Guidance Document for Managing Hazardous Materials in IHS Buildings

Version 1.2

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BACKGROUND

Many of the IHS buildings were constructed during the time period when Asbestos, LBP, PCBs, and Mercury were commonly used/installed in buildings/building components/equipment. Management of hazardous materials in IHS facilities can be challenging due to the remote location of many of the facilities (specialized/abatement contractors, waste disposal facilities, training programs, etc. are not readily available).

As programs expand/change buildings require expansion, renovation, and/or demolition. The transfer of buildings to tribal entities (638/Compacting) will also include management, abatement, and/or environmental assessments/notification as part of that transfer process. In some instances regulations dictate how hazardous materials are managed, and in others "best management practices" provide guidance on how hazardous materials should be managed. The purpose of this document is to provide guidance on management of hazardous materials located in IHS buildings (Asbestos, LBP, PCBs, USTs, Mercury, etc.) during routine operations, renovations, demolitions, and transfers.

This document is presented in four sections based on the status of the building: Routine Building Operations, Renovation, Demolition, and Property Transfer. The hazardous materials issues and regulations that are associated with the activity are detailed in each section. The document was organized in this way to accommodate the target audience of building managers and supervisors. Section 1, Routine Building Operations, includes background information on each hazardous substances or regulation. This information is not repeated in the subsequent sections.

This document does not cover all environmental considerations associated with building management and property transfer. Rather, the scope is limited to the most common hazardous substances and associated regulations. Medical waste management is also not covered. Other environmental regulations that may impact building operations and transfers include but are not necessarily limited to the National Environmental Policy Act, National Historic Preservation Act, and the Floodplains and Wetlands Executive Orders. Facility managers should be knowledgeable of the applicable Federal, state, tribal, and local environmental laws and regulations that are not covered in this document and should consult with the appropriate regulatory agencies, if needed.

It should also be clearly understood that hazardous materials are still legally being used in commercial products/construction materials and that care needs to be taken when ordering/purchasing/specifying these materials. Many roofing products (mastics/wet patch, cement tiles, etc.), water piping (cement/tile piping), flooring products (mastics and tile), and numerous other materials contain asbestos. These products are frequently labeled as containing chrysotile mineral fibers (the label may not state asbestos). Chrysotile is a common form of asbestos that is legally used in numerous products. Some commercial paints (parking lot striping paint, marine paint, etc.) contain lead that is legal as long as it is not used on residences or other child occupied facilities. Although it may be “legal” to use these products it is not recommended and contract specifications should clearly state that asbestos (in any form) and lead-based paint are shall not be used in any construction/renovation projects. The architect and general contractor should be reminded of this at any pre-construction meetings. The general contractor needs to ensure that sub-contractors (roofers, flooring, painters, etc.) are provided with the same information concerning use of hazardous materials.

DEFINITIONS

I. Asbestos

Abatement – means the removal or encapsulation of asbestos-containing materials contained in buildings.

Asbestos-Containing Material (ACM) - means any material containing more than one percent asbestos.

AHERA – means the Asbestos Hazards Emergency Response Act.

Categories of Asbestos (applies to air emissions and disposal)-

Category I - nonfriable ACM - means asbestos-containing materials such as packings, gaskets, resilient floor covering, and asphalt roofing products containing more than 1 percent asbestos as determined using the method specified in 40 CFR Part 763, Appendix A, Subpart F, Section 1, Polarized Light Microscopy. This category contains ACM with the least potential to create an airborne hazard when disturbed.

Category II - nonfriable ACM means any material, excluding Category I nonfriable ACM, containing more than 1 percent asbestos as determined using the methods specified, in Appendix A, Subpart F, 40 CFR Part 763, Section 1, Polarized Light Microscopy that when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

Regulated Asbestos - containing materials (RACM) means (a) Friable asbestos material, (b) Category I nonfriable ACM that has become friable, (c) Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (d) Category II nonfriable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition.

Classes of Asbestos Work (OSHA Work Classes apply to renovation and construction)-

Class I Asbestos Work - means activities involving the removal of thermal system insulation (TSI), Fire Proofing/Sprayed on material, or Surfacing ACM. The highest level of workplace containment (high efficiency particulate air (HEPA) exhausted enclosure) and worker protection is required.

Class II Asbestos Work - means activities involving the removal of ACM, which is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.

Class III Asbestos Work - means repair and maintenance operations, where "ACM," including TSI and surfacing ACM and PACM, may be disturbed.

Class IV Asbestos Work - means maintenance and custodial construction activities during which employees contact but do not disturb ACM or PACM and activities to clean up dust, waste and debris resulting from Class I, II and III activities.

- **NOTE:** The removal of intact cements, coatings, mastics, & flashings during roofing work is not covered by the class system (limited controls are required - NESHAP Appendix A, Subpart M).

Demolition - involves the wrecking or taking out of any load-supporting structural members of the facility, whether or not there is regulated asbestos containing materials (RACM) on these members. Any related handling operations (such as clean-up of demolition rubble) or intentional burning of the facility are also subject to this definition.

Friable ACM - contains more than 1 percent asbestos and can be crumbled, pulverized, or reduced to powder by hand pressure. Examples include thermal system insulation, surfacing materials, and linoleum-backing material that has become friable. Some 'non-friable' materials may become friable when highly weathered or damaged, such as crushed asbestos siding, piping or transite panels.

Manage In Place - means to properly maintain ACM so that fibers are not released.

Operations and Maintenance (O&M) Plan - is a written document that specifies plans and procedures for inspecting, maintaining and abating ACM within a building.

Nonfriable ACM - contains more than 1 percent asbestos cannot be crumbled, pulverized, or reduced to powder by hand pressure. Examples include vinyl asbestos floor tiles, mastics, tars and cement type products (transite shingles, siding and water piping).

Presumed Asbestos-Containing Material (PACM) - means thermal system insulation and surfacing material found in buildings constructed no later than 1980 (when asbestos was banned from these particular products). The designation of a material as "PACM" may be rebutted following procedures specified in the standard.

Surfacing ACM - means material that is sprayed, troweled-on or otherwise applied to surfaces (such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, and other purposes) and that contains more than 1% asbestos.

Thermal System Insulation (TSI) ACM - means ACM applied to pipes, fittings, boilers, breeching, tanks, ducts or other structural components to prevent heat loss or gain and that contains more than 1% asbestos.

II. <u>Lead</u>

Abatement- means any measure or set of measures designed to permanently eliminate lead-based paint hazards. Note that abatement does not necessarily mean removal. Enclosure and encapsulation are acceptable means of abatement as long as they are designed to last at least 20 years (permanent controls). Also, abatement does not include renovation, remodeling, landscaping or other activities, when such activities are not designed to eliminate lead-based paint hazards, but, instead, are designed to repair, restore, or remodel a given structure or dwelling, even though these activities may incidentally result in a reduction or elimination of lead-based paint hazards.

Buyer - means the individual, tribe or other entity that is taking possession of a building.

Certified individual l- is a person or firm who has completed specified training and qualifications to perform inspections, risk assessment or abatement. Certifications include certified firm, certified inspector, certified abatement worker, certified project designer, certified risk assessor and certified supervisor.

Child-occupied facility - means a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days a week at least 3 hours a day. Child-occupied facilities may include day-care centers, preschools and kindergarten classrooms.

Lead-Based Paint Clearance Levels- are 40 micrograms lead per square foot (ug/ft^2) for floors, 250 ug/ft^2 for windowsills, 400 mg/kg for soil around children play areas, and 1,200 mg/kg for soil outside of play areas.

Target housing- means any housing constructed prior to 1978, except housing for the elderly or persons with disabilities (unless any child who is less than 6 years of age resides or is expected to

reside in such housing) or any zero-bedroom dwelling (efficiencies, studio apartments, dormitory housing, military barracks (see 40 CFR 745.103 for complete definitions).

III. PCBs

PCB- Polychlorinated Biphenyl.

PCB Transformer- means a transformer that contains 500 ppm or greater PCBs.

PCB-Contaminated Transformer- means a transformer that contains between 50 and 499 ppm PCBs.

Regulated PCB Waste- means any liquid or solid that contains greater than 50 ppm PCBs (note- some states regulate PCBs at levels below 50 ppm).

TSCA- Toxics Substances Control Act

IV. Mercury

HID- High Intensity Discharge Lamp

Mercury Containing Devices- includes devices, items, or articles that contain varying amounts of elemental mercury, including thermostats, barometers, manometers, temperature and pressure gauges, and mercury switches, such as light switches in automobiles. Other items currently classified as universal waste are batteries, thermostats, pesticides, and lamps.

Regulated Lamps- refer to the bulb or tube portion of electric lighting devices that have a hazardous component, usually mercury. Examples of common universal waste electric lamps include, but are not limited to, fluorescent lights, high intensity discharge, neon, mercury vapor, high-pressure sodium, and metal halide lamps.

V. Hazardous Waste

CESQG- conditionally exempt small quantity generator

EPA- Environmental Protection Agency

LQG- large quantity generator

RCRA- Resource Conservation and Recovery Act

SQG-small quantity generator

VI. Underground Storage Tanks

LUST- Leaking Underground Storage Tank

UST- Underground Storage Tank

VII. CERCLA

ASTM- American Society for Testing and Materials

ASTM Phase I Environmental Site Assessment- defined as good commercial and customary practice for conducting an environmental site assessment of a parcel of commercial real estate with respect to the range of contaminants within the scope of Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and petroleum products.

CERCLA- Comprehensive Emergency Response Compensation and Liability Act

Remediation – means the removal or reduction of hazardous substances or petroleum products to below levels of concern to human health or the environment.

SECTION 1: ROUTINE BUILDING OPERATIONS

ASBESTOS

Overview

Asbestos was used in a wide variety of building products. Intact and undisturbed asbestos materials generally do not pose a health risk. Asbestos materials become hazardous when, due to damage or deterioration, they release fibers into the air and are inhaled by building occupants. The fibers can accumulate in the lungs and lead to increased risk of respiratory disease and cancer. Ingestion is a secondary route of exposure, but typically only in highly contaminated environments. The following table lists some of these products that may be found in buildings. However, note that the list does not include every product/material that may contain asbestos.

List of Potential Suspect Asbestos - Containing Materials in Buildings

Cement Pipes	Elevator Brake Shoes
Cement Wallboard	HVAC Duct Insulation
Cement Siding	Boiler Insulation
Asphalt Floor Tile	Breaching Insulation
Vinyl Floor Tile	Ductwork Flexible Fabric Connections
Vinyl Sheet Flooring	Cooling Towers
Flooring Backing	Pipe Insulation (corrugated air-cell, block, etc.)
Construction Mastics (floor tile, carpet, ceiling tile, etc.)	Heating and Electrical Ducts
Acoustical Plaster	Electrical Panel Partitions
Decorative Plaster	Electrical Cloth
Textured Paints/Coatings	Electric Wiring Insulation
Ceiling Tiles and Lay-in Panels	Chalkboards
Spray-Applied Insulation	Roofing Shingles
Blown-in Insulation	Roofing Felt
Fireproofing Materials	Base Flashing
Taping Compounds (thermal)	Thermal Paper Products
Packing Materials (for wall/floor penetrations)	Fire Doors
High Temperature Gaskets	Caulking/Putties
Laboratory Hoods/Table Tops	Adhesives
Laboratory Gloves	Wallboard
Fire Blankets	Joint Compounds
Fire Curtains	Vinyl Wall Coverings
Elevator Equipment Panels	Spackling Compounds

Best Management Practices

In addition to the requirements listed in the following subsection:

Conduct complete asbestos surveys of each building.

Develop an asbestos operations and management (O&M) plan that details roles and responsibilities for managing asbestos in occupied buildings. The IHS asbestos management guidelines are incorporated by reference to the Environmental Protection Agency (EPA) manual entitled, "Managing Asbestos in Place – A Building Owner's Guide to Operations and Maintenance Programs for Asbestos Containing Materials (Green Book)". This EPA manual shall be used as the IHS standard for asbestos management. Information on this manual and other EPA asbestos manuals is available at the following internet link:

http://www.epa.gov/asbestos/pubs/buildings.html

Update surveys/drawings as asbestos is abated.

Damaged asbestos containing materials should be reported to facility maintenance and repaired immediately.

Abatement versus management in place decisions involves consideration of numerous factors including: planned use of the facility, renovation plans, demolition plans, transfer plans, funding availability, and likelihood of fiber release. When a fiber release occurs staff, visitors, and/or patients can be exposed. This can result in OSHA and/or EPA fines, liability issues, and will most likely become an employee moral issue.

The following table outlines three factors associated with the likelihood of fiber release: Condition of the ACM (good, damaged, or significantly damaged); Friability of the ACM (friable, or not friable); and Ongoing risk of exposure of the ACM to damage (high, moderate, or low). All three factors must be included in the decision process. Combinations that will likely result in fiber release need to be prioritized for abatement whereas combinations that result in unlikely release of fibers would be placed into a management in place program. Combinations that fall in the middle could be placed into either the abatement or management in place categories depending on funding availability, future renovation, demolition plans, and/or transfer plans.

Asbestos Abatement Matrix: IHS Managed Building

				Friable	**Non-Friable**
Condition of Asbestos Containing Material	Significant Damaged		Continued Exposure to damage	1	1
			No additional Exposure to damage	1	2
	Damaged		Continued Exposure to damage	1	2
			No additional Exposure to damage	2	3
	Good	Potential For Damage	High	1	1
			Moderate	2	3
			Low	3	3

1 – Highly recommended to Abate. O&M/Manage-in-place is an option but not recommended.
2 – Option to Abate or O&M/manage-in-place.
3 – Recommend O&M/manage-in-place.

The following definitions are contained in the Definitions section but are repeated here for clarity in use of the above table:

Friable asbestos-containing material (ACM) contains more than 1 percent asbestos and can be crumbled, pulverized, or reduced to powder by hand pressure. Examples include thermal system insulation, surfacing materials, and linoleum-backing material. Some 'non-friable' materials may become friable when highly weathered or damaged, such as crushed asbestos siding, piping or transite panels.

Nonfriable ACM contains more than 1 percent asbestos and cannot be crumbled, pulverized, or reduced to powder by hand pressure. Examples include vinyl asbestos floor tiles, mastics, tars and cement type products (transite shingles & siding, & water piping).

Requirements (29 CFR 1926.1101; 40 CFR 763; 40 CFR 61

Building owners often are the only and/or best sources of information concerning asbestos-containing materials in buildings. Therefore they are assigned specific information conveying and retention duties under the OSHA asbestos standard and EPA rules. Where a building/facility owner also is an employer with employees who may conduct asbestos-related activities, the duties of employers also apply. However, it is beyond the scope of this document to describe all requirements for asbestos workers and their employers. Facilities that have asbestos-trained employees (beyond awareness level) should consult the OSHA asbestos standard (29 CFR 1926.1101) for additional requirements.

- Building and facility owners must determine the presence, location, and quantity of asbestos-containing material (ACM) and presumed asbestos-containing material (PACM) and keep records of ACM/PACM. (As discussed under the definitions section, PACM consists of thermal insulation and surfacing materials applied prior to 1980).
- The following materials must be treated as asbestos-containing:

  Installed thermal system insulation (TSI) and sprayed-on or troweled-on surfacing materials in buildings constructed before 1981.

  Asphalt and vinyl flooring material installed before 1981.

