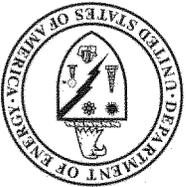


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Waste Management Plan for Operable Unit 3-13, Group 4, Perched Water



**Waste Management Plan for Operable Unit 3-13,
Group 4, Perched Water**

September 2003

**Prepared for the
U.S. Department of Energy
Idaho Operations Office**

ABSTRACT

This Waste Management Plan identifies the waste types likely to be generated at the Idaho Nuclear Technology and Engineering Center during the remedial design/remedial action activities conducted under the Operable Unit 3-13 Record of Decision for Group 4 (Perched Water). These activities include the vadose zone instrumentation and monitoring well installation, tracer test studies, and initial and routine perched water sampling events. These activities are detailed in the *Field Sampling Plan for Operable Unit 3-13, Group 4, Perched Water Well Installation* (DOE-ID 2003a). The purpose of this Waste Management Plan is to identify the various waste streams associated with the implementation of this project and to provide guidance for the compliant management and disposition of these wastes.

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ACRONYMS

CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
COC	contaminant of concern
DOE	Department of Energy
DOE-ID	Department of Energy Idaho Operations Office
DOT	Department of Transportation
HDPE	high-density polyethylene
HWMA	Hazardous Waste Management Act
ICDF	INEEL CERCLA Disposal Facility
INEEL	Idaho National Engineering and Environmental Laboratory
INTEC	Idaho Nuclear Technology and Engineering Center
IW	industrial waste
IWTS	INEEL Waste Tracking System
LLW	low-level radioactive waste
MLLW	mixed low-level waste
OU	operable unit
PCB	polychlorinated biphenyl
PPE	personal protective equipment
RCRA	Resource Conservation and Recovery Act
RD/RA	remedial design/remedial action
ROD	Record of Decision
SRPA	Snake River Plain Aquifer
TSD	treatment, storage, or disposal
USGS	United States Geological Survey
VCO	Voluntary Consent Order
WAC	Waste Acceptance Criteria

WAG	waste area group
WCF	Waste Calcining Facility
WGS	Waste Generator Services
WMP	Waste Management Plan
WTS	waste technical specialist

Waste Management Plan for Operable Unit 3-13, Group 4, Perched Water

1. INTRODUCTION

The Idaho National Engineering and Environmental Laboratory (INEEL) is divided into 10 waste area groups (WAGs) to better manage environmental operations. The Idaho Nuclear Technology and Engineering Center (INTEC) is designated as WAG 3.

Operable Unit (OU) 3-13, which is at INTEC, was investigated to identify potential contaminant releases and exposure pathways to the environment from individual sites as well as the cumulative effects of related sites. Ninety-nine release sites were identified in the OU 3-13 remedial investigation/feasibility study, of which 46 were shown to be a potential risk to human health or the environment (Department of Energy Idaho Operations Office [DOE-ID] 1997). The 46 sites were divided into seven groups based on similar media, contaminants of concern (COCs), accessibility, or geographic proximity. The OU 3-13 Record of Decision (ROD) (DOE-ID 1999) lists remedial design/remedial action (RD/RA) objectives for the seven groups:

- Group 1—Tank Farm Soils
- Group 2—Soils Under Buildings and Structures
- Group 3—Other Surface Soils
- Group 4—Perched Water
- Group 5—Snake River Plain Aquifer
- Group 6—Buried Gas Cylinders
- Group 7—SFE-20 Hot Waste Tank System.

This Waste Management Plan (WMP) describes the characterization and management of waste generated during RD/RA Phase I and Phase II activities for Group 4, Perched Water. These activities include routine perched water sampling and may include additional well installations and sampling. These activities are detailed in the *Monitoring System and Installation Plan for Operable Unit 3-13, Group 4, Perched Water Well Installation* (DOE-ID 2003b). Potential Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) waste streams from the well installations include industrial waste (IW); Resource Conservation and Recovery Act (RCRA) -listed, characteristically hazardous waste; low-level waste (LLW); and mixed low-level waste (MLLW). This plan describes the systems and methods for ensuring that the Group 4 waste adheres to the requirements in the *Waste Certification Plan for the Environmental Restoration Program* (INEEL 1997) along with other federal and state requirements. This plan is a “road map” for characterizing and managing waste generated during this project.

