



Targeted Constituents

Significant Benefit
 Partial Benefit
 Low or Unknown Benefit

<input type="radio"/> Sediment	<input checked="" type="radio"/> Heavy Metals	<input checked="" type="radio"/> Floatable Materials	<input checked="" type="radio"/> Oxygen Demanding Substances
<input checked="" type="radio"/> Nutrients	<input checked="" type="radio"/> Toxic Materials	<input checked="" type="radio"/> Oil & Grease	<input checked="" type="radio"/> Bacteria & Viruses
			<input checked="" type="radio"/> Construction Wastes

Description

Prevent or reduce the discharge of pollutants to stormwater system or natural streams from by effective management of waste materials. Primary approaches include educating and training employees and subcontractors, proper material use, source reduction, tracking waste generation and disposal, proper material storage, recycling, preventing stormwater contact and runoff from waste management areas, and good waste disposal procedures.

Proper recycling is greatly encouraged by the City of Knoxville in order to reduce the amount of landfilled waste. Effective waste management and recycling is likely to create a significant reduction in the manner and volume of pollution that enters the city storm drainage system and natural channels.

Approach

For a quick reference on disposal alternatives for common construction wastes, see Table AM-01-1, which is part of the Employee Training BMP fact sheet.

Consult the Knoxville Office of Solid Waste website to see types of materials that are accepted at the Solid Waste Management Facility (SWMF) and at the Household Hazardous Waste Collection Center (HHW), located at 1033 Elm Street. The website address is:

<http://www.ci.knoxville.tn.us/solidwaste/>

The specific topic of waste management is included throughout the BMP Manual in the sections labeled AM (Activities and Methods) and IC (Industrial and Commercial). Therefore, this BMP will deal principally with the overall scope and effort necessary for a waste management program.

Education and Training

- Thoroughly train employees in proper handling and disposal of waste materials at the site or facility. Hold regular meetings to discuss and reinforce disposal procedures (incorporate into regular production meetings or into safety meetings).
- Designate a foreman or supervisor to oversee and enforce proper solid waste management procedures and practices, including recycling. Select assistants or alternates so that a responsible person is always at the site or facility.

- Educate employees and subcontractors on hazardous waste storage and disposal procedures, including periodic review of the material safety data sheets (MSDS). Educate employees and subcontractors of potential dangers to humans and the environment from hazardous waste.
- Instruct employees and subcontractors in identification of hazardous and solid waste. Make sure that hazardous waste is collected, removed, and disposed only at authorized disposal areas.

Household Hazardous Waste Collection Center

Household hazardous waste (HHW) is any material discarded from a house or other residential that may pose a health threat to humans or the environment if handled or disposed improperly. HHW is generally anything that is labeled as toxic, poisonous, corrosive, reactive, flammable, combustible, or irritant.

Both Knoxville and Knox County residents may use the Household Hazardous Waste Collection Center located at 1033 Elm Street. Only residential material will be accepted; businesses and industries must contract privately for the disposal of hazardous waste. A maximum of 100 pounds or 10 gallons of HHW will be accepted per vehicle per day.

Examples of common HHW materials which are accepted include: paint and paint products, adhesives, air conditioning refrigerants, batteries, drain openers, fluorescent tubes, wood preservatives, grease and rust solvents, herbicides, insecticides, oven cleaners, starter fluids, automobile fluids, gasoline, carburetor and fuel-injection cleaners, lawn chemicals, pool chemicals, wood and metal cleaners and polishers, and household cleaners.

Examples of unacceptable materials include: unidentifiable materials, radioactive wastes (including smoke detectors), explosives and ammunition, pressurized fire extinguishers, medical waste, non-propane cylinders, and commercial hazardous waste.

Solid Waste Management Facility

The City of Knoxville has a waste transfer station called the Solid Waste Management Facility (SWMF) which is located at 1033 Elm Street. Both residential and commercial waste materials may be brought to the SWMF. All vehicles are required to separate recyclables, construction and demolition debris, tires, and any other material as directed by the attendant and unload them in appropriate areas of the facility. Common materials which are not accepted at the SWMF include: loose asbestos, asphalt, commercial hazardous waste, concrete, contaminated soils, dead animals, hot ashes, medical waste, sludges, and yard waste. Amnesty days are days in which city residents are able to dispose of garbage, including construction and demolition debris, free of charge. Please contact the City of Knoxville Solid Waste Office for details.

Recycling

Recyclables are accepted from Knoxville residents and businesses free of charge. Accepted materials include: corrugated cardboard, mixed paper, newspaper, glass, aluminum and steel cans, scrap metal, appliances, and carpet padding. These materials

may be taken to the City of Knoxville staffed supercenters. There are additional unstaffed drop-off centers which accept newspaper, aluminum cans, plastics, and some types of glass. The SWMF also accepts items for recycling such as used motor oil and filters, antifreeze, corrugated cardboard, carpet padding, scrap metal, and appliances.

CESQG Program

To promote an environmentally sound community, the City of Knoxville has established the Conditionally Exempt Small Quantity Generator (CESQG) Hazardous Waste Disposal Program to allow businesses and organizations classified as CESQGs to dispose of their hazardous materials. This program provides an easy, lawful, economical, and environmentally conscious way to dispose of hazardous materials.