  Any other materials that the building owner has actual knowledge that it is, or should have known it to be, asbestos-containing
- PACM may be refuted (or confirmed) by specified inspection and testing conducted per the Asbestos Hazard and Emergency Response Act (AHERA) asbestos inspection protocol.
- Asbestos surveys include analysis of bulk samples collected in the manner described in 40 CFR 763.86 (the AHERA standard). The survey must be conducted by an AHERA accredited inspector (763 Subpart E. App. C Asbestos Model Accreditation Plan).
- Analysis of samples must be performed by laboratories with proficiency demonstrated by current successful participation in a nationally recognized testing program such as the National Voluntary Laboratory Accreditation Program (NVLAP), the National Institute for Standards and Technology (NIST), the American Industrial Hygiene Association (AIHA) or an equivalent nationally-recognized round robin testing program.
- Sanding of asbestos-containing flooring material is prohibited. Specific procedures for asbestos-containing flooring are mandated (see 29 CFR 1910.1001(k)(7)(i) for specific procedures).
- Building owners must also:

Inform other employers, and their own employees who will perform housekeeping, or other ACM/PACM disturbance activities, of the presence and location of such materials, and provide asbestos hazard awareness training;

Inform prospective employers applying for or bidding for work whose employees reasonably can be expected to work in or adjacent to areas containing ACM/PACM;

Post signs at entrances to mechanical rooms/areas that contain ACM/PACM and that employees may enter; and,

Identify the location of ACM/PACM by labels or signs in other locations *where feasible*.

Signs and labels are readily available from safety supply stores.

The required wording for labels is:

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

- Employers must provide an asbestos awareness-training course for maintenance employees who may come in contact with ACM and employees who will perform housekeeping activities in an area containing ACM or PACM.
- Where a building owner has communicated and/or received notification concerning the identification, location, and quantity of ACM/PACM, written records of such notifications and their content must be maintained by the building owner for the duration of ownership and transferred to successive owners.
- Where a building owner has relied on data to demonstrate that PACM is not asbestos containing, such data must be maintained for as long as they are relied upon to rebut the presumption.
- While there are no legal mandates regarding abatement of damaged ACM, visible spills and releases that are not contained in the substrate (such as thermal system insulation spills that may occur under damaged piping) must be cleaned up immediately. Airborne exposures must also be maintained below the Permissible Exposure Limit of 0.1 fibers per cubic centimeter.

LEAD

Overview

Lead is toxic to human health when ingested or inhaled. In adults, exposures can result in nervous system disorders, high blood pressure, and kidney damage. Children are at higher risk of damage to the developing brain, which can result in learning disabilities, and to other organs.

The primary source of lead in buildings is from paint. Lead-based paint was banned from household paints in 1977. Since then, most paints have also been reformulated to remove the lead. However, lead-based paint may exist in homes built after1978 and in furniture and other objects that are imported from other countries. Lead may also be present in industrial coatings that are used for corrosion control, such as paint used on metal surfaces, and in traffic stripping paint.

Potential sources of lead exposure include lead contaminated dust, soil adjacent to buildings, and deteriorated paint in homes and buildings where lead-based paint was used. All buildings are subject to the OSHA lead standard. Some buildings owned by IHS are subject to lead-based paint hazard-reduction regulations issued by EPA and HUD. The regulations differ for commercial buildings (clinics, etc.) and housing.

Best Management Practices

- A lead-based paint inspection should be conducted throughout buildings constructed before 1978. Additionally, a lead-based paint risk assessment should be conducted in target housing and child-occupied facilities.
- Abate lead-based paint hazards in target housing, child occupied facilities and areas frequented by children (e.g., waiting rooms); conduct clearance sampling before reopening these areas.
- In other areas, stabilize (e.g., carefully scrape and recoat) significantly deteriorated lead-based paint.
- Perform abatement work with certified individuals and contractors (required in housing and child-occupied facilities). At a minimum, LBP work in IHS facilities should be performed by contractors or employees with adequate experience and training to ensure appropriate workplace rules are followed and any generated LBP waste is properly managed.
- Water fountains and cooking water sources in day care centers or health care centers that serve children should be checked for lead. Sources should be taken out of service if lead levels exceed 20 parts per billion (ppb). EPA provides additional guidance on the testing at its website (see http://www.epa.gov/safewater/schools/guidance.html#non).

Requirements (29 CFR 1926.62; 40 CFR 745; 24 CFR 35)

All Buildings

- The Lead and Copper Rule regulates lead and copper levels in drinking water. The action level for lead is 0.015 mg/l and for copper is 1.3 mg/l. There are no requirements for building owners or operators to test for lead in drinking water, unless the facility contains a public drinking water system or drinking water well. In such cases, refer to the EPA web site for a link to the rule and other details regarding testing frequency and requirements at
- http://www.epa.gov/safewater/lcrmr/implement.html.

- Certain water coolers were recalled by the Consumer Product Safety Commission in 1990 because they contained lead-lined tanks, lead-containing parts, or lead solder. EPA Fact Sheet 'Lead in Drinking Water Coolers (EPA810/F-90-021) contains a list of manufacturers and model numbers of recalled coolers. A list is also available on-line at http://www.vdh.state.va.us/dw/files/water_coolers.pdf.

Buildings Not Used as Housing

- No lead abatement actions are required during routine building operations. Worker safety and waste disposal requirements apply during maintenance, renovation and demolition if painted surfaces are disturbed.

Buildings Used as Housing

- HUD requires that lessees of federally owned housing sign a lead hazard notice & receive a pamphlet titled "Protect Your Family form Lead in Your Home". The notice and pamphlet can be downloaded at http://www.hud.gov/offices/lead/disclosurerule/index.cfm.
- If repairs or maintenance may impact lead painted surfaces greater than 2 square feet an EPA-certified inspector must inspect the area and workers and tenants must be notified of the activity. Refer to complete procedures in the section covering Renovation and Construction.

PCBs

Overview

The term PCB is the abbreviation for a class of chemicals, polychlorinated biphenyls. Their properties made them useful as dielectric fluid in various types of electrical equipment and heat transfer systems including transformers, fluorescent light ballasts, and capacitors. PCBs were also used in paints. PCBs are among the most stable chemicals known. They remain in the environment and are taken up and stored in the fatty tissue of organisms. PCBs are toxic to fish at very low concentrations.

Best Management Practices

Same as requirements listed below.

Requirements (40 CFR Part 761)

General

- Wastes containing greater than 50 parts per million (ppm) PCBs must be managed as PCB Wastes under the Toxics Substances Control Act (TSCA). Regulations are similar to hazardous wastes as described later in this section. PCB wastes may be stored for up to one year.
- Survey building for PCB transformers and large capacitors if the building was constructed before 1980.
- Spills greater than 1 pound (0.45 Kg) PCBs must be reported to the National Response Center at
- 1-800-424-8802
- Spills (e.g., leaking ballasts) must be cleaned to a concentration of 10 micrograms per 100 square centimeters for all solid surfaces.

PCB Ballasts (fluorescent light fixtures)

- Assumed to contain PCBs unless marked otherwise.
- Leaking ballasts must be removed and spills cleaned immediately.

Transformers

- A "PCB Transformer" contains 500 ppm or greater PCBs. These types of transformers must be inventoried, inspected and tracked. A "PCB-Contaminated Transformer" contains 50- 499 ppm PCBs. These must be properly managed during disposal. Finally, a "Non-PCB Transformer" contains less than 50 ppm PCBs. These are not regulated.
- Transformers made before 1980 must either be sampled for PCBs or are assumed to contain greater than 500 ppm PCBs, unless the transformer label or documentation indicates no PCBs.
- PCB transformers cannot be used near food handling areas, building vaults or other areas that may result in direct exposure to occupants in the event of a leak or fire.
- All PCB Transformers (500 ppm or greater PCBs) must be marked in accordance with EPA marking and labeling requirements
- Visual inspection of each PCB Transformer must be performed quarterly. Reduced (annual) inspection frequency applies to PCB Transformers that utilize secondary containment or contain less than 6 percent PCBs.
- Transformers with less than 3 gallons (11 liters) of fluids are exempt from surveys/inspections.

Capacitors

- Capacitors are categorized as "small" and "large." A small capacitor is defined as containing less than 3 pounds (1.35 Kg) of dielectric fluid while a large capacitor contains over 3 pounds ((1.35 Kg) or more of dielectric fluid. Small capacitors include ballasts used in lights. Large capacitors may be used with heavy equipment such as air conditioning compressors, phase converters and HVAC units.
- The use of large PCB Capacitors is prohibited unless the capacitor is used within a restricted access area.
- Capacitors made before 1980 should be assumed to contain PCBs unless marked otherwise.

MERCURY

Overview

Mercury is a central nervous system and brain toxin capable of impairing neurological development in children and damaging the central nervous system of adults. When released to the environment even in small quantities, it bioaccumulates reaching dangerous levels in fish at the top of the aquatic food chain. Thirty-seven states have issued fish consumption advisories due to mercury contamination.

The following mercury-containing devices may be found in buildings:

- Fluorescent Lamps
- High Intensity Discharge Lamps (mercury lights, street lights, security lights)
- Mercury-Containing Tilt Switches (e.g., freezer lamps, boiler control switches, some ‘soft’ light switches).
- Mercury-Containing Thermostats
- Silent Wall Switches

- Mercury-Containing Manometers/Barometers (blood pressure measuring devices)
- Thermometers
- Some pesticides, mildew resistant coatings, fungicides

Best Management Practices

A building survey to identify the location of mercury thermostats and other devices is recommended. Remove mercury devices and replace with non-mercury devices where possible. In particular, equipment with significant amounts of mercury should be targeted for replacement. These include manometers typically found in HVAC systems, and pressure switches and flow controllers found in boiler rooms. Also, low mercury content or so-called 'green-tip' lamps should be used when replacing fluorescent lamps. While manifests are not required for 'universal wastes' disposal records should be maintained.

Requirements (40 CFR Part 262)

There are no legal requirements for surveying mercury-containing equipment in buildings. However, when the equipment is replaced it typically must be managed as a universal waste. The universal wastes classification reduces the amount of regulations that apply to their disposal or recycling. Specific requirements include the following:

- Universal wastes may be stored on site for up to one year
- Universal wastes must be sent to a permitted hazardous waste facility or a recycler. However, no manifests are required.
- Containers of Universal wastes must be in good condition and labeled.
- Broken lamps and thermostats must be immediately cleaned up.

HAZARDOUS WASTE

Overview

The U.S. Environmental Protection Agency (EPA) regulates disposal of hazardous wastes under the Resource Conservation and Recovery Act (RCRA). A hazardous waste can be either a solid, liquid or gaseous material that is listed under EPA regulations as hazardous or meets certain generic characteristics that qualify the waste as hazardous (e.g., Corrosive, Ignitable, Reactive, Toxic (CIRT)).

Many building components and materials that may become a hazardous waste include PCB ballasts, pesticides, paints, solvents, cleaning agents, computer monitors, and boiler chemicals. Specialized operations such as laboratories may also produce waste chemicals and vehicle repair shops may produce spent petroleum products, parts cleaning fluids and used antifreeze. The waste generator is responsible for determining if a waste is hazardous and subject to RCRA regulations.

Best Management Practices

In addition to the requirements below:

- Use of a manifest or is recommended for CESQGs to track and ensure proper management of the waste.
- Do not accept free samples of chemicals from vendors.
- Purchase only what you need, even if larger quantities cost less; in the long run, the larger quantity will cost more to dispose of.
- Try to reduce, reuse, or recycle your waste instead of disposing of it.
- Carefully choose a vendor to recycle, treat or dispose of your waste.
- Train your workers and prepare for emergencies.
- Comply with other regulations pertaining to hazardous substances, pollutants, materials and wastes. These include health and safety, fire code, air pollution, surface and ground water, sanitary sewer and solid waste regulations.

Requirements (40 CFR Parts 238-282)

I. Generator Status

Responsibilities vary depending on the amount of hazardous waste generated monthly and accumulated at a facility. This information will determine if the facility is classified as a RCRA large quantity generator (LQG) small quantity generator (SQG) or conditionally exempt small quantity generator (CESQG).

- CESQG requirements (note: most IHS facilities are CESQGs): Identify all hazardous wastes generated and send them to authorized treatment or disposal facilities. CESQGs are not required to obtain an EPA identification number and use of uniform hazardous waste manifests is optional (however use is highly recommended).
- SQG requirements: Obtain an EPA identification number; dispose of hazardous waste at an authorized facility; label containers with the words “hazardous waste”, mark the waste accumulation start date on the container, and inspect the container weekly; submit biennial reports to EPA by March 1 of even numbered years.
- LQG Requirements: Comply with SQG requirements and additional training, contingency planning, record keeping, and reporting requirements.

Generator Type	Generation Per month	Accumulation at any time may not exceed:
CESQG	< 100 Kg (<220 lbs)	<1000 Kg (2,200 lbs)
SQG	100-1000 Kg (220-2,200 lbs)	600 Kg (13,200 lbs)
LQG	>1000 Kg (2,200 lbs)	N/A

Note: 220 lbs. is equal to slightly less than ½ drum of liquid waste; 2,200 lbs. is equal to approximately 4 drums of liquid waste. If you exceed the CESQG limits, you will be required to register as a SQG or LQG with the additional conditions and record keeping, so keep a close watch on accumulated amounts.

II. Hazardous Waste Disposal

For all types of generators, the following rules apply:

- Waste must be appropriately categorized as hazardous or non-hazardous following EPA protocol contained in 40 CFR 262.11.
- Hazardous waste must be treated or disposed of:

  By an EPA-permitted hazardous waste management facility, or

  At a facility which beneficially uses or legitimately recycles hazardous waste.
- Use of a uniform hazardous waste manifest is required for SQGs and LQGs.

UNDERGROUND STORAGE TANKS

Overview

Leaks from underground storage tanks (USTs) can contaminate groundwater, surface water and soils, potentially impacting public health and the human and wildlife environments. Gasoline leaks from USTs may also cause fires or explosions. Inhaling high concentrations of petroleum vapors can cause respiratory irritation and other health effects.

USTs must be managed in accordance with federal, state and local regulations. The definition of an UST includes all piping and appurtenances (piping and dispensers/fill pipes). The majority of USTs at IHS facilities store petroleum products used for building heat and are therefore exempt from most regulations. Check with the EPA if your UST is used for both heating and as fuel for emergency generators.

The following tanks are exempt from Federal UST regulations:

- Tanks with capacity less than 110 gallons (416 liters)
- Tanks used for storing heating oil for on-premises use
- Septic, wastewater and storm water tanks
- Tanks on or above the floor of underground areas, such as basements or tunnels

Best Management Practices

- Implement the same controls on exempt tanks as those used on non-exempt tanks; if there is a spill, enforcement will be the same as for a UST.

- Develop a Tank Management Plan:
  1) Current inventory of all tanks
  2) Records of notifications to the appropriate implementing agency (EPA, Tribe, state, etc.)
  3) Priority ranking system for tank closures
  4) Determination of available funding and schedules for UST projects
  5) Procedures for leak detection system monitoring and repairs
  6) Spill and release reporting procedures
  7) Records management system

Requirements (40 CFR Part 280)

I. Operating Requirements for regulated USTs

- Leak detection is required for tanks and associated piping.
- Secondary containment is required.
- Tanks must be constructed to prevent leaks due to structural failure or corrosion; tanks meeting Underwriters Laboratory and the National Fire Prevention Association (NFPA) specifications typically meet these requirements.
- New tanks must be certified during installation.
- Manage remediation of leaking USTs.
- Perform spill cleanup as needed.
- Out of service tanks must continue to be monitored (same requirements as in-use tanks) or meet permanent closure requirements.
- The Energy Policy Act of 2005 amends sections 9004 and 9005 of the Solid Waste Disposal Act (42 U.S.C. 6991c). Section 1528 of the act is specifically directed at Federal Agencies. In particular, Federal Agencies are going to be starting a collection of data about USTs they own or operate, or USTs that are located on land managed by the Federal Agency. The specific regulations that implement the Act are expected to be promulgated within the next year, and will be added to this manual.

II. Record Keeping

- IHS must maintain records demonstrating compliance with operating and closure requirements.
- USTs must be registered with EPA or the Implementing Agency. A comprehensive list of implementing agencies can be found at http://www.epa.gov/swerust1/states/index.htm.
- EPA or the Implementing Agency must be notified 30 days prior to permanent closure.

III. Spill Reporting

- Reportable Spills and Releases: Petroleum releases greater than 25 gallons (94 liters) to soil and any petroleum release to surface water that creates a 'visible sheen' must be reported.
- Report the release or suspected release to the EPA/Implementing Agency and the National Response Center (800-424-8802) within 24 hours.

