the requirements of Site Safety and Security (Section 3.6). The Contractor is responsible for ensuring that equipment operators carry the required licenses and have the necessary training to operate the equipment onsite. If

dewatering is necessary, the Contractor must notify the Project Manager prior to excavation for environmental compliance assistance (see Section 11.3).

9.2 TRENCHING AND SLOPE

A Trench, as defined by OSHA, means a narrow excavation (in relation to its length) made below the surface of the ground. Generally, the depth is greater than the width, measured at the bottom, and is not greater than 15 feet. Entering a trench must be done so with the utilization of a trench box. A trench box is a structure that is able to withstand the forces imposed on it by a cave-in and thereby protect employees within the structure. Trench boxes can be permanent structures or be portable and moved along as work progresses.

Sloping, as defined by OSHA, means a method of protecting employees from cave-ins by excavating to form sides of an excavation that are inclined away from the excavation to prevent cave-ins. The angle of incline required to prevent a cave-in varies with differences in such factors as the soil type, environmental conditions of exposure, and application of surcharge loads. The Contractor must ensure there is adequate slope during excavation to prevent cave-ins.

9.3 SOIL MANAGEMENT

Urban soils are often contaminated with lead, arsenic and polynuclear aromatic hydrocarbons (PAHs), and can be naturally occurring or can result from the deposition of hazardous materials used in fill (e.g. coal ash, leaded gasoline, lead paint). The soils disturbed may have these contaminants at concentrations above the regulatory levels set by the DEEP RSRs. The identification, removal, management and movement of contaminated soils is a time consuming and costly effort. The Project Manager will work with University Health and Safety Staff and an Environmental Consultant in the early planning portion of a project involving contaminated soil or potentially contaminated soil to ensure the regulatory requirements are met while meeting the project timeline. The applicability of soil re-use will be determined by the Environmental Consultant based on all state and federal regulations. Contaminated soils kept onsite during construction must remain covered at all times to prevent migration by wind or run-off from precipitation. Care must be taken not to track contaminated soil from the construction site during loading and transportation activities. The Contractor is responsible for characterizing the soil for proper disposal and maintaining all disposal documentation. All characterization documentation will be retained with the project records.

9.4 STORMWATER AND DEWATERING ACTIVITIES

The Connecticut DEEP requires general permits (DEP-WPED-GP-015) for all discharges of storm water and dewatering wastewater from construction activities which results in the disturbance of one (1) or more total acres of land on a site, regardless of project phasing. Construction projects with a total disturbed area of between one (1) and five (5); the Contractor must adhere to the erosion and sediment control land use regulations of the town or municipality. No registration of the general permit shall be required if the town receives and provides a written approval of the Contractor's erosion and sediment control measures and follows its guidelines. If no review is conducted by the town, the Contractor must register and

comply with the guidelines written in the permit. For construction projects with a total disturbed area of greater than five (5) acres, registration is required to be submitted in order for the discharges to be authorized by the general permit.

10.0 COMPRESSED GAS CYLINDERS

Compressed gases can pose a severe hazard to UNH faculty, staff, students and the public. Contractors must follow all OSHA, CGA, applicable NFPA and UNH guidelines for compressed gas storage and use. UNH has a written compressed gas policy and procedure in accordance with OSHA standards 29 CFR 1910.101, which also referenced regulations as they pertain to the DOT Regulations 49 CFR 171-179, DOT Hazardous Materials Regulations 14 CFR 103 and the CGA guidelines. A copy of the UNH policy may be obtained from the Project Manager.

11.0 ASBESTOS CONTAINING MATERIALS

11.1 ASBESTOS INSPECTION

An asbestos inspection must be performed prior to the start of work that may disturb building suspect building materials. Sampling will be performed by a certified asbestos inspector. Under the direction of the Project Manager, the Inspection Contractor shall perform an asbestos inspection on suspect material within the defined scope of work. The Inspection Contractor shall maintain certification to perform sampling and prepare a report describing the inspection results, detailing the locations inspected locations of both ACM and Non-ACM and the quantity of ACM identified. The inspection report must be submitted to the Project Manager. The Project manager must perform a thorough review of the report prior to proceeding on the project.

Below is a list of common ACM that must be assumed to contain asbestos until tested and proven otherwise. This list does not include all materials that are ACM.

