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Hanford Facility Dangerous Waste Permit Application, 616 Nonradioactive Dangerous Waste Storage Facility

Date Published
April 1994

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United States
Department of Energy

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PART B

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This Part B permit application for the 616 Nonradioactive Dangerous Waste Storage Facility consists of 15 chapters and 13 appendices.

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1.0 INTRODUCTION

This chapter describes the permitting approach for the 616 Nonradioactive Dangerous Waste Storage Facility (616 NRDWSF) and provides an overview of the 616 NRDWSF Part B permit application.

1.1 THE 616 NONRADIOACTIVE DANGEROUS WASTE STORAGE FACILITY PERMITTING

The 616 NRDWSF began operation in September 1986. This treatment, storage, and/or disposal (TSD) unit, classified as container storage, will be permitted under Washington State Department of Ecology (Ecology) *Dangerous Waste Regulations*, Washington Administrative Code (WAC) 173-303-806.

The 616 NRDWSF provides a centralized storage unit to receive, store, and prepare shipments of nonradioactive dangerous waste. Before receipt of dangerous waste at the 616 NRDWSF, the waste is characterized, designated according to Ecology regulations for dangerous waste, and packaged according to the U.S. Department of Transportation regulations for hazardous materials. The waste is shipped to the 616 NRDWSF by truck. Once a waste shipment is accepted from the transporter, the 616 NRDWSF personnel place the waste in the appropriate storage cell as determined by the hazard class and chemical compatibility of the waste. Approximately 18 times a year, depending on the rate of waste accumulation, containers are manifested according to U.S. Department of Transportation regulations for hazardous materials, inspected for offsite shipment, and transported to a permitted TSD facility.

1.2 THE 616 NONRADIOACTIVE DANGEROUS WASTE STORAGE FACILITY PART B PERMIT APPLICATION CONTENTS

The 616 NRDWSF Part B permit application consists of 15 chapters:

- Introduction (Chapter 1.0)
- Facility Description and General Provisions (Chapter 2.0)
- Waste Characteristics (Chapter 3.0)
- Process Information (Chapter 4.0)
- Groundwater Monitoring (Chapter 5.0)
- Procedures to Prevent Hazards (Chapter 6.0)
- Contingency Plan (Chapter 7.0)
- Personnel Training (Chapter 8.0)
- Exposure Information Report (Chapter 9.0)

- Waste Minimization Plan (Chapter 10.0)
- Closure and Postclosure Requirements (Chapter 11.0)
- Reporting and Recordkeeping (Chapter 12.0)
- Other Relevant Laws (Chapter 13.0)
- Certification (Chapter 14.0)
- References (Chapter 15.0).

A brief description of each chapter is provided in the following sections.

1.2.1 Facility Description and General Provisions (Chapter 2.0)

This chapter provides a general description of the 616 NRDWSF. A brief description and history of the Hanford Site also are provided.

1.2.2 Waste Characteristics (Chapter 3.0)

This chapter discusses the physical, chemical, and biological characteristics of the waste types transported to the 616 NRDWSF from various Hanford Site generating units. A waste analysis plan that provides the methodology for determining waste types is included.

1.2.3 Process Information (Chapter 4.0)

This chapter covers the detailed operation of the 616 NRDWSF. Additional information is given concerning container descriptions and primary and secondary containment systems.

1.2.4 Groundwater Monitoring (Chapter 5.0)

This chapter explains that the 616 NRDWSF is not operated as a dangerous waste surface impoundment, waste pile, land treatment unit, or landfill. Therefore, groundwater monitoring is not required.

1.2.5 Procedures to Prevent Hazards (Chapter 6.0)

This chapter discusses hazard prevention and emergency preparedness equipment, structures, and procedures.

1 2.7.2.1 Cleanup of Released Wastes or Substances [B-7b(1)]. Actions to be
2 taken to clean up all released hazardous/dangerous waste or hazardous
3 substances and the criteria used to determine the extent of removal are
4 addressed in contingency plan documents noted in Chapter 7.0.
5

6 2.7.2.2 Management of Contaminated Soil, Waters, or Other Materials
7 [B-7b(2)]. Actions to be taken to demonstrate that all soil, waters, or other
8 materials contaminated by a spill or discharge will be treated, stored, or
9 disposed of in accordance with WAC 173-303 are addressed in contingency plan
10 documents noted in Chapter 7.0.
11

12 2.7.2.3 Restoration of Impacted Area [B-7b(3)]. Because of the remote
13 location of the 616 NRDWSF [near the center of the DOE-RL managed Hanford
14 Facility (Figure 2-1)], spills or discharges occurring on property that is not
15 owned by the U.S. Government are unlikely. Therefore, a description of the
16 actions to be taken to restore the impacted area and to replenish resources is
17 not required.
18

19 20 2.8 MANIFEST SYSTEM [B-8]

21
22 The Hanford Facility uses an EPA Uniform Hazardous Waste Manifest for all
23 offsite shipments of dangerous waste. Onsite waste tracking forms are
24 voluntarily used for transporting waste on the Hanford Facility.
25

26 The following sections provide information on receiving shipments,
27 response to manifesting discrepancies, and provisions for nonacceptance of
28 shipments.
29

30 31 2.8.1 Procedures for Receiving Shipments [B-8a]

32
33 Before shipment of nonradioactive dangerous waste to the 616 NRDWSF, the
34 following occurs (Chapter 3.0, Section 3.2).
35

- 36 • The generating unit secures the waste in a controlled, less-than-
37 90-day-storage area.
38
- 39 • If the contents of the container cannot be verified, the waste
40 coordinator for the generating unit (Chapter 3.0, Section 3.2)
41 identifies the waste from associated manufacturer's data, waste
42 records, or sample analysis.
43
- 44 • The waste coordinator for the generating unit submits a waste
45 storage/disposal request (Chapter 3.0, Section 3.2) to Solid Waste
46 Engineering.
47
- 48 • A trained designator in Solid Waste Engineering identifies the proper
49 waste designation.
50
- 51 • The completed waste designation is reviewed and signed by a peer
52 designator and a Solid Waste Engineering manager.

- 1 • Solid Waste Engineering sends a hazardous waste disposal analysis
2 record (Chapter 3.0, Section 3.2) to the generating unit's waste
3 coordinator, the 616 NRDWSF, the Transportation Logistics group, and
4 the Solid Waste Disposal group.
- 5
- 6 • The generating unit's waste coordinator ensures that the dangerous
7 waste is packaged, marked, and labeled in accordance with the
8 hazardous waste disposal analysis record.
- 9
- 10 • The generating unit's waste coordinator prepares a waste tracking
11 form. The waste tracking form identifies the applicable contractor as
12 the transporter and the 616 NRDWSF as the receiving storage unit.
- 13
- 14 • Transportation Logistics personnel inspect the containers for
15 compliance with U.S. Department of Transportation regulations and the
16 hazardous waste disposal analysis record.
- 17
- 18 • Solid Waste Disposal personnel transport the dangerous waste from the
19 generating unit to the 616 NRDWSF.
- 20

21 Before a shipment is accepted at the 616 NRDWSF, each container is
22 reviewed against the waste tracking form and the hazardous waste disposal
23 analysis record. During the review, the following items are checked:

- 24 • Proper shipping name
- 25
- 26 • Proper hazard class
- 27
- 28 • Proper marking and labeling
- 29
- 30 • Valid radiation release sticker in place [except for exempted
31 facilities (Appendix 3A)]
- 32
- 33 • Proper packaging (e.g., correct specification container)
- 34
- 35 • Container condition.
- 36

37
38 If the container passes these checks, the container is placed in the
39 appropriate storage cell (Chapter 4.0, Section 4.1.1.2 and Chapter 6.0,
40 Section 6.4.1). The acceptance procedure also ensures the following occurs.

- 41 • Significant discrepancies are noted on all copies of the waste
42 tracking form.
- 43
- 44 • The transporter is given one signed copy of the waste tracking form.
- 45
- 46 • A copy of the waste tracking form is sent to the generating unit
47 within 30 days of receipt.
- 48
- 49 • A copy of the waste tracking form is retained for at least 5 years by
50 the 616 NRDWSF and Solid Waste Engineering.
- 51

1 All dangerous waste stored at the 616 NRDWSF is shipped offsite for
2 treatment, storage, and/or disposal. Before shipment offsite, all waste is
3 manifested to comply with U.S. Department of Transportation, EPA, WAC, and
4 other applicable regulations.

5 6 7 **2.8.2 Response to Significant Discrepancies [B-8b]**

8
9 The primary concern during acceptance of containers for storage is
10 improper packaging or waste tracking form discrepancies. Depending on the
11 nature of the condition, such discrepancies can be resolved through the use of
12 one or more of the following alternatives.

- 13
14 • Incorrect or incomplete entries on waste tracking forms can be
15 corrected or completed with concurrence of the generating unit's waste
16 coordinator and the Solid Waste Engineering staff. Corrections are
17 made by drawing a single line through the incorrect entry. Corrected
18 entries are initialed and dated by the individual making the
19 correction.
- 20
21 • The waste packages can be held and the generating unit's waste
22 coordinator requested to provide written instructions for use in
23 correcting conditions before the waste is accepted.
- 24
25 • The generating unit's waste coordinator can be requested to correct
26 the condition before the waste is accepted.

27
28 Waste tracking form discrepancies are considered resolved when all
29 parties are satisfied with the designation and packaging. To prevent any
30 problems that could occur during transportation back to generating units, all
31 waste tracking form discrepancies are resolved at the 616 NRDWSF
32 (Chapter 12.0, Section 12.4.1.1).

33 34 35 **2.8.3 Provisions for Nonacceptance of Shipment [B-8c]**

36
37 Provisions for nonacceptance of shipments are discussed in the following
38 sections.

39
40 **2.8.3.1 Nonacceptance of Undamaged Shipment [B-8c(1)].** Shipments of
41 materials that the 616 NRDWSF is not designed to store [explosives, class IV
42 oxidizers greater than 10 pounds (4.5 kilograms), and waste without proper
43 radiation releases] are rejected. All other types of discrepancies are
44 resolved at the 616 NRDWSF before further transportation.

45
46 **2.8.3.2 Activation of Contingency Plan for Damaged Shipment [B-8c(2)].** If a
47 shipment arrives in a condition as to present a hazard to public health or the
48 environment in the process of further transportation, the contingency plan is
49 implemented. The contingency plan is described in the Building Emergency
50 Plan - 616 Building provided in Appendix 7A.

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3-2.	Waste Codes of Materials Stored at the 616 Nonradioactive Dangerous Waste Storage Facility	T3-2

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3.0 WASTE CHARACTERISTICS [C]

This chapter describes the characteristics of wastes managed at the 616 NRDWSF.

3.1 CHEMICAL, BIOLOGICAL, AND PHYSICAL ANALYSIS [C-1]

This section describes the chemical and physical characteristics of the wastes stored at the 616 NRDWSF.

3.1.1 Containerized Waste Generated Offsite [C-1a]

This section summarizes the characteristics of waste streams generated offsite which are transported to the 616 NRDWSF for storage. For application in this document, the term "offsite waste" is defined as waste shipped to the 616 NRDWSF from the following:

- Locations not contiguous with the Hanford Site
- Waste shipped on a Hanford Facility public access roadway.

Nonradioactive dangerous waste generated offsite is transported to the 616 NRDWSF where the waste is stored before transport to an offsite TSD facility. Waste normally is received in U.S. Department of Transportation 5-, 30-, and 55-gallon (18.9-, 113.6-, and 208-liter) approved containers, but also can be received in other specified containers, such as wooden or fiberboard boxes (Table 3-1). No waste is accepted at the 616 NRDWSF in bulk loads.

The 616 NRDWSF receives nonradioactive dangerous waste from both Hanford Facility and offsite processing, testing, maintenance, and construction activities. Waste generated offsite is variable in nature. The DOE-RL and Hanford Facility contractors have implemented control procedures to ensure that proper waste identification, designation, and packaging are attained (Figure 3-1). The waste is designated using the procedures in WAC 173-303-070 through 100 before shipment to the 616 NRDWSF.

To simplify and more accurately represent the waste and the quantities of waste, the waste has been divided into the following waste stream categories:

- Nonhalogenated solvents, strippers, and thinners
- Halogenated solvents, strippers, and thinners
- Oily waste
- Discarded commercial products (aerosol cans, light ballasts, alkaline batteries)
- Corrosive waste

- Paints, cements, sealers, resins, and miscellaneous containerized materials
- Miscellaneous labpacks
- Characteristic waste
- Discarded chemical products
- Waste regulated as dangerous by WAC-173-303 requirements only.

Each waste stream category consists of a wide variety of waste. The characteristics of one or more wastes representative of each waste stream category are provided in the *Hanford Facility Dangerous Waste Permit Application, 616 Nonradioactive Dangerous Waste Storage Facility, Revision 2, Chapter 3.0, Waste Characteristics Supplemental Information* (DOE-RL 1993).