REGULATED REFRIGERANTS

The Clean Air Act establishes regulations that:

- Require service practices that maximize recycling of ozone-depleting compounds (both chlorofluorocarbons [CFCs] and hydrochlorofluorocarbons [HCFCs] and their blends) during the servicing and disposal of air-conditioning and refrigeration equipment.
- Set certification requirements for recycling and recovery equipment, technicians, and reclaimers.
- Restrict the sale of refrigerant to certified technicians.
- Require persons servicing or disposing of air-conditioning and refrigeration equipment to certify to EPA that they have acquired recycling or recovery equipment and are complying with the requirements of the rule.

- Require the repair of substantial leaks in air-conditioning and refrigeration equipment with a charge of greater than 50 pounds.
- Establish safe disposal requirements to ensure removal of refrigerants from goods that enter the waste stream with the charge intact (e.g., motor vehicle air conditioners, home refrigerators, and room air conditioners).

Best Management Practices

The IHS refrigerant management guidelines are incorporated by reference to the General Services Administration (GSA), Public Buildings Service, Real Property Management and Safety document entitled, "Refrigerant Management Plan". This GSA document shall be used as the IHS standard for refrigerant management. Copies of the Refrigerant Management Plan can be obtained by calling GSA, Buildings Maintenance Branch, Facility Management Division, Office of Real Property Management and Safety, Washington, D.C., at (202) 501-0429. Additional information on regulations can be obtained at the following internet link:
http://www.epa.gov/spdpublc/title6/608/608fact.html#overview.

Requirements (40 CFR Part 82, Subpart F)

Same as above. Additional information on regulations can be obtained at the following Internet link:
http://www.epa.gov/spdpublc/title6/608/608fact.html#overview.

RADON

Radon is a gaseous radioactive element that naturally occurs in earth and rock beneath buildings, homes, and building materials. Radon in indoor air is estimated to cause about 21,000 lung cancer deaths (approximately 12% of all lung cancer deaths) each year in the United States. Symptoms and disease usually do not occur until many years (5-25) after exposure. The average indoor radon level is about 1.3 picocuries per liter (pCi/L) in the United States; the average outdoor level is about 0.4 pCi/L.

Best Management Practices

EPA has established a recommended indoor air Action Level of 4 picocuries of radon per liter of air (pCi/l). If the facility or housing is located in an area that is known to have moderate to high radon levels, testing should be done for airborne radon. (Radon maps are available via the EPA to determine if your facility is within a moderate or high-risk area (see http://www.epa.gov/radon/zonemap.html). Test kits can be obtained from certified laboratories or a consultant can be hired to perform testing.

Lists of firms that provide testing and mitigation services are available through the state contacts for radon listed above, and also via the National Environmental Health Association (www.neha-nrpp.org/) and Radon Safety Bard (www.nrsb.org). Testing should be done in 'worst-case' areas, such as occupied basements or lower floors.

If levels exceed 4 pCi/l, controls should be implemented to reduce radon levels. Selection of radon reduction methods depends on how the radon is entering the structure. For example, sealing cracks in floors and walls may help to reduce radon. There are also systems that remove radon from the crawl space or from beneath a concrete floor or basement slab that are effective at keeping radon from entering the structure.

Requirements (40 CFR 141)

There are no federal requirements for buildings to test for radon in air or drinking water. Contact your State Radon Contact (see http://www.epa.gov/iaq/whereyoulive.html) to determine if there are requirements associated with providing radon measurement and or radon mitigations/ reductions in your State. Some States maintain lists of contractors available or they have proficiency programs or requirements. EPA has issued regulations for public water systems. If the facility includes a public drinking water system, refer to the EPA web site for a link to the rule and other details regarding testing frequency and requirements: http://www.epa.gov/safewater/rads/radfr.pdf.

CHECKLIST1: EXISTING BUILIDINGS

Item	☑	NA	Comment
I. Asbestos			
A. Best Management Practices			
• Conduct complete asbestos surveys of each building			
• Develop an asbestos operations and management (O&M) plan that details roles and responsibilities for managing asbestos in occupied buildings.			
• Update surveys/drawings as asbestos is abated.			
• Abate asbestos based on risk to building occupants. (See matrix)			
B. Requirements			
• Determine the presence, location, and quantity of asbestos-containing material (ACM) and presumed asbestos-containing material (PACM) and keep records of ACM/PACM.			
• Asbestos surveys conducted by an AHERA accredited inspector			
• Analysis of samples performed by accredited laboratories			
• Sanding of asbestos-containing flooring material is prohibited.			
• Inform other employers and own employees who will perform housekeeping, or other ACM/PACM disturbance activities, of the presence and location of such materials.			
• Inform prospective employers applying for or bidding for work whose employees reasonably can be expected to work in or adjacent to areas containing ACM/PACM.			
• Post signs at entrances to mechanical rooms/areas that contain ACM/PACM where employees may enter.			
• Identify the location of ACM/PACM by labels or signs.			
• Releases (such as thermal system insulation spills) are cleaned up immediately.			
• Written records of ACM locations are maintained for the duration of ownership and transferred to successive owners.			
• Provide asbestos awareness-training course for maintenance employees who may come in contact with ACM and employees who will perform housekeeping activities in an area containing ACM.			
II. Lead			
A. Best Management Practice			
• Lead-based paint inspection conducted throughout buildings constructed before 1978			
• Lead-based paint risk assessment conducted in target housing and child-occupied facilities.			
• Abate lead-based paint hazards in target housing, child occupied facilities and areas frequented by children			
• Perform abatement work with certified individuals and contractors (required in housing and child-occupied facilities).			
• In other areas, stabilize (e.g., scrape and recoat) significantly deteriorated lead-based paint identified during inspections.			
• Test drinking water sources for lead in child-occupied facilities.			
B. Requirements- All Buildings			
• If lead paint is disturbed see Section 2 for OSHA requirements.			
• Lessee provided with USEPA approved lead hazard pamphlet.			
• Written acknowledgement of receipt for pamphlet obtained from purchaser.			
• If more than two square feet of painted surface will be disturbed HUD/EPA requirements apply- see Section 2.			

Item	☑	NA	Comment
Requirements—IHS Quarters/Target Housing			
III. PCBs			
A. Best Management Practice—Same as requirements			
B. Requirements			
• Wastes containing greater than 50 parts per million (ppm) PCBs managed as PCB Wastes.			
• Spills greater than 1 pound PCBs must be reported to the National Response Center at 1-800-424-8802			
• Spills cleaned to a concentration of 10 micrograms per 100 square centimeters for all solid surfaces. • Survey building for PCB transformers and large capacitors if the building was constructed before 1980.			
• Building complies with transformer requirements (see page 9 of document).			
• Building complies with capacitor requirements (see page 10 of document).			
III. Mercury			
A. Best Management Practice			
• Conduct building survey to identify the location of mercury devices.			
• Replace with non-mercury devices where feasible.			
B. Requirements (Universal Wastes)			
Wastes may be stored on site for up to one year.			
• Wastes sent to a permitted hazardous waste facility or a recycler.			
Containers in good condition and labeled.			
Broken equipment immediately cleaned up.			
IV. Hazardous Waste			
A. Best Management Practice			
• Use a manifest even if an exempt CESQG.			
• Do not accept free samples of chemicals from vendors.			
• Reduce, reuse, or recycle waste where feasible.			
• Qualify vendors based on compliance, insurance, etc.			
• Train workers and prepare for emergencies.			
B. Requirements			
• Identify all hazardous wastes and send to authorized facilities.			
• If facility generates above 220 pounds per month or stores more than 2,200 pounds of hazardous waste at any time (see page 12 of the document).			
V. Underground Storage Tanks- Requirements			
• Manage exempt tanks the same as regulated tanks.			
• Develop a Tank Management Plan.			
Leak detection for tanks and associated piping.			
Secondary containment for tank.			
• Tanks meet Underwriters Laboratory/NFPA specifications.			
• New tanks must be certified during installation.			
• Manage remediation of leaking USTs.			
• Perform spill cleanup as needed.			
• Out of service tanks must continue to be monitored or meet permanent closure requirements.			
VI. Regulated Refrigerants-Requirements			
• Regulated refrigerants are managed according to the GSA "Refrigerant Management Plan".			
VII. Radon			
• Conduct radon monitoring and implement controls as needed.			

Note: If no Best Management Practices are listed they are the same as Requirements.

SECTION 2: RENOVATION AND CONSTRUCTION

ASBESTOS

It is beyond the scope of this manual to detail all of the OSHA and EPA requirements for performing asbestos abatement during renovations. Refer to Appendix A for additional references and resources on compliance procedures. Additionally, in most IHS buildings this work is performed by outside contractors. Therefore, this discussion is limited to the specific requirements for building owners along with a general overview of worker safety requirements during renovation activities that involve or could impact ACM.

Best Management Practices

Same requirements listed below.

Requirements (29 CFR 1926.1101; 40 CFR 745; 40 CFR 61)

- Before work is begun, building/facility owners must identify the presence, location, and quantity of ACM and PACM in the areas where renovation will occur, and notify the following persons:
    - Prospective employers applying for or bidding for work whose employees reasonably can be expected to work in or adjacent to areas containing ACM.
    - Employees of the owner who will work in or adjacent to areas containing ACM.
    - On multi-employer worksites, all employers of employees who will be performing work within or adjacent to areas containing such materials.
    - Tenants who will occupy areas containing such materials.
    - Notification may be in writing or by personal communication to the affected person(s) or their authorized representatives.
- The asbestos inspection must be conducted by an Asbestos Hazardous Emergency Response Act (AHERA) certified asbestos inspector.
- If the renovation activity may damage or remove ACM, the material must be abated by certified asbestos workers. The standard defines asbestos work according to various classes and designates work procedures and protective measures according to the class of work.
- Performing asbestos abatement activities requires development of a detailed compliance program, implementation of medical monitoring, training, and air monitoring programs, and procurement of required equipment. Because of the expense and ongoing administrative requirements, many building managers opt to contract out all asbestos work to certified contractors. If work is to be performed in-house, refer to the detailed regulatory requirement links in Appendix A.
- Written notification is required to the regional EPA office or the local jurisdiction that has authority to enforce NESHAP requirements (City, County, State or Tribe) at least 10 days in advance of any renovation project which disturbs threshold amounts of RACM (260 linear feet, or 79 meters) of asbestos insulation on pipes or ductwork or 160 square feet (15 square meters) of asbestos containing material on any other component (walls, floors, ceilings etc.) or 35 cubic feet (3 cubic meters) of other RACM).

LEAD

Refer to Section 1 for an overview of lead hazards in buildings. The primary source of lead in buildings is from paint. Lead-based paint was banned from household paints in 1977. Since then, most industrial paints have also been reformulated to remove the lead. However, lead may still be present in coatings that require corrosion control, such as paint used on metal surfaces, marine environments, and in traffic stripping paint. Lead may also be found in older piping, roof flashing, radiology/dental wall shielding in healthcare facilities, and old toilet seat bases.

Best Management Practices

- As discussed under Section 1, Routine Operations, lead-based paint inspection should be conducted in buildings constructed prior to 1978.
- If not already done, abate LBP hazards in target housing, child-occupied facilities and areas frequented by children (e.g., waiting rooms) in buildings constructed prior to 1978 that will be impacted by renovation.
- In other areas, stabilize (e.g., scrape and recoat) significantly deteriorated lead-based paint within the area being renovated.
- Disturbance of LBP in target housing and/or child occupied facilities (renovation activities versus intentional abatement) should follow methods prescribed under abatement activities (wet methods, no sanding or dry scraping, using HEPA vacuums, etc).

Requirements- All Buildings (29 CFR 1926.62; 40 CFR 262; 40 CFR 745)

I. All Buildings

- OSHA regulations require that workers be protected against lead hazards.
    - Test for lead-based paint wherever renovation projects are scheduled that may disturb painted surfaces. Note: OSHA regulations apply to paint that contains any amount of lead, while EPA/HUD regulations apply only to paint that contains more than 0.5% by weight or 1.0 mg per square centimeter.
    - For work performed by IHS, implement protection measures for IHS employees. Contractors are responsible for implementing their own protection programs.
    - If the pre-job exposure assessment indicates that the permissible exposure limit (PEL) may be exceeded, a compliance plan must be developed and implemented to minimize and protect against exposures.
    - Initial respiratory protection requirements vary depending on the type of work activity.
    - Air monitoring may be required to evaluate controls and respiratory protection (initial and ongoing exposure assessments).
    - If exposures exceed the PEL other requirements apply, such as additional exposure controls, medical monitoring, recordkeeping and ongoing air monitoring. These will need to be paid under the buildings operating budget, so it is best to control the exposure wherever feasible.
    - OSHA requires notification of employees (yours and employees in adjacent areas) of potential exposure to lead – 1926.62 (e)(2)(ii)(H).

II. Commercial Buildings

- During renovation or construction there is no requirement to abate lead-based paint, or utilize certified contractors. However, OSHA worker safety and occupant notification requirements apply.
- For structures built before 1978, renovation wastes that contain significant amounts of painted materials need to be evaluated to determine if the wastes classify as hazardous due to the lead content. Depending on the work that will be done and prior to starting, you should consider your waste disposal options.
    - A composite sample is collected of the renovation wastes (e.g., wood, drywall, flooring, etc.). The composite should be representative of the overall waste stream.
    - The composite sample is analyzed for leachable lead by an accredited laboratory using the Toxicity Characteristics Leaching Procedure (TCLP) (40 CFR 261.24). If the result is less than 5 mg/l of lead, the waste is not hazardous.
    - The facility manager should compare the cost-benefit of the TCLP tests versus disposal of all generated waste as hazardous waste, particularly if there is only a small amount.

III. Target Housing

- For pre-1978 buildings, landlords are required to notify tenants about LBP unless a LBP inspection has been conducted and no LBP was detected.
- Wastes generated from abatement, renovation (e.g., replacing a door or window) and normal household maintenance are considered to be 'household hazardous wastes' and are not subject to EPA hazardous waste regulations. Check with local jurisdictions regarding how waste may be managed. Some local governments may require disposal as a hazardous waste.
- Wastes generated from construction activities (e.g., removing a wall to add an addition) must be evaluated to determine is waste is hazardous (see above).
- The EPA and HUD Requirements described below vary depending on if the work is **intentional abatement** versus incidental **renovation or construction activity.** Renovation activities may impact lead painted surfaces, but the primary objective is not to abate the lead paint. For example, a project that involves only scrapping or removal of LBP would be covered by the EPA/HUD regulations while replacement of a window that involves disturbance of LBP surfaces would not be covered.
- For pre-1978 buildings, there is no requirement to abate lead-based paint during **renovations**. However if **intentional abatement** of lead-based hazards is performed as part of the work, lead-based paint inspection, project design and work activities must be performed by certified individuals and contractors. Before beginning any renovation activities in target housing, the contractor (or IHS) shall:
    - Provide the occupant with the pamphlet, *Protect Your Family from Lead in Your Home* before work begins. (Pamphlet is available at the EPA website, http://www.pueblo.gsa.gov/cic_text/housing/finlead/leadhelp.html.
    - Obtain a written acknowledgement that the pamphlet was received. The following is a sample of language that could be used for such acknowledgments:

- "I have received a copy of the pamphlet, *Protect Your Family from Lead in Your Home*, informing me of the potential risk of lead hazard exposure from renovation activity to be performed in my dwelling unit. I received this pamphlet before the work began."

- The following table summarizes requirements and best management practices for IHS quarters and target housing only:

Lead-Based Paint Management
IHS Quarters/Target Housing

	HUD/EPA LBP Inspect Certified Insp.	**HUD/EPA LBP R.A. Certified R.A.**	**Notification Requirements**	**LBP Hazard Abatement Required**	**Clearance Testing**	**Notes**
Renovation & abatement is secondary activity	Inspect area to be Disturbed	HUD/EPA R.A. Protocol *Recommend EPA Worker Certification	Workers & Tenants notified	*Abatement of LBP Hazards recommended	HUD/EPA Clearance Protocol	Contract Specs should dictate requirements
Abatement is primary activity	Inspect area to be Disturbed	HUD/EPA R.A. Protocol EPA Certified Workers	Workers & Tenants notified	Abatement of LBP Hazards	HUD/EPA Clearance Protocol	Contract Specs should dictate requirements

Notes: R.A.—Risk Assessment

PCBS

Overview

The term PCB is the abbreviation for a class of chemicals, polychlorinated biphenyls. Their properties made them useful as dielectric fluid in various types of electrical equipment and heat transfer systems including transformers, fluorescent light ballasts, and capacitors. PCBs were also used in paints. PCBs are among the most stable chemicals known. They remain in the environment and are taken up and stored in the fatty tissue of organisms. PCBs are toxic to fish at very low concentrations.