Suspect Asbestos Containing Materials		
Floor Tiles	Pipe Insulation	Joint Compound
Mastic	Cove Base	Lab Hoods/Benches
Wallboard	Cerement Pipes	Roofing Shingles/Felt/Tar
Acoustical Plaster	Ceiling Tiles	Insulation
Textured Paints/Coatings	Base Flashing	Elevator Brake Shoes
Fire Blankets/Curtains/Doors	Spackling Compounds	Adhesives
Fireproofing Materials	Vinyl Sheet Flooring	Electrical Wiring Insulation

The Contractor shall not sweep, dust, vacuum, or mop dust or debris that is the product of a suspect containing material. The contractor shall not pick up or throw away any suspect asbestos-containing waste or trash. If a material that is suspected to be asbestos containing is disturbed and becomes airborne, the Contractor shall immediately notify the Project Manager who will in turn notify the Director of Safety. Any suspect asbestos containing material that is observed by the Contractor to be crushed, ripped, broken or in any way damaged should be reported to the Project Manager immediately. Contractors must immediately convey any newly

discovered information about the presence, location and quantity of asbestos containing or presumed asbestos containing materials.

11.2 ASBESTOS INSPECTION REQUIREMENTS

Under the direction of the Project Manager, the Inspection Contractor shall perform an asbestos inspection on suspect material within the defined scope of work. The Inspection Contractor shall maintain certification to perform sampling and prepare a report describing the inspection results, detailing the locations inspected locations of both ACM and Non-ACM and the quantity of ACM identified. The inspection report must be submitted to the Project Manager. The Project manager must perform a thorough review of the report prior to proceeding on the project.

11.3 ASBESTOS ABATEMENT REQUIREMENTS

Abatement shall be conducted in accordance with the requirements as provided in the asbestos inspection report or an abatement plan by a licensed asbestos abatement contractor. All Contractors must review and be familiar with the asbestos inspection report and asbestos abatement plans. A 10-day notification of asbestos abatement must be submitted to the Connecticut Department of Public Health prior to the start of work. The asbestos abatement contractor must perform all OSHA required personnel air monitoring. The abatement contractor must coordinate waste shipment with environmental health and safety. The abatement contractor is required to provide waste shipment records to the State. The abatement contractor is responsible for ensuring visual inspections and clearance air samples are performed at the completion of abatement activities, and it is their duty to authorize re-entry once acceptable air clearance samples have been received.

11.4 ASBESTOS PROJECT COMPLETION REQUIREMENTS

Upon project completion, all analytical results, inspection reports, 10-day notifications, abatement plans and air clearance results, including any amendments, shall be submitted to the Project Manager for recordkeeping purposes. All project completion documents shall be retained within the project records.

12.0 LEAD MANAGEMENT PROCEDURES

The Contractor shall assume that any painted surface they come into contact with is coated with lead-based paint in buildings older than 1978, unless the Project Manager provides a specific lead-paint inspection for the area of work. Contractors should not perform any intrusive, dust-generating work on painted surfaces, such as drilling, cutting, brazing, scraping, demolition, etc., unless the surface has been confirmed to be non-lead, or unless such work is part of the contracted work and they are specifically trained to do so.

12.1 LEAD PAINT INSPECTION REQUIREMENTS

Any construction where suspect lead based paint is to be disturbed requires a lead inspection by a trained and certified Lead Consultant. The inspection shall identify lead paint coated surfaces and measure toxic levels of lead-based paint in the work area. The Lead Consultant

shall work with the Project Manager to develop and implement a sampling plan to appropriately characterize all material to be impacted. All findings shall be provided to UNH in a Lead Inspection Report or Abatement Plan. A comprehensive lead inspection shall typically be performed using an X-ray Fluorescence Analyzer (XRF) for lead in paint testing. The XRF is designed to identify lead in all layers of paint.

12.2 LEAD PAINT ABATEMENT REQUIREMENTS

Abatement shall be conducted in accordance with requirements provided in the lead inspection report or abatement plan. The Contractor is responsible for developing, implementing and maintaining a Lead Exposure Program in accordance with OSHA standards. The Contractor shall ensure that its Lead Exposure Program meets all of the requirements of OSHA, DEEP and the DPH.

