

# WSDOT GEOTECHNICAL FIELD INVESTIGATION AND CONTAMINATED DRILLING WASTE MANAGEMENT PROCEDURES

## INTRODUCTION

This document has been produced as a guide for Washington State Department of Transportation (WSDOT) personnel involved in geotechnical exploration drilling where potential environmental contamination may be encountered. This guide provides simple procedures to support WSDOT personnel in planning for, storing, and disposing of potentially contaminated material generated during drilling activities. Information in this document will be incorporated into WSDOT manuals, such as the Design Manual (M 21-02), Geotechnical Design Manual (M 46-03), and the Environmental Manual (31-11) as appropriate.

A decision tree included below as Figure 1, illustrates a simplified step by step process to follow in preparing for and dealing with geotechnical drilling waste. The following sections will provide further explanation of the decisions associated with each step in the process.

## SUSPECTED CONTAMINATION

As described in the WSDOT Geotechnical Design Manual (GDM), a geotechnical field exploration plan and an environmental assessment (per GDM, [Chapter 3](#)) is done prior to drilling activities. As part of this environmental assessment the WSDOT project engineer (PE) assigned to the project will:

- Review NEPA/SEPA environmental documentation prepared for the project, such as the Hazardous Materials Analysis, Technical Memorandums, or NEPA/SEPA checklists (i.e., Environmental Classification Summary). For more information regarding these reports, read Chapter 447 of the Environmental Manual and/or contact the Regional Environmental Office.
- If environmental documentation does not yet exist, the project PE shall coordinate with the WSDOT Regional Environmental Office to review environmental information on the Department of Ecology's (Ecology) [Facility Site Atlas Database](#) and conduct a field reconnaissance of the drilling site to identify recognized environmental conditions (as defined in ASTM E-1527).
- Identify known or suspected contamination on the geotechnical drilling crew's soil investigation checklist drilling work order request. Information will include a briefly describe the location and the type (e.g., petroleum, metals, or solvents) and concentrations (if known) of contaminants that may be encountered.

If the drilling activity is suspected to generate contaminated material, notify owners, operators, and facility managers of the site. Also, coordinate waste characterization sampling with a WSDOT Hazardous Material Specialist or an environmental consultant.

Encountering contamination is more likely when drilling at sites historically used for commercial or industrial purposes, however an environmental assessment can better evaluate the potential risks and determine if suspect contamination is on site and warrants special handling and disposal. If there is no reason to suspect contamination on the site, field screening during drilling activities is appropriate.

## FIELD SCREENING, CONTAINMENT AND LABELING

During drilling activity, WSDOT personnel observe drilling activities and generated waste for indications that contamination may be present. Field screening observations include visible sheen, material coloration or staining, or odor.

If field screening indicates that contamination may be present, the material must be placed in labeled 55-gallon steel drums or other suitable containers for storage pending characterization and disposal. Containers must be in good condition and kept tightly closed to keep rain out and prevent spills.

Proper labeling includes a legible “Hazardous Materials/Analysis Pending” label that clearly identifies the project site, substance, boring location, boring depths and identification number(s), date and contact information. Labeling is extremely important to support sampling methods (as described below).

## TEMPORARY 90 DAY STORAGE PENDING LAB RESULTS

Drums or other waste containers must be stored at a secure WSDOT facility or appropriate fixed facility under the control of WSDOT. Waste containers must be either isolated from the public, or stored in a location where the drums do not compromise worker or public safety. The WSDOT PE will determine the proper storage location in accordance with the following stipulations:

- All waste generated at a facility operating under a RCRA ID#<sup>1</sup> [Dangerous Waste permit](#) must be left on-site pending lab results. Arrangements must be coordinated with the RCRA site facility manager for specific storage and disposal requirements.
- Potentially contaminated drilling material generated at a secure/safe location (i.e., fixed facility under the control of WSDOT) will remain on-site where the drilling activities occur.
- Potentially contaminated drill cuttings generated from areas that are “not under the control of WSDOT” (i.e., left in unsecure or unsafe areas) may be transported to a temporary secured location for analysis and disposal within 90 days.

