



Targeted Constituents

Significant Benefit
 Partial Benefit
 Low or Unknown Benefit

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

Description

Prevent or reduce the discharge of pollutants to stormwater from contaminated soil and highly acidic or alkaline soils by conducting pre-construction surveys, inspecting excavations regularly, and remediating contaminated soil promptly. This management practice is likely to create a significant reduction in toxic materials and heavy metals as well as a partial reduction in sediment.

Suitable Applications

- Applicable to many construction projects, especially those in highly urbanized or industrial areas, where soil contamination may have occurred due to spills, illicit discharges, and underground storage tanks.
- Applicable to highway widening projects in older areas where median and shoulder soils may have been contaminated by aerially-deposited lead from vehicle emissions.

Approach

Contaminated soils are often identified in the project material report with known locations identified in the plans and specifications. The contractor shall review applicable reports and investigate appropriate callouts in the plans and specifications.

Contaminated soils may occur on a site for several reasons including:

- Past site uses and activities
- Known spills and leaks
- Undetected spills and leaks
- Acid or alkaline solutions from exposed soil or rock formations
- Contaminated groundwater or leachwater from nearby properties

Most developers conduct pre-construction environmental assessments as a matter of routine. Recent court rulings have held contractors liable for cleanup costs when they unknowingly move contaminated soil. Therefore, it is necessary for contractors to confirm that a site assessment is completed before earth moving begins.

Prevention of leaks and spills is very inexpensive when compared to the cost of treatment and disposal of contaminated soil. Leaks and spills reduce property values and may severely limit future land uses.

- Conduct thorough site planning to include pre-construction site assessments. Include information from geologic surveys to determine extent of acidic or alkaline rock formations. Sample soils according to proper statistical methods.
- Look for contaminated soil as evidenced by discoloration, odors, differences in soil properties, abandoned underground tanks or pipes, or buried debris.
- Prevent leaks and spills to the maximum extent practicable. Contaminated soil can be expensive to treat and/or dispose of properly. However, addressing the problem before construction is much less expensive than after the structures are in place. For a quick reference on disposal alternatives for specific wastes, see the Table AM-01-1 presented in the Employee Training BMP fact sheet.

Federal and State Regulators

Excavation, transport, and disposal of contaminated material and hazardous material shall be in accordance with the rules and regulations of the following agencies:

- United States Department of Transportation (USDOT)
- United States Environmental Protection Agency (USEPA)
- Tennessee Department of Environment and Conservation (TDEC)
- Tennessee Division of Occupation Safety and Health Administration

This BMP does not discuss environmental laws and regulations, nor does it include procedures for how to conduct excavation and remediation of contaminated soils. Therefore, it is highly recommended that contaminated and hazardous materials be excavated and transported by licensed contracting firms that are experienced in this type of work and which meet USEPA and USDOT regulations.

Education

- Prior to performing any excavation work at locations containing contaminated or hazardous materials, employees and subcontractors shall complete a safety training program. Educate employees and subcontractors on contaminated soil handling and disposal procedures. Instruct employees and subcontractors in identification of contaminated soil.
- Hold regular meetings to discuss and reinforce disposal procedures (incorporate into regular safety meetings). Provide additional training for field supervisors and inspectors, including hazardous material safety training.

Handling Procedures for Material with Aerially-Deposited Lead

- In some instances, soils that contain aerially-deposited lead may be excavated, transported, and used in the construction of embankments and/or backfill. Consult contract specifications and site assessment reports for handling recommendations.
- Excavation, transportation, and placement operations shall result in no visible dust. Use caution to prevent spillage of lead containing material during transport. Monitor the air quality during excavation of soils contaminated with lead.

Handling Procedures for Contaminated Soils or Hazardous Materials

- Test suspected soils at a certified laboratory as soon as possible. If the soil is contaminated, work with TDEC to develop options for treatment and disposal.
- Procure all permits and licenses, pay all charges and fees, and give all notices necessary and incident to the due and lawful prosecution of the work, including registration for transporting vehicles carrying the contaminated material and the hazardous material.
- Monitor the air quality continuously during excavation operations at all locations containing hazardous material, in order to protect workers and the general public. Install temporary security fence to surround and secure the exclusion zone. Remove fencing when no longer needed.
- Avoid temporary stockpiling of suspected contaminated soils or hazardous material. If temporary stockpiling is necessary:
 1. Use plastic sheeting or tarps beneath the temporary stockpile.
 2. Install a berm or physical barrier around the stockpile to prevent runoff from leaving the area. Do not stockpile near storm drains or watercourses.
 3. Cover the stockpile with plastic sheeting or tarps. Covers must be securely fastened to prevent removal by strong winds.
- Verify that all personnel and equipment leaving the excavation area are clean. Contaminated soils and hazardous material on exteriors of transport vehicles shall be removed and placed either into the current transport vehicle or the excavation prior to the vehicle leaving the exclusion zone.
- Collect water from decontamination procedures and dispose at an appropriate disposal site.
- Collect non-reusable personal protective equipment (PPE) and other disposable equipment and supplies. Dispose at an appropriate disposal site licensed for hazardous wastes.

Procedures for Underground Storage Tank Removals

- Prior to commencing tank removal operations, obtain the required underground storage tank removal permits and approval from TDEC, which has jurisdiction over such work. Procure all permits and licenses, pay all charges and fees, and give all notices necessary and incident to the due and lawful prosecution of the work, including registration for transporting vehicles carrying the contaminated material and the hazardous material.
- Arrange to have tested, as soon as possible, any liquid or sludge found in the underground tank prior to its removal to determine if it contains hazardous material.

- Following the tank removal, take soil samples beneath the excavated tank and perform analysis as required by TDEC or other agency representatives.
- The underground storage tank, any liquid or sludge found within the tank, and all contaminated material and hazardous material removed during the tank removal shall be transported to disposal facilities permitted to accept such material by a licensed hazardous waste hauler.

Contaminated Water in Excavations

- Take all necessary precautions and preventive measures to prevent the flow of water, including ground water, from entering hazardous material or underground storage tank excavations. Such preventative measures may consist of berms, cofferdams, grout curtains, freeze walls, concrete caps, or other measures.
- If water does enter an excavation and becomes contaminated, such water shall be discharged to holding tanks which are clean and watertight. Holding tanks may be transportable or can be emptied by proper equipment to minimize the potential for spills and leaks. Contaminated water shall be disposed in accordance with federal, state, and local laws. Presence of contaminated soil may also indicate contaminated water. Consult AM-12, Dewatering Operations, for options concerning contaminated water in excavations.

Maintenance

- Inspect all excavated areas daily for indications of contaminated soil.
- Prevent spills and leaks from occurring by using the recommendations found within AM-07, Spill Prevention and Control.
- Monitor air quality continuously during excavation operations at all locations containing hazardous material.
- Coordinate contaminated soils and hazardous material management with the appropriate federal, state, and local agencies.
- Inspect hazardous waste receptacles and areas regularly.

Limitations

- The procedures and practices presented in this BMP are general. The contractor or property owner shall identify appropriate practices and procedures for the specific contaminants known to exist or which are discovered onsite.
- Contaminated soils that cannot be treated onsite must be disposed offsite by a licensed hazardous waste hauler.

References

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