12.3 CHARACTERIZATION OF LEAD CONTAMINATED WASTE

Characterization of lead contaminated waste must be performed using the Toxic Characterization Leaching Procedure (TCLP) analytical method. Lead contaminated materials can be characterized by utilizing two different approaches. Pre-characterization sampling of impacted materials can take place at the beginning of the project. This enables segregation of waste that is considered hazardous from other non-hazardous wastes. Alternatively, lead contaminated debris can be sampled at the end of the project, after all of the lead contaminated material has been collected. Regardless of the approach, representative samples of all materials, including substrate, must be taken to determine the proper disposal of the material. Materials exhibiting a TCLP result with a lead concentration of less than 5.0 mg/L can be disposed of as non-hazardous waste. Alternatively, materials exhibiting a TCLP result with a lead concentration greater than 5.0 mg/L must be disposed of as hazardous waste. All analytical results will be submitted to the Project Manager for review, in consultation with University Health and Safety staff before disposal can take place. All hazardous waste must be stored, labeled and contained in compliance with all Federal and State regulations. Waste documents will be retained with the project records.

13.0 PCB CONTAINING BUILDING MATERIALS

13.1 INTRODUCTION

Buildings that were constructed or renovated from 1950 to 1978 may contain PCBs in building materials at levels in excess of the EPA TSCA regulatory exclusion threshold of 50 ppm. Building materials containing PCBs are regulated by the EPA under TSCA, 40 CFR § 761. Materials containing PCBs at concentrations equal to or greater than (\geq) 50 ppm are considered an 'unauthorized use'. It is important to note that building material containing concentrations of PCBs below 50 ppm must meet the definition of *excluded PCB product* to be exempt from TSCA waste management requirements. Improper management of PCB contaminated building materials represents significant liabilities and violations which may result in substantial penalties. The TSCA does not require testing of building materials. Any sampling, analysis or testing of building materials or air for PCB analysis requires prior authorization from the UNH Project Manager.

13.2 BUILDING ASSESSMENT AND MATERIAL INVENTORY

Prior to building renovation, demolition or construction, an inspection to assess the condition of and to inventory suspected building materials should be conducted. Items to be inspected include caulking, glazing and florescent light ballasts. Inspections looking for deteriorated, flaking or peeling caulk should be conducted. For exterior caulking, ensure there are no fragments in the vicinity of deteriorated materials. Light fixtures must be examined for the presence of unlabeled or leaking ballasts or staining either from the previous ballast or unlabeled ballast. Additionally, transformers, electrical equipment, capacitors, switches, oil-based paints and adhesives have been found to contain PCBs.

It shall be assumed that suspect building materials contain PCBs, unless appropriate sample analysis results indicate otherwise. When known or suspected PCB containing caulk is to be disturbed, protective work practices must be used to prevent exposure to workers, building occupants and the environment. When assessment activities have identified TSCA regulated materials (≥ 50 ppm bulk product or remedial waste) comprehensive response actions are required to be conducted in accordance with 40 CFR 761.61. Comprehensive response actions may require engaging an Environmental Contractor. Comprehensive response action will be designed to address site-specific requirements and associated waste and risk management in a cost effective manner. Conceptually, the following generalizes the process which should be followed:

1. In the planning phase, evaluate alternatives to disturbance of building materials.
2. Assume that PCBs are present in the caulk and other building materials, and plan to inspect and test in consultation with the UNH Project Manager and UNH Health and Safety staff.
3. Engage an experienced Environmental Contractor to develop remediation alternatives and impacts. The consultant's report should explain regulatory-required actions and provide cost estimates, disposal options, and timelines to implement each alternative.

If regulated levels of PCBs (≥ 50 ppm) are found in PCB bulk product:

1. Determine whether the project will proceed as planned or will be altered to minimize impacts, costs or schedules.
2. Consider the need for an internal communications plan for occupants.
3. Seek the assistance of an experienced Environmental Contractor, as needed.

The Project Manager and Environmental Contractor should be consulted prior to any testing, and in all related health, safety and environmental matters, including disposal of materials. If PCBs are present in intact or deteriorated caulk at levels of 50 ppm or greater, removal and proper disposal is required.

Remedial activities related to suspect or known PCB containing materials should be documented as to the location(s) and extent of removal of materials and response actions. All laboratory analysis reports should be maintained. Daily field notes and photographs of the

work areas should be collected throughout the project. All documentation shall be retained with the project records.