Businesses that may meet CESQG Rules include, but are not limited to:

- Auto Repair / Maintenance / Supply
- Building Cleaning / Maintenance
- Construction / Renovation
- Dry Cleaning and Laundry Service
- Educational / Vocational Shops
- Equipment Repair Shops
- Furniture Manufacturing / Refinishing
- Laboratories
- Metal Manufacturing
- Printing / Graphic Arts
- Painting Contractors
- Photo Finishing
- Research / Educational Institutions

Some of the most commonly generated wastes include: aerosols, corrosives, cyanide waste, photo developing and fixing solutions, dry cleaning byproducts, dyes, formaldehyde, heavy metals such as mercury or silver, lead-based oil paints, latex paint, pesticides, petroleum products, solvents, thinners, strong acids and bases, peroxides, antifreeze, lead-acid batteries, used motor oil, and used oil filters.

A business qualifies as a CESQG if it meets the following federal criteria:

- The business must not generate more than 220 pounds of hazardous waste per month and accumulate no more than 2200 pounds on site at any one time. Approximately 25 gallons of liquid waste with a density equal to water would be equal to 220 pounds.
- The business must generate 2.2 pounds or less of acutely hazardous waste per month and accumulate no more than this amount on site at any one time. Acutely hazardous waste is defined as waste that the Environment Protection Agency has determined to be so dangerous in small amounts that they are regulated the same way as large amounts of other hazardous wastes (as referenced in 40 CFR §261 subsection D).

For questions or to request an application packet for the CESQG Program, contact the Hazardous Waste Coordinator at 1033 Elm Street (215-6700). Businesses that generate amounts in excess of the above limits are subject to more stringent regulations and should contact the Tennessee Department of Environment and Conservation.

Solid Waste Management

- Designate waste storage areas that are away from storm drain inlets, stormwater facilities, or watercourses. Provide waste containers in areas where employees congregate for breaks and lunch.
- Watertight dumpsters are preferred for use and should be requested from trash-hauling contractors. Inspect dumpsters for leaks or open drain valves; repair any dumpster that is not watertight. Leave drain valve in the closed position. Do not hose out dumpsters on the project site. Let the trash-hauling contractor take care of dumpster cleaning.
- Arrange for regular waste collection before containers overflow. Provide adequate number of covered containers to keep rain out and prevent loss of waste during heavy winds. For site demolition, order additional containers and more frequent trash pickup.
- Segregate potentially hazardous waste from non-hazardous site waste. Provide hazardous waste containers in a covered area with secondary containment.
- Make sure that toxic liquid wastes (used oils, solvents, and paints) and chemicals (acids, pesticides, additives, curing compounds) are not placed or poured into dumpsters. Inspect dumpsters daily for hazardous materials that need to be disposed in a different manner.
- Salvage or recycle any useful material. For example, trees and shrubs from land clearing can be used as a brush barrier or converted into wood chips to be used as mulch on graded areas.

Hazardous Waste Management

- Use the entire product before disposing of the container. If the product is wet or moist, allow container to dry prior to disposal. Do not remove the original product label; it contains important safety and disposal information. MSDS information should be consulted for each product that is stored or handled. Employees should be made aware of the safety information.
- Minimize production or generation of hazardous materials and hazardous waste on site. Designate hazardous waste storage areas on site, away from storm drains or watercourses. Ensure that adequate hazardous waste storage volume is available.
- Use containment berms in fueling and maintenance areas and where the potential for spills is high. Keep liquid hazardous waste in appropriate containers and under cover. Place hazardous waste containers in secondary containment. Do not allow potentially hazardous waste materials to accumulate on the ground.
- Segregate potentially hazardous waste from non-hazardous waste. Store hazardous materials and wastes in covered containers and protected from vandalism.
- Do not mix wastes as this can cause unforeseen chemical reactions. Recycling will no longer be possible and disposal options will be complicated.

- Minimize spills and fugitive losses such as dust or mist from loading systems.
- Maintain usage inventory to limit waste generation. Eliminate or substitute less hazardous materials when possible.
- SARA Title III, Section 313 requires reporting for hundreds of listed chemicals and chemical compounds. This federal regulation includes requirements such as the public's right-to-know and emergency preparedness plans.
- Keep records on hazardous waste generated to include the following information:
 - Characterization of waste stream, including production date
 - Process that generated the waste
 - Inventory reports, manifests
 - Environmental reports such as environmental audits, SARA Title III reports, emission reports, NPDES monitoring reports
 - Emissions, spills, leaks
- Use raw material and production data as a source of information, including composition sheets, materials safety data sheets (MSDS), batch sheets, product or raw material inventory records, production schedule, and operator data log.
- Modify process or equipment to reduce waste generation or to contain waste more safely. Plan production sequencing to limit exposure of hazardous waste to rainfall during transfer or disposal. Review design data, process flow diagram, materials and applications diagram, piping data and equipment lists for efficiency and safety.
- Check waste management areas for spills and leaks. Cover or enclose industrial wastewater management areas whenever possible to prevent contact with rainfall or stormwater runoff. Equip waste transport vehicles with spill containment.

Maintenance

- Arrange for regular solid waste collection and disposal. Arrange for collection and disposition of recycling materials on a regular basis.
- Inspect waste areas frequently, particularly areas containing hazardous materials.
- Keep an updated inventory of hazardous materials and chemicals at the site or facility. Monitor onsite hazardous waste storage and disposal procedures.

Limitations

- This practice is not intended to address site assessments and pre-existing contamination on site. This program does not address demolition activities such as asbestos removal.
- Major contamination, large spills, and other serious hazardous waste incidents require immediate response from specialists. Prepare for possible emergencies using the guidelines in AM-07, Spill Prevention and Control.
- A licensed hazardous waste hauler must dispose of hazardous waste that cannot be reused or recycled.

References

30, 31, 33, 34, 35, 43, 100, 134, 137 (see BMP Manual Chapter 10 for list)