Best Management Practices

Same as requirements listed below.

Requirements (40 CFR 262)

PCB ballasts, capacitors and transformers removed as part of the renovation activities must be disposed as hazardous wastes (see Section 1 for further discussion).

MERCURY

Overview

Mercury is a central nervous system and brain toxin capable of impairing neurological development in children and damaging the central nervous system of adults. When released to the environment even in small quantities, it bioaccumulates reaching dangerous levels in fish at the top of the aquatic food chain. Thirty-seven states have issued fish consumption advisories due to mercury contamination.

The following mercury-containing devices may be found in buildings:

- Fluorescent Lamps
- High Intensity Discharge Lamps (mercury lights, street lights, security lights)
- Mercury-Containing Tilt Switches (e.g., freezer lamps, boiler control switches, some 'soft' light switches).
- Mercury-Containing Thermostats
- Silent Wall Switches
- Mercury-Containing Manometers/Barometers (blood pressure measuring devices)
- Thermometers
- Some pesticides, mildew resistant coatings, fungicides

Best Management Practices

Same as requirements listed below.

Requirements (40 CFR 262)

Mercury-containing devices removed as part of the renovation must be disposed of as universal waste (see Section 1 for further discussion).

HAZARDOUS WASTE

Overview

The U.S. Environmental Protection Agency (EPA) regulates disposal of hazardous wastes under the Resource Conservation and Recovery Act (RCRA). A hazardous waste can be either a solid, liquid or gaseous material that is listed under EPA regulations as hazardous or meets certain generic characteristics that qualify the waste as hazardous (e.g., Corrosive, Ignitable, Reactive, Toxic (CIRT).

Many building components and materials that may become a hazardous waste include PCB ballasts, pesticides, paints, solvents, cleaning agents, computer monitors, and boiler chemicals. Specialized operations such as laboratories may also produce waste chemicals and vehicle repair shops may produce spent petroleum products, parts cleaning fluids and used antifreeze. The waste generator is responsible for determining if a waste is hazardous and subject to RCRA regulations.

Best Management Practices

Same as requirements listed below.

Requirements (40 CFR 262)

All hazardous waste must be relocated or disposed of in areas that will be impacted by renovation.

REGULATED REFRIGERANTS

The Clean Air Act establishes regulations that:

- Require service practices that maximize recycling of ozone-depleting compounds (both chlorofluorocarbons [CFCs] and hydrochlorofluorocarbons [HCFCs] and their blends) during the servicing and disposal of air-conditioning and refrigeration equipment.
- Set certification requirements for recycling and recovery equipment, technicians, and reclaimers.
- Restrict the sale of refrigerant to certified technicians.
- Require persons servicing or disposing of air-conditioning and refrigeration equipment to certify to EPA that they have acquired recycling or recovery equipment and are complying with the requirements of the rule.
- Require the repair of substantial leaks in air-conditioning and refrigeration equipment with a charge of greater than 50 pounds.
- Establish safe disposal requirements to ensure removal of refrigerants from goods that enter the waste stream with the charge intact (e.g., motor vehicle air conditioners, home refrigerators, and room air conditioners).

Best Management Practices

Same as requirements listed below.

Requirements (40 CFR Part 82, Subpart F)

Recycle or properly dispose of any regulated refrigerants that will be removed during the renovation.

CHECKLIST 2: RENOVATION AND CONSTRUCTION

Item	☑	NA	Comment
I. Asbestos-Requirements			
• Presence, location, categorization, and quantity of ACM and PACM are identified by an AHERA certified asbestos inspector in the areas where renovation will occur.			
• Contractor(s), tenants and building employees are notified about project in writing.			
• If the renovation activity may damage or remove ACM, the abatement will be done by certified asbestos workers and overseen by certified supervisor(s) and competent person(s).			
• Written notifications provided to regional NESHAP authority (EPA, State agency or Tribe) at least 10 days in advance of any renovation project. (See document for exempt quantities).			
II. Lead			
Best Management Practice			
• Conduct a lead-based paint (LBP) inspection in buildings constructed prior to 1978.			
• Abate LBP hazards in target housing, child-occupied facilities and areas frequented by children (e.g., waiting rooms) in buildings constructed prior to 1978 that will be impacted by renovation.			
• In other areas, stabilize (e.g., scrape and recoat) significantly deteriorated LBP within the area being renovated.			
• Disturbance of LBP in target housing and/or child occupied facilities (renovation activities versus intentional abatement) follows methods prescribed under abatement activities (wet methods, no sanding or dry scraping, HEPA vacuums, etc.).			
Requirements			
• Test for LBP conducted if project may disturb painted surfaces.			
• Employees are protected against lead hazards.			
• Pre-job exposure assessment conducted.			
• If assessment indicates permissible exposure limit (PEL) may be exceeded, compliance plan is developed that includes protective measures and air monitoring.			
• If exposures exceed the PEL additional compliance and exposure controls (as needed) are implemented.			
• Renovation wastes are tested for leachable lead and managed properly.			
• For target housing, if intentional abatement of lead-based paint/lead-based paint hazards will occur, lead-based paint activities are performed by certified individuals and contractors.			
• Lessees/Occupants of target housing provided with lead protection pamphlet, and written acknowledgement received.			
III. PCBs-Requirements			
• PCB ballasts, capacitors and transformers removed as part of the renovation activities must be disposed as PCB wastes.			
IV. Mercury-Requirements			
• Mercury-containing devices removed as part of the renovation must be disposed of as universal waste.			
V. Hazardous Waste-Requirements			
• Hazardous waste in areas impacted by renovation is relocated or disposed.			
VI. Regulated Refrigerants			
• Recycle or properly dispose of any regulated refrigerants that will be removed during the renovation.			

Note: If no Best Management Practices are listed they are the same as Requirements.

SECTION 3: DEMOLITION

ASBESTOS

Overview

Section 1 contains a general discussion of asbestos in buildings and the common types of materials that may contain asbestos. It is beyond the scope of this manual to detail all of the OSHA and EPA requirements for performing asbestos abatement during demolition. Additionally, demolition work is typically performed by outside contractors. Therefore, this discussion is directed to the general requirements for building owners during demolition projects.

Best Management Practices

All ACM waste, "regulated" or unregulated, should be disposed of in the same manner as "regulated" ACM waste.

Requirements

I. OSHA Regulations (29 CFR 1926.1101)

- The asbestos standard defines asbestos work according to various classes and designates work procedures and protective measures according to the class of work (see Section 2, Renovation for additional information).
- Before demolition work is begun, the building/facility owner must identify the presence, location, categorization, and quantity of ACM and PACM in the areas where demolition will occur.
- Asbestos inspections must be conducted by an AHERA certified asbestos inspector.

II. EPA Regulations (40 CFR 61 - NESHAP)

All buildings except private homes and apartment buildings with four or less living units are covered by the National Emissions Standards for Hazardous Air Pollutants (NESHAP).

NESHAP requires that all **regulated** asbestos-containing materials (see definitions section) be managed to prevent airborne release during demolition of a building. Non-regulated ACM may be left in place during demolition (provided that the landfill will accept these wastes and the non-regulated material will not be handled in a manner that will make it regulated).

- Asbestos survey requirements are the same as under OSHA. Notification must be made at least 10 days prior to demolition to the delegated state air pollution authority, except on Indian reservations, where notices are to be submitted to EPA.
- The notification requirement exists even if asbestos is NOT present.
- The notification requirement applies even to newer buildings.
- Asbestos wastes must be adequately wetted during transport and disposal.
- ACM waste must be properly disposed of in a permitted facility (States usually permit landfills for the types of materials that may be disposed of at that site).

Note- there are no permitted asbestos disposal facilities on Indian reservations (as of the date of this document). In the policy directive of October 23, 1991, to all Area Directors, the Director stated that ". . . IHS will be deemed in compliance with the Resource Conservation and Recovery Act (RCRA) only if the disposal site has a State permit or, if on trust land, is being operated in compliance with current EPA solid waste disposal criteria."

LEAD

Overview

Refer to section 1 for an overview of lead hazards. The primary source of lead in buildings is from paint. Lead-based paint was banned from household paints in 1977. Since then, most industrial paints have also been reformulated to remove the lead. However, lead may still be present in coatings that require corrosion control, such as paint used on metal surfaces, and in traffic stripping paint. Lead may also be found in older piping, roof flashing, and toilet seat bases.

Best Management Practices

- For structures built before 1978 with painted exterior siding, the soil immediately adjacent to the structure may be contaminated with lead.
    - Soil should be sampled for total lead content versus leachable lead.
    - A representative number of samples is needed to evaluate the extent of contamination, if any.
    - The EPA criteria for soil around the drip line of target housing/child occupied facility of 400 mg/kg may be used as a default cleanup criterion for soil along the drip line of buildings. However, it is best to check with tribal or state environmental authorities when determining site-specific cleanup levels, as requirements vary.

Requirements (29 CFR 1926.62 and 40 CFR 262)

- OSHA employee safety requirements are the same as during renovation. Refer to discussion in Section 2, Renovations.
- Demolition wastes containing painted surfaces should be evaluated to determine if the wastes classify as hazardous due to the lead content. While lead-based paints were banned for consumer use in 1978, commercial buildings (clinics, etc.) constructed after this date should also be subject to testing since the ban only applies to household paints.
    - While individual components may classify as hazardous waste (e.g., painted window sill) all of the building components that will be disposed in a construction landfill are considered when evaluating the lead concentration of the waste.
    - All landfills must have a state permit, or if on trust land, are operated in compliance with current EPA solid waste regulations. On-site landfills may not be used.
    - A composite sample is collected of the building components (e.g., wood, concrete, drywall, roofing, etc.). The composite should be representative of the overall waste stream. For example, in a wood frame building the sample should contain more uncoated wood from joists, beams, sills, etc. than coated wood from walls and exteriors.
    - The composite sample is analyzed for leachable lead by an accredited laboratory using the Toxicity Characteristics Leaching Procedure (TCLP). If the result is less than 5 mg/l of lead, the waste is not hazardous.
    - The facility manager should compare the cost-benefit of conducting TCLP testing versus disposal of all generated waste as hazardous waste.
    - If parts of the waste stream are to be recycled (e.g., concrete) these materials are not included in the composite sample.

- The following table summarizes requirements when demolishing IHS quarters or target housing:

Lead-Based Paint Management
IHS Quarters/Target Housing

Activity	HUD/EPA LBP Inspect Certified Insp.	Notification Requirements	Clearance Testing	Notes
Demolition	* Inspect Bldg. Inside & Outside	Workers & Adj. Tenants notified	HUD/EPA Soil Clearance in Housing Area	* Specify procedures in specifications

* Not required - good management practices highly recommended.

Notes: >R.A.—Risk Assessment
>Housing abatement debris is exempt from TCLP for lead – discuss with landfill manager prior to demo/disposal.
>Housing constructed after 1977 and pre-1978 housing that has been LBP inspected and certified as LBP-free are exempt.
* Not required - good management practices highly recommended.

PCBS

Overview

The term PCB is the abbreviation for a class of chemicals, polychlorinated biphenyls. Their properties made them useful as dielectric fluid in various types of electrical equipment and heat transfer systems including transformers, fluorescent light ballasts, and capacitors. PCBs were also used in paints. PCBs are among the most stable chemicals known. They remain in the environment and are taken up and stored in the fatty tissue of organisms. PCBs are toxic to fish at very low concentrations.

Best Management Practices

Same as requirements listed below.

Requirements (40 CFR 262)

All PCB ballasts, capacitors and transformers must be removed and disposed as hazardous wastes in buildings that will undergo demolition.

MERCURY

Overview

Mercury is a central nervous system and brain toxin capable of impairing neurological development in children and damaging the central nervous system of adults. When released to the environment even in small quantities, it bioaccumulates reaching dangerous levels in fish at the top of the aquatic food chain. Thirty-seven states have issued fish consumption advisories due to mercury contamination.

The following mercury-containing devices may be found in buildings:

- Fluorescent Lamps
- High Intensity Discharge Lamps (mercury lights, street lights, security lights)
- Mercury-Containing Tilt Switches (e.g., freezer lamps, boiler control switches, some 'soft' light switches).
- Mercury-Containing Thermostats
- Silent Wall Switches
- Mercury-Containing Manometers/Barometers (blood pressure measuring devices)
- Thermometers
- Some pesticides, mildew resistant coatings, fungicides

Best Management Practices

Same as requirements listed below.

Requirements (40 CFR 262)

All mercury-containing devices must be removed and disposed of as universal wastes (see Section 1) in buildings that are to be demolished.

HAZARDOUS WASTE

Overview

The U.S. Environmental Protection Agency (EPA) regulates disposal of hazardous wastes under the Resource Conservation and Recovery Act (RCRA). A hazardous waste can be either a solid, liquid or gaseous material that is listed under EPA regulations as hazardous or meets certain generic characteristics that qualify the waste as hazardous (e.g., Corrosive, Ignitable, Reactive, Toxic (CIRT).

Many building components and materials that may become a hazardous waste include PCB ballasts, pesticides, paints, solvents, cleaning agents, computer monitors, and boiler chemicals. Specialized operations such as laboratories may also produce waste chemicals and vehicle repair shops may produce spent petroleum products, parts cleaning fluids and used antifreeze. The waste generator is responsible for determining if a waste is hazardous and subject to RCRA regulations.

Best Management Practices

Same as requirements listed below.

Requirements (40 CFR 262)

All hazardous waste must be removed and disposed of prior to demolition.

UNDERGROUND STORAGE TANKS

Overview

Refer to Section 1 for a discussion of underground storage tanks.

Best Management Practices

- Permanently close all exempt tanks in addition to regulated USTs.

Requirements (40 CFR Part 280)

All regulated USTs must be removed and disposed of (permanently closed) when structures associated with the tank are to be demolished.

- The UST Implementing Agency (typically tribal authority or EPA, but may be the state) must be notified 30 days prior to permanent closure. A comprehensive list of implementing agencies is located at: http://www.epa.gov/swerust1/states/index.htm.
- A certified individual must oversee tank removal and closure.
- Sampling of soil beneath the tank and sometimes groundwater is required.
- Report detected contamination to the implementing agency.
- Cleanup contaminated soil and groundwater.

The following tanks are exempt from federal UST regulations:

- Tanks with capacity less than 110 (416 liters) gallons
- Tanks used for storing heating oil for on-premises use
- Septic, wastewater and storm water tanks
- Tanks on or above the floor of underground areas, such as basements or tunnels

REGULATED REFRIGERANTS

The Clean Air Act establishes regulations that:

- Require service practices that maximize recycling of ozone-depleting compounds (both chlorofluorocarbons [CFCs] and hydrochlorofluorocarbons [HCFCs] and their blends) during the servicing and disposal of air-conditioning and refrigeration equipment.
- Set certification requirements for recycling and recovery equipment, technicians, and reclaimers.
- Restrict the sale of refrigerant to certified technicians.
- Require persons servicing or disposing of air-conditioning and refrigeration equipment to certify to EPA that they have acquired recycling or recovery equipment and are complying with the requirements of the rule.
- Require the repair of substantial leaks in air-conditioning and refrigeration equipment with a charge of greater than 50 pounds.
- Establish safe disposal requirements to ensure removal of refrigerants from goods that enter the waste stream with the charge intact (e.g., motor vehicle air conditioners, home refrigerators, and room air conditioners).

Best Management Practices
Same as requirements listed below.