14.0 HAZARDOUS WASTE MANAGEMENT

All waste generated by the contractor is waste owned and managed by the University. The Contractor must notify the Project Manager, who will in turn notify UNH Health and Safety Staff, when hazardous waste is generated. Hazardous wastes include, but are not limited to, waste oil, contaminated fuels, lead contaminated paint or debris, spent products, spill clean-up materials, used solvents, and unusable product. The UNH Health and Safety Staff shall review the weight of the waste material to verify University generator status is correct. At no time shall hazardous waste be disposed of in chutes, dumpsters, drains, pipes or any similar waste outlets. The Contractor shall not, under any circumstances, transport waste off of University Property, unless specifically hired to serve such purpose. Only a properly trained University representative may sign hazardous waste shipping documents. All waste documents shall be retained on file in the Associate Vice President of Public Safety and Administrative Services Office.

Universal waste, including batteries, fluorescent tubes, lighting ballasts and mercury containing switches, must also be collected and stored in compliance with federal and state requirements (see Section 15.0). The Contractor must notify the Project Manager when universal waste is generated. The Contractor shall not abandon products or otherwise leave products on campus unless specifically requested by the UNH Project Manager.

14.1 HAZARDOUS WASTE STORAGE

When storing hazardous waste, all containers must meet all applicable DOT requirements. Liquid waste must be stored in liquid rated drums. Solid waste may be stored in drums, cubic yard boxes or roll-off containers. Solid waste stored in cubic yard boxes must first be containerized in a 6-mil poly liner, and the box must be secured to a pallet. Roll-offs may only be used for solid material and shall have a 6-mil poly liner. Roll-offs must be covered to protect the waste from contact with rainwater. All waste storage containers must remain closed and secured except when adding materials to the container. All containers must be labeled as soon as the material is considered waste. The contractor must contact the Project Manager to obtain waste labels. Drums must be labeled with one label secured to the top $\frac{3}{4}$ of the drum, and the drum must be stored so that the labels are easily visible at all times. For cubic yard boxes, two labels must be attached on opposite sides of the container to the top $\frac{3}{4}$ of the box. The box must be stored so that the labels are easily visible at all times. All labels must have the words "Hazardous Waste", the contents of the container, the start date of accumulation and the applicable hazard class (e.g. flammable, toxic, corrosive). Waste containers must be stored in an area approved by the Project Manager, and shall not be moved from the approved site without his or her permission.

15.0 UNIVERSAL WASTE MANAGEMENT

The five waste streams that can be managed as universal waste in Connecticut include batteries, mercury containing devices, lamps, used electronics and pesticides. The Contractor is

responsible for containerizing these materials, and is responsible for the containers. The Contractor must notify the Project Manager when universal waste is generated. Universal waste batteries (each battery) or a container in which the batteries are contained must be labeled with a Universal Waste label with the contents identified and the date when the batteries were first added to the container. All mercury containing devices must be contained in a closed container and labeled with a Universal Waste label with the contents identified and the date when the devices were first added to the container. Universal waste lamps (each lamp) or a container in which the lamps are contained must be labeled with a Universal Waste label with the contents identified and the date when the lamps were first added to the container. Universal waste used electronics (each piece of equipment) or a container, package or pallet in which the used electronics are contained must be labeled with a Universal Waste label with the contents identified and the date when the electronics were first added to the container. A container of unused pesticide products must be labeled clearly with the label that was on the product when purchased and a Universal Waste label with the contents identified and the date when the product became waste.

16.0 RADIOACTIVE CONTAINING DEVICES

16.1 INTRODUCTION

Radioactive containing devices are commonly found in life safety devices including self-luminous exit signs and ionizing smoke detectors. These devices must be properly managed to ensure compliance with state and federal regulations.

16.2 SELF-LUMINOUS EXIT SIGNS

A self-luminous exit sign is a non-electrical device that uses radioactive tritium gas to produce light. The production and distribution of self-luminous signs is licensed by the U.S. Nuclear Regulatory Commission because they contain significant amounts of radioactive material. To ensure compliance with state and federal regulations is maintained, UNH must be aware of the locations of these signs. Tritium exit signs cannot be installed or replaced on UNH properties without proper approval, in writing, by UNH. If discovered during renovation projects, these signs must be collected by UNH at the time of their removal for proper disposal. If a sign is damaged or found damaged during construction, the UNH project manager must be contacted immediately.

16.3 IONIZING SMOKE DETECTORS

Ionizing smoke detectors contain Americium-241 (AM-241), a synthetic isotope which emits both alpha and gamma rays. If the smoke detector remains intact, the material poses little threat; however, if a detector is broken-open, it can present a health hazard. For this reason, the Connecticut DEEP strongly encourages proper management and disposal for these devices. If smoke detectors are installed or removed during renovation or construction projects, UNH must be notified for evaluation and approval of their intended use, or to make a determination of proper disposal methods if they are removed. If a smoke detector is damaged or found damaged during construction or renovation work, UNH must be notified.