The 616 NRDSWF accepts waste for storage with the waste codes identified in Table 3-2, excluding explosive, shock-sensitive (Chapter 4.0, Section 4.1.4.1), class IV oxidizer [in waste volumes greater than 10 pounds (4.5 kilograms)], and radioactive waste. The 616 NRDSWF also can store containerized *Toxic Substances Control Act* (TSCA) of 1976 regulated waste.

3.1.2 Containerized Waste Generated Onsite [C-1b]

Waste generated on the Hanford Facility and shipped to the 616 NRDSWF is similar in characteristic and type to waste generated offsite. Waste generated on the Hanford Facility is managed at the 616 NRDSWF in basically the same manner as offsite waste.

3.1.3 Waste in Tank Systems [C-1b]

Operation of the 616 NRDSWF does not involve the storage of dangerous waste in tank systems. Therefore, the requirements of WAC 173-303-640 are not applicable to the 616 NRDSWF.

3.1.4 Waste in Piles [C-1c]

Operation of the 616 NRDSWF does not involve the placement of dangerous waste in piles. Therefore, the requirements of WAC 173-303-660 are not applicable to the 616 NRDSWF.

3.1.5 Landfilled Wastes [C-1d]

Operation of the 616 NRDSWF does not involve the placement of dangerous waste in landfills. Therefore, the requirements of WAC 173-303-665 are not applicable to the 616 NRDSWF.

1 **3.1.6 Wastes Incinerated and Wastes Used in Performance Tests [C-1e]**
2

3 Operation of the 616 NRDWSF does not involve the incineration of
4 dangerous waste. Therefore, the requirements of WAC 173-303-670 are not
5 applicable to the 616 NRDWSF.
6

7
8 **3.1.7 Wastes to be Land Treated [C-1f]**
9

10 Operation of the 616 NRDWSF does not involve the land treatment of
11 dangerous waste. Therefore, the requirements of WAC 173-303-655 are not
12 applicable to the 616 NRDWSF.
13

14
15 **3.2 WASTE ANALYSIS PLAN [C-2]**
16

17 The 616 NRDWSF waste analysis plan (Appendix 3A) summarizes the waste
18 streams and acceptance processes. Also described in the waste analysis plan
19 are sampling methods, analytical parameters and rationale, quality control and
20 quality assurance procedures, requirements for incoming waste, storage
21 requirements for ignitable, reactive and incompatible waste, and the waste
22 tracking and recordkeeping procedures.
23

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Figure 3-1. Decision Process for Handling Dangerous Waste.

Table 3-1. Common Containers Stored at the 616 Nonradioactive
Dangerous Waste Storage Facility.

DOT Specification	Container	Material	Reference (49 CFR 178)
UN4G (Replaces 12B)	CF	Fiberboard box	178.516
UN1A2 (Replaces 17C and 17H) Packaging groups I, II, and III	DM (open head)	Carbon steel	178.504
UN1A1 (Replaces 17E) Packaging groups I, II, and III	DM (closed head)	Carbon steel	178.504
UN1H1 (Replaces Spec 34) Packaging group II	DF (closed head)	Polyethylene	178.509

CF = Fiberboard box.

DM = Metal drum.

DF = Polyethylene drum.

Table 3-2. Waste Codes of Materials Stored at the 616 Nonradioactive
Dangerous Waste Storage Facility.

Waste Codes	WAC-173-303 Reference
"U" Codes	WAC-173-303-9903
"P" Codes	WAC-173-303-9903
"F" Codes	WAC-173-303-9904
"W001" Codes	WAC-173-303-9904
"D001" Codes	WAC-173-303-090(5)
"D002" Codes	WAC-173-303-090(6)
"D003" Codes	WAC-173-303-090(7)
"D004-D043" Codes	WAC-173-303-090(8)
"WT01 and WT02" Codes	WAC-173-303-100(5)
"WP01, WP02 and WP03" Codes	WAC-173-303-100(6)
"WC01 and WC02" Codes	WAC-173-303-100(7)
"WL01 and WL02" Codes	WAC-173-303-180(5)

1 Actions to be taken in response to a spill or discharge are detailed in
2 the Building Emergency Plan - 616 Building provided in Appendix 7A.

3
4
5 **4.1.2 Containers Without Free Liquids That Do Not Exhibit**
6 **Ignitability or Reactivity [D-1b]**

7
8 Containers without free liquids are discussed in the following sections.

9
10 **4.1.2.1 Test for Free Liquids [D-1b(1)].** The 616 NRDWSF stores containers
11 with free liquid and without free liquid. Therefore, a test for free liquid
12 is not required.

13
14 **4.1.2.2 Description of Containers [D-1b(2)].** Refer to Section 4.1.1.1,
15 Description of Containers.

16
17 **4.1.2.3 Container Management Practices [D-1b(3)].** Refer to Section 4.1.1.2,
18 Container Management Practices.

19
20 **4.1.2.4 Container Storage Area Drainage [D-1b(4)].** Each storage cell
21 consists of a concrete slab sloped to a self-contained containment trench
22 (Section 4.1.1.4 and Chapter 2.0, Section 2.1.2).

23
24
25 **4.1.3 Protection of Extremely Hazardous Waste in Containers [D-1c]**

26
27 All containers are in storage cells at the 616 NRDWSF. These cells are
28 completely enclosed to the weather (Section 4.1.1.7).

29
30
31 **4.1.4 Prevention of Reaction of Ignitable, Reactive,**
32 **and Incompatible Wastes in Containers [D-1d]**

33
34 The following sections provide information on the management of
35 ignitable, reactive, and incompatible waste in containers. Additional
36 information can be found in Chapter 6.0, Section 6.5.

37
38 **4.1.4.1 Management of Reactive Waste in Containers [D-1d(1)].** The 616 NRDWSF
39 does not store waste exhibiting the characteristic (reactivity) specified in
40 WAC 173-303-090(7)(a)(vi), (vii), or (viii).

41
42 **4.1.4.2 Management of Ignitable and Reactive Waste in Containers [D-1d(2)].**
43 The nearest structure or TSD unit boundaries are in excess of 200 feet
44 (61 meters) from any of the ignitable waste sites as shown on
45 Drawing H-13-000014 in Appendix 2A. Two hundred feet (61 meters) is in excess
46 of the limits imposed by the National Fire Protection Association (NFPA 1989).

47
48 **4.1.4.3 Management of Incompatible Wastes in Containers [D-1d(3)].** The
49 generating unit's waste coordinator and the Solid Waste Engineering staff are
50 responsible for determining the regulatory status of each waste and
51 determining the incompatible compounds of the waste. Status information is

1 forwarded on a hazardous waste disposal analysis record (Chapter 3.0,
2 Section 3.2) to the generating unit, who packages the waste as instructed.
3 Afterwards, Solid Waste Disposal Unit personnel inspect the container for
4 proper packaging, labeling, marking, and waste tracking forms before transport
5 to the 616 NRDWSF. The container is inspected again at the 616 NRDWSF to
6 determine that the waste is properly packaged, marked, labeled, and manifested
7 (Chapter 3.0, Section 3.2).
8

9 Each storage cell in the 616 NRDWSF contains one compatibility group and
10 is segregated either by three self-contained trenches or concrete walls.
11
12

13 4.2 TANK SYSTEM [D-2] 14

15 Operation of the 616 NRDWSF does not involve the storage of dangerous
16 waste in tank systems. Therefore, the requirements of WAC 173-303-640 are not
17 applicable to the 616 NRDWSF.
18
19

20 4.3 WASTE PILES [D-3] 21

22 Operation of the 616 NRDWSF does not involve the placement of dangerous
23 waste in piles. Therefore, the requirements of WAC 173-303-660 are not
24 applicable to the 616 NRDWSF.
25
26

27 4.4 SURFACE IMPOUNDMENTS [D-4] 28

29 Operation of the 616 NRDWSF does not involve the placement of dangerous
30 waste in surface impoundments. Therefore, the requirements of WAC 173-303-650
31 are not applicable to the 616 NRDWSF.
32
33

34 4.5 INCINERATORS [D-5] 35

36 Operation of the 616 NRDWSF does not involve the incineration of
37 dangerous waste. Therefore, the requirements of WAC 173-303-670 are not
38 applicable to the 616 NRDWSF.
39
40

41 4.6 LANDFILLS [D-6] 42

43 Operation of the 616 NRDWSF does not involve the placement of dangerous
44 waste in landfills. Therefore, the requirements of WAC 173-303-665 are not
45 applicable to the 616 NRDWSF.
46
47

48 4.7 LAND TREATMENT [D-7] 49

50 Operation of the 616 NRDWSF does not involve the land treatment of
51 dangerous waste. Therefore, the requirements of WAC 173-303-655 are not
52 applicable to the 616 NRDWSF.

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8.0 PERSONNEL TRAINING [H]

This chapter outlines the training program developed and implemented for Solid Waste Disposal Division (SWDD) waste management units (units). The SWDD units include treatment, storage, and disposal (TSD) units and a Corrective Action Management Unit (CAMU). Specific SWDD units include the 616 Nonradioactive Dangerous Waste Storage Facility (616 NRDWSF); the Central Waste Complex (CWC); the Low-Level Burial Grounds (LLBG); the Environmental Restoration Disposal Facility (ERDF); the 224-T Transuranic Waste Storage and Assay Facility (224-T TRUSAF); and the Waste Receiving and Processing Facility (WRAP). The training plan provided in Appendices 8A through 8D discusses training requirements pertaining to the 616 NRDWSF.

The training program is designed to be compliant with all applicable federal, state, and U.S. Department of Energy, Richland Operations Office training requirements. The training program complies with requirements contained within WAC-173-303-330 for the development of a written dangerous waste training program. The training program is designed to prepare personnel to manage and maintain SWDD units in a safe, effective, efficient, and environmentally sound manner. In addition to preparing employees to manage and maintain SWDD units under normal conditions, the training program ensures that employees are prepared to respond in a prompt and effective manner should offnormal or emergency conditions occur.

This training plan is divided into four appendices. Appendix 8A describes the *Resource Conservation and Recovery Act of 1976* (RCRA) training program. Appendix 8B describes the non-RCRA programs that are closely related to the RCRA programs. Appendices 8C and 8D provide additional information supplementing the RCRA requirements. This format provides the ability to select appropriate sections of this training plan when a SWDD TSD unit becomes part of the Hanford Facility RCRA Permit (Permit). It is expected that selected RCRA sections from this training plan will become enforceable conditions included in Part III of the Permit when issued.

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1 facility. Waste transfers onsite, including waste to the 616 NRDWSF, are
2 recorded and tracked in accordance with Hanford Facility procedures
3 (Section 12.4.1.1.1). Therefore, transporter records required by
4 40 CFR 263.22 and WAC 173-303-260 are not maintained by either the 616 NRDWSF
5 or by the Hanford Facility. Reports such as discharge reports required by
6 40 CFR 263.30 and WAC 173-303-270 are not applicable.

9 12.4 TREATMENT, STORAGE, AND/OR DISPOSAL REQUIREMENTS

11 The reporting and recordkeeping procedures for TSD units are discussed in
12 this section. The TSD reports are described, the operating records and
13 miscellaneous support records contents are described, and plans maintained at
14 the 616 NRDWSF and submitted with this permit application are described.

17 12.4.1 Reports

19 This section discusses the reporting requirements of WAC 173-303 and
20 applicable parts of Title 40, Code of Federal Regulations relating to aspects
21 of dangerous waste. The following are included in reporting requirements:

- 23 • Waste manifest reports
- 25 • Annual reports
- 27 • Biennial reports
- 29 • Groundwater monitoring reports
- 31 • Contingency plan incident reports
- 33 • Spills, discharges, and leaks reports
- 35 • Closure reports
- 37 • Postclosure reports.

39 Additional details of these reports are provided in the following
40 sections. Copies of these reports are maintained by the 616 NRDWSF or other
41 Hanford Facility organizations as appropriate.

43 **12.4.1.1 Waste Manifest Reports.** The waste manifest is the source of two
44 possible reports, the manifest discrepancy report and the unmanifested waste
45 report.

47 **12.4.1.1.1 Manifest Discrepancy.** Each nonradioactive dangerous waste
48 received at the 616 NRDWSF must have a waste tracking form for the transfer to
49 be approved (Chapter 2.0, Section 2.8). The waste tracking forms are checked
50 to verify that the forms are properly filled out and that the waste received
51 is identical to the waste described on the waste tracking forms. Every effort
52 is made to resolve discrepancies with the generating unit or offsite

1 generator. If discrepancies are not resolved within 15 days, for waste
2 received from offsite, a report will be submitted to the EPA and Ecology in
3 accordance with 40 CFR 264.72 and WAC 173-303-370 respectively. The report
4 will describe the discrepancy and attempts to reconcile it. A copy of the
5 waste tracking form at issue will be attached to the report.

6
7 **12.4.1.1.2 Unmanifested Waste.** For waste received from offsite that is
8 not accompanied by a waste tracking form (Chapter 2.0, Section 2.8), the
9 unmanifested waste reports required by 40 CFR 264.76 and WAC 173-303-390 will
10 be submitted.