Requirements (40 CFR Part 82, Subpart F)
Recycle or properly dispose of any regulated refrigerants contained in building equipment.

CHECKLIST 3: DEMOLITION

Item	☑	NA	Comment
I. Asbestos			
Best Management Practice			
• ACM waste that is not "regulated" is disposed of in the same manner as "regulated" ACM waste.			
Requirements			
• Presence, location, categorization, and quantity of asbestos-containing material (ACM) and presumed asbestos-containing material (PACM) are identified by an AHERA certified asbestos inspector in the areas where demolition will occur.			
• Abatement performed by certified asbestos workers and overseen by certified supervisor(s) and competent person(s).			
• Written notice provided to NESHAP authority (EPA, State agency or Tribe) at least 10 days in advance of demolition even if no asbestos is present.			
• Asbestos wastes must be adequately wetted during transport and disposal.			
• ACM waste must be properly disposed of in a permitted facility (States usually permit landfills for asbestos).			
II. Lead			
Best Management Practice			
• For structures built before 1978, soil immediately adjacent to the structure is sampled for lead.			
• Detected soil contamination cleaned up to EPA Clearance levels or state standards if stricter.			
Requirements			
• Demolition wastes containing painted surfaces are subject to TCLP test. If test result exceeds 5 mg/kg painted debris is disposed of as a hazardous waste (residential demolition waste is exempt).			
• If demolition occurs within an area used for IHS quarters or target housing, soil is tested and cleaned to EPA Clearance levels or state standards if stricter.			
III. PCBs-Requirements			
• PCB ballasts, capacitors and transformers are disposed of as PCB wastes.			
IV. Mercury-Requirements			
• Mercury-containing devices are disposed of as universal wastes.			
V. Hazardous Waste-Requirements			
• Other hazardous substances are disposed as hazardous wastes.			
VI. Underground Storage Tanks (USTs)			
Best Management Practice			
• Permanently close all exempt tanks in addition to regulated USTs.			
Requirements			
UST implementing agency is notified 30 days prior to permanent closure			
• Certified individual oversees tank removal and closure.			
• Sampling of soil and/or groundwater conducted if required or if contamination is suspected.			
• Report detected contamination to the implementing agency.			
• Contaminated soil and groundwater are remediated.			
VI. Regulated Refrigerants			
Best Management Practice			
• Recycle or properly dispose of any regulated refrigerants in building equipment.			

Note: If no Best Management Practices are listed they are the same as Requirement

SECTION 4: BUILDING TRANSFER

The term 'transfer' means relinquishing ownership of the building to a tribal entity or designation of the property as excess or surplus. ('Excess' property is property is not being utilized or is underutilized. 'Surplus' property is property that will be made available for public benefit or sale). **IHS headquarters must be contacted to assist with additional legal requirements that are associated with a building transfer.** If the property is not being transferred to a tribal entity, the General Services Administration will manage property transfer, via IHS headquarters.

CERCLA AND ENVIRONMENTAL LIABILITIES

Overview

The Comprehensive Emergency Response Compensation and Liability Act (CERCLA) governs cleanup of contaminated property. The Act places liability on the party or parties that initially caused the contamination, and also to subsequent owners of the property if the contamination is not adequately addressed or controlled.

It should be noted that CERCLA does not govern building components such as asbestos, lead and mercury unless these materials have leaked in to the surrounding environment (primarily soil, surface water and groundwater).

CERCLA has specific requirements for federal agencies to identify and report environmental contamination and historical presence of hazardous substance activities. Finally, CERCLA provides limited liability protection for prospective owners ('buyers') of contaminated property provided 1) they did not cause the contamination; and 2) they conducted "all appropriate inquiries" into present and past uses of the property and the potential presence of environmental contamination on the property.

Best Management Practices

Same as requirements listed below.

Requirements (41 CFR 101-47.202)

I. Phase I Environmental Assessments

- The American Society for Testing and Materials (ASTM) Standard E1527-00 establishes the current standard for conducting Phase 1 Environmental Assessments. However, expanded requirements are being issued under the Small Business Liability Relief and Revitalization Act (the Brownfields Law).
- The Phase I Environmental Assessment involves research, interviews and record reviews but does not include physical sampling of building components or environmental media. Depending upon the results of the Phase I, Phase 2 sampling may be needed to confirm or deny the presence and extent of contamination.
- The Phase 1 also is required by federal agencies to identify any residual environmental issues (hazardous substances and petroleum) that may need to be addressed prior to transfer of the property, as required under CERCLA section 120(h)(4).

- A Phase I Environmental Assessment is required to satisfy the "all appropriate inquiry" requirement of CERCLA regarding past uses of the property that may have resulted in environmental contamination.

II. CERCLA Federal Property Transfer Requirements (CERCLA section 120(h); (42 U.S.C. section 9620(h))

- Federal law prohibits transferring property to a non-federal entity such as tribes until all environmental contamination is cleaned up (including petroleum substances and derivatives). There are certain exceptions to this rule for long-term cleanup activities as long as the federal agency maintains responsibility for the cleanup.
- Notice of Hazardous Substance Activity (CERCLA section 120(h)(1) and (3)): If hazardous substances *above reportable quantities*[1] were stored on the property for one year or more or were released or disposed of on the property, IHS must provide written documentation to the prospective purchaser consisting of:
    - The name of the hazardous substance, Chemical Abstract Services Registry Number (CAS Number), and RCRA hazardous waste number (40 CFR 261.30 where applicable.
    - Quantity in kilograms and pounds that was stored and/or released.
    - Time period that the substance was stored/released
    - Description of remedial action (if any).
    - A covenant attached to the deed warranting that any required remedial action necessary to protect human health and the environment has been taken and that any additional remedial action found necessary after the date of transfer shall be conducted by the United States.
    - A clause granting the United States access to the property should additional remedial actions be necessary.
    - The following statement: "The information contained in this notice is required under the authority of regulations promulgated under the section 120(h) of the Comprehensive Environmental Response Liability and Compensation Act (CERCLA)."
- Few IHS buildings store hazardous substances above CERCLA reportable quantities. While IHS buildings may contain PCBs and mercury above reportable quantities, these substances are typically in use and not in storage. Note that petroleum products are also not included under the definition of hazardous substances under CERCLA.

[1] A complete list of hazardous substances and reportable quantities are listed in 40 CFR section 302.4.

ASBESTOS

Section 1 provides an overview of asbestos hazards and the types of building materials that commonly contain asbestos.

Best Management Practices

- Conduct a survey (if not already done) and risk assessment of ACM in the building. Provide updated information on any areas that have been abated.
- Provide copies of asbestos management plan with a disclaimer that the document is for informational purposes only.
- The transferee should develop a plan specific to their use of the building. If the transferee is a tribe, assistance should be provided in developing an asbestos management plan before transferring the building, possibly through use of an asbestos consultant. Asbestos management guidelines are available in the Environmental Protection Agency (EPA) manual entitled, "Managing Asbestos in Place – A Building Owner's Guide to Operations and Maintenance Programs for Asbestos Containing Materials (Green Book)". Information on this manual and other EPA asbestos manuals is available at the following Internet link:

  http://www.epa.gov/asbestos/pubs/buildings.html

- Abatement versus management in place decisions involves consideration of numerous factors including: planned use of the facility, renovation plans, demolition plans, transfer plans, funding availability, and likelihood of fiber release. When a fiber release occurs staff, visitors, and/or patients can be exposed. This can result in OSHA and/or EPA fines, liability issues, and will most likely become an employee moral issue.
- The following table outlines three factors associated with the likelihood of fiber release: Condition of the ACM (good, damaged, or significantly damaged); Friability of the ACM (friable, or not friable); and Ongoing risk of exposure of the ACM to damage (high, moderate, or low). All three factors must be included in the decision process. Combinations that will likely result in fiber release need to be prioritized for abatement whereas combinations that result in unlikely release of fibers would be placed into a management in place program. Combinations that fall in the middle could be placed into either the abatement or management in place categories depending on funding availability, future renovation, demolition plans, and/or transfer plans.

Asbestos Abatement Matrix: IHS Transfer to Tribal Authority or Public

				Friable	Non-Friable
Condition of Asbestos Containing Material	Significant Damage		Continued Exposure to Damage	1	1
			No Additional Exposure to Damage	1	2
	Damage		Continued Exposure to damage	1	1
			No Additional Exp. to Damage	2	3/2*
	Good	Potential For Damage	High	1	1
			Moderate	1	3/2*
			Low	2	3

*If child occupied facility.

1 – Highly recommended to abate.
2 – Abatement desirable based on available budget and the potential impact if budget is not available for replacing removed materials that are integral to building safety or use (e.g., thermal insulation).
3 – Leave-in-place.

The following definitions are contained in the Definitions section but are repeated here for clarity in use of the above table:

Friable ACM contains more than 1 percent asbestos and can be crumbled, pulverized, or reduced to powder by hand pressure. Examples include thermal system insulation, surfacing materials, and linoleum-backing material. Some 'non-friable' materials may become friable when highly weathered or damaged, such as crushed asbestos siding, piping or transite panels.

Nonfriable ACM contains more than 1 percent asbestos cannot be crumbled, pulverized, or reduced to powder by hand pressure. Examples include vinyl asbestos floor tiles, mastics, tars and cement type products (transite shingles & siding, & water piping).

Requirements (41 CFR 101-47.304-13)

- There is no legal requirement or industry standards regarding the abatement of ACM prior to property transfer.
- The following information must be provided unless there is documentation that no ACM exists in the building:
    - Notification of the presence of ACM, if applicable.
    - Standardized language providing appropriate warnings, an invitation to inspect the subject property, and an exclusion of any warranties regarding the condition of the property:

Notice of the Presence of Asbestos--Warning!

(a) The Purchaser is warned that the property offered for sale contains asbestos-containing materials. Unprotected or unregulated exposures to asbestos in product manufacturing, shipyard, and building construction workplaces have been associated with asbestos-related diseases. Both the Occupational Safety and Health Administration (OSHA) and the Environmental Protection Agency (EPA) regulate asbestos because of the potential hazards associated with exposure to airborne asbestos fibers. Both OSHA and EPA have determined that such exposure increases the risk of asbestos-related diseases, which include certain cancers and which can result in disability or death.

(b) Bidders (Offerors) are invited, urged and cautioned to inspect the property to be sold prior to submitting a bid (offer). More particularly, bidders (offerors) are invited, urged and cautioned to inspect the property as to its asbestos content and condition and any hazardous or environmental conditions relating thereto. The disposal agency will assist bidders (offerors) in obtaining any authorization(s), which may be required in order to carry out any such inspection(s). Bidders (Offerors) shall be deemed to have relied solely on their own judgment in assessing the overall condition of all or any portion of the property including, without limitation, any asbestos hazards or concerns.

(c) No warranties either express or implied are given with regard to the condition of the property including, without limitation, whether the property does or does not contain asbestos or is or is not safe for a particular purpose. The failure of any bidder (offeror) to inspect, or to be fully informed as to the condition of all or any portion of the property offered, will not constitute grounds for any claim or demand for adjustment or withdrawal of a bid or offer after its opening or tender.

(d) The description of the property set forth in the Invitation for Bids (Offer to Purchase) and any other information provided therein with respect to said property is based on the best information available to the disposal agency and is believed to be correct, but an error or omission, including, but not limited to, the omission of any information available to the agency having custody over the property and/or any other Federal agency, shall not constitute grounds or reason

for nonperformance of the contract of sale, or any claim by the Purchaser against the Government including, without limitation, any claim for allowance, refund, or deduction from the purchase price.

(e) The Government assumes no liability for damages for personal injury, illness, disability or death, to the Purchaser, or to the Purchaser's successors, assigns, employees, invitees, or any other person subject to Purchaser's control or direction, or to any other person, including members of the general public, arising from or incident to the purchase, transportation, removal, handling, use, disposition, or other activity causing or leading to contact of any kind whatsoever with asbestos on the property which is the subject of this sale, whether the Purchaser, its successors or assigns has or have properly warned or failed properly to warn the individual(s) injured.
(f) The Purchaser further agrees that in its use and occupancy of the property it will comply with all Federal, State, and local laws relating to asbestos.

LEAD

Refer to Section 1 for an overview of lead hazards. The primary source of lead in buildings is from paint. Lead-based paint was banned from household paints in 1977. Since then, most industrial paints have also been reformulated to remove the lead. However, lead may still be present in coatings that require corrosion control, such as paint used on metal surfaces, and in traffic striping paint. Lead may also be found in older piping, roof flashing, and toilet seat bases.

Best Management Practices

I. Commercial Buildings (or areas of buildings that are not used as child-occupied facilities)

- Conduct lead-based paint survey and limited risk assessment to identify deteriorated paint.
- Stabilize deteriorated lead-based paint prior to transfer. This typically consists of removing deteriorated paint and recoating (encapsulation).

II. Target housing and child-occupied facilities

- In addition to required activities discussed above, abate lead-based paint hazards in all target housing and child occupied facilities (not just the pre-1960 housing). (Abatement work in all target housing/child occupied facilities must be conducted with certified individuals and contractors).
- Conduct clearance sampling before transferring the property.

Requirements 24 CFR 35 and 40 CFR 745

I. Commercial Buildings (or areas of buildings that are not used as child occupied facilities)

- There is no requirement to disclose the location of lead painted surfaces or control lead hazards prior to property transfer.

II. Target Housing and Child Occupied Facilities

- Housing/child occupied facilities constructed before 1960:
    - Conduct a lead based paint inspection and risk assessment (note: risk assessment. must be less than 12 months old at time of transfer).
    - Abate lead-based paint hazards.
    - Wastes generated from abatement activities are considered to be 'household hazardous waste' and are not subject to EPA hazardous waste regulations. Check with local jurisdictions regarding how waste may be managed. Some local plans may require disposal as a hazardous waste.
    - Conduct clearance sampling and assure lead levels are below applicable clearance levels before transferring the building.

- Abatement activities must be performed by certified individuals and contractors.

- Housing/child occupied facilities constructed after 1959 and before 1978:
  - Conduct a lead based paint inspection and risk assessment (note: risk assessment. must be less than 12 months old at time of transfer).
  - Provide results to transferee. IHS must permit the transferee a 10-day period (unless the parties mutually agree, in writing, upon a different period of time) to conduct their own risk assessment or inspection for the presence of lead-based paint and/or lead-based paint hazards. A transferee may waive the opportunity to conduct the risk assessment or inspection by so indicating in writing.
  - Also provide the transferee with other information concerning lead, including the following:
    - copies of any other records or reports available pertaining to LBP or LBP hazards in the target housing or child occupied facility
    - a copy of a USEPA approved lead hazard information pamphlet and statement by the purchaser affirming receipt of the information
    - A Lead Warning Statement consisting of the following language:

    "Every purchaser of any interest in residential real property on which a residential dwelling was built prior to 1978 is notified that such property may present exposure to lead from lead-based paint that may place young children at risk of developing lead poisoning. Lead poisoning in young children may produce permanent neurological damage, including learning disabilities, reduced intelligence quotient, behavioral problems, and impaired memory. Lead poisoning also poses a particular risk to pregnant women. The seller of any interest in residential real property is required to provide the buyer with any information on lead-based paint hazards from risk assessments or inspections in the seller's possession and notify the buyer of any known lead-based paint hazards. A risk assessment or inspection for possible lead-based paint hazards is recommended prior to purchase."

  - Signatures of the transferee certifying receipt of the lead information pamphlet, warning statement, and available reports.

- The following table summarizes requirements and recommendations when transferring IHS quarters or target housing:

Lead-Based Paint Management
IHS Quarters/Target Housing

Activity	HUD/EPA LBP Inspect Certified Insp.	HUD/EPA LBP R.A. Certified R.A.	Notification Requirements	LBP Hazard Abatement Required	Clearance Testing	Notes
Transfer of Pre-1960 Quarters	Inspect Building Inside & Outside	HUD/EPA R.A. < 12 months old	Transferee notified	Abatement of LBP Hazards	HUD/EPA Clearance Protocol	
Transfer of Post-1959 – Pre-1978 Qtrs.	Inspect Building Inside & Outside	HUD/EPA R.A. < 12 months old	Transferee notified	*Abatement of LBP Hazards	*HUD/EPA Clearance Protocol	*Liability high if LBP hazards are transferred.
Transfer of Post-1978 - new Quarters						

Notes: >R.A.—Risk Assessment
>Housing abatement debris is exempt from TCLP for lead – discuss with landfill manager prior to demo/disposal.
>Housing constructed after 1977 and pre-1978 housing that has been LBP inspected and certified as LBP-free are exempt.
* Not required - good management practices highly recommended.

