



Sanford

Underground Research Facility

South Dakota Science and Technology Authority

Waste Management Standard

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Revision History

Rev	Date	Section	Paragraph	Summary of Change	Authorized by
01	12/20/2022	NA	NA	Initial Release	CCR 659

1.0 Purpose

The purpose of this standard is to:

1. Comply with the waste management requirements of the Resources Conservation and Recovery Act (RCRA), South Dakota Codified Law (SDCL 34-A11) and Administrative Rule (ARSD 74:28).
2. Eliminate the generation of hazardous waste through product substitutions.
3. Reduce the generation of hazardous waste where elimination is impractical.
4. Ensure the management of recyclable materials in an environmentally sound manner.

2.0 Scope

This standard applies to all South Dakota Science and Technology Authority (SDSTA) personnel, Users and Contractors/Subcontractors. This standard applies to all SDSTA activities at Sanford Underground Research Facility (SURF) that generate waste. SURF meets the criteria for very small quantity generators but is managed under the requirements for small quantity generators.

3.0 Definitions

Disposal – is the discharge, deposit, injection, dumping, spilling, leaking, or placing of any waste on any land or water.

Generator – refers to the producer of a hazardous waste. SURF is considered the generator for all solid and hazardous waste at the site and is ultimately responsible for the management of waste including handling and disposal (see 40 CFR part 262). Contractors are responsible for their own waste management and disposal. Federal regulations delineate three separate classifications of generator status dependent upon the quantity of hazardous waste generated (produced) in a calendar month.

Very Small Quantity Generator – is a generator which produces no more than 220 pounds of non-acute hazardous waste and less than 2.2 pounds of acute waste (P-list) in any one month and stores no more than 2,200 pounds of non-acute waste on-site at any time.

Small Quantity Generator – is a generator which produces between 220 pounds and 2,200 pounds of hazardous waste or no more than 2.2 pounds of acute waste in any one month.

Hazardous Waste – a solid waste that exhibits a characteristic defined by the following:

- Ignitability (40 CFR 261.21)
- Corrosivity (40 CFR 261.22)
- Reactivity (40 CFR 261.23)
- Toxicity (40 CFR 261.24)
- A solid waste is determined to be a characteristic hazardous waste either by testing or by process knowledge. A hazardous waste may also be defined by listing, that is, named in any one of four lists (F-list, K-list, U-list and P-list) found in 40 CFR 261.30 through 40 CFR 261.33.

Recycling – is taking a material and using it:

- As an ingredient in an industrial process without first reclaiming it.

- As an ‘effective’ substitute for a commercial product, and
- By returning it to the process that first generated it without first being reclaimed (closed loop recycling)

Satellite Accumulation Area (SAA) – is a designated collection point for hazardous waste that is located at or near the point of waste generation and is ‘under the control’ of the waste generator.

Solid Waste – is any discarded, abandoned, accumulated, or inherently waste-like material as defined by federal requirements; and that is not excluded from regulation under 40 CFR 261.4 (a) by variance or by a non-waste determination provided for in 40 CFR 260.30 or 40 CFR 260.34. A solid waste may be either a liquid, solid, sludge, or contained gaseous material. Examples of materials regulated as solid waste include materials accumulated for recycling, used in a manner constituting disposal (such as land application), burned for disposal or energy recovery, accumulated speculatively, as well as spent materials, by-products, commercial chemical products, and scrap metals. In general, discarded materials are materials having the potential to enter the environment via mechanisms that are not associated with the material’s intended use as a product. Relevant exclusions include domestic sewage, industrial wastewater that are point source discharges subject to regulation under the section 402 of the Clean Water Act, nuclear materials or by-product material as defined by the Atomic Energy Act of 1954 as amended by 42 U.S.C. 2011, and certain mining waste or oil and gas exploration and production wastes.