11
12 **12.4.1.2 Annual Report.** The state of Washington, pursuant to
13 WAC 173-303-390, requires an annual overall report for each facility that
14 holds an active EPA/State identification number. The report is due to Ecology
15 on March 1 of each year. The report contents for the 616 NRDWSF include the
16 following:

- 17 • EPA/State identification number
- 18 • Name and address of the Hanford Facility
- 19 • Calendar year covered by the report
- 20 • Sources of the waste stored at the 616 NRDWSF
- 21 • Description and quantity of the waste received at the 616 NRDWSF
- 22 • TSD methods
- 23 • Certification statement signed by an authorized representative.

24
25 The report forms and instructions in the "Treatment, Storage, or Disposal
26 Facility Annual Dangerous Waste Report--Forms 4 and 5" are used for this
27 report.

28
29 A report updating projections of anticipated closure and postclosure
30 costs for the Hanford Facility is due to Ecology by October 30 (beginning in
31 1992)

32
33 **12.4.1.3 Biennial Report.** The EPA requires, pursuant to 40 CFR 264.75, that
34 an overall report describing each dangerous waste facility activity be
35 submitted on March 1 of each even-numbered year. Ecology has been extended
36 administrative responsibilities for biennial reporting as required by
37 40 CFR 264.75. A specific biennial report is not prepared and submitted as
38 all reporting requirements are satisfied by submittal of the annual report to
39 Ecology.

40
41 **12.4.1.4 Groundwater Monitoring Reports.** The 616 NRDWSF is not operated as a
42 dangerous waste surface impoundment, waste pile, land treatment unit, or

1 maintained. This record provides a cross-reference to associated waste
2 tracking form numbers.

3
4 **12.4.2.2.3 Waste Analysis.** Waste analysis records maintained at the
5 616 NRDWSF are generated only when waste resulting from a spill or leak cannot
6 be identified. Records generated as part of the waste confirmation process
7 detailed in Chapter 3.0 will be maintained at the 616 NRDWSF. Analyses are
8 repeated, as necessary, to ensure accuracy and validity.

9
10 **12.4.2.2.4 Contingency Plan Incident Records.** Records documenting the
11 details of any incidents requiring the implementation of the contingency plan
12 (Chapter 7.0), as described in Section 12.4.1.5, are maintained as part of the
13 616 NRDWSF operating record as required by 40 CFR 264.73 and WAC 173-303-380.
14 In addition to these records, occurrence reports are generated to document
15 incidents. Occurrence reports describe all incidents, including those that
16 are judged too minor to require the implementation of the contingency plan but
17 that are identified as offnormal events, unusual occurrences or emergencies.

18
19 **12.4.2.2.5 Inspection Records.** Records of the 616 NRDWSF general
20 inspections are maintained at the storage unit for at least 5 years from the
21 inspection date. The records include the following:

- 22
23 • The date and time of inspection
24
25 • The inspector's printed name and handwritten signature
26
27 • Notations of observations
28
29 • The date and nature of any repairs or other remedial actions.

30
31 **12.4.2.2.6 Waste Minimization Certification.** Annual certification by
32 the DOE-RL that the 616 NRDWSF is in compliance with the waste minimization
33 requirements is inserted into the operating record as required by
34 40 CFR 264.73(b)(9).

35
36 **12.4.2.2.7 Land Disposal Restriction Records.** Records related to the
37 generation or treatment and disposal of waste subject to land disposal
38 prohibitions are maintained by the Hanford Facility as required by
39 40 CFR 264.73(b)(10) and (16). Possible records for waste shipped offsite
40 include the following:

- 41
42 • Waste placed in land disposal units under an extension to the
43 effective date of any land disposal restriction granted pursuant to
44 40 CFR 268.5
45
46 • Waste placed in land disposal units under a petition granted pursuant
47 to 40 CFR 268.6
48
49 • The applicable notice and certification required by 40 CFR 268.7(a) or
50 40 CFR 268.7(b)

- The demonstration and certification required by 40 CFR 268.8, if applicable, for waste subject to land disposal prohibitions or restriction.

Additional discussion of land disposal records is provided in the following sections.

12.4.2.2.7.1 Date Extension. The 616 NRDWSF will not apply for an extension to the effective date of a land disposal restriction. The onsite generating unit or the permitted offsite TSD facility will apply for an extension if required. If such an extension is approved by the regulatory authority, the generating unit or permitted offsite TSD facility, as appropriate, will provide a copy of the approval indicating the waste subject to the extension. Copies of these records, as well as the quantities and the date of placement (information the permitted offsite TSD facility is requested to provide to the 616 NRDWSF following disposal) for each shipment of waste subject to the date of the extension, will be maintained at the Hanford Facility.

12.4.2.2.7.2 Petition. The 616 NRDWSF will not petition to allow land disposal of a waste subject to a land disposal restriction under 40 CFR 268, Subpart C. The permitted offsite TSD facility will petition to the regulatory authority for a variance to allow disposal of a restricted or prohibited waste if required. If such a petition is approved by the regulatory authority for waste shipped by the 616 NRDWSF, the permitted TSD facility will be requested to provide information related to the petition so that Solid Waste Engineering can ensure that the waste shipped complies with the petition. Copies of the records of the petition, as well as the waste quantities and date of placement (information the permitted offsite TSD facility is requested to provide to Solid Waste Engineering following disposal) for each waste shipment covered by the petition, will be maintained at the Hanford Facility.

12.4.2.2.7.3 Notice. Solid Waste Engineering determines if waste is subject to land disposal restrictions (Chapter 3.0, Section 3.2). Based on the information provided by the onsite generating unit, Solid Waste Engineering prepares the necessary notices and certifications that accompany the associated waste shipments to the permitted offsite TSD facility. The notices and certifications are required for the following cases:

- The waste does not meet the applicable treatment standards
- The waste meets the applicable treatment standards.

Copies of records detailing the waste quantities, and date of placement in the land disposal units (information the permitted offsite TSD facility is requested to provide to Solid Waste Engineering following disposal), as well as the appropriate notice, certification, and supporting documentation for each shipment of a waste subject to a land disposal restriction or prohibition, are maintained at the Hanford Facility.

Waste Does Not Meet the Applicable Treatment Standards--If Solid Waste Engineering determines that the waste does not meet the applicable treatment

Table 12-1. Reports and Records. (sheet 1 of 4)

Item	Storage	
	Retention time	Location ^a
Notification of dangerous waste activities	Life of 616 NRDWSF	Hanford Facility
GENERATOR REPORTS AND RECORDS:		
Annual report	Life of 616 NRDWSF	Hanford Facility
Exception report	Life of 616 NRDWSF	Hanford Facility
Additional reports and records as required (e.g., inspection logs)	Life of 616 NRDWSF	Hanford Facility
<u>Test and Waste Analysis Results:</u>		
Waste confirmation	Life of 616 NRDWSF	Hanford Facility
Waste generated onsite	Life of 616 NRDWSF	Hanford Facility
Waste packaged for offsite shipment	Life of 616 NRDWSF	Hanford Facility
<u>Waste Manifest Reports and Records:</u>		
Manifests	Life of 616 NRDWSF	Hanford Facility
Manifest discrepancy ^b	Life of 616 NRDWSF	Hanford Facility
Unmanifested waste ^b	Life of 616 NRDWSF	Hanford Facility
<u>Land Disposal Restriction Records:</u>		
Extension to an effective date	Life of 616 NRDWSF	Hanford Facility
Petition for a variance	Life of 616 NRDWSF	Hanford Facility
Notice and certification of treatment standards	Life of 616 NRDWSF	Hanford Facility
Demonstration and certification for a temporary extension to the effective date	Life of 616 NRDWSF	Hanford Facility
TRANSPORTER REPORTS AND RECORDS:		
None required	NA	NA

Table 12-1. Reports and Records. (sheet 4 of 4)

Item	Storage	
	Retention time	Location ^a
<u>Miscellaneous Support Reports and Records:</u>		
Annual report	Life of 616 NRDWSF	Hanford Facility
Biennial report	Not required	NA
Training documentation	Life of 616 NRDWSF	616 NRDWSF
Liability coverage documentation	Not required	NA

NA = not applicable.

^aAt the time of closure, all 616 NRDWSF environmental records will be transferred to a Hanford Facility central retention area.

^bApplicable to waste received from offsite sources.

14.0 CERTIFICATION [K]

The following certification, required by WAC 173-303-810(13), for all applications and reports submitted to Ecology is hereby included:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

John D. Wagoner

Owner/Operator
John D. Wagoner, Manager
U.S. Department of Energy,
Richland Operations Office

4/6/94
Date

A. L. Trego
Co-operator
A. L. Trego, President
Westinghouse Hanford Company

3/27/94
Date

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616 NONRADIOACTIVE DANGEROUS WASTE STORAGE FACILITY WASTE ANALYSIS PLAN

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WHC-SD-WM-PLN-082, Rev. 0

616 NONRADIOACTIVE DANGEROUS WASTE STORAGE FACILITY

WASTE ANALYSIS PLAN

APRIL 1994

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1.0 DESCRIPTION OF 616 NONRADIOACTIVE DANGEROUS WASTE STORAGE FACILITY

This waste analysis plan has been prepared for the 616 Nonradioactive Dangerous Waste Storage Facility (616 NRDWSF), located on the Hanford Facility approximately 200 feet (61 meters) north of Route 3, across from the 609-A Fire Station, between the 200 East and 200 West Areas (Figure 1). The 616 NRDWSF boundary is considered to be 300 feet (91.4 meters) from the exterior walls, except south, where Route 3 serves as the boundary.

The 616 NRDWSF consists of an office area, a packaging and sampling room, a packaging material and handling equipment storage area, a receiving area, two exterior loading and unloading areas, and six individual storage cells (caustic, oxidizer, combustible, acid, flammable 1A, and flammable 1B) (Figure 2).

The 616 NRDWSF receives nonradioactive dangerous waste from both onsite and offsite waste generators and/or generating activities including, but not limited to, processing, testing, maintenance, and construction activities.

For application in this document, the term "offsite waste" is defined as dangerous waste shipped to the 616 NRDWSF from:

- Any generator or generating activity that is located in an area that is not part of the contiguous Hanford Facility
- Any generator or generating activity from which the shipment of waste is transported over a public access roadway.

Nonradioactive dangerous waste generated offsite is transported to the 616 NRDWSF where the waste is stored before transport to an offsite treatment, storage, and/or disposal (TSD) facility. Offsite waste shipments are managed in full compliance with the manifest requirements of WAC 173-303-370 and -180.

Onsite waste tracking systems are voluntarily used for transporting containerized nonradioactive dangerous waste via truck before being shipped offsite for treatment, storage, and/or disposal at a TSD facility.

The 616 NRDWSF receives a wide range of nonradioactive dangerous waste from generating units contracted by the DOE-RL. The waste accepted includes waste regulated by the *Resource Conservation and Recovery Act (RCRA) of 1976*, the *Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) of 1975*, the Washington Administrative Codes (WAC), and the *Toxic Substances Control Act (TSCA) of 1976*. The waste acceptance requirements for all dangerous waste are described in this document.

The operation of this TSD unit is maintained by the Solid Waste Disposal Division (SWDD) of Westinghouse Hanford Company (WHC), under authority of and through contractual arrangement with the DOE-RL. Technical evaluation of waste designations and waste approval for storage in the 616 NRDWSF is the responsibility of the SWDD.

Activities conducted at the 616 NRDWSF include receiving, interim storage, and offsite shipment of nonradioactive, containerized waste regulated by RCRA, WAC, FIFRA, and TSCA. Associated activities, such as overpacking of leaking containers, spill cleanup, sampling, repackaging, and maintenance also might take place as needed. Activities at the 616 NRDWSF are performed under the jurisdiction of an established procedure (DOE-RL 1989, Revision 2A, Appendix 11B) or an approved job hazard analysis.

2.0 WASTE DATA PROVIDED BY GENERATING UNITS

Before shipment or acceptance of waste at the 616 NRDWSF, the generating unit completes and submits waste storage disposal request (WSDR) documentation to the SWDD. The waste characterization provided on this form is based on process knowledge, original product material safety data sheet (MSDS) information, and/or a detailed chemical and physical analysis of a representative sample. The basic information required on the WSDR is as follows.

- **General Information**--Includes generating unit, technical contacts and telephone numbers, accumulation date, the generating unit tracking number, and waste types.
- **Container Identification Number**--Each container of waste destined for the 616 NRDWSF is assigned a unique 14 digit container identification number (CIN) assigned by the generating unit. (Note: The DOE-RL is implementing a bar coding system for computerized waste tracking. When implemented, the bar coding system might increase the number of digits used in the CIN system).
- **Number of Containers**--The generating unit indicates the number of containers for each unique waste stream.
- **Container Description**--The volume capacity of each container is entered, e.g., 55 gallons, 5 gallons, pint, etc. Container information must include the type and material (i.e., glass bottles, steel drums, plastic drums, fiberboard drums, cardboard boxes) and the condition of the container (i.e., damaged containers often will need overpacking). The U.S. Department of Transportation packaging group should be entered when the waste is contained in a U.S. Department of Transportation container.