PCBS

Overview
The term PCB is the abbreviation for a class of chemicals, polychlorinated biphenyls. Their properties made them useful as dielectric fluid in various types of electrical equipment and heat transfer systems including transformers, fluorescent light ballasts, and capacitors. PCBs were also used in paints. PCBs are among the most stable chemicals known. They remain in the environment and are taken up and stored in the fatty tissue of organisms. PCBs are toxic to fish at very low concentrations.

Best Management Practices
Remove any PCB transformers and large PCB capacitors. Inspect fluorescent light ballasts for deterioration/leakage and remove any damaged units. Disclose presence of PCB ballasts in lighting units (and transformers or large PCB capacitors if not removed) to the transferee.

Requirements
Decontaminate any surfaces impacted by PCB spills. There is no legal requirement or industry standard governing removal of all PCB ballasts, capacitors and transformers in buildings that will be transferred.

MERCURY

Overview

Mercury is a central nervous system and brain toxin capable of impairing neurological development in children and damaging the central nervous system of adults. When released to the environment even in small quantities, it bioaccumulates reaching dangerous levels in fish at the top of the aquatic food chain. Thirty-seven states have issued fish consumption advisories due to mercury contamination.

The following mercury-containing devices may be found in buildings:

- Fluorescent Lamps
- High Intensity Discharge Lamps (mercury lights, street lights, security lights)
- Mercury-Containing Tilt Switches (e.g., freezer lamps, boiler control switches, some 'soft' light switches).
- Mercury-Containing Thermostats
- Silent Wall Switches
- Mercury-Containing Manometers/Barometers (blood pressure measuring devices)
- Thermometers
- Some pesticides, mildew resistant coatings, fungicides

Best Management Practices

As discussed in Section 1, a survey to identify the location of mercury thermostats and other devices is recommended. Remove mercury devices and replace with non-mercury devices. In particular, equipment with significant amounts of mercury should be replaced with non-mercury devices when feasible. These include manometers typically found in HVAC systems, and pressure switches and flow controllers found in boiler rooms.

Requirements

There are no legal requirements for removal of mercury-containing devices in buildings that will be transferred.

HAZARDOUS WASTE

Overview

The U.S. Environmental Protection Agency (EPA) regulates disposal of hazardous wastes under the Resource Conservation and Recovery Act (RCRA). A hazardous waste can be either a solid, liquid or gaseous material that is listed under EPA regulations as hazardous or meets certain generic characteristics that qualify the waste as hazardous (e.g., Corrosive, Ignitable, Reactive, Toxic (CIRT).

Many building components and materials that may become a hazardous waste include PCB ballasts, pesticides, paints, solvents, cleaning agents, computer monitors, and boiler chemicals. Specialized operations such as laboratories may also produce waste chemicals and vehicle repair shops may produce spent petroleum products, parts cleaning fluids and used antifreeze. The waste generator is responsible for determining if a waste is hazardous and subject to RCRA regulations.

Best Management Practices

The industry standard is to remove all hazardous waste prior to transfer.

Requirements (40 CFR 262)

A property that contains hazardous waste can be transferred but the original owner (generator) remains liable for the safe and legal management of all hazardous waste. This is called the 'cradle to grave' liability requirement under RCRA.

UNDERGROUND STORAGE TANKS

Overview

Refer to Section 1 for a discussion of underground storage tank regulations. The following tanks are exempt from federal UST regulations:

- Tanks with capacity less than 110 (416 liters) gallons
- Tanks used for storing heating oil for on-premises use
- Septic, wastewater and storm water tanks
- Tanks on or above the floor of underground areas, such as basements or tunnels

Best Management Practices

- Permanently close any unregulated USTs that are no longer in active use.
- Provide information on UST systems, including engineering drawings, secondary containment design and any monitoring data.

Requirements (40 CFR Part 280)

- Permanently close any regulated USTs that are no longer in use.
- There are no requirements to remove USTs prior to transfer.
- Ensure existing USTs are in full compliance with regulations (see Section 1 for discussion).

REGULATED REFRIGERANTS

The Clean Air Act establishes regulations that:

Require service practices that maximize recycling of ozone-depleting compounds (both chlorofluorocarbons [CFCs] and hydrochlorofluorocarbons [HCFCs] and their blends) during the servicing and disposal of air-conditioning and refrigeration equipment.

Set certification requirements for recycling and recovery equipment, technicians, and reclaimers.

Restrict the sale of refrigerant to certified technicians.

Require persons servicing or disposing of air-conditioning and refrigeration equipment to certify to EPA that they have acquired recycling or recovery equipment and are complying with the requirements of the rule.

Require the repair of substantial leaks in air-conditioning and refrigeration equipment with a charge of greater than 50 pounds.

Establish safe disposal requirements to ensure removal of refrigerants from goods that enter the waste stream with the charge intact (e.g., motor vehicle air conditioners, home refrigerators, and room air conditioners).

Best Management Practices

Where feasible, recycle or properly dispose of any regulated refrigerants contained in building equipment and replace with non-regulated refrigerants.

Requirements

There are no specific regulations regarding building transfer.

RADON

Best Management Practices

Information regarding previous radon testing and installed control devices should be provided to the transferee.

Requirements (40 CFR 141)

There are no specific regulations regarding building transfer.

CHECKLIST 4: PROPERTY TRANSFER

Item	☑	NA	Comment
I. CERCLA- Requirements			
• Written documentation certifying adequate cleanup added to deed if hazardous substances above reportable quantities were stored on the property for one year or more, or if spills occurred above reportable quantities. (See document for further discussion).			
II. Asbestos			
Best Management Practice			
• Building survey and risk assessment of ACM conducted.			
• Asbestos abated based on risk to building occupants. Refer to matrix in document.			
• Current asbestos surveys (showing remaining ACM) and management plan provided to transferee.			
• If transferee is a tribal entity, provide assistance in developing an Asbestos Management Plan for their use.			
Requirements			
• Standardized notification provided if ACM is present in building. See document for required content.			
III. Lead			
Best Management Practice			
• In commercial buildings, lead-based paint survey and identification of deteriorated paint conducted. Deteriorated lead-based paint stabilized (remove or recoat) prior to transfer.			
• Lead-based paint hazards abated and clearance-sampling levels achieved in <u>all</u> target housing and child occupied facilities (not just pre-1960 housing).			
Requirements-- Target Housing and Child Occupied Facilities constructed before 1960:			
• Lead based paint inspection and risk assessment conducted within 12 months of transfer.			
• Lead-based paint hazards abated and clearance-sampling levels achieved before transferring building.			
• Abatement activities performed by certified individuals and contractors.			
Requirements-- Target Housing/Child Occupied Facilities constructed after 1959 and before 1978:			
• Lead based paint inspection and risk assessment conducted Within 12 months of transfer.			
• Results provided to 'purchaser' at least 10 days prior to transfer.			

• Purchaser provided with:
  • copies of any other records or reports available pertaining to LBP or LBP hazards;
  • USEPA approved lead hazard pamphlet
  • Lead Warning Statement (see document)			

• Written acknowledgement of receipt for above documents obtained from purchaser.			
IV. PCBs- Best Management Practice			
PCB transformers and large PCB capacitors removed.			
Fluorescent light ballasts inspected for deterioration/leakage and damaged units removed.			
Surfaces impacted by PCB spills decontaminated.			
Potential presence of PCB ballasts in lighting units disclosed to the 'buyer'.			

Note: Best Management Practices are the same as requirements if none are listed.

V. Mercury- Best Management Practice			
• Survey conducted to identify location of mercury thermostats and other devices • Mercury devices removed and replace with non-mercury devices where damaged or otherwise hazardous.			
• Purchaser provided with information on any mercury devices left in the building.			
VI. Hazardous Wastes- Best Management Practice			
• All hazardous waste removed from property.			
VII. Underground Storage Tanks (USTs)			
Best Management Practice			
• Unregulated USTs no longer in use are permanently closed			
• Information on UST systems, including engineering drawings, secondary containment design and any monitoring data are provided to purchaser.			
Requirements			
• Permanently close any regulated USTs that are no longer in use.			
• Ensure existing USTs are in full compliance with regulations.			
VI. Regulated Refrigerants- Best Management Practice			
• Where feasible, recycle or properly dispose of any regulated refrigerants in building equipment.			
VII. Radon- Best Management Practice			
• Information regarding previous radon testing and installed control devices provided to the transferee			

APPENDICES

to the

Guidance Document for Managing Hazardous

MATERIALS IN IHS BUILDINGS

Version 1.2

January 2006

Appendix A
Regulatory References and Hyperlinks

To open hyperlinks, use *control* key and left click with mouse.

A. EPA:

If using a hard copy, type in http://www.epa.gov/epahome/cfr40.htm to access 40 CFR and then type in the section number in the search field.

a. AHERA 40 CFR 763:
http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=401d1fa5a85e820674e669b8a3edf23b&rgn=div5&view=text&node=40:30.0.1.1.18&idno=40

b. NESHAP 40 CFR 61:
http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=25dbd6e82b0e52bcdc393588fde21734&rgn=div5&view=text&node=40:8.0.1.1.1&idno=40

c. RCRA 40 CFR 260 to 265
http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?sid=401d1fa5a85e820674e669b8a3edf23b&c=ecfr&tpl=/ecfrbrowse/Title40/40cfrv25_02.tpl

d. Lead Based Paint – 40 CFR 745
http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=401d1fa5a85e820674e669b8a3edf23b&rgn=div5&view=text&node=40:30.0.1.1.13&idno=40

e. USTs 40 CFR 266-282
http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?sid=401d1fa5a85e820674e669b8a3edf23b&c=ecfr&tpl=/ecfrbrowse/Title40/40cfrv26_02.tpl

f. PCBs 40 CFR 761
http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=401d1fa5a85e820674e669b8a3edf23b&rgn=div5&view=text&node=40:30.0.1.1.17&idno=40

g. Federal Property Transfers 41 CFR 101-47.202
http://a257.g.akamaitech.net/7/257/2422/14mar20010800/edocket.access.gpo.gov/2002/02-30051.htm

h. CERCLA 42 USC 103
http://www.access.gpo.gov/uscode/title42/chapter103_.html

i. EPA Regional Offices
http://www.epa.gov/epahome/locate2.htm

B. OSHA

If using a hard copy, type in http://www.osha.gov/comp-links.html to access 40 CFR and select 'OSHA Regulations (Standards 29 CFR)'

a. Asbestos 29 CFR 1926.1101
http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10862

b. Lead 29 CFR 1926.62
http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10641

c. OSHA Regional Offices
http://www.osha.gov/html/RAmap.html

C. HUD

If using a hard copy, type in http://www.hud.gov/offices/lead/ and select rule from menu on left side of page.

a. Lead Based Paint Disclosure Rule 24 CFR part 35, Subpart A
http://www.hud.gov/offices/lead/1018/subpart_a.pdf

b. Lead Based Paint Safe Housing Rule 24 CFR part 35, Subparts B-R
http://www.hud.gov/offices/lead/leadsaferule/title24_whole.pdf

D. American National Standards Institute

a. Standard E1527-00, Standard Practice for Environmental Site Assessments. This is a copyrighted document; copies may be downloaded at: http://webstore.ansi.org/ansidocstore/product.asp?sku=ASTM+E1527%2D05 at a cost of $44.00.

Appendix B
National Emission Standard For Hazardous Air Pollutants (NESHAP)
U.S. Environmental Protection Agency

Topic I. NESHAP Applicability for Demolition & Renovation

All Structures (Buildings, Water Towers, Treatment Plants, Bridges, etc.) except for free standing residential with 1-4 units in the single structure. (40 CFR Part 61.145)
Single housing/residence exemption – If you have more than one house/residence in a project they are not exempt.

1. **Thorough Inspection (40 CFR Part 61.145(a))**
   The EPA requires that a thorough inspection be conducted prior to demolition or renovation of any structure for the presence of asbestos, including Category I and Category II nonfriable ACM. There is no cut-off date for conducting this thorough inspection – even new buildings are required to have this thorough inspection prior to demolition or renovation.

   Note: There is no required protocol for how this "thorough" inspection is to be conducted. The EPA just requires that you (owner) be correct. You could take no samples and rely on construction documents or you could take 100 samples which are all negative. Either way, if you are wrong you will be fined. Hire a competent and experienced certified asbestos inspector. A good inspector will follow the AHERA sampling protocol as a minimum. Include AHERA certification and AHERA sampling protocol into the asbestos inspection specifications.

2. **NESHAPs Notification (40 CFR Part 61.145 (a) (2)**
   The EPA requires that a NESHAP notification be filed with the Regional EPA Office at least 10 working days before the start of **any demolition** (see definitions section for explanation of the term) even when no asbestos is identified. Some Counties/Cities/Tribes require local NESHAP notification.

   The EPA requires that a NESHAP notification be filed with the Regional EPA Office at lest 10 working days before the start of **any renovation where threshold** amounts of RACM will be disturbed (160 square feet (79 square meters) 260 linear feet on pipes (79 meters), or 35 cubic feet (3 cubic meters). It is highly recommended that a courtesy NESHAP notification be submitted to the EPA even if threshold amounts will not be disturbed during the renovation project. If you find additional RACM during the project and stay below 20% above what was initially reported then you will not have to stop for 10 working days to renotify.

   The notice must contain the start date of disturbance activities, name, address, location, phone number, contractor, inspector, work practices, etc. The EPA must be notified if the start date is changed (see the full regulation for additional notification requirements related to changing the start date). NESHAP notification forms are available on the internet (www.taiinfo.com – the Asbestos Institute in Phoenix, Arizona, is a good source for asbestos information, regulations, training classes, etc.).

Note: This is the "Owners" responsibility and the "Owner" will be fined by EPA for failure to notify (Strict Liability). The "Owner" may contractually have the demolition/renovation contractor submit the notice but the "Owner" will still be fined if the contractor does not submit the notice accordingly. The "Owner" can hold the contractor liable but EPA will still collect the fine from the "Owner". If you have the contractor fulfill the notification requirements ensure that the contractor be required by the specifications to provide the "Owner" with a copy of the NESHAP notice at the time that they submit it to the EPA.

3. **Procedures for asbestos emission control (40 CFR 61.145(c))**
   If threshold amounts of RACM are disturbed/removed then a competent person (contractor/supervisor certified) must be on site at all times and all requirements of this section apply (see full regulation for details).

   If threshold amounts of RACM are disturbed/removed the EPA requires that all RACM or materials that will become RACM during the demolition/renovation be removed prior to demolition or renovation.

4. **Storage, Transportation, & Disposal of ACM Waste (40 CFR Part 61.150)**
   If threshold amounts of RACM are disturbed/removed the EPA requires:
   (a) Discharge no visible emissions,
   (b) Prompt disposal of ACM waste,
   (c) Placard on vehicles during loading/unloading,
   (d) Waste shipment records/manifests.

5. **Appendix A to Subpart M -- Interpretive Rule Governing Roof Removal**.
   This Appendix provides information on when Cat I & Cat II roofing materials are exempted from the NESHAP requirements. Highly recommended reading for roofing projects involving disturbance of Cat I and/or Cat II materials.

   Go to: http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=7a5d7ae1766796abc395943524f12f38&rgn=div9&view=text&node=40:8.0.1.1.1.13.1.19.1&idno=40.

6. **Definitions**
   Category I nonfriable asbestos-containing material (ACM) means asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than 1 percent asbestos as determined using the method specified in 40 CFR Part 763, Appendix A, Subpart F, section 1, Polarized Light Microscopy.
   * Typically includes: floor tile & mastic, asphalt roofing products & patching.