Waste material generated during this project is part of a CERCLA activity; therefore, the waste is CERCLA waste and will be managed as outlined in this WMP. Waste material is anticipated to include monitoring waste from the Waste Calcining Facility (WCF) postclosure monitoring and from INTEC groundwater monitoring activities performed by the United States Geological Survey (USGS). Because WCF and USGS monitoring will utilize several of the same monitoring wells as Group 4 and the data generated will support the CERCLA Group 4 decision, the field activities associated with the WCF

postclosure and **INTEC** USGS groundwater monitoring program will be integrated with the Group 4 program for greater efficiencies and cost savings. **As** such, the waste generated by these groundwater monitoring activities will be managed as **CERCLA** wastes in accordance with this WMP.

2. SITE BACKGROUND AND PROJECT SCOPE

The Group 4 perched water wells will be drilled into key stratigraphic units of sediment or interbeds. A phased approach to perched well installation is proposed. During Phase I, the nature and extent of perched water sources around the tank farm and the percolation ponds at INTEC were determined. Also included in Phase I activities were tracer test studies and perched water sampling. Phase II activities include well installation and routine sampling activities. Remedial objectives for these wells are defined in the OU 3-13 ROD (DOE-ID 1999). Because monitoring of the WCF will utilize several of the same monitoring wells as Group 4, the field activities associated with the WCF postclosure monitoring program will be integrated with the Group 4 program.

2.1 Phase I Activities

The basic objective for the Phase I monitoring was to install new monitoring well sets and collect data regarding the hydrologic system at INTEC while the percolation ponds were still operating. A primary objective was to evaluate the hydrologic connection between recharge sources surrounding INTEC and the perched water observed beneath INTEC. The Phase I activities and results are reported in *Phase I Monitoring Well and Tracer Study Report for OU 3-13, Group 4, Perched Water* (DOE-ID 2003c). The Phase I results are being used to revise the data quality objectives and finalize the Phase II monitoring plans and to support interpretation of the Phase II monitoring results.

2.2 Phase II Activities

The basic objective for the Phase II monitoring is to collect data supporting the contingent remedial action decision and identify follow-on actions. The primary basis for the decision will be perched water drain-out and estimates of the COC flux to the Snake River Plain Aquifer (SRPA) outside the INTEC security fence through the year 2095. The Phase II monitoring program includes monitoring of both the moisture content and COC concentrations in the vadose zone as well as sampling for COC concentrations in the vadose zone and SRPA beneath INTEC (inside the security fence). The Phase II objectives have been modified based on recommendations made in the Phase I report (DOE-ID 2003c).

The need for the Phase II well locations will be determined based on the results of the Phase II activities. Preliminary criteria for the selection of the Phase II well locations include placement near known areas of significant surface contamination such as the tank farm, placement near areas that will help define boundaries and connectivities of perched water bodies, and placement to support definition of zones of high COC concentrations in the subsurface. If required by the WCF permit, any new wells drilled for WCF monitoring will also be used for Group 4 monitoring.

2.3 Phase II Routine Monitoring

The monitoring system and installation plan (DOE-ID 2003b) covers the continued collection of groundwater samples from existing wells (Figure 1) and lysimeters. This activity will continue for a minimum of five years after relocation of the percolation ponds. Actions associated with this task involve well purging, sample collection, water level measurements, and, as necessary, well maintenance activities to ensure the wells may be monitored.

2.4 Waste Calcining Facility Postclosure Monitoring

The purpose of the groundwater monitoring for the WCF is to meet the Hazardous Waste Management Act (HWMA)/RCRA postclosure monitoring requirements for this closed facility. A HWMA/RCRA postclosure permit will be issued by the State of Idaho for monitoring of the former WCF in the late summer or fall of 2003. Because groundwater monitoring of this facility will utilize several of the same monitoring wells as Group 4 and the data generated will support the CERCLA Group 4 decision, the field activities associated with the WCF postclosure monitoring program will be integrated with the Group 4 program for greater efficiency and cost savings in planning, sample collection, data assessment and interpolation, and waste management. Waste generated under the WCF groundwater monitoring program will be managed in accordance with this WMP.

2.5 USGS Groundwater Monitoring

The USGS generates purged waters from routine groundwater monitoring and maintenance/development of monitoring wells in the vicinity of INTEC as part of the monitoring program that the USGS performs on behalf of DOE-ID. This USGS monitoring data for wells in and around INTEC are also provided to support the CERCLA Group 4 and Group 5 activities. As such, wastes generated by the USGS groundwater monitoring activities will be managed in accordance with this WMP. The data generated by this USGS monitoring will be reported in the applicable Group 4 and Group 5 annual monitoring reports.