Other container information could be (1) identifying drums as to bung or open-head type and (2) identifying drums that are designated as 'single-trip' or 'nonreusable', which are not reusable for 'second-trip' packaging.
- **Kilograms of Waste**--The total weight of the waste in each container is entered in kilograms. Containers, inner liners, and weight of absorbents used in a combination package are not considered part of the waste when computing total waste quantity.

- 1 • **Waste/Process Description**--The generating unit must provide the trade
2 name(s) (if available) and a general description of each unique waste.
3 The generating unit also must include a general description of the
4 process that created the waste.
5
- 6 • **Chemical Components**--The generating unit must enter all constituents
7 in each waste. Waste can be categorized without testing only if all
8 of the chemical constituents are known. This means that the weight
9 percent of all waste constituents must total at least 100 percent
10 including water and inert ingredients. All available information
11 describing the waste composition (MSDS, laboratory analysis) must be
12 attached to the WSDR. Attached information must be clearly identified
13 (MSDS number, sample number). The only acceptable ways to obtain
14 chemical information without laboratory analysis are as follows:
15
 - 16 - **Commercial Chemicals**--Information concerning the chemical makeup of
17 waste can be found in specification sheets, on labels, and on MSDSs.
18 The information provided must be specific for the commercial product
19 used. If the MSDS provides insufficient information for a correct
20 designation, the SWDD will require the generating unit to provide a
21 laboratory analysis before acceptance at the 616 NRDWSF.
22
 - 23 - **Laboratory Reagents**--Information on laboratory reagents can
24 frequently be identified by ingredients listed on the label. If the
25 label lists impurities, such as lead, arsenic, or other heavy
26 metals, the generating unit must include those on the waste disposal
27 request.
28
 - 29 - **Routine Waste Mixtures**--Generating units are required to supply a
30 laboratory analysis on the initial 'routine waste' mixture. After
31 the initial analysis, generating units will be required to reanalyze
32 only if the process generating the waste stream is altered. A
33 generating unit logbook is not required when the waste is
34 accumulated from a single routine process.
35
 - 36 - **Nonroutine Waste Mixtures**--Generating units are required to use a
37 logbook when waste is accumulated from a nonroutine process. The
38 generating unit must calculate concentrations of reagents from the
39 analytical procedure to determine the weight percent of each
40 constituent.
41
 - 42 - **Absorbent**--If waste is mixed with an absorbent, the weight of the
43 waste and weight of absorbent must be listed separately. The type
44 of absorbent used also must be noted on the WSDR.
45
- 46 • **Weight Percent**--The generating unit must enter the weight percent of
47 each chemical in the waste. Traces of pesticides, herbicides, heavy
48 metals, and polychlorinated biphenyls (PCB) must be specified.
49 Elements of particular importance are arsenic, barium, cadmium,
50 silver, mercury, chromium, lead, and selenium. Components must add up
51 to 100 weight percent or greater including water, soil, or other
52 constituents. If weights are available only in ranges (e.g., methanol
53 10 percent to 20 percent), the generating unit must list the ranges.

If the original product contained volatiles, the generating unit must state "No volatiles present". The WSDR that does not contain weight percentages is rejected by the SWDD.

- **Physical Properties**--The generating unit specifies the physical properties of the waste as follows.
 - The generating unit specifies if the waste is a solid, liquid, gas, sludge, multilayered, etc.
 - The generating unit specifies the pH of the waste. For solids or semisolids, the generating unit must determine the pH by mixing the solid with an equal weight of water and measuring the pH of the solution.
 - The generating unit indicates the flashpoint in degrees fahrenheit, and specifies if the test method was 'open cup' or 'closed cup'. The generating unit also is required to list the boiling point of flammable liquids.
 - The generating unit provides information on density or specific gravity. This information can be obtained from the manufacturer, MSDS, chemical resource books, or material specifications.
- **Hazards**--The generating unit specifies any significant hazard that a waste might have. Hazard information is obtained from an MSDS, process knowledge, laboratory analysis, and/or manufacturer's labels or literature. The proper abbreviations to describe waste hazards are selected from the following (more than one might be necessary):

Corrosive	-	C	Explosive	-	E
Ignitable	-	I	Persistent	-	P
Reactive	-	R	Carcinogenic	-	X
Toxic	-	T	Oxidizer	-	Ox

Toxic characteristic leaching procedure - TCLP

- **Waste Status**--The generating unit enters the appropriate abbreviations from the following (more than one might be necessary):

Reacted	-	Rx
Treated	-	T
Used	-	U (has been used for intended purpose)
Spill material	-	S (also indicate if Used or Old)
Old	-	O (opened but unused material)
New	-	N (unopened and unused (or expired))

- **Container Status**--The generating unit specifies the container status from the following abbreviations:

Full	-	F
Partially full	-	PF

Empty	-	MT
Triple rinsed	-	TR

The data submitted on the WSDR must be sufficient to allow the SWDD to perform an evaluation and designation of the waste form and constituents with regard to acceptance and TSD requirements.

Generating units submit, along with the WSDR, all supporting data to the SWDD for evaluation and approval of waste shipment to the 616 NRWWSF. Any supporting analysis documentation and/or MSDS information must accompany the WSDR. Records of the waste characterization data are maintained by the SWDD. This information is required and is analyzed according to this waste analysis plan.

Inadequate backup data for the WSDR information supplied might result in rejection of the WSDR until sufficient technical basis is available for characterization of the waste.

Adequate process knowledge and/or analysis must be available to accurately identify all existing RCRA and WAC waste codes in accordance with the WAC-173-303-080 through 110 requirements. If adequate process knowledge exists to ensure that a particular constituent is not present in the waste, there is no requirement to analyze for that constituent. For instance, if a waste comes from a well-defined aqueous process and there are no organic chemicals associated with the process, it is not necessary to test for volatile and semivolatile organics. Similarly, if there is no reason to suspect pesticides and herbicides, analysis for those parameters is not required. However, the WSDR must establish that there is no reason to suspect the constituent is in the waste. This can be accomplished by including a detailed process description and/or published data of the process with the WSDR.

The generating unit must use knowledge of the history and origin of the waste to determine the analytical testing needed to determine dangerous constituents of the waste. The generating unit also determines the appropriate sampling method, conducts all field and sampling quality assurance/quality control (QA/QC), arranges for and coordinates with appropriate analytical laboratories, and documents the sampling and analysis activities. All sampling activities must be in compliance with SW-846 requirements (EPA 1986). The generating unit certifies that the waste analysis information is accurate. If required, the generating unit might contract the use of other professional sample management organizations available on the Hanford Site.

Laboratory analysis, if required for waste designation, is performed and documented by a laboratory with QA/QC procedures in compliance with SW-846, and using the EPA-approved methods described in this waste analysis plan.

3.0 FINGERPRINT SAMPLING

Two types of fingerprint¹ samples could be taken during the waste acceptance process. The first type of fingerprint sample is required on a case-by-case basis by the offsite treatment or disposal facility. This sample is either collected by the generating unit and supplied to the SWDD or the sample is collected by the SWDD at the 616 NRDWSF for submission to the offsite facility. The second type of fingerprint sampling is performed by the SWDD designated personnel as part of the waste confirmation process for waste acceptance at the 616 NRDWSF. The following describes the fingerprinting activities for waste to be shipped offsite from the 616 NRDWSF and for waste acceptance at the 616 NRDWSF. Waste confirmation is described in Section 3.2.11.

3.1 FINGERPRINT SAMPLING FOR NON-HANFORD SITE WASTE PROFILES

Generating units typically are required to provide a representative fingerprint sample of new waste streams to the SWDD as part of the offsite commercial disposal profiling process. If the SWDD has an acceptance profile for a previously characterized waste or a similar waste stream already characterized, a new sample might not be required. For generating units having typical waste that other generating units might generate, the SWDD will determine if a sample is required during the profiling process. This fingerprint sample serves as a confirmation step for waste being shipped to offsite TSD facilities.

The SWDD will submit the fingerprint sample received from the generating unit to the offsite disposal contractor for analysis, confirmation, and approval for disposal. Under some circumstances, the profile sample may be prepared at the 616 NRDWSF instead of by the generating unit. Typical sample size is a 1-liter glass or plastic container, but other sample sizes sometimes are accepted or required. Sampling information required by the offsite TSD facility is obtained from the SWDD. The generating unit might be required to provide a sample of an on-going waste stream to update the offsite treatment/disposal approval of that waste stream as necessary. All profiles of on-going/routine waste streams are reviewed annually. Any time an approved waste stream changes (e.g., a new constituent is introduced or a new product is used), the waste stream must be reprofiled and another fingerprint sample might be required by SWDD.

3.2 FINGERPRINT SAMPLING FOR WASTE CONFIRMATION

The SWDD is in the process of implementing a waste confirmation program for the purpose of providing additional assurance that waste package contents

¹'Fingerprint' parameters are those parameters that will confirm process knowledge, i.e., a container is labeled 'corrosive', and states the product contains sodium hydroxide; therefore, the product will be tested for sodium and pH to confirm that process knowledge is correct.

received at the 616 NRDSF are consistent with the documentation provided by the generating units. The SWDD-designated personnel will either perform field confirmation of waste packages at the generating unit location, or perform confirmation on receipt at the 616 NRDSF. Evidence tape and tamper proof seals will be applied to waste containers that were confirmed at the generating unit location. The integrity of the container seal on receipt at the 616 NRDSF will be confirmed to ensure that there were no alterations to the waste.

Before acceptance of waste at the 616 NRDSF, confirmation of designation may be required by the SWDD (Section 11.0). A flowchart illustrating waste confirmation techniques is illustrated in Figure 3. The waste that undergoes confirmation of designation can be divided into two general groups: waste that easily yields a representative sample (Category I) and waste that does not yield a representative sample (Category II). Each waste type is outlined in the following, along with a description of which waste falls into each category.

Category I. All waste that fits in Category I will undergo the following.

- A representative sample will be taken of the waste (if more than one phase is present, each phase must be tested individually), and the following field tests will be performed:
 - Reactivity - HAZCAT¹ oxidizer, cyanide, and sulfide tests. These tests will not be performed on materials known to be organic peroxides, ethers, and/or water reactive compounds.
 - Flashpoint/explosivity - by HAZCAT flammability procedure B, explosive atmosphere meter,² or a closed cup flashpoint measurement instrument.²
 - pH - by pH meter² or pH paper (SW-846 9041).³ This test will not be performed on non-aqueous materials.
 - Halogenated organic compounds - by gas chromatograph/mass spectrometer, Chlor-D-Tect⁴ kits, or the HAZCAT fluoride, chloride, bromide, and iodide tests.

¹HAZCAT is a tradename of Haztech Systems, Incorporated.

²These instruments are field calibrated daily.

³The pH paper must have a distinct color change every 0.5 pH unit and each batch must be calibrated versus certified pH buffers or by comparison with a pH meter calibrated with certified pH buffers.

⁴Chlor-D-Tect is a tradename of Dexsil Company.

- 1 - Volatile organic compounds - by gas chromatograph/mass spectrometer,
2 photo or flame ionization tester.
3

4 If the waste meets the parameters specified in the documentation,
5 confirmation of designation is complete. If the waste does not meet
6 these parameters, proceed to the next step. This is considered a
7 significant error under Section 4.0.
8

- 9 • Sample and analyze the materials in accordance with WAC 173-303-110.
10 Table 1 lists analytical methodologies. Table 2 lists sampling
11 methods and equipment.
12
13 • Reassess and redesignate the waste. Repackage and label as necessary
14 or return to the generating unit.
15

16 Category II. If a representative sample cannot be obtained (for example,
17 discarded machinery or shop rags) or if the waste is a labpack or
18 discarded chemical product, the following is performed.
19

- 20 • Visually confirm the waste. Labpacks and combination packages must be
21 removed from the outer container. If the waste meets the parameters
22 specified in the documentation, confirmation of designation is
23 complete. If the waste does not meet these parameters, proceed to the
24 next step. This is considered a significant error under Section 4.0.
25
26 • If possible and necessary, segregate and/or repackage the waste for
27 shipment in a compliant manner. If the waste is not packaged in
28 compliance with shipping requirements, proceed to the next step.
29
30 • The waste must be redesignated using methods identified in
31 WAC 173-303-110.
32

33 At least half of the containers to undergo confirmation of designation
34 must fall into category I.
35

36 Data obtained through the waste confirmation process will be used to
37 confirm the accuracy of the waste designation for waste received at the
38 616 NRWSF.
39

40 41 42 **4.0 SOLID WASTE DISPOSAL DIVISION WASTE ACCEPTANCE REQUIREMENTS** 43 44

45 The SWDD reviews the WSDR sent by the generating unit. This review
46 examines the waste information for the potential for shock-sensitive or
47 pyrophoric characteristics as described in Section 6.2. If the WSDR,
48 supporting data, and waste confirmation data are found to be in proper order,
49 and if the waste meets the criteria established in this waste analysis plan,
50 the SWDD completes a hazardous waste disposal analysis record (HWDAR) and

51 ¹These instruments are field calibrated daily.

sends the HWDAR to the generating unit. The HWDAR provides the following information:

- Appropriate waste designation per WAC 173-303-070
- Land ban disposal restrictions per 40 CFR 268
- Packaging, marking, and labeling instructions
- Waste tracking requirements
- Compatibility groups (Figure 4)
- Transportation contact
- TSD unit contact
- Identification of a proper storage cell at the 616 NRDWSF.