Universal Waste – are relatively common hazardous wastes that may be managed under the less stringent requirements of 40 CFR 273 that facilitate recycling. These wastes include batteries, pesticides, lamps (such as light bulbs that contain mercury), and mercury-contained equipment (such as floats, thermometers, thermostats, etc.) Note, unused mercury in a flask is not considered a universal waste (but rather a hazardous waste) if it is to be abandoned or discarded. Wastes must be recycled to be managed as universal waste, and wastes that are not ultimately recycled cannot be accumulated as universal waste. The State of South Dakota has not adopted the updated federal universal waste rule that places aerosol cans in the universal waste category and therefore aerosol cans cannot be managed as universal waste.

Used Oil – is any petroleum product that has been refined from crude oil or any synthetic oil that has been used and as a result of such is contaminated by physical or chemical impurities.

4.0 Responsibilities

4.1. Environmental Manager

- 4.1.1. Developing, implementing, and updating the Waste Management Standard.
- 4.1.2. Communicating the Waste Management Standard to all personnel.
- 4.1.3. Developing and providing waste management training to operations staff, science, and certain other users of SURF.
- 4.1.4. Understanding federal, state, and local laws and regulations relating to solid and hazardous waste and staying current with changes in the laws, rules, and regulations.
- 4.1.5. Interfacing with federal, state and local regulatory agencies.
- 4.1.6. Maintaining the required documents and records of waste training, generation, shipment and disposal as outlined in the record keeping section of this document.
- 4.1.7. Conducting weekly inspections of the Central Accumulation Area (CAA).
- 4.1.8. Arranging waste pick up and ensuring the disposal is performed at an appropriate facility.
- 4.1.9. Managing waste disposal contracts.
- 4.1.10. Signing hazardous waste manifests.

4.2. ESH Director

- 4.2.1.** Ensuring adequate human, financial, and administrative resources to maintain compliance with the Waste Management Standard.

4.3. Department Director

- 4.3.1.** Communicating the Waste Management Standard throughout their department.
- 4.3.2.** Ensuring that departmental staff comply with the Waste Management Standard.
- 4.3.3.** Removing waste from satellite accumulation areas (SAAs) and transferring to the CAA in accordance with Section 5.3 of this standard.

4.4. Science and Facility Personnel

- 4.4.1.** Adhering to the Waste Management Standard.
- 4.4.2.** Conducting work in a manner that minimizes environmental impacts of waste generation.
- 4.4.3.** Planning activities and experiments so that waste generation is minimized.
- 4.4.4.** Completing required waste management training.
- 4.4.5.** Identifying waste streams arising from work activities and reporting them to the Environmental Manager.
- 4.4.6.** Storing wastes in compliance with regulations and the Waste Management Standard.
- 4.4.7.** Familiarizing themselves with the properties, health risks, and precautions required for handling waste.
- 4.4.8.** Contacting the Environmental Manager with questions regarding waste management including training, waste identification, regulations, reference materials, signage, container requirements, or other aspects of waste management.

5.0 Instructions

- 5.1.** Solid waste, which may include hazardous waste, is generated by science and facility support operations. Science waste is generated by performing work related to a specific experiment or group of experiments by a science group or person. Facility support operations waste is generated in support of the underground and surface infrastructure. SURF is considered the generator of the waste derived by both science and operations and therefore is responsible for the management and recycling or disposal of waste. Contractors are responsible for their own waste management and disposal.
- 5.2.** Potential waste generation shall be discussed with the Environmental Manager at the start of a project or work. Characterization, container type, labeling, storage, handling, and disposal practices will be discussed. Waste generated will be classified as non-hazardous, hazardous, or universal using the Waste Characterization Profile Form and the completed form will be saved as a record. The records will be maintained by the Environmental Manager.
 - 5.2.1.** Solid wastes must be segregated into the appropriate waste streams prior to deposition in the applicable, compatible waste container. Waste streams generated on site include recyclable cardboard, recyclable scrap metal, construction and demolition waste (C&D), hazardous trichloroethylene contaminated wipes, excluded solvent-contaminated wipes, hazardous aerosol cans, used oil and grease, oily rags, oily debris, and municipal solid waste (MSW). Universal Wastes generated on site may include batteries, pesticides, mercury-containing equipment, and mercury-containing lamps.
 - 5.2.2.** Used oil burned for energy recovery is subject to the requirements set forth in 40 CFR 279.11 Used Oil Specifications. Used oil must be analyzed before being shipped off site to determine if the oil is on-specification or off-specification. Records of the used oil analysis must be retained for at least three years.
 - 5.2.3.** Hazardous Trichloroethylene Contaminated Wipes must be segregated into a separate waste stream from other solvent contaminated wipes, due to the presence of