3. WASTE GENERATION

Table 1 identifies and describes the waste types that may be generated as a result of Group 4 activities and provides the management strategies and proposed disposition of each waste type.

Waste streams will be characterized as required by Department of Energy DOE orders and in accordance with 40 CFR 262.11. Hazardous waste determinations will be performed on the waste streams described in this WMP.

Table 1. Waste management during Group 4 activities.

CERCLA Waste Type	Description	Management Strategy	Disposition”
Industrial waste (IW)	<p>Solid waste generated by industrial processes, manufacturing, and support processes (40 CFR 243). Certain wastes, such as nontraining-related personal protective equipment (PPE), petroleum-contaminated material (such as soil, sand, gravel, or other earthen material), engine oil filters, etc., require a waste-stream-specific, documented waste determination per the <i>INEEL Waste Acceptance Criteria</i> (WAC) (DOE-ID 2003d).</p> <p>Activities that may generate IW include administrative activities, sampling, and cleanup (e.g., petroleum spills).</p>	<p>Wastes must be characterized, documented, and tracked if necessary as described in this WMP.</p> <p>IW will be transported to the INEEL Landfill complex (at the Central Facilities Area) for disposal. Recyclable and reusable items will be managed under this WMP and the INEEL WAC.</p> <p>Requirements for disposal (described in the INEEL WAC) must be met.</p>	<p>INEEL Landfill Complex or recycled/reused under the INEEL WAC and this WMP.</p>
Hazardous waste (HW)	<p>Waste designated as hazardous by the Environmental Protection Agency regulations (40 CFR 261.3) and regulated under the Resource Conservation and Recovery Act (RCRA).</p> <p>HW streams may include (but are not limited to) PPE, unused or unaltered samples, drill cuttings, purge water, analytical residue and sample preservative residue, used sample containers, petroleum-contaminated media, development and purge water, decontamination fluids, contaminated equipment, and miscellaneous wastes.</p>	<p>Wastes must be characterized, documented, and tracked as described in this WMP.</p> <p>If necessary, solid waste streams will be staged and managed in accordance with this WMP.</p> <p>Liquid wastes will be disposed of at the INEEL CERCLA Disposal Facility (ICDF) if they meet the ICDF evaporation pond WAC. If they do not meet the ICDF WAC, an alternate disposal facility will be determined.</p>	<p>ICDF Landfill (soil and debris).</p> <p>ICDF Evaporation Pond (liquid).</p> <p>In the event wastes do not meet the ICDF Landfill WAC, the wastes will be containerized, treated, and/or stored at the ICDF as necessary or required until appropriate on- or off-Site treatment, storage, or disposal is arranged.</p>

Table 1. (continued).

CERCLA Waste Type	Description	Management Strategy	Disposition”
Mixed low-level waste (MLLW)	<p>Waste containing both radioactive and RCRA-hazardous components.</p> <p>MLLW streams may include (but are not limited to) PPE, unused or unaltered samples, drill cuttings, purge water, analytical residue and sample preservative residue, used sample containers, petroleum-contaminated media, development and purge water, decontamination fluids, contaminated equipment, and miscellaneous wastes.</p>	<p>Wastes must be characterized, documented, and tracked if necessary as described in this WMP.</p> <p>If necessary, solid waste streams will be staged and managed in accordance with this WMP.</p> <p>Liquid wastes will be disposed of at the ICDF if they meet the ICDF WAC. If they do not meet the ICDF WAC, an alternate disposal facility will be determined.</p>	<p>ICDF Landfill (soil and debris).</p> <p>ICDF Evaporation Pond (liquid).</p> <p>In the event wastes do not meet the ICDF Landfill WAC, the wastes will be containerized, treated, and/or stored at the ICDF as necessary or required until appropriate on- or off-Site treatment, storage, or disposal is arranged.</p>

a. Most IW will be sent to the INEEL Landfill Complex for disposal (subject to meeting the INEEL WAC). IW that does not meet the INEEL WAC will be managed at the ICDF Complex under this WMP.