The HWDAR is sent by the SWDD staff to the generating unit. The generating unit packages the nonradioactive waste and applies appropriate markings and labels in accordance with the HWDAR. Before transport, a transportation representative reviews the waste tracking forms and each waste package against the HWDAR to ensure U.S. Department of Transportation requirements are met. The transportation representative also checks the condition, marking, and labeling of the packages. If discrepancies or deficiencies are found, these are corrected by the generating unit before receiving approval for shipment to the 616 NRDWSF. The transportation representative initials the waste tracking form indicating the load is acceptable for transportation to the 616 NRDWSF. No waste can be transferred to the 616 NRDWSF without the prior approval of the SWDD.

The generating unit arranges the waste shipment with the SWDD on receipt of the HWDAR. At the time of waste shipment, the SWDD staff meets the shipment at the 616 NRDWSF and inspect the shipment to ensure that the waste received is the same as that identified on the approved HWDAR and to ensure that the containers are in good condition. This inspection includes checking the waste tracking form(s), container markings and seals, container condition, and accompanying notifications/certifications. Discrepancies could be resolved with the generating unit by telephone at the discretion of the SWDD personnel. The 616 NRDWSF personnel also are able to overpack containers that arrive in poor condition (or leaking) rather than return the containers to the generating unit. Unresolved discrepancies will result in return of the shipment to the generating unit.

5.0 CHEMICAL AND PHYSICAL ANALYSIS

Before acceptance of the waste at the 616 NRDWSF, a detailed chemical and physical characterization must be performed in support of waste designation. The waste designation process allows the generating unit to provide waste characteristic information based on MSDS, chemical product, and process information in lieu of analytical data. Chemical and physical analysis performed in support of waste confirmation is discussed in Section 3.2.

The waste types historically stored at the 616 NRDWSF are provided in other documentation (DOE-RL 1993). These waste streams have been established through the HWDAR process. In addition, established waste streams are

confirmed through the analysis of fingerprint samples by the offsite disposal facility to which the waste is shipped.

All RCRA and WAC waste code designations are based on the generating unit-supplied information and analyses in support of HWDAR established for each waste stream.

6.0 HAZARDOUS WASTE DISPOSAL ANALYSIS RECORD SYSTEM

The methods and procedures used to produce HWDARs, designed to promote safe waste management practices at the 616 NRDWSF, are described in this section. The objectives of waste management practices are as follows: (1) to ensure safe handling and storage of all waste materials, (2) to establish uniform and comparable waste characterization requirements for all generating units, (3) to confirm that incoming waste materials are properly described in the accompanying documentation, and (4) to ensure that sufficient waste characterization data are collected to support the eventual treatment or disposal of the wastes.

6.1 PARAMETERS AND RATIONALE

The parameters to profile dangerous waste received at the 616 NRDWSF are selected to meet the objectives outlined by this waste analysis plan. Table 3 identifies the parameters and rationale required for designating dangerous waste.

The specific parameters selected for characterization are determined on a case-by-case basis. The generating unit selects the appropriate parameters from WSDRs based on knowledge of the waste source. Thus, not all of the parameters identified in Table 3 will be selected for each waste stream.

6.2 WASTE CHARACTERIZATION FOR HAZARDOUS WASTE DISPOSAL ANALYSIS RECORDS

The HWDAR's are prepared by the SWDD. These HWDARs must be completed, reviewed, and approved before waste is shipped to the 616 NRDWSF. The information on the HWDARs provides the data necessary to characterize waste for storage and subsequent treatment or disposal; these HWDARs provide the information fulfilling the waste analysis requirements for waste acceptance and storage.

The primary source of information used by the generating unit to complete the WSDR is process knowledge. The process knowledge information is included on the WSDR submitted to the SWDD for review, approval, designation. The process knowledge information that might be submitted includes, but is not limited to, the following.

- Chemical Specifications--Chemical specifications might be available from the purchase specifications of the particular chemical in question, from product information provided by the manufacturer, or on the labels for the particular chemical in question. For 'pure' chemicals where the material contents and characteristics are well known (e.g., hydrochloric acid), standard chemical reference materials could provide the required information.
- MSDS--Chemical specifications and related information are available on these standard reference materials. The MSDSs could be provided by the manufacturer or acquired through available MSDS databases where the information can be downloaded electronically.
- Process Description--Pertinent details of the process generating the waste and the chemicals used that might have generated the particular waste need to be described. The explanations required range from extremely simple to very complex. The more complex the process, the more information required, such as process flow diagrams and listings of chemicals used in the process or introduced at various points in the process before the waste stream in question is generated.

Other information sources could be used as long as these sources provide detailed information on the chemical constituents present, chemical concentrations, and material characteristics (physical state, ignitability) as defined in Table 3, and the characterization requirements on the WSDR.

The WSDR and the supporting information package are prepared and submitted by the generating unit and reviewed by the SWDD. This review focuses on whether the waste stream is identified correctly according to the supporting information provided and the adequacy of the supporting information. Where potential deficiencies exist in the information provided, or additional waste constituents might be expected to be present that do not appear on the WSDR, the generating unit is contacted by the SWDD personnel for resolution. In addition, the WSDR will be reviewed for potential shock-sensitive characteristics. The following categories have the highest potential to be shock sensitive:

- New, unused chemical products
- Waste with the dangerous waste codes D003, P, or U.

If the characteristics of a potentially shock-sensitive constituent is unresolvable by the SWDD, a review of the waste or constituent by a 'cognizant professional' (e.g., chemist, commercial TSD representative) is required.

The cognizant professional will determine whether: the waste or constituent does not exhibit shock-sensitive characteristics, is unable to exhibit the potential shock-sensitive characteristics, has the potential to exhibit shock-sensitive characteristics, or exhibits actual shock-sensitive characteristics. A waste or constituent that is determined to not exhibit shock-sensitive characteristics will be deemed acceptable for storage at the 616 NRDWSF in regard to these parameters. A waste or constituent that is determined to be unable to exhibit shock-sensitive or characteristics, because of the presence of stabilizing waste constituents or characteristics, will be

1 deemed acceptable for storage at the 616 NRDWSF in regard to these parameters.
2 If the waste or constituent has the potential to exhibit shock-sensitive
3 characteristics, the cognizant professional will prescribe methods, if
4 available, for the generating unit to detoxify or stabilize the waste or
5 constituent, thereby rendering the waste acceptable for storage at the
6 616 NRDWSF in regard to these parameters. If the waste or constituent
7 exhibits potential or actual shock-sensitive characteristics that cannot be
8 detoxified or stabilized, the waste will not be accepted for storage at the
9 616 NRDWSF.

10
11 The results of this review process will be documented and maintained as
12 part of the HWDAR. The master list of potential shock-sensitive chemical
13 compounds is not intended to be all inclusive, and any chemical compound found
14 to be applicable to the list may be added in the future. All deficiencies
15 must be satisfactorily resolved before waste acceptance.

16
17 Most of the waste streams received at the 616 NRDWSF are characterized as
18 described previously because the waste streams are generated routinely from
19 known processes. Occasionally sampling and analysis of waste streams is
20 performed by the generating unit where no other information is available or
21 the SWDD determines that additional information is required before waste
22 acceptance that might be obtained only through waste sampling and analysis.
23 Fingerprint sampling and analysis is performed as part of the waste
24 confirmation programs for both the 616 NRDWSF and the offsite receiving
25 TSD facilities. Section 7.0 presents the requirements to be met for sampling
26 and analysis of waste streams by the generators, where necessary.
27 Section 11.0 presents the sampling and analytical requirements for the waste
28 confirmation program.

29 30 31 32 **7.0 SAMPLING AND ANALYSIS FOR HAZARDOUS WASTE DISPOSAL ANALYSIS RECORDS**

33
34
35 In some cases, process knowledge, MSDS, or other process- or chemical-
36 specific information might not be available to complete a HWDAR. In such
37 cases, the SWDD will require the generating unit to provide more information
38 by sampling the waste stream and analyzing the waste streams for pertinent
39 parameters (Table 3). The following describes the sampling and analytical
40 requirements for such characterization. These procedures and requirements
41 also are used in waste confirmation sampling and characterization of spills
42 and unknown liquids (Section 12.0).

43 44 45 **7.1 SAMPLING METHODS**

46
47 Because of physical variations of the waste that could be received at the
48 616 NRDWSF, sampling methodologies differ among the waste streams. The
49 sampling methods and equipment used are identified on Table 2.

50
51 In all cases, the sampling methods adhere to guidance provided in SW-846
52 and other pertinent references published and accepted by the EPA. Typical

1 sample container requirements for aqueous and solid samples are provided in
2 Table 4.

3
4 The generating unit selects the appropriate sampling technique and sample
5 container based on knowledge of the waste material matrix (solid, liquid,
6 sludge) and the specific analytes of interest. The generating unit is
7 responsible for arranging all sampling and laboratory support for sample
8 analysis. Samples are processed either onsite or offsite at one of several
9 laboratories qualified to perform analysis of waste samples in accordance with
10 SW-846 methods. Sampling methodologies are identified in Table 2.

11
12 The generating unit also documents the sampling activities, chain of
13 custody, and arranges sample shipment. Sampling information, custody records,
14 and analytical results are submitted as part of the WSDR data package
15 submitted by the generating unit to the SWDD for review, approval, and
16 designation.

17
18 All generating unit sampling will conform to the protocols in SW-846.
19 These protocols are described briefly in the following paragraphs.

20
21 Sampling procedures are designed to ensure that each sample is accounted
22 for at all times. The primary objectives of the sample control procedures are
23 as follows.

- 24
25 • Each sample received for analysis is uniquely identified.
- 26
27 • Correct samples are analyzed and are traceable to the applicable data
- 28 records.
- 29
30 • Important and necessary sample constituents are preserved.
- 31
32 • Samples are protected from loss, damage, or tampering.
- 33
34 • Any alteration of samples during collection or shipping (e.g.,
- 35 filtration, preservation, breakage) is documented.
- 36
37 • A record of sample custody and integrity is established that will
- 38 satisfy legal scrutiny.

39
40 The basic sampling procedure is as follows:

- 41
42 • Obtain samples using a precleaned sampler
- 43
44 • Fill sample containers in the following sequence: headspace volatile
- 45 organics, volatile organics, semivolatile organics, metals,
- 46 ignitability, pH (corrosivity), reactivity, radiochemical parameters
- 47
- 48 • Label sample containers
- 49
50 • Properly clean and decontaminate sample containers and the sampling
- 51 hardware
- 52

- 1 • Custody-seal and blister-wrap all sample containers, place wrapped
- 2 containers in a leaktight polyethylene bag, and place samples in a
- 3 durable ice-filled cooler or comparable receptacle for transport to
- 4 the laboratory
- 5
- 6 • Complete the chain-of-custody and request-for-analysis forms
- 7
- 8 • Review all paperwork and enclose the forms in a leaktight,
- 9 polyethylene bag taped to the underside of the cooler lid
- 10
- 11 • Seal and mark the coolers or comparable receptacles in accordance with
- 12 U.S. Department of Transportation requirements
- 13
- 14 • Transport coolers to the analytical laboratory.
- 15

16 Sample container selection is critical to sample quality. Considering
 17 waste compatibility, durability, volume, and analytical sensitivities, the
 18 containers listed in Table 4 are recommended to the generating units for these
 19 efforts.

20 All samples are labeled with at least the following information:

- 21 • A unique alphanumeric identifier
- 22 • Date and time of collection
- 23 • Sample collector's name
- 24 • Preservatives used
- 25 • Analyses requested.
- 26
- 27
- 28

29 Immediately after collection, samples are placed on ice or blue ice, if
 30 necessary, in durable coolers or comparable receptacles for transport to the
 31 laboratory. Before shipping, coolers or comparable receptacles are tightly
 32 sealed with duct tape and are custody-sealed along the front and back edges of
 33 the lids. Samples are transported via truck to laboratories within 24 hours
 34 of collection. Samples are transported to offsite laboratories via overnight
 35 courier to ensure delivery within 24 hours of sample collection. All sample
 36 collection, preparation, packaging, transportation, and analysis conforms to
 37 the requirements of SW-846.

38 During all sampling activities, strict compliance with health physics
 39 (HP), Industrial Hygiene (IH), and safety standards is mandatory. Personnel
 40 are required to wear eye, skin, and respiratory protection gear, as dictated
 41 by IH and HP personnel. If personnel accidentally contact waste material,
 42 decontamination procedures are performed immediately.