17.0 ELECTRICAL BALLASTS

Electrical light ballasts manufactured prior to 1980 can contain polychlorinated biphenyls (PCBs) and are considered hazardous material. Spent light ballasts containing PCBs must be handled as hazardous waste. Ballasts that do not contain PCBs will state “No PCBs” on the ballast product label. If there is no information on the label regarding PCBs the ballast must be considered PCB containing. For better management practices and cost saving, PCB and non-PCB ballasts must be segregated during removal activities. Separate containers should be established for PCB and non-PCB ballasts and labeled appropriately. The Contractor must work with the Project Manager and University Health and Safety for disposal of electrical ballasts.

18.0 OIL CONTAINING EQUIPMENT

18.1 INTRODUCTION

The installation or removal of any oil-containing equipment that contains fifty-five (55) gallons or more of any type of oil triggers the requirement to update the UNH SPCC plan (see Section 18.3). The Contractor must notify the Project Manager of any changes to oil containing equipment. Waste oil and oil-contaminated debris are considered hazardous waste in Connecticut. Contractors are responsible to comply with all state and federal requirements for waste oil and oil-contaminated debris.

18.2 UST AND AST REMOVAL

UST and AST removal must be performed in conjunction with an Environmental Contractor, and must be performed in compliance with all state and federal regulations. The Environmental Contractor shall ensure that all analytical test methods used to characterize UST and AST closures are adequate to detect potential contaminants and having reporting limits below the criteria identified in the RSRs. If contaminated soil, contaminated ground water, or free product as a liquid or vapor is observed onsite or is detected by sample analysis, the CT DEEP Emergency Response Unit must be notified immediately at (860) 424-3338 and corrective action in accordance with Section 22a-449(d)-106 of the Underground Storage Tank Regulations must be undertaken. That section requires cleanup “to the satisfaction of the commissioner”, which means in accordance with the CT RSRs.

18.3 SPCC PLAN

UNH’s SPCC program establishes University-wide procedures for the prevention and detection of spills and/or releases of oil or hazardous materials. The UNH SPCC Plan must be reviewed by the Contractor and Project Manager prior to the start of a project. Based on the amount of oil that the contractor will bring onsite, the Contractor shall have available equipment (e.g. secondary containment pallets, adsorbent pads, absorbent booms, speedy-dry) that is suitable and sufficient to control a potential spill/release of petroleum products used during the project. The Contractor and the Project Manager are responsible for identifying environmental conveyances (e.g. sumps, storm/floor drains, etc.) and adequately minimizing spill potential to these areas. The Contractor is responsible for the proper storage of all petroleum products so as to prevent spills. The Contractor must use appropriate protective procedures such as secondary

containment, overflow protection, employee training, and other measures as part of activities involving the use, storage or handling of petroleum products or hazardous materials at UNH.

19.0 MOLD PREVENTION AND REMEDIATION

UNH maintains a written Mold Response and Remediation Plan that will be made available to the Contractors if mold is observed. When mold is expected, Contractors must safely investigate and evaluate mold and moisture problems to prevent exposures and minimize spreading mold spores. If mold, excess moisture or releases of water resulting in saturated building materials in interior areas occurs, they must be reported to the Project Manager immediately, identifying the presence, location and quantity of mold-contaminated materials. The Contractor shall not disturb moldy materials unless such activities are part of the contracted work and the contractor is listed as an approved mold remediation contractor in the Task Specific Contractors list. Mold requires moisture to grow, so any sources of excess moisture (e.g. leaky plumbing, ceilings or walls) must be repaired. Eliminating all mold growth and mold spores in the indoor environment is impossible; however, mold growth can be controlled indoors by controlling moisture indoors. A copy of the Mold Response and Remediation Plan may be obtained from the Project Manager.

20.0 PROJECT CONCLUSION

At the conclusion of a project, it is the responsibility of the Project Manager to ensure all project files are secured and maintained in a project folder (e.g. asbestos inspection results, lead inspection results, 10-day notification, clearance results, waste manifests). Completed project folders shall be retained in the UNH project records maintained within facilities. Completed folders must be organized by building, floor and project name. All Contractors are responsible for providing all project files at the completion of each project.