The preferred location for accumulating containers of potentially contaminated material is on-site where the drilling activities occur, but it may not always be safe or practical to do so. In these instances the containers may be transported to a nearby WSDOT maintenance facility with prior approval of the maintenance superintendent. It is the WSDOT Geotechnical Division’s responsibility to ensure containers are in good condition, properly labeled, with lids tightly closed, stored in a safe orderly manner and disposed within 90 days,

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<sup>1</sup>A RCRA ID number is issued by Ecology for facilities that generate, transport, transfer, recycle, treat, store, or dispose of certain quantities of dangerous waste, as defined in the Dangerous Waste Regulation WAC 173-303. The PE should ascertain from the property owner or facility manager if the proposed geotechnical drilling site has a RCRA ID#.

## CONTAMINATION CHARACTERIZATION

The type and concentration of contamination must be identified through representative sampling methods to determine a proper disposal method.

If contamination is observed during drilling activities, or if the site has known contaminants a WSDOT Hazardous Materials Specialist or environmental consultant must sample waste material prior to disposal. The following WSDOT Hazardous Material Specialists who retain the necessary training, and are qualified to collect samples include:

- Jenifer Hill (360-570-6656),
- Trent Ensminger (360-570-2587)
- Marisol Novak (360-570-6696)

Labeling waste containers at the time of drilling is extremely important to manage sampling costs. Proper labeling, knowledge of the site history and the methods used to generate the waste can allow for a targeted sampling strategy with specific laboratory analysis. For example, proper labeling and a site boring plan can help determine whether to sample all containers or a select group of containers. It can also help determine whether to have the samples tested for one specific analysis (i.e., metals) rather than a complete list which significantly increase costs. Although the disposal facility dictates the lab analysis required prior to acceptance, often demonstrating knowledge of the site, previous lab data (if any) and the process that generated the waste can provide enough justification where the disposal facility will allow for limited sampling work (which is documented in a waste profile sheet required prior to disposal acceptance).

## WASTE DESIGNATION AND DISPOSAL

The disposal method for waste generated during drilling activities is determined by the waste's designation and physical form. If the waste is in the form of a liquid or sludge, other disposal methods may be necessary. The regional WSDOT project PE, Geotechnical Field Manager, Hazardous Material Specialist, and Maintenance Facility Superintendent is responsible for complying with the laws that govern waste disposal.

Solid waste material can be designated by the following three categories:

### Clean Soil

If contamination is not suspected and field screening did not indicate the presence of contamination or if laboratory testing results are below regulatory cleanup levels, the material may be considered clean soil. This designation may allow for disposal at the site of origin, or an appropriate WSDOT facility, in accordance the jurisdictional health department's solid waste regulations. If material will be placed at another location other than the site of origin, then approval shall be obtained from the site manager prior to delivery.

## Solid Waste

If laboratory analysis indicates that concentrations of any contaminants of concern are greater than the appropriate regulatory cleanup level, but the laboratory results do not designate the material as dangerous waste per WAC 173-303, the material is considered Solid Waste. Solid waste which is not a liquid or sludge-like, may legally be disposed of in a permitted landfill or with one of the many permitted businesses that accept such waste. Regional offices are responsible for identifying and determining the acceptability of solid waste for disposal in their region.

The Department of Ecology (<http://www.ecy.wa.gov/programs/swfa/facilities/> and <http://www.ecy.wa.gov/programs/swfa/solidwastedata/>) can provide updated information on permitted businesses, their location, fees, and restrictions.

## Dangerous Waste

It is highly unlikely that geotechnical drilling waste would ever designate as dangerous waste (per WAC173-303). However, if laboratory analysis indicates that waste designates as dangerous waste, disposal will be coordinated through a contractor that is licensed and permitted to handle, transport and dispose of dangerous waste. With the assistance of a WSDOT hazardous material specialist, regional offices must obtain a [RCRA Site Identification Number](#) using the Ecology Dangerous Waste Site Identification Form before offering dangerous waste for transport. A few exceptions are permitted for small quantity generators, as described in WAC 173-303-070(8). A separate identification number is necessary for each site from which dangerous waste is shipped. Because Ecology requires annual reports, limiting the number of storage sites for potentially dangerous sampling waste will reduce documentation required.

It is best to legally dispose contaminated drilling waste as soon as possible, but it must be disposed within 90 days. For Solid Waste and Dangerous Waste, copies of the following disposal documentation shall be retained by the generating facility for a minimum of 5 years:

1. waste profile sheets, and associated sampling reports,
2. waste authorization or other type of permit documenting a disposal facility's pre-approval for acceptance of material (if a facility requires such),
3. shipping manifest or bill of lading indicating the amount of material hauled to disposal, and bearing the disposal site operator's confirmation for receipt of the material.

**Figure 1**  
**Decision Tree**

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