43 Sample collectors maintain a permanent log of sampling activities. The
 44 log entries typically includes the purpose of sampling; date and time of
 45 collection; sample number; sampling location; sampling methodology; container
 46 description; waste description (sludge, contaminated soil, etc.); description
 47 of generating process or originating waste, name and address of waste
 48 producer; name and address of field contact; number and volume of samples;
 49 list of suspected hazardous materials; field observations; field measurements
 50 (e.g., pH, percent lower explosive limit); destination and transporter; and
 51 signature of collector.

1 A chain-of-custody record accompanies samples at all times. The record
2 contains the sample number, date and time of collection, sample description,
3 and signatures of the collector and all subsequent custodians.

4
5 Transportation of samples is in accordance with the U.S. Department of
6 Transportation and the DOE-RL requirements. Hazardous waste samples are
7 properly packaged, marked, and labeled. Shipping papers are prepared as
8 required by the U.S. Department of Transportation.

9
10 All equipment used to sample waste materials is disposable or designed
11 for easy decontamination. Cleanable equipment is thoroughly decontaminated
12 before reuse. Decontamination solutions are managed as hazardous waste as
13 appropriate, according to the threshold contaminant levels exceeded in the
14 sampled liquids.

15 16 17 **7.2 SAMPLE CUSTODY**

18
19 Generating units are responsible for initiating and following chain-of--
20 custody procedures. Generating unit personnel initiate sample custody records
21 in the field at the time samples are collected. A chain-of-custody form is
22 used to document sample collection activities, including sampling site, sample
23 identification, number of samples, and date and time of collection.
24 Additionally, the form documents the chain of custody including the names of
25 responsible individuals and the dates and times of custody transfers.

26 27 28 **7.3 SAMPLE RECEIPT AND STORAGE**

29
30 Samples are received in an onsite laboratory or qualified contract
31 laboratory by a sample custodian. This individual carefully reviews received
32 samples and documentation for compliance with sampling and documentation
33 requirements, such as type and condition of container, sample preservation,
34 collection date, and chain-of-custody forms. The sample custodian signs and
35 dates the chain-of-custody form after confirming that all samples submitted
36 are listed and that the required information is listed on the form. The
37 sample custodian stores and secures the samples appropriately (e.g., in a
38 locked refrigerator).

39
40 The sample custodian places an identification number on each sample and
41 returns the samples to a refrigerator designated for storage of samples
42 requiring analysis. Samples also are assigned a location code (i.e.,
43 refrigerator number, shelf number, tray identification) to identify the
44 refrigerator and location within the refrigerator in which the samples are
45 stored. Based on the type of sample and analysis requested, special
46 procedures for sample handling, storage, and distribution could be specified.

47 48 49 **7.4 SAMPLE DISTRIBUTION**

50
51 Chain-of-custody documentation for samples continues throughout the
52 analytical process. After logging in and storing the samples, the sample
53 custodian distributes sample receiving logs, which list sample numbers and

analyses to be performed, to the appropriate analysts and technical leaders. On completion of analyses, results are submitted to the generating unit along with QA/QC information.

8.0 ANALYTICAL METHODS

Table 1 lists the analytical methods that generating units use to perform the analyses in Section 7.1. To the extent possible, analytical test methods will be those specified in SW-846. The generating units document any deviations or methods modifications.

As noted in Section 5.0, the generating unit may complete a WSDR based on chemical data, materials profiles, or other process-related information in lieu of analysis. However, the SWDD personnel may require waste analysis in conformance with this waste analysis plan if the data provided in lieu of analysis are determined to be inadequate.

All testing is performed by chemists and HP technicians working under approved QA guidelines.

9.0 FREQUENCY OF WASTE DESIGNATION AND/OR CHARACTERIZATION

The dangerous waste streams that are sources of waste accepted at the 616 NRDWSF are either:

- 'Nonroutine wastes' that are designated through the normal HWDAR system when the waste is generated. The HWDAR system is performed for each waste stream.
- 'Routine wastes' for which the HWDAR processes are performed annually, at a minimum.

Examples of nonroutine and routine waste streams are provided in other documentation (DOE-RL 1993). Parameters for the waste designation and/or characterization rationale are listed in Table 3. The annual waste characterization for routine waste generally is considered adequate when the generating process is highly controlled and waste composition remains consistent for the duration of the year. Nonroutine waste streams accepted by the 616 NRDWSF are generated on an irregular or one-time basis. Each such 'new' waste stream (i.e., one not previously shipped to the 616 NRDWSF) also must be characterized before acceptance.

More frequent waste characterization is required under the following circumstances:

- A new waste stream is generated
- The process generating the waste changes
- The waste characteristics are highly variable from shipment to shipment
- SWDD personnel have reason to suspect a change in the waste based on inconsistencies in the WSDR, packaging, or labeling of the waste
- The offsite TSD facility rejects the waste because the fingerprint samples are inconsistent with the waste profile provided by the SWDD.

All waste characterization data submitted in support of the WSDR are reviewed by SWDD to determine whether the waste can be accepted at the 616 NRDSF for storage. The SWDD can, at its discretion, require additional analyses or re-analysis to substantiate waste characteristics.

10.0 WASTE ANALYSIS REQUIREMENTS PERTAINING TO LAND DISPOSAL RESTRICTIONS

The *Hazardous and Solid Waste Amendments of 1984* prohibit the land disposal of certain types of waste that are subject to RCRA. Many of the waste types stored at the 616 NRDSF fall within the purview of these land disposal restrictions (LDRs). Information presented in this section describes how generating units and SWDD characterize, document, and certify waste subject to LDR requirements.

10.1 WASTE CHARACTERIZATION

For all newly generated waste being shipped to the 616 NRDSF, generating units are required to document the RCRA waste characteristics, the level of toxicity characteristics, and the presence of listed waste. This information allows generating units and the SWDD personnel to accurately make all LDR determinations and complete and receive all appropriate notifications and certifications. The information is documented on the HWDAR as described in Section 4.0.

10.2 SAMPLING AND ANALYTICAL PROCEDURES

The LDR waste is designated or sampled and analyzed using only EPA-approved methods. Approved methods are described in Sections 5.0.

10.3 FREQUENCY OF ANALYSIS

All LDR waste streams are characterized at least annually. Waste characterization might be required more frequently under the following circumstances:

- A new waste stream is generated
- A process generating the waste changes
- The waste characteristics are highly variable from shipment to shipment.
- SWDD personnel have reason to suspect a change in the waste based on inconsistencies in the manifest, packaging, or labeling of the waste
- The offsite TSD facility rejects the waste because the fingerprint samples are inconsistent with the waste profile provided by SWDD.

10.4 DOCUMENTATION AND CERTIFICATION

The 616 NRDWSF provides interim storage for dangerous waste eventually destined for treatment or disposal at offsite TSD facilities. The 616 NRDWSF has and will continue to receive and store LDR waste.

Because waste treatment does not occur at the 616 NRDWSF, the SWDD requires offsite waste generating units to provide all notifications and certifications as mandated by 40 CFR 268.7. Accordingly, all offsite generating units of waste that is subject to LDR or any LDR related variances are required to submit to the 616 NRDWSF all of the notifications and certifications described in 40 CFR 268.7.

In cases where an offsite generating unit determines that an LDR waste does not meet the applicable treatment standards set forth in 40 CFR 268, Subpart D, or exceeds the application prohibition levels set forth in 40 CFR 268.32 or Section 3004(d) of RCRA, the offsite generating unit provides to the 616 NRDWSF a written notice that includes the following information:

- EPA hazardous waste number
- The corresponding treatment standards and all applicable prohibitions set forth in WAC 173-303, 40 CFR 268.32, or RCRA Section 3004(d)
- The manifest number associated with the waste
- All available waste characterization data.

In cases where an offsite generating unit determines that a restricted waste is being managed that can be land disposed without further treatment, the generating unit submits a written notice and certification to the 616 NRDWSF stating that the waste meets applicable treatment standards set forth in WAC 173-303- (40 CFR 268, Subpart D), and the applicable prohibition levels set forth in 40 CFR 268.32 or RCRA Section 3004(d). The notice includes the following information:

- EPA hazardous waste number
- Corresponding treatment standards and applicable prohibitions

- Waste tracking number associated with the waste
- All available waste characterization data.

The following certification accompanying any of the previously described notices is signed by an authorized representative of the generating unit.

"I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D and all applicable prohibitions set forth in 40 CFR 268.32 or RCRA Section 3004(d). I believe that the information I submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."

For waste in labpacks, one of the following certifications will be signed by an authorized representative of the generating unit.

"I certify under penalty of law that I personally have examined and am familiar with the waste and that the labpack contains only the wastes specified in Appendix IV to Part 268 or solid wastes not subject to regulation under 40 CFR part 261. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine or imprisonment."

"I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste and that the labpack contains only organic waste specified in appendix V to part 268 or solid wastes not subject to regulation under 40 CFR part 261. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine or imprisonment."

Copies of all notices and certifications described are retained at the TSD unit for at least 5 years from the date that the waste, which is the subject of documentation, was last sent to an onsite or offsite TSD unit. After that time, the notices and certifications are sent to Records Storage. Notices and certifications also are provided to offsite TSD units with the waste shipments, as required.

11.0 WASTE CONFIRMATION

The waste confirmation program (Figure 3) involves the following.

- Visual observation by SWDD-designated personnel of waste material as it is packaged and sampled, if performed, at the generating unit location or on receipt at the 616 NRDWSF.

- At least 5 percent of the waste containers stored at the 616 NRDWSF during a federal fiscal year will undergo confirmation of designation pursuant to this section. The number of containers to meet the 5 percent requirement is the average of containers for the previous 3 months. For example, if 200 containers are received in January, 180 in February, and 220 in March, 10 containers of inbound waste must undergo confirmation of designation in April. All generating units that ship more than 20 containers through the 616 NRDWSF in a fiscal year will have at least one container confirmed annually. Containers for which there is insufficient process knowledge or analytical information to designate without sampling and analysis may not be counted as part of the 5 percent requirement unless there is additional confirmation of designation independent of the generating unit designation. The generating unit's staff will not select the waste containers to be sampled and analyzed.
- Physical characteristics of the waste examined during the waste confirmation process will include color, odor, volume, phases, physical state, and layering. The qualitative field test parameters, instrumentation, and ranges of acceptance are identified in Figure 3. The SWDD-designated personnel will perform all qualitative tests and confirm the results of the tests at the time of performance in accordance with the ranges established for acceptance. On detection of a first discrepancy between the generating unit's WSDR and the qualitative test results, the SWDD-designated personnel will cease confirmation activities until the discrepancy is resolved.
- Following positive confirmation (confirmed at the generating unit) of a waste shipment, the SWDD-designated personnel will apply a tamper-proof seal to all containers within the designated waste shipment. Each tamper-proof seal will be identified with a unique number. The tamper-proof seals will remain in place until the waste shipment has arrived at the 616 NRDWSF and has been inspected and accepted for storage.
- All waste confirmation activities will be documented in a waste confirmation log book.

12.0 WASTE ANALYSIS FOR SPILLS AND UNKNOWN LIQUIDS

In the event of a spill or release of dangerous waste within the 616 NRDWSF, the following steps will be implemented.

- The identification number on the leaking container will be determined based on visual inspection. If the container(s) involved cannot be approached, the location of the container involved and the associated storage cell designations can be determined from a distance. It should be noted that the written waste inventory log and the 616 NRDWSF database can track a container identification number to the exact location in the storage cell.

- The container identification number or container location number will be entered into the 616 NRDWSF inventory database to determine the waste identification (HWDAR) number to track the container to the waste characterization file or find the data correlation from the waste inventory log.
- The hard copy of the HWDAR will be located, which contains all applicable information regarding the contents of the container. The hazards associated with the waste will be determined before exercising the emergency response procedures outlined in the 616 NRDWSF building emergency plan (WHC 1993).
- Respond to the spill in accordance with the requirements of the 616 NRDWSF building emergency plan (WHC 1993).

If a leak or other liquid is discovered within the 616 NRDWSF that cannot be tracked to a specific container because of safety or logistics reasons, the procedures outlined in the 616 NRDWSF building emergency plan would be implemented for responding to an 'unknown' chemical release. The residues of such a release would be sampled and analyzed in accordance with the requirements in Section 7.1 to determine the characteristics of the waste residue as defined by 40 CFR 261.

The unloading and loading area outside the 616 NRDWSF is equipped with containment berms that provide secondary containment for spills or leaks that could occur in the unloading and loading area. Under normal operating conditions, such as receipt of a shipment or unloading of containers, the drain plug in the unloading and loading area is kept closed and locked to ensure containment within the bermed area. In the event that waste residues are discovered in the unloading and loading area, the following will be performed.