   Category II nonfriable ACM means any material, excluding Category I nonfriable ACM, containing more than 1 percent asbestos as determined using the methods specified in 40 CFR Part 763, Appendix A, Subpart F, section 1, Polarized Light Microscopy that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

* Typically includes: cement type products (transite shingles & siding, & water piping).

Regulated asbestos-containing material (RACM) means (a) Friable asbestos material, (b) Category I nonfriable ACM that has become friable, (c) Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (d) Category II nonfriable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations regulated by this subpart.
* Includes all asbestos products (Cat I, II and/or RACM) that are or will become friable.

7. Summary

NESHAP is a pollution prevention and waste disposal regulation. It is not a worker protection regulation.

Category I and Category II materials are minimally regulated if you do not make them RACM.
Good management practice will dictate that you handle/transport/dispose of Category I and Category II materials above what is "required" by the EPA.
"Federal Facility Dumps Asbestos in Local Landfill" makes good press – even if it is legal.

RACM is heavily regulated when you hit the threshold amounts (160 square feet (79 square meters) 260 linear feet on pipes (79 meters), or 35 cubic feet (3 cubic meters).

Internal renovation projects can trigger the notification threshold amounts in two ways:
1. Individual project results in disturbance of threshold amounts of RACM.
2. Ongoing O&M projects (cumulative) result in disturbance of threshold amounts of RACM in the calendar year (January 1 – December 31).

This requires a beginning of year (blanket O&M) type of notice.

Appendix C
Asbestos Hazard Emergency Response Act (AHERA)
U.S. Environmental Protection Agency

Topic I. AHERA Applicability

AHERA was originally written to address the identification and management of asbestos in schools. It also included training and certification of persons who conducted asbestos related work (inspections, management, O&M, etc…). The scope was to be expanded to commercial buildings at a later date which has not "formally" occurred.

1. **Inspection/Sampling Protocol (40 CFR 763.85 – 763.88)**

   The AHERA regulation includes a very specific protocol for asbestos inspections which may prove that a building material is not asbestos. By law AHERA applies only to schools. This asbestos inspection protocol has become the asbestos "industry standard" for all building inspections (commercial, private, residences, etc…). Failure to follow/meet this "industry standard" would constitute substandard performance for asbestos inspections.

   Include AHERA certification and AHERA sampling protocol into any asbestos inspection specifications.

   Asbestos Inspectors need to be certified by the EPA (some States require State certification) for results to be meaningful.

2. **Laboratory Requirements (40 CFR 763.87)**

   Laboratories must be accredited for results to be meaningful (look for National Voluntary Laboratory Accreditation Program (NVLAP) accreditation for asbestos Polarized Light Microscopy, Phase Contrast Microscopy, and/or Transmission Electron Microscopy analysis).

   Many laboratories over-estimate the quantity of Asbestos in a sample (report the asbestos content at 2-5% Chrysotile). If the sample were point counted (greatly improves the accuracy of the sampling procedure) the asbestos content may very likely be < 1% , which means that the material is no longer classified as asbestos.

   Point Counting – The laboratory should be directed to point count all samples less than 10% asbestos. Some labs charge more per sample for point counting but the cost is quickly offset if any materials are found to be < 1% (you get what you pay for – a cheap lab fee could increase management/abatement/disposal costs by a factor of 10).

   Floor Tile – Floor tile is particularly difficult to analyze using standard PLM procedures (PLM looks for bundles and in floor tile the asbestos fibers are broken into smaller pieces which are below the visual threshold using PLM). At a minimum floor tile should be analyzed using the modified PLM (gravimetry) procedure and may need to be analyzed using the TEM procedure.

3. Clearance Sampling (40 CFR 763.90 and Appendix A)

Clearance sampling is done by visually inspecting a site to ensure that the ACM was completely removed. If the site passes visual clearance then air samples are collected under aggressive sampling conditions (leaf blower is used to stir up any settled dust/fibers) to ensure that the site meets the clearance criteria for occupancy.

The clearance criteria should be clearly outlined in the project specifications (fibers/cc, sample locations/numbers/laboratory time, etc…) to avoid misunderstandings. Clearance sampling must be conducted by an entity that is independent of the abatement/general contractor.

4. Documenting New Construction as Asbestos Free (40 CFR 763.99(7))

Prior to awarding a contract for design and/or to build, a statement should be added that requires that the Architect and Contractor sign a document (at the completion of the project) stating that no asbestos containing products were specified and to the best of their knowledge no asbestos containing products were used.

During construction spot inspections should be performed to ensure that ACM products are not being used. Products that frequently have asbestos include roofing mastics, flooring mastics, and some floor tiles. Most ACMs are labeled as containing "Chrysotile Mineral Fibers" and not as containing "Asbestos Fibers".

5. Ten Elements of O&M (40 CFR 763.91)

i. Notification & Labeling
ii. Training & Periodic Surveillance
iii. Employee Protection Programs
iv. Special Cleaning Procedures
v. O&M Work Permit System
vi. Special Work Practices - Abatement
vii. Special Work Practices - Renovation
viii. Emergency Response Procedures
ix. Periodic Surveillance
x. Recordkeeping

6. Management Plans (40 CFR 763.93)

Management plans utilize the results of inspection reports to outline procedures to be followed during preventive maintenance, O&M, renovation, & abatement activities.

A thorough asbestos inspection is required for a management plan to be effective. Once all the asbestos in the building is identified, managers can develop work practices for certain areas and/or materials.

7. Definitions

AHERA has some terminology that is meaningful only to schools (i.e., Asbestos Containing Building Materials (ACBM)). Asbestos containing material that was put on the exterior of school buildings (other than HVAC) was exempted from management plans under AHERA. These materials are not exempted from OSHA or NESHAP regulations.

8. Summary

AHERA is an asbestos identification, management, and training/certification regulation. The AHERA sampling protocol is the standard used by the asbestos industry.

There is a new ASTM standard that is under development, but until that is fully developed/reviewed/approved by the regulation community we need to continue to use the AHERA protocol.

Appendix D
ASBESTOS INFORMATION SHEET
List of OSHA And EPA Standards And Associated References

OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION

Construction Industry Standard (29 CFR 1926.1101)

http://www.osha-slc.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10862&p_text_version=FALSE

Asbestos Construction Standard
App A Air Sampling - Mandatory
App B Air Sampling/Analysis - Non-Mandatory
App C Qualitative/Quantitative Fit Testing
App D Medical Questionnaire - Mandatory
App E Interpretation/classification of chest x-rays
App F Work Practices/Eng. Controls - Non-Mandatory
App G Reserved
App H Substance Technical Info - Non-Mandatory
App I Medical Surveillance Guide - Non-Mandatory
App J Smoking cessation - Non-Mandatory
App K PLM of Asbestos - Non-Mandatory

29 CFR 1926.1101 - Asbestos Construction Standard
(a) **Scope and application**
(b) **Definitions**
(c) **Permissible exposure limits (PELS)**
(d) **Multi-employer worksites**
(e) **Regulated areas**
(f) **Exposure assessments and monitoring**
(g) **Methods of compliance -** Engineering controls and work prohibitions.
(4) **Class I Requirements**
(7) **Class II work**
(8)(i) For removing vinyl and asphalt flooring materials which contain ACM
(8)(ii) For removing roofing material which contains ACM
(8)(iii) Cementitious asbestos-containing siding and shingles or transite panels
(8)(iv) Removing gaskets
(g)(9) **Class III asbestos work**
(10) **Class IV asbestos work**
(h) **Respiratory protection**
(i) **Protective clothing**
(j) **Hygiene facilities and practices for employees**
(k) **Communication of hazards**
(l) **Housekeeping**
(m) **Medical surveillance**

(n) **Record keeping**
(o) **Competent person**
(p) **Appendices**

OSHA General Industry Standard (29 CFR 1910.1001)

http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9995&p_text_version=FALSE

ENVIRONMENTAL PROTECTION AGENCY

EPA Regional and State Asbestos Contacts
http://www.epa.gov/asbestos/pubs/regioncontact.html

EPA General Asbestos Links
http://www.epa.gov/asbestos/

NESHAPS (40 CFR Part 61, Subpart M)

http://www.epa.gov/asbestos/pubs/neshap.html (Note- if link does not work copy into browser).

Part 61 - NESHAPs Subpart M -- National Emission Standard for Asbestos

61.140 Applicability.
61.141 Definitions.
61.142 Standard for asbestos mills.
61.143 Standard for roadways.
61.144 Standard for manufacturing.
61.145 Standard for demolition and renovation.
61.146 Standard for spraying.
61.147 Standard for fabricating.
61.148 Standard for insulating materials.
61.149 Standard for waste disposal for asbestos mills.
61.150 Std for waste disposal for manufacturing, fabricating, demolition, renovation, & spraying operations.
61.151 Standard for inactive waste disposal sites for asbestos mills and manufacturing and fabricating operations.
61.152 Air-cleaning.
61.153 Reporting.
61.154 Standard for active waste disposal sites.
61.155 Std for operations that convert asbestos-containing waste material into nonasbestos (asbestos-free) material.
61.156 Cross-reference to other asbestos regulations.
61.157 Delegation of authority.
Appendix A to Subpart M -- Interpretive Rule Governing Roof Removal Operation

AHERA - 40 CFR PART 763 - ASBESTOS
http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?idno=40;region=DIV1;type=boolean;c=ecfr;cc=ecfr;sid=2ba9638ae914a02fd8ec8a91acdd28e2;q1=Part%20763;rgn1=Section;op2=and;rgn2=Section;op3=and;rgn3=Section;rgn=div5;view=text;node=40%3A30.0.1.1.18 Note- If link does not work copy web address directly into browser.

PART 763—ASBESTOS

• 763.80	Scope and purpose.
• 763.83	Definitions.
• 763.84	General local education agency responsibilities.
• 763.85	Inspection and reinspections.
• 763.86	**Sampling.**
• 763.87	**Analysis.**
• 763.88	Assessment.
• 763.90	Response actions.
• 763.91	Operations and maintenance.
• 763.92	Training and periodic surveillance.
• 763.93	Management plans.
• 763.94	Recordkeeping.
• 763.95	Warning labels.
• 763.97	Compliance and enforcement.
• 763.98	Waiver; delegation to State.
• 763.99	Exclusions.
• APP A to Subpart E	Interim Transmission Electron Microscopy Analytical Methods--Mandatory and Nonmandatory--and Mandatory Section to Determine Completion of Response Actions
• APP B to Sub E	Reserved
• APP C to Sub E	Asbestos Model Accreditation Plan
• APP D to Sub E	Transport and Disposal of Asbestos Waste
• APP E to Sub E	Interim Method of the Determination of Asbestos in Bulk Insulation Samples
• 763.120	What is the purpose of this subpart?
• 763.121	Does this subpart apply to me?
• 763.122	What does this subpart require me to do?
• 763.123	States own asbestos worker protection plan?
• 763.160	Scope.

- 763.163 Definitions.
- 763.165 Manufacture and importation prohibitions.
- 763.167 Processing prohibitions.
- 763.169 Distribution in commerce prohibitions.
- 763.171 Labeling requirements.
- 763.173 Exemptions.
- 763.175 Enforcement.
- 763.176 Inspections.
- 763.178 Recordkeeping.
- 763.179 Confidential business information claims.

OTHER INFORMATION RESOURCES

Accredited Labs

PLM Test Method
http://ts.nist.gov/ts/htdocs/210/214/scopes/plmtm.htm

TEM Test Method
http://ts.nist.gov/ts/htdocs/210/214/scopes/temtm.htm

"The Asbestos Institute" www.TAIINFO.com
Phoenix Arizona
Resources and Training

GSA POLICY ON ASBESTOS

http://www.gsa.gov/Portal/gsa/ep/contentView.do?programId=8363&channelId=-13907&ooid=8571&contentId=11185&pageTypeId=8195&contentType=GSA_BASIC&programPage=%2Fep%2Fprogram%2FgsaBasic.jsp&P=PLAE

Asbestos Management

GSA's Public Buildings Service (PBS) minimizes asbestos exposure to all building occupants by implementing Asbestos Management Plans in its buildings.

Asbestos is a mineral found in certain kinds of rock formations. It makes an excellent insulation material and is heat, fire, and corrosion resistant. Asbestos exposure may cause asbestosis, lung cancer, and mesothelioma. Asbestos fibers are durable and can lodge and remain in the body for many years. Diseases caused by asbestos may not show symptoms for 20 years after exposure. A safe exposure threshold for asbestos has not been established, but the risk of disease generally increases with the length and amount of exposure.

Potential sources of asbestos exposure includes pipe insulation, boiler insulation, welding curtains, corrugated paper products used for insulating against heat or cold, caulking putties, adhesives, joint compounds, floor tiles, linoleum, acoustical plaster and ceiling tiles.

Undisturbed asbestos generally does not pose a health risk. Human exposure only occurs when asbestos is disturbed causing fibers to be released into the air and then inhaled.

GSA's Asbestos Management Plans are building specific and address the types of asbestos containing materials (ACM), the quantity and the location. GSA minimizes asbestos exposure to building occupants by:

- managing ACM in place as long as it is in good visual condition;
- abating ACM that is damaged or subject to disturbance;
- complying with OSHA and EPA regulations, standards and guidance on the management, handling, transportation and disposal of ACM. (All GSA, PBS acquisitions are subject to these regulations, standards and guidance);
- using products that do not contain ACM in GSA construction, renovation or repair projects;
- requiring qualified persons do the initial and follow up visual inspections in determining the location and condition of ACM; and
- promoting openness in communication with customers, regulatory agencies, the public and other interested parties during asbestos related repair, renovation and abatement projects.

Appendix E

RCRA Regulatory Requirements for Hospitals

Requirements for Regulated Health Care Facilities

The following table presents an overview of the federal RCRA regulatory requirements for hospitals that are either LQGs, SQGs, CESQGs, SQHUWs, or LQHUWs. These regulations are found in the Code of Federal Regulations (CFR), Title 40; specific part numbers are provided below where regulations apply. As noted, your state might have different or more stringent requirements.