4. GENERAL REQUIREMENTS

Wastes resulting from Group 4 activities may include personal protective equipment (PPE), unused or unaltered samples, drill cuttings, purge water, analytical residue and sample preservative residue, used sample containers, petroleum-contaminated media, development and purge water, decontamination fluids, contaminated equipment, and miscellaneous wastes. These wastes will be managed in accordance with this WMP.

4.1 Waste Minimization and Segregation

Wherever possible, waste minimization strategies will be used during implementation of the remedies. Waste minimization for this project will be accomplished through design and planning to ensure efficient operations that will not generate unnecessary waste. As part of the pre-job briefing, emphasis will be placed on waste reduction philosophies and techniques, and personnel will be encouraged to continuously attempt to improve methods for minimizing waste generation. Practices to be instituted to support waste minimization include, but are not limited to, the following:

- Restricting materials entering radiological buffer areas to those needed for work performance
- Substituting recyclable items for non-hazardous items that are easy to disposed of
- Reusing items when practical
- Segregating contaminated from uncontaminated waste
- Reusing soil that meets the OU 3-13 remedial action objectives, as specified in the OU 3-13 ROD (DOE-ID 1999).

4.2 Characterization Strategy

Waste generated during Group 4 activities will be characterized using approved sampling and analytical information (both existing and new) or process knowledge. Initial waste characterization based solely on process knowledge must ensure that the chemical, physical, and radiological properties of the waste are adequately determined. The designation must be accomplished with sufficient accuracy to ensure that subsequent treatment, storage, or disposal of the waste is protective of human health and the environment.

As outlined in Section 3, preliminary classifications have been made of anticipated waste types based on process knowledge and existing characterization data regarding the source(s) of the expected waste. Subsequent to generation, any or all of the waste may be reclassified. Before ultimate disposal, waste may be further characterized to ensure compliance with the ICDF Complex WAC (DOE-ID 2003e) or other applicable disposal facility WAC. Appropriate and required documentation of waste characterization will be completed in compliance with the applicable WAC.

4.3 INEEL Waste Management and Disposition

Waste generated at the INEEL as a result of CERCLA remedial activities includes IW, hazardous, LLW, and MLLW (see Table 1). These wastes may be disposed of at the INEEL if they meet the specific facility's WAC. Typically, most of the CERCLA-generated waste will be sent to the ICDF for disposal, although CERCLA-generated IW is generally disposed of at the INEEL Landfill Complex.

4.3.1 Waste Planned for Disposal at the ICDF

Plans call for most of the waste anticipated from Group 4 activities to be disposed of at the ICDF. This waste will be required to meet the ICDF Complex WAC (DOE-ID 2003e), the ICDF Landfill WAC (DOE-ID 2003f), and the ICDF Evaporation Pond WAC (DOE-ID 2003g).

4.3.2 Waste Transported to Non-INEEL Facilities

Some of the waste generated during Group 4 activities may not meet the ICDF WAC and would be sent to a treatment, storage, or disposal (TSD) facility located outside INEEL boundaries. CERCLA waste that is sent outside INEEL boundaries for TSD shall meet Department of Transportation (DOT) requirements, the receiving facility's WAC, and the off-Site rule (40 CFR 300.440) requirements.

4.3.3 Wastes Planned for Disposal at Non-CERCLA INEEL Facilities

The appropriateness of a waste disposal option is based on whether a particular waste could reasonably be expected to cause or contribute to an environmentally significant release of hazardous substances from a selected facility. Releases of hazardous substances to the air or groundwater in quantities that could reasonably be expected to pose a significant threat to human health and the environment are considered environmentally significant. Any waste described in this plan that would be reasonably expected to exceed this threshold criterion will be evaluated separately to determine the suitability of the waste for disposal. This particular waste will not be shipped for disposal unless special provisions are made and documented to mitigate the potential for release. The primary list of hazardous substances under CERCLA is contained in 40 CFR 302.4. As the remedial process proceeds and additional information becomes available, reviews that are more detailed will be conducted to ensure that waste planned for specific disposal options meets the detailed WAC for each specific facility.

4.3.4 Managing Industrial Waste for Disposal at the INEEL Landfill Complex

IW is solid waste that is neither radioactive nor hazardous. At the INEEL, IW streams are typically disposed of at the INEEL Landfill Complex. Many types of CERCLA IW are generated in the area of contamination as a result of material used in a project. Although the generator may believe the IW has not been contaminated with either radioactive or hazardous materials, the absence of contamination is validated by radiation surveys, radiological smears and analysis, or visual inspections (visual staining and/or discoloration of soil and/or debris).