- The material involved in the spill will be known based on the waste information provided by the generating unit on the WSDR. In the event that the material spilled is not known (e.g., two different waste types spill and react resulting in other chemical combinations), a sample will be collected and analyzed to characterize the material. This analysis will include pH, metals, volatile organics, and semivolatile organics. Sampling and analysis will be performed as described in Section 7.1.
- Absorbents will be applied to the spill area to clean up the spilled material. If necessary, neutralizing or other chemical agents will be applied to mitigate potential chemical reactions or to better control highly toxic materials. The plate overlying the drain plug will be removed and absorbents and neutralizing agents added to the drain plug area. The interior lip of the drain plug structure will be swabbed with absorbent pads to remove any spill material or decontamination solutions.
- Absorbed waste will be cleaned up from the unloading and loading area and the drain plug area with brooms and dust pans and placed in compatible containers. The absorbed material also could be collected

manually (by wearing proper protective equipment). The containers will be labeled appropriately (based on characterization), and the waste will be managed as follows:

- If the waste has been altered during stabilization and cleanup actions (absorbed, mixed, diluted, etc.), the containerized waste will be placed in storage.
- A WSDR will be submitted to the SWDD staff for waste designation. In response, the SWDD staff will issue a HWDAR describing the regulatory status and proper packaging, labeling, and marking requirements for the waste.
- The 616 NRDWSF inventory will be altered to reflect the changes in waste description, volume, and storage locations.
- If the waste was not altered during stabilization and cleanup activities, the containerized waste will be placed in the appropriate storage area and the 616 NRDWSF inventory altered to reflect any changes.
- The affected area will be decontaminated with cleaning agents appropriate to the material spilled and the cleaning and rinse solutions collected in containers. The effectiveness of the decontamination effort will be determined as follows.
 - Wipe samples will be taken of the spill area in accordance with an approved procedure (EPA 1987a) using Whatman¹ No. 42 filter paper or an equivalent. The filter paper used to collect the sample will be moistened with an appropriate collection medium based on the characteristics of the spilled material. Wherever possible, organic free water will be used as the collection medium to minimize the generation of additional dangerous waste. In the event that water would not be an appropriate collection medium to dissolve the contamination of concern, the solvent used by the laboratory for analysis will be used. The filter paper will be sent to a laboratory where the filter paper will be prepared and analyzed for constituents known to have been involved in the spill to confirm cleanup adequacy.

An alternative sampling mechanism will be used for detection of waste matrices for which wipe sampling protocols are ineffective. Volatile organics will be detected using organic vapor air samplers. To detect the presence of corrosive liquids, pH paper and pH monitors will be used. The type of sampling technique used to determine the cleanliness of the contaminant will be documented in the spill logbook.
- When sampling techniques have confirmed cleanup, the 616 NRDWSF Supervisor will sign the spill logbook indicating that the waste was

¹Whatman is a trademark of Whatman Incorporated.

removed from the containment system and cleanup activities were completed. A SWDD representative, other than the 616 NRDWSF Manager, will review the actions taken and the entries in the spill logbook before signing the logbook to indicate approval of the actions taken.

In the event of a fire sprinkler activation or a pipe break within the 616 NRDWSF that results in collection of water in the containment system, the following will be performed.

- Water in the containment system visually will be inspected for signs of contamination.
- The water will be removed from the containment system. Water that cannot be confirmed to be free of contamination will be containerized and stored in an area equipped with secondary containment.
- The 616 NRDWSF Supervisor will sign the logbook indicating that the water was removed from the containment system.

If contamination remains, decontamination will be repeated as needed and completion of decontamination confirmed by sampling and analysis.

- The collected cleaning and rinse solutions will be labeled and managed at the 616 NRDWSF as dangerous waste pending the receipt of analytical results. The cleaning and rinse solutions will be reclassified as to waste type on receipt and review of the analytical results and dispositioned accordingly.

The drain plug will remain in place until all cleanup and decontamination is completed.

All spill response, clean up, and notification will be in accordance with the 616 NRDWSF building emergency plan.

13.0 QUALITY ASSURANCE AND QUALITY CONTROL

The primary purpose of waste testing is to ensure that the waste is properly characterized in lieu of process knowledge data in compliance with RCRA requirements for general waste analysis (40 CFR 264.13). Waste testing also is performed to ensure the safe management of waste being stored, proper disposition of residuals from incidents that might occur, and control of the acceptance of waste for storage. The specific objectives of the waste sampling and analysis program for waste being sent to the 616 NRDWSF are as follows:

- Identify the presence of waste that is substantially different from waste currently stored

- Provide an analysis that is accurate and up-to-date to ensure that waste is properly treated and disposed of
- Ensure safe management of waste undergoing storage at the 616 NRWSF
- Ensure proper disposal of residuals
- Ensure compliance with LDRs
- Identify and reject waste that does not meet the 616 NRWSF waste acceptance criteria and the HWDAR.

13.1 QUALITY ASSURANCE AND QUALITY CONTROL OBJECTIVES

The objectives of the QA/QC program are two-fold. The first objective is to control and characterize any errors associated with the collected data. Quality assurance activities, such as the use of standard procedures for locating and collecting samples, are intended to limit the introduction of error. Quality control activities, such as the collection of duplicate samples and the inclusion of blanks in sample sets, are intended to provide the information required to characterize any errors in the data. Other QC activities, such as planning the QC program and auditing ongoing and completed activities, ensure that the specified procedures are followed and that the QA information needed for characterizing error is obtained.

The second QA/QC objective is to illustrate that waste testing has been performed according to specification in this waste analysis plan. The QA/QC activities will include the following.

- Laboratory analyses--performed by onsite or offsite laboratories on samples of waste. The purpose of the laboratory analyses is to determine constituents or characteristics present and the concentration or level.
- Checklists--required for critical inspections. Checklists are filled out during the course of a laboratory inspection to document inspection results.
- Instrument calibration--required for maintaining records of calibration of all instruments used to perform surveying, field testing, and laboratory analyses.

13.2 DATA QUALITY OBJECTIVES

The data quality objectives (DQOs) (EPA 1987b) for waste testing will include, but not be limited to, the requirements of Section 13.0.

13.3 SAMPLING OBJECTIVES

The DQOs for the waste sampling and data analyses are as follows:

- Determine if waste samples are representative of the contents of the containers at the time the samples were taken
- Determine if waste samples are representative of long-term operations affecting the 616 NRDWSF
- Determine if waste accepted for storage is within the RCRA permit application documentation limitations
- Determine if waste accepted for storage meets the requirements of the 616 NRDWSF waste acceptance criteria
- Determine if waste accepted for storage meets the WSDR provided by the generating unit.

13.4 DATA COLLECTION/SAMPLING OBJECTIVES

The acquired data need to be scientifically sound, of known quality, and thoroughly documented. The DQOs for the data assessment will be used to determine compliance with National Quality Standards, which are as follows.

- Precision--the precision will be the agreement between the collected samples (duplicates) for the same parameters, at the same location, and from the same collection vessel
- Representativeness--the representativeness will address the degree to which the data accurately and precisely represents a real characterization of the population, parameter variation at a sampling point, sampling conditions, and the environmental condition at the time of sampling. The issue of representativeness will be addressed for the following points.
 - Based on the generating process, the waste stream, and its volume, an adequate number of sampling locations are selected.
 - The representativeness of selected media has been defined accurately.
 - The sampling and analytical methodologies are appropriate.
 - The environmental conditions at the time of sampling are documented.
- Completeness--the completeness will be defined as the ability of the sampling and analytical methodologies to accurately measure the contaminants present in the waste.
- Comparability--the comparability of the data generated will be defined as the data that are gathered using standardized sampling methods, standardized analysis methods, and quality-controlled data reduction and validation methods.

13.5 ANALYTICAL OBJECTIVES

The data for chemical analyses will meet the EPA quality level III criteria. Data from radiological analyses will meet EPA quality level V criteria.

13.6 FIELD QUALITY ASSURANCE AND QUALITY CONTROL

Internal QA/QC checks will be established by submitting QA and QC samples to the analytical laboratory. The number of field QA samples will be approximately 5 percent of the total number of field samples taken. The 5 percent criterion commonly is accepted for a minimum number of QA/QC samples. The types and frequency of collection for field QA samples are as follows.

- Field Blanks--defined as samples of ASTM Type II (or other high purity) water from the same source as water used for decontamination. One field blank will be prepared for each sampling event and analyzed for the same analytes as the samples collected that day. A field blank will be taken each day of sampling at a minimum. Field blanks are prepared and preserved using sample containers from the same lot as the other samples collected that day. Results of the field blank analysis will help determine the level of contamination introduced into the sample due to sampling technique and as a check of the water used for decontamination.
- Field Replicates--defined as independent samples collected in such a manner that the samples are equally representative of the variables of interest at a given point in space and time. The laboratory will use the field replicate as laboratory replicates and/or matrix spikes. Thus, for the replicate sample, there will be the normal sample analysis, the field replicate, and the laboratory replicate (inorganic analysis). Replicate samples will provide an estimate of sampling precision.

13.7 LABORATORY QUALITY ASSURANCE AND QUALITY CONTROL

The daily quality of analytical data generated in the contracted analytical laboratories will be controlled by the implementation of an analytical laboratory QA plan.

Before commencement of the contract for analytical work, the laboratory will submit its QA plan to the waste analysis project manager and the QA officer for approval. At a minimum, the plan will document the following:

- Sample custody and management practices
- Sample preparation and analytical procedures
- Instrument maintenance and calibration procedures
- Internal QA/QC measures including the use of method blanks
- Sample preservatives used
- Analyses requested.

The types of internal quality control checks are as follows.

- Method Blanks--method blanks usually consist of laboratory reagent grade water treated in the same manner as the sample (i.e., digested, extracted, distilled) that are analyzed and reported as a standard sample would be reported.
- Method Blank Spike--a method blank spike is a sample of laboratory reagent-grade water fortified (spiked) with the analytes of interest, which is prepared and analyzed with the associated sample batch.
- Laboratory Control Sample for Inorganics--this is a standard solution with a certified concentration that is analyzed as a sample and used to monitor analytical accuracy (equivalent to a method blank spike).
- Matrix Spikes--a matrix spike is an aliquot of an investigative sample that is fortified (spiked) with a known quantity of the analytes of interest and analyzed with an associated sample batch to monitor the effects of the investigative sample matrix (matrix effects) on the analytical method. Matrix spikes are performed only in association with selected protocols. Matrix spikes will be performed on 5 percent of the samples (1 in 20) or one per batch of samples, whichever is greater.
- Laboratory Duplicate Samples--duplicate samples are obtained by splitting a field sample into two separate aliquots and performing two separate analyses on the aliquots. The analysis of laboratory duplicates monitors the precision of the analytical method for the sample matrix. However, it might be affected by nonhomogeneity of the sample, particularly in the case of nonaqueous samples. Duplicates are performed only in association with selected protocols. Laboratory duplicates are performed on 5 percent of the samples (1 in 20) or one per batch of samples, whichever is greater. If the precision value exceeds the control limit, the sample set must be reanalyzed for the parameter in question.
- Known QC Check Sample--this is a reference QC sample as denoted by SW-846 of known concentration, obtained from the EPA, the National Institute of Standards and Technology, or an EPA-approved commercial source. This QC sample is to check the accuracy of an analytical procedure. It is particularly applicable when a minor revision or adjustment has been made to an analytical procedure or instrument. The results of a QC check standard analysis are compared with the true values and the percent recovery of the check standard is calculated.

14.0 RECORDKEEPING

This waste analysis plan is kept with the SWDD manuals containing all documents referenced in the waste analysis plan except for the laboratory documents, which are maintained at the laboratories. Records associated with

the waste analysis plan and waste confirmation program are maintained by the SWDD organization. A copy of the HWDAR for each waste stream accepted at the 616 NRDWSF also is maintained at the 616 NRDWSF office. Generating units maintain their sampling and analysis records. If necessary to complete the waste designation and audit compliance with SW-846 sampling and analysis protocols, the SWDD might request copies of this information. The analytical data would be kept with the HWDAR packages.

The waste analysis plan will be revised under the following circumstances:

- Whenever test methods are changed
- When waste streams or process operations are modified, thus requiring a change in the parameters to be tested
- Referenced personnel, organizations, or procedures change
- Whenever regulation changes affect the waste analysis plan.

This waste analysis plan is maintained as a controlled document under the existing guidelines for document control within the SWDD. Documents are maintained for a period of 5 years by the SWDD group and are forwarded to the Document Control organization for permanent storage.

15.0 GLOSSARY

This section contains acronyms, abbreviations, and terminology, and metric conversions used throughout this document.