RCRA REGULATORY REQUIREMENTS BY GENERATOR STATUS

REGULATORY REQUIREMENT	LQG	SQG	CESQG	SQHUW	LQHUW	IMPLEMENTATION EXPLANATION
EPA Identification Number	✓ 262.12	✓ 262.12	NA	NA	✓ 273.32	• Obtain an EPA identification number for each facility within your company. EPA and states use this 12-character identification number to track hazardous waste activities. • Obtain an EPA identification number by submitting form 8700-12 (Notification of Regulated Waste Activity), which is provided by your state hazardous waste agency. This is a one-time notification. Contact your state regarding the need for renotification if circumstances at your facility change. • **Universal Waste** - *LQHUW must have sent written notification of universal waste management to the Regional Administrator, and received an EPA Identification Number, before meeting or exceeding the 5,000 kilogram storage limit.*
Hazardous Waste Identification	✓ 262.11	✓ 262.11	✓ 262.11	NA	NA	• Identify whether you generate hazardous waste to determine if you are subject to the RCRA hazardous waste regulations. Usually, hospitals generate listed hazardous wastes, including P-listed acutely hazardous wastes (such as epinephrine (P042), ethylene oxide (U115), expired pharmaceuticals, and chemotherapy drugs (seven are P-listed). See 40 CFR Part 261.33.
Used Oil Standards	✓ 279.1	✓ 279.1	✓ 261.6(a)(4) 279	NA	NA	• Hospitals may generate used oil from maintenance of fleet vehicles such as ambulances.
Waste Counting	✓ 262.11	✓ 262.11	✓ 262.11 261.5	NA	NA	• Determine how much hazardous waste you generate to determine your generator status.
Accumulation Area	✓ 262.34	✓ 262.34	NA	NA	NA	• You can accumulate waste in a "satellite accumulation area" with minimal regulatory burden. This area must be at or near the point of generation and under the control of the operator of the process generating the waste. For hospitals, separately-located doctors' offices, morgues, dentists' offices, and outpatient facilities are some examples of satellite areas. • There is no time limit on accumulation in the satellite accumulation area for waste under 55 gallons. • There is a 55-gallon accumulation limit in the satellite accumulation area. Excess waste beyond the 55-gallon limit must be moved from the satellite accumulation area within 3 days. • You must accumulate the waste in containers. • Waste containers must be marked with the words "Hazardous Waste" or other words that identify their contents. • This waste is exempt from other accumulation provisions while in the satellite accumulation area.
Other Accumulation Areas (Time and Quantity Limits)	✓ 262.34 NA	✓ 262.34 (d) NA	✓ 261.5	✓ 273.15	✓ 273.35	• If waste accumulation does not meet the requirements for satellite accumulation, it is subject to more stringent requirements. LQGs can accumulate waste on site for up to 90 days without a permit. SQGs can accumulate waste for 180 days, or 270 days if the SQG must transport the waste more than 200 miles to a destination facility. • Begin counting accumulation time when waste is first placed in the accumulation unit. • Waste must be put in an exempt unit, recycled, or sent off site within the proper time period stated above. • If an LQG accumulates wastes beyond the allotted time period, the facility is fully subject to the requirements of a hazardous waste storage facility unless granted an exemption. SQGs cannot accumulate more than 6,000 kg of hazardous waste at any time. • CESQGs cannot accumulate more than 1,000 kg of hazardous waste, more than 1 kg of acutely hazardous waste, or 100 kg of spill residue from acutely hazardous waste at any time. • **Universal Waste** - *SQHUWs and LQHUWs may accumulate universal waste for no longer than one year from the date the universal waste is generated, or received from another handler.*
Storage Unit Requirements	✓ 265.171 264 subpart DD	✓ 265.171 264 subpart DD	NA	NA	NA	• Accumulate waste only in units that are in good condition, remain closed except when adding or removing waste, are inspected at least weekly, are compatible with the types of waste, and meet special standards for ignitable waste and incompatible waste. • LQGs can use accumulation tanks and containers that have been assessed for integrity, have a secondary containment system, and are inspected each operating day. SQGs can use certain accumulation tanks as well. • LQGs can use containment buildings as well. • For all units, the date that the accumulation period begins must be clearly marked and visible on each container. All containers and tanks must be clearly marked or labeled with the words "Hazardous Waste" and accumulation units must be shut down and closed permanently in accordance with standards at the end of the unit life. • LQGs and SQGs can treat their waste without a RCRA storage permit in accumulation units that meet standards.
Air Emissions	✓ 264 subpart AA and BB	NA	NA	NA	NA	• LQGs must comply with air emissions requirements. Hospitals with incinerators must comply with Clean Air Act requirements for Hospital/Medical/Infectious Waste Incinerators.
Preparedness and Prevention	✓ 264 subpart C	✓ 264 subpart C	NA	NA	NA	• LQGs and SQGs must comply with preparedness and prevention requirements, including the following. — An adequate internal alarm or communications system. — A device capable of summoning emergency personnel. — Portable fire control equipment. — Adequate water pressure to operate fire control systems — Adequate testing and maintenance of all emergency systems. — Access to communication or alarm systems during waste handling activities. — Adequate aisle space for emergency response. — An arrangement with local emergency response authorities.
Contingency Plan	✓ 264 subpart D	✓ 264 subpart D	NA	NA	NA	• LQG facilities must prepare a facility contingency plan in accordance with regulations. • The contingency plan must be designed to minimize hazards from fires, explosions, or any unplanned release of hazardous waste or constituents. • A copy of the contingency plan must be kept on site and an additional copy must be submitted to all local emergency services providers. • LQGs and SQGs must have an emergency coordinator on site or on call at all times to respond to emergencies. • Emergency response information must be posted next to the telephone. • In the event of a fire, explosion, or release that could threaten human health outside the facility or when a spill has reached surface water, the emergency coordinator must notify the National Response Center at 800 424-8802.
Personnel Training	✓ 262.34 (d)(5)(iii)	✓ 262.34 (d)(5)(iii)	NA	✓ 273.16	✓ 273.36	• LQGs must have a personnel training program in accordance with regulatory standards. — Training must instruct facility personnel about hazardous waste management procedures and emergency response. — Training must be completed within 6 months from the applicability of requirements. — The facility must undertake an annual review of initial training. • SQGs must ensure that all employees are thoroughly familiar with proper waste handling and emergency procedures relevant to their responsibilities. • ***Universal Waste*** - *SQHUW must inform all employees who handle UW of the proper handling and emergency procedures appropriate to the type(s) of universal waste. LQHUWs must ensure that all employees are thoroughly familiar with proper waste handling and emergency procedures.*
DOT Packaging	✓ 49 CFR 173, 178, 179	✓ 262.34 CFR 173, 178, 179	✓ NA	273.52(a)	273.52(a)	• Before being transported, waste must be packaged, labeled, and marked in accordance with applicable DOT requirements. Call the DOT hazardous materials information line at 202 366-4488 for more information. • ***Universal Waste*** - *All UW handlers must comply with all applicable U.S. Department of Transportation regulations in 49 CFR part 171 to 180.*

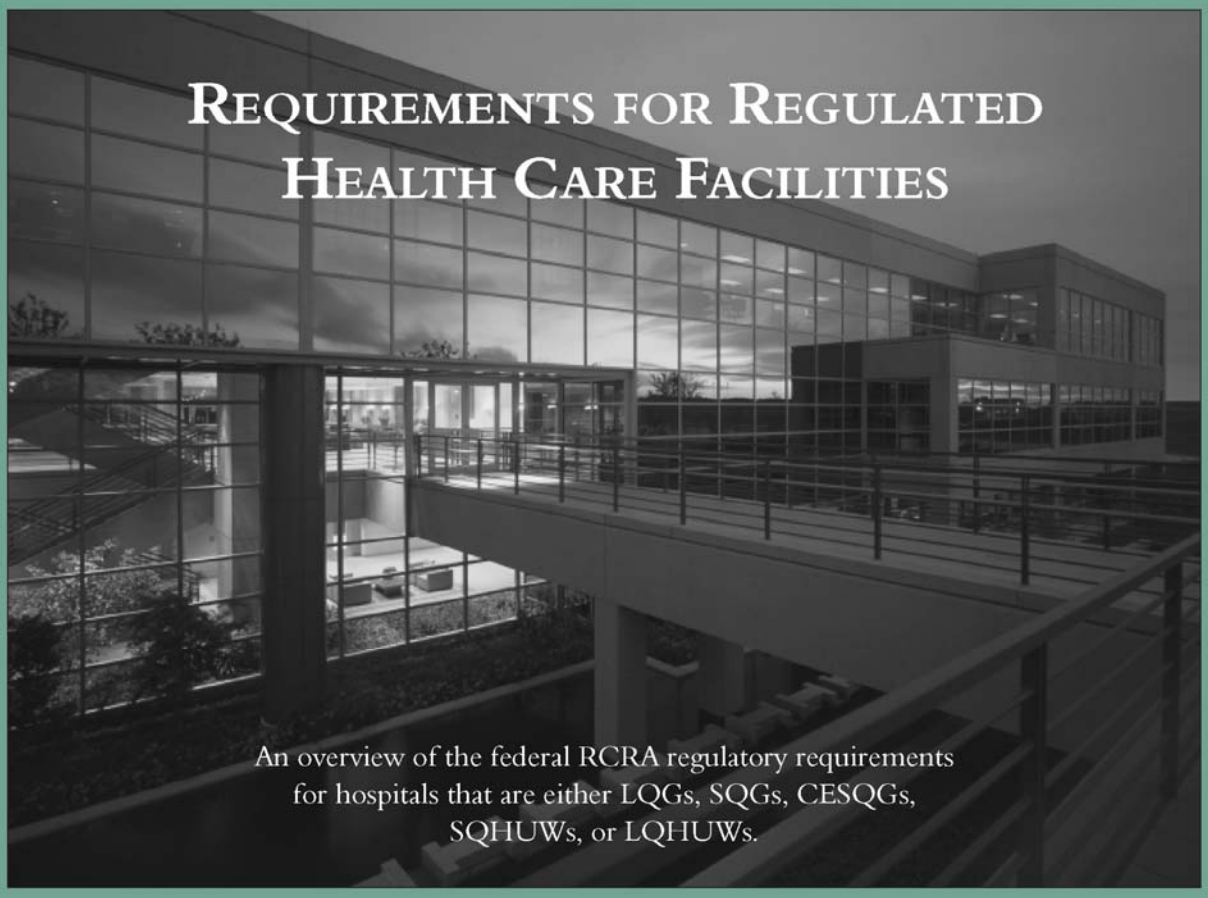
(Continued)

RCRA REGULATORY REQUIREMENTS BY GENERATOR STATUS

REGULATORY REQUIREMENT	LQG	SQG	CESQG	SQHUW	LQHUW	IMPLEMENTATION EXPLANATION
Offsite Management of Waste	✓ 262.30-262.33	✓ 262.30-262.33	NA	273.55	✓ 273.55	• Hazardous waste sent off site for handling may only be sent to a hazardous waste TSDF or recycling facility unless otherwise exempt. • CESQGs - See *Onsite Management of Waste* below. • ***Universal Waste*** *- Universal waste transporters are prohibited from transporting the universal waste to a place other than a universal waste handler, a destination facility, or a foreign destination.*
Onsite Management of Waste			✓ 261.5(2)	✓ 273.13	✓ 273.33	• CESQGs may either treat waste on site, if it qualifies as one of the following types of facilities, or ensure delivery of waste to one of the following types of facilities: 1) permitted RCRA TSDF; 2) interim status TSDF; 3) facility authorized to handle hazardous waste by a state with an approved hazardous waste program; 4) facility permitted, licensed, or registered by state to handle municipal solid waste according to standards; 5) facility permitted, licensed, or registered by state to handle non-municipal waste in accordance with standards; 6) facility that beneficially uses or reuses, or legitimately recycles or reclaims its waste; 7) facility that treats its waste prior to beneficial use, reuse, or legitimate recycling or reclamation; or 8) a universal waste handler in accordance with standards.
Manifest	✓ 262.20-262.20 262.42	✓ 262.20 (e) 262.23	NA	NA	NA	• Hazardous waste sent off site must be accompanied by a manifest, a multipage form that documents the waste's progress through treatment, storage, and disposal. It can be obtained from your state agency. • The manifest must have enough copies to provide the generator, each transporter, and the destination facility with one copy for their records and a second copy to be returned to the generator after completion by the destination facility operator. • SQGs that have a contractual agreement with a waste reclaimer that specifies the types and frequencies of shipments do not need to manifest the wastes if they retain a copy of the agreement in their files.
Land Disposal Restrictions Notification	✓ 268	✓ 268	NA	NA	NA	• Your waste must meet certain treatment standards under the LDR program. Waste must be treated to reduce the hazardous constituents to levels set by EPA or the waste must be treated using a specified technology. All waste sent off site for treatment, storage, and disposal must be accompanied by appropriate LDR program notifications and certifications. There are no required forms, but these papers must indicate whether or not wastes meet treatment standards or whether the waste is excluded from the definition of hazardous or solid waste, or is otherwise exempt.
Hazardous Waste Minimization	✓ (RCRA Sec.1003[b], 1984)	✓ RCRA Sec.1003[b], 1984)	NA	NA	NA	• To encourage generators to produce less hazardous waste, LQGs are required to have a program in place to reduce the volume and toxicity of waste generated to the degree economically practicable, and must select a currently available treatment, storage, or disposal method that minimizes present and future threats. • LQGs and SQGs must sign a certification of hazardous waste minimization on the manifest. • SQGs must make a good faith effort to minimize waste generation and to select the best available waste management method that they can afford.
Biennial Report	✓ 262.40 262.41	NA	NA	NA	NA	• LQGs must submit biennial reports of waste generation and management activity by March 1of every even-numbered year. EPA, other agencies, and the public use this information to track trends in hazardous waste management.
Recordkeeping	✓ 262.40	✓ 262.40	NA	NA	NA	• LQGs must maintain personnel training records until the facility closes. • LQGs must keep copies of each biennial report for 3 years. • LQGs and SQGs must keep a copy of each manifest for 3 years. • LQGs and SQGs must keep records of test results, waste analyses, and other hazardous waste determinations for 3 years.

Requirements for Regulated Health Care Facilities

An overview of the federal RCRA regulatory requirements for hospitals that are either LQGs, SQGs, CESQGs, SQHUWs, or LQHUWs.

RCRA REGULATORY REQUIREMENTS BY GENERATOR STATUS

REGULATORY REQUIREMENT	LQG	SQG	CESQG	SQHUW	LQHUW	IMPLEMENTATION EXPLANATION
Offsite Management of Waste	✓ 262.30-262.33	✓ 262.30-262.33	NA	273.55	✓ 273.55	• Hazardous waste sent off site for handling may only be sent to a hazardous waste TSDF or recycling facility unless otherwise exempt. • CESQGs - See *Onsite Management of Waste* below. • ***Universal Waste*** *- Universal waste transporters are prohibited from transporting the universal waste to a place other than a universal waste handler, a destination facility, or a foreign destination.*
Onsite Management of Waste			✓ 261.5(2)	✓ 273.13	✓ 273.33	• CESQGs may either treat waste on site, if it qualifies as one of the following types of facilities, or ensure delivery of waste to one of the following types of facilities: 1) permitted RCRA TSDF; 2) interim status TSDF; 3) facility authorized to handle hazardous waste by a state with an approved hazardous waste program; 4) facility permitted, licensed, or registered by state to handle municipal solid waste according to standards; 5) facility permitted, licensed, or registered by state to handle non-municipal waste in accordance with standards; 6) facility that beneficially uses or reuses, or legitimately recycles or reclaims its waste; 7) facility that treats its waste prior to beneficial use, reuse, or legitimate recycling or reclamation; or 8) a universal waste handler in accordance with standards.
Manifest	✓ 262.20-262.20 262.42	✓ 262.20 (e) 262.23	NA	NA	NA	• Hazardous waste sent off site must be accompanied by a manifest, a multipage form that documents the waste's progress through treatment, storage, and disposal. It can be obtained from your state agency. • The manifest must have enough copies to provide the generator, each transporter, and the destination facility with one copy for their records and a second copy to be returned to the generator after completion by the destination facility operator. • SQGs that have a contractual agreement with a waste reclaimer that specifies the types and frequencies of shipments do not need to manifest the wastes if they retain a copy of the agreement in their files.
Land Disposal Restrictions Notification	✓ 268	✓ 268	NA	NA	NA	• Your waste must meet certain treatment standards under the LDR program. Waste must be treated to reduce the hazardous constituents to levels set by EPA or the waste must be treated using a specified technology. All waste sent off site for treatment, storage, and disposal must be accompanied by appropriate LDR program notifications and certifications. There are no required forms, but these papers must indicate whether or not wastes meet treatment standards or whether the waste is excluded from the definition of hazardous or solid waste, or is otherwise exempt.
Hazardous Waste Minimization	✓ (RCRA Sec.1003[b], 1984)	✓ RCRA Sec.1003[b], 1984)	NA	NA	NA	• To encourage generators to produce less hazardous waste, LQGs are required to have a program in place to reduce the volume and toxicity of waste generated to the degree economically practicable, and must select a currently available treatment, storage, or disposal method that minimizes present and future threats. • LQGs and SQGs must sign a certification of hazardous waste minimization on the manifest. • SQGs must make a good faith effort to minimize waste generation and to select the best available waste management method that they can afford.
Biennial Report	✓ 262.40 262.41	NA	NA	NA	NA	• LQGs must submit biennial reports of waste generation and management activity by March 1of every even-numbered year. EPA, other agencies, and the public use this information to track trends in hazardous waste management.
Recordkeeping	✓ 262.40	✓ 262.40	NA	NA	NA	• LQGs must maintain personnel training records until the facility closes. • LQGs must keep copies of each biennial report for 3 years. • LQGs and SQGs must keep a copy of each manifest for 3 years. • LQGs and SQGs must keep records of test results, waste analyses, and other hazardous waste determinations for 3 years.