A general hazardous waste determination is prepared for routinely generated IW to document that the waste is neither radioactive nor hazardous. Industrial waste streams that have a higher probability of containing constituents restricted from disposal are considered nonroutine and will undergo a waste stream-specific hazardous waste determination. This determination is accomplished by sampling, radiation and contamination surveys, using process knowledge of the waste-generating process (e.g., determining if the waste was mixed with a listed waste or derived from the TSD of a listed waste), and evaluating the composition of the IW. Waste Generator Services (WGS) evaluates CERCLA IW to determine if the waste meets the IW acceptance criteria. Management of IW is performed in accordance with company procedures.

Industrial waste is generally collected in IW collection dumpsters posted with signs describing acceptable and prohibited items. However, to ensure that disposal of industrial waste is protective to human health and the environment, the INEEL Landfill Complex employs the following additional methods:

- Characterization of IW by WGS to ensure that the requirements of the WAC are met before shipment to the facility
- Prohibition of the receipt of radioactive and hazardous waste
- Prohibition of the receipt of free liquids at the landfill
- Periodic inspection of received waste to validate that it meets the acceptance and waste determination criteria
- Periodic sampling of groundwater monitoring wells near the INEEL Landfill Complex.

Environmental monitoring data have not indicated an environmentally significant release of hazardous substances to the air or groundwater from current IW disposal operations at the INEEL Landfill Complex. The current disposal area at the INEEL Landfill Complex is a solid waste management unit. As such, if future environmentally significant releases to the air or groundwater are identified, those releases may be subject to response action, as stipulated by Section V of the FFA/CO (DOE-ID 1991).

4.3.5 Waste Packaging and Transportation

Before CERCLA waste is transported to a disposal facility, WGS and Packaging and Transportation Department personnel will be contacted to ensure the waste is properly handled, packaged, labeled, and transported in accordance with the INEEL Packaging and Transportation Program and the safety basis requirements of 10 CFR 830, Subpart B, and the DOT Hazardous Materials Regulations required by DOE Order 460.1B, "Packaging and Transportation Safety," for the on-Site transport of LLW and MLLW soils from INTEC to the ICDF.

Packaging of waste designated for shipment to the ICDF will be in compliance with applicable, relevant, or appropriate requirements in the OU 3-13 ROD and with the ICDF WAC. Appropriate personnel will be consulted prior to generation of any waste to identify proper containment to be used for each waste stream. The CERCLA waste generating sites must ensure waste materials are packaged in containers that are in good condition, materials are compatible with the waste stored in them, and void spaces in containers are reduced as much as possible. The ICDF Complex management should be consulted prior to the use of containers other than those specified in the ICDF WAC.

Waste containers in staging areas will be labeled and marked in accordance with the applicable receiving facility's requirements. Specifically, waste destined for the ICDF shall be labeled in accordance with the labeling requirements identified in that facility's WMP. Industrial waste destined for the INEEL Landfill Complex shall meet the INEEL WAC (DOE-ID 2003d) and be labeled in accordance with applicable requirements. The CERCLA waste destined for an off-Site facility shall, at a minimum, have an Integrated Waste Tracking System (IWTS) label, a radiation label (if applicable), and a CERCLA waste label to ensure that personnel know the contents within the container. The CERCLA waste label shall identify the project that generated the waste (e.g., OU 3-13, Group 4); the date the waste container was filled; the waste description (debris, drill cuttings, etc.); and the waste hazards (e.g., radioactive, polychlorinated biphenyls [PCBs], RCRA waste codes, etc.). Prior to off-Site transport, additional labeling may be required, including DOT-required labeling.

Any information not known when waste containers are initially labeled will be added when the information is known. As applicable, WGS personnel will provide IWTS bar codes for containers. A new bar code will be affixed to each container when waste is first placed in the container. Waste labels must be visible, legibly printed or stenciled, and placed on the container in such a manner that a full set of labels and markings is visible during an inspection.

Sampling and transportation will occur in compliance with the applicable WAC, DOT requirements, and RCRA regulations. Contact with the disposal facility must be made in advance to allow both the facility and the shipper the time required to make any preliminary arrangements.