- Trichloroethylene (D040). The presence of trichloroethylene renders the waste ineligible for the solvent-contaminated disposable wipe exclusion.
- 5.2.4.** Excluded Solvent-Contaminated Wipes are subject to the requirements of 40 CFR 261.4(b)(18). If the requirements set forth in 40 CFR 261.4(b)(18) are not met, the contaminated wipes are ineligible for the exclusion and must be managed as a hazardous waste.
- 5.3.** Hazardous wastes will typically be generated and initially stored at a Satellite Accumulation Area (SAA) or other designated areas approved by the Environmental Manager. Containers in SAAs must be at or near the point of generation, closed when wastes are not being added, and labeled with the contents. Each SAA can accumulate up to 55 gallons of each type of hazardous waste. Containers must be labeled with the date the container was filled and must be moved to the Central Accumulation Area (CAA) within 3 days.
- 5.4.** Hazardous waste containers must be shipped for disposal within 180 days (TSDF <200 miles) or 270 days (TSDF >200 miles) of the date that they were filled.
- 5.5.** Training
- 5.5.1.** Designated SDSTA personnel and interested parties will be provided with general waste management training when they are hired and periodically thereafter.
- 5.6.** Record Keeping
- 5.6.1.** Hazardous waste manifests will be kept on site for a minimum of three years from the Treatment, Storage, and Disposal Facility returned copy date. Manifests beyond this date may be stored on site or in archives for a minimum of thirty years.
- 5.6.2.** Land Disposal Restriction (LDR) notices, LDR determination records, Hazardous Waste Profile Sheets, and Exception Reports will be kept with the associated manifests. These documents are to be kept with the manifest for the time period indicated herein.
- 5.6.3.** Personnel training records on current personnel will be kept until closure of the facility. Training records on former employees must be kept for at least three years from the date the employee last worked at the facility.

6.0 Documented Information/Related Document

- 6.1.** ESH-(8000-F)-202461 Waste Characterization Profile Form
- 6.2.** 402 of the Clean Water Act
- 6.3.** Atomic Energy Act of 1954 as amended by 42 U.S.C. 201140 CFR 266.225
- 6.4.** 40 CFR 261.3 – Definitions of Hazardous Waste
- 6.5.** 40 CFR part 262 – Standards Applicable to Generators of Hazardous Waste
- 6.6.** 40 CFR 261.21 – Characteristics of Ignitability
- 6.7.** 40 CFR 261.22 – Characteristics of Corrosivity
- 6.8.** 40 CFR 261.23 – Characteristics of Reactivity
- 6.9.** 40 CFR 261.24 – Characteristics of Toxicity
- 6.10.** 40 CFR 261.30 – General
- 6.11.** 40 CFR 261.31 – Hazardous Wastes from Non-Specific Sources
- 6.12.** 40 CFR 261.32 – Hazardous Wastes from Specific Sources
- 6.13.** 40 CFR 261.33 – Discarded Commercial Chemical Products
- 6.14.** 40 CFR 261.4 (a) – Materials Which are not Solid Wastes
- 6.15.** 40 CFR 260.30 – Non-Waste Determinations and Variances from Classification as Solid Waste
- 6.16.** 40 CFR 260.34 – Standards and Criteria for Non-Waste Determinations
- 6.17.** 40 CFR 273 – Standards for Universal Waste Management
- 6.18.** 40 CFR 279.11 – Used Oil Specifications
- 6.19.** 40 CFR 261.4(b)(18) – Solvent-Contaminated Wipe Exclusions