4.3.6 Managing Waste Information

Information pertaining to waste characteristics, waste generation and storage locations, disposition plans, and waste shipments for CERCLA MLLW, CERCLA LLW, and nonroutine CERCLA IW generated at the INEEL is maintained in an electronic database called the IWTS. Material profiles are developed in IWTS to store characterization information that is specific to a particular waste stream. As the waste is generated, information pertaining to individual containers of waste is reported in individual IWTS container profiles. The information in the IWTS material profiles and container profiles is certified by a WGS waste technical specialist (WTS), who certifies that a hazardous waste determination has been performed and that the information is complete and accurate based on the analytical data or process knowledge used for characterization. The WTS also certifies that the information for the container falls within the bounds of the parent material profile. A different WGS WTS follows with an independent review of the information for completeness and accuracy. Finally, the information in the material and container profiles is approved by a WGS WTS who authorizes WGS to dispose of the waste in accordance with the disposition path defined in the IWTS material profile. The WGS WTS also verifies that the waste meets the acceptance criteria of the facility or facilities where the waste will be disposed. This approval must not be performed by the WTS performing the review.

WTSs use the information in the IWTS material and container profiles to ensure that CERCLA wastes meet the acceptance criteria of the receiving facility. The IWTS also tracks shipments of waste to various areas or facilities using specific IWTS shipping tasks. Receiving locations, including those located outside the boundaries of the INEEL, must approve waste shipments before they are shipped. This approval is not documented in the IWTS database but is maintained in a hard copy file with the waste characterization information.

It should be noted that not all CERCLA IW is tracked in the IWTS database. An example of IW that is not tracked in the IWTS is routine office waste. This waste is placed into IW receptacles that are placarded with information pertaining to what is permissible to be placed in the receptacles. Some IW is tracked in the IWTS database to ensure that the INEEL Landfill Complex is aware that the waste is being shipped and that it meets the facility's acceptance criteria. An example of IW that would be tracked in the IWTS is color-coded material such as yellow shoe covers. Since yellow shoe covers are typically used for protection against radioactive contamination, a special profile has been prepared for color-coded PPE that has been surveyed and found not to be contaminated with radioactivity or that has been used for training purposes. Another example would be containers that have had all contents removed, and the empty containers are not radiologically contaminated. Container profiles are typically not prepared for IW, because the waste is shipped to the facility in reusable receptacles, in bulk shipments, or is non-containerized.

There may be MLLW and possibly TSCA PCB waste generated at physical interfaces between Voluntary Consent Order (VCO)- and CERCLA-managed programs. The MLLW and/or TSCA PCB waste generated to support CERCLA activities will be managed as CERCLA remediation waste. The

MLLW and/or TSCA waste generated to support VCO activities will be managed in accordance with applicable RCRA and/or TSCA regulations.

4.3.7 Staging, Inspection, and Recordkeeping

The use of staging piles at the drilling sites is not planned. Rather, active management of the solid, non-flowing drill cutting wastes within the work zone is planned. Upon the containers being filled, the wastes will be transferred to the ICDF within 5 working days. If this timeframe cannot be met and waste staging at the drilling site is necessary, a temporary unit will be established in proximity to the drilling site and managed as described below. Wastes transferred to the ICDF for management will be managed in accordance with that facility's work plan. Waste staging piles may be used to manage waste soil piles or containers of CERCLA mixed waste (Figure 2). Staging piles may be used for a period of up to 24 months unless the Environmental Protection Agency, the Idaho Department of Environmental Quality, and the DOE provide an extension. If waste is staged at the drilling site before treatment and disposal, the waste will be staged in proximity to the drilling site. The staging and inspection of waste generated from this activity will be performed in accordance with this WMP. The following list outlines the requirements applicable to staging piles and their use:

- If staging piles will be used to stage solid, non-flowing remediation wastes, the wastes will be placed on impervious liners.
- Construction of the base will ensure there is at least a 2% slope away from the soil waste pile to ensure proper drainage.
- The bottom liner material for the soil will be of sufficient strength/design to withstand the planned staging and subsequent removal of soils.

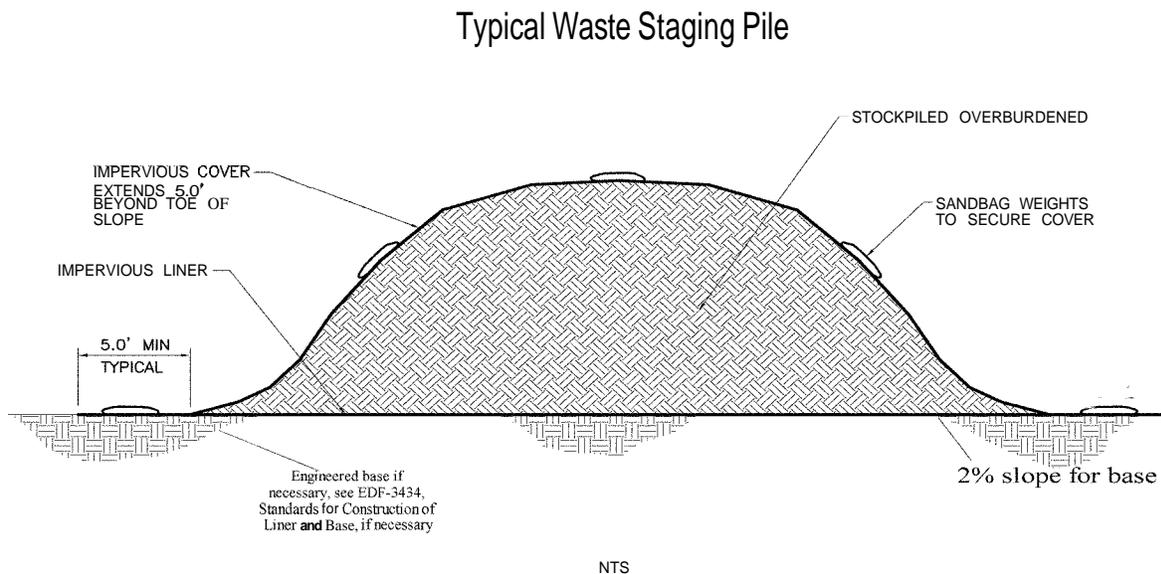


Figure 2. Cross section of typical waste staging pile.

- The bottom liner will extend at least 5 ft beyond every edge of the waste soil pile.
- The use of an impervious manmade material will be implemented to cover the soil piles at all times when the soil is not being actively managed (that is, placing, sampling, or removing waste).
- The cover will extend beyond the bottom liner and will be secured so that the staging pile soils are not exposed to the wind, precipitation, or elements.
- The cover will be constructed of impervious material sufficient to withstand site conditions (e.g., sun, wind, cold, heat, and movement to expose/cover the working face).
- Waste will not be added or removed during inclement weather, such as periods of precipitation and/or high winds. Incompatible wastes will not be stored in close proximity to a staging pile.
- Soils in the waste staging piles will be managed in a manner that will eliminate any potential run-on/run-off from entering the staging pile or run-off from contacting the soils, thus eliminating the need to contain run-off.
- Waste staging piles will be appropriately barricaded and signed.
- If containers will be used to stage solid, non-flowing wastes, the containers will be managed in rows with adequate aisle spacing maintained between rows to allow inspection and maintenance.
- Waste staging piles and containers will be inspected weekly.

The liner system could be a geosynthetic, asphalt, or concrete slab (minimum 4-in. thick). Geosynthetics could be 30-, 60-, or 100-mil-thick high-density polyethylene (HDPE) with or without a geosynthetic cushion. Compatibility between the liner material and expected wastes will be a criterion in liner selection. Covers could be a geosynthetic material (e.g., HDPE, very low-density polyethylene, polypropylene, or hypalon) or a 15-mil scrim-reinforced HDPE. Compatibility between the cover material and expected wastes will be a criterion in cover selection. Another criterion will be the ability to withstand sustained winds of 35 to 50 mph with appropriate anchorage.

Containers, if used for waste staging, will be selected to ensure compatibility with the waste being managed. Wastes that may be managed in containers include drill cuttings and debris, such as PPE and sample containers. The waste containers will be managed to enable inspection and ensure that there are no releases associated with their management.

4.3.8 Managing Waste in the Temporary Storage Units

The use of temporary storage units for remediation wastes is not planned at the excavation sites. These waste containers will be “actively managed” (filled) and, when filled, transferred to ICDF within 5 working days. If this timeframe cannot be met and waste storage is required, a temporary unit will be established in proximity to the drilling site.

5. REFERENCES

- 10 CFR 830, Subpart B, 2003, "Nuclear Safety Management," *Code of Federal Regulations*, Office of the Federal Register, January 1, 2003.
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- 40 CFR 300.440, 2002, "Procedures for Planning and Implementing Off-Site Response Actions," *Code of Federal Regulations*, Office of the Federal Register, July 2002.
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