616 NRDWSF	616 Nonradioactive Dangerous Waste Storage Facility
ASTM	American Society for Testing and Materials
CFR	Code of Federal Regulations
CIN	container identification number
DOE-RL	U.S. Department of Energy, Richland Operations Office
DQO	data quality objectives
EPA	U.S. Environmental Protection Agency
FIFRA	<i>Federal Insecticide, Fungicide, and Rodenticide Act of 1975</i>
ft	foot
HP	health physics
HWDAR	hazardous waste disposal analysis record
IH	industrial hygiene

1	inch	inch
2		
3	LDR	land disposal restriction
4		
5	MSDS	material safety data sheets
6		
7	OSHA	Occupational Safety and Health Administration
8		
9	PCB	polychlorinated biphenyls
10	pH	negative concentration logarithm of the hydrogen-ion concentration
11		
12		
13	QA/QC	quality assurance and quality control
14		
15	RCRA	<i>Resource Conservation and Recovery Act of 1976</i>
16		
17	SWDD	solid waste disposal division
18		
19	TSCA	<i>Toxic Substances Control Act of 1976</i>
20		
21	TSD	treatment, storage, and/or disposal
22		
23	WAC	Washington Administrative Code
24	WHC	Westinghouse Hanford Company
25	WSDR	waste storage disposal request
26		
27		

METRIC CONVERSION CHART

The following conversion chart is provided to the reader as a tool to aid in conversion.

Into metric units

Out of metric units

If you know	Multiply by	To get	If you know	Multiply by	To get
Length			Length		
inches	25.40	millimeters	millimeters	0.0393	inches
inches	2.54	centimeters	centimeters	0.393	inches
feet	0.3048	meters	meters	3.2808	feet
yards	0.914	meters	meters	1.09	yards
miles	1.609	kilometers	kilometers	0.62	miles
Area			Area		
square inches	6.4516	square centimeters	square centimeters	0.155	square inches
square feet	0.092	square meters	square meters	10.7639	square feet
square yards	0.836	square meters	square meters	1.20	square yards
square miles	2.59	square kilometers	square kilometers	0.39	square miles
acres	0.404	hectares	hectares	2.471	acres
Mass (weight)			Mass (weight)		
ounces	28.35	grams	grams	0.0352	ounces
pounds	0.453	kilograms	kilograms	2.2046	pounds
short ton	0.907	metric ton	metric ton	1.10	short ton
Volume			Volume		
fluid ounces	29.57	milliliters	milliliters	0.03	fluid ounces
quarts	0.95	liters	liters	1.057	quarts
gallons	3.79	liters	liters	0.26	gallons
cubic feet	0.03	cubic meters	cubic meters	35.3147	cubic feet
cubic yards	0.76	cubic meters	cubic meters	1.308	cubic yards
Temperature			Temperature		
Fahrenheit	subtract 32 then multiply by 5/9ths	Celsius	Celsius	multiply by 9/5ths, then add 32	Fahrenheit

Source: *Engineering Unit Conversions*, M. R. Lindeburg, PE., Second Ed., 1990, Professional Publications, Inc., Belmont, California.

- 1 WAC 173-303, *Dangerous Waste Regulations*, Washington State Department of
- 2 Ecology, Olympia, Washington.
- 3
- 4 WHC, 1993, *Building Emergency Plan-616 Building*, WHC-EP-0063, Westinghouse
- 5 Hanford Company, Richland, Washington.
- 6
- 7 40 CFR 261, *Identification and Listing of Hazardous Waste*
- 8
- 9 40 CFR 264, *Standards of Owners and Operators of Hazardous Waste Treatment,*
- 10 *Storage, and Disposal Facilities*
- 11
- 12 40 CFR 268, *Land Disposal Restrictions*
- 13

Figure 1. Location of 616 Nonradioactive Dangerous Waste Storage Facility.

36312012.6

Note: To convert feet to meters, multiply by 0.3048. To convert inches to centimeters, multiply by 2.54.

Figure 2. 616 Nonradioactive Dangerous Waste Storage Facility Floor Plan.

Figure 3. 616 Nonradioactive Dangerous Waste Storage Facility
5 Percent Waste Confirmation Techniques.

FOOTNOTES

- (A) EXAMPLES OF WASTE STREAMS THAT CAN NOT BE REPRESENTATIVELY SAMPLED ARE CONTAMINATED SOILS/ABSORBANTS (GENERATED FROM SPILL CLEANUP), RAGS, AND DEBRIS.
- (B) UNUSED PRODUCTS MUST BE IN THEIR ORIGINAL CONTAINERS.
- (C) VISUAL VERIFICATION OF LABPACKS AND COMBINATION PACKAGES WILL REQUIRE REMOVING ALL WASTES FROM THE OUTER CONTAINER.
- (D) EXAMPLE: A COMBINATION PACKAGE, REPORTEDLY CONTAINING 10 AEROSOL CANS, IS FOUND ALSO TO CONTAIN A JAR OF ROCK SALT--THE ROCK SALT IS SEGREGATED AND SHIPPED SEPARATELY. IF THE JAR HAD CONTAINED AN UNKNOWN, SW-846 PROTOCOLS WOULD BE UTILIZED.
- (E) THIS TEST INCLUDES THE HAZCATSM OXIDIZER, CYANIDE, AND SULFIDE TESTS. THESE TESTS WILL NOT BE PERFORMED ON MATERIALS KNOWN TO BE ORGANIC PEROXIDES, ETHERS, AND/OR WATER REACTIVE COMPOUNDS.
- (F) THIS TEST IS PERFORMED USING EITHER THE HAZCATSM FLAMMABILITY PROCEDURE B, AN EXPLOSIVE ATMOSPHERE METER, OR A CLOSED CUP FLASHPOINT MEASUREMENT INSTRUMENT.
- (G) THIS TEST WILL BE PERFORMED USING EITHER A PH METER/PEN OR PH PAPER (REFERENCE SW-846 METHOD 9041). THIS TEST WILL NOT BE PERFORMED ON NON-AQUEOUS SOLUTIONS.
- (H) THIS TEST IS PERFORMED USING THE APPROPRIATE CHLOR-O-TECTSM KITS, GENS ANALYSIS OR THE HAZCATSM CHLORINE, BROMINE, IODINE, AND FLUORINE TESTS. THIS TEST WILL NOT BE PERFORMED ON AQUEOUS WASTES.
- (I) THIS TEST WILL BE PERFORMED WITH A PHOTO OR FLAME IONIZATION TESTER*, OR, A GENS ANALYSIS.
- * THESE INSTRUMENTS ARE FIELD CALIBRATED EACH DAY.

Figure 4. Compatibility Chart (USCG 1985).

Table 1. Analytical Methodology Specified for Generating Unit Waste.
(sheet 1 of 3)

4	Parameter and method	Reference (EPA 1986 unless otherwise specified)
5	CHARACTERISTICS:	
6	Flash point Pensky-Martens closed-cup method	1010
7	Flash point Setaflash ^a closed-cup method	1020
8	Corrosivity pH meter or pH paper	9040 and
9		9041
10	Heavy metals Toxicity characteristic leaching	
11	procedure	1311
12	INORGANIC TECHNIQUES:	
13	Acid digestion procedure for flame atomic	
14	absorption spectroscopy	3010
15	Acid digestion procedure for furnace atomic	
16	absorption spectroscopy	3020
17	Acid digestion of oils, greases, or waxes	3040
18	Acid digestion of sludge	3050
19	Alkaline digestion	3060
20	ORGANIC TECHNIQUES:	
21	Separation funnel liquid, liquid extraction	3510
22	Continuous liquid, liquid extraction	3520
23	Acid-base cleanup extraction	3530
24	Soxhlet extraction	3540
25	Sonication extraction	3550
26	INORGANIC ANALYTICAL METHODS:	
27	Antimony	
28	Atomic absorption, direct aspiration method	7040
29	Atomic absorption, graphite hydride method	7041
30	Arsenic	
31	Atomic absorption, furnace method	7060
32	Atomic absorption, gaseous hydride method	7061
33	Barium	
34	Atomic absorption, direct aspiration method	7080
35	Atomic absorption, furnace method	7081
36	Beryllium (reserved)	
37	Atomic absorption, direct aspiration method	7090
38	Atomic absorption, furnace method	7091
39	Cadmium (8.54)	
40	Atomic absorption, direct aspiration method	7130
41	Atomic absorption, furnace method	7131

Table 1. Analytical Methodology Specified for Generating Unit Waste.
(sheet 2 of 3)

Parameter and method	Reference (EPA 1986 unless otherwise specified)
Chromium	
Atomic absorption, direct aspiration method	7190
Atomic absorption, furnace method	7191
Hexavalent chromium, co-precipitation	7195
Hexavalent chromium, calorimetric	7196
Hexavalent chromium, chelation-extraction	7197
Hexavalent chromium, differential pulse polarography	7198
Copper	
Atomic absorption, direct aspiration method	7210
Atomic absorption, furnace method	7211
Lead	
Atomic absorption, direct aspiration method	7420
Atomic absorption, furnace method	7421
Mercury	
In liquid waste (manual cold vapor technique)	7470
In solid or semisolid waste (manual cold vapor technique)	7471
Nickel	
Atomic absorption, direct aspiration method	7520
Atomic absorption, furnace method	7521
Osmium	
Atomic absorption, direct aspiration method	7550
Atomic absorption, furnace method	7551
Selenium	
Atomic absorption, direct aspiration method	7740
Atomic absorption, furnace method	4441
Silver	
Atomic absorption, direct aspiration method	7760
Atomic absorption, furnace method	7761
Thallium	
Atomic absorption, direct aspiration method	7840
Atomic absorption, furnace method	7841
Vanadium	
Atomic absorption, direct aspiration method	7910
Atomic absorption, furnace method	7911
Zinc	
Atomic absorption, direct aspiration method	7950
Atomic absorption, furnace method	7951

Table 1. Analytical Methodology Specified for Generating Unit Waste.
(sheet 3 of 3)

Parameter and Method	Reference (EPA 1986 unless otherwise specified)
ORGANIC ANALYTICAL METHODS:	
Gas chromatographic methods	
Halogenated volatile organics	8010
Nonhalogenated volatile organics	8150
Aromatic volatile organics	8020
Acrolein, acrylonitrile, and acetonitrile	8030
Phenols	8040
Phthalate esters	8060
Organochloride pesticides and polychlorinated biphenyls	8080
Nitroaromatics and cyclic ketones	8090
Polynucleararomatic hydrocarbons	8100
Chlorinated hydrocarbons	8120
Organophosphate pesticides	8140
Chlorinated herbicides	8150
Gas chromatographic/mass spectroscopy (GC/MS) methods	
GC/MS method for volatile organics	8240
GC/MS method for semivolatile organics packed column technique	8270
GC/MS method for semivolatile organics: capillary column technique	8250
MISCELLANEOUS ANALYTICAL METHODS:	
Total and amenable cyanide	9010
Total organic halides	9020
Sulfides	9030
Fish toxicity, static acute fish toxicity test	Ecology 80-12 Part A ^b
Rat toxicity, acute oral rat toxicity test	Ecology 80-12 Part B ^b
Halogenated hydrocarbons	Ecology 83-13 ^c
Polycyclic aromatic hydrocarbons	Ecology 83-13 ^c

^aSetaflash is a trademark of ERDCO Engineering Corporation.

^bEcology (1980).

^cEcology (1982).

Table 2. Sampling Methods and Equipment.

Material	Sampling method	Sampling equipment
Containerized liquids	SW-846	COLIWASA* or tubing
Extremely viscous liquid	ASTM D140-70	Tubing or trier
Crushed or powdered material	ASTM D346-75	Tubing, trier, auger, scoop, or shovel
Soil or rock-like material	ASTM D420-69	Tubing, trier, auger, scoop, or shovel
Soil-like material	ASTM D1452-65	Tubing, trier, auger, scoop, or shovel
Fly ash-like material	ASTM D2234-86	Tubing, trier, auger, scoop, or shovel
Containment systems	Wipe sampling (OSHA 1977)	Filter paper and cleaning solution

*COLIWASA = composite liquid waste sampler device.

Table 3. Parameters and Rationale for Waste Designation. (sheet 1 of 2)

Analytical Parameter	Rationale for Selection
1. Radioactive screen	All waste suspected of being radioactively contaminated or located within a radioactive zone is screened for radioactivity before being released to nonradioactive areas for the purpose of safe handling and proper management of the hazard characteristic.
2. pH	To indicate the degree of corrosivity of the waste for safe handling and to establish a relatively simple indicator parameter for the purpose of confirmation.
3. Flash point	To determine conditions for ignitability of waste content for safe handling. Organic waste that is determined to be ignitable will be directed to incineration or to reuse or recycle options if possible. This test also will determine if waste is an Ecology-and/or U.S. Department of Transportation-regulated ignitable, flammable, or combustible substance.
4. Water reactivity	To determine whether the waste has a potential to violently react with water to form gases or generate heat for the purpose of safe handling and proper disposition. The need for waste treatment may be determined, should waste be considered water reactive.
5. Reactive cyanide/ reactive sulfide content	To determine if waste produces hydrogen cyanide or hydrogen sulfide on acidification below pH 2. A positive cyanide or sulfide screen would direct the waste to a treatment or incineration facility. This waste would not be landfilled. This information would not be required for waste with pH less than 6.
6. Chemical compatibility	An analysis of dangerous reaction potential with other waste types will be performed for the purpose of segregating waste types in the 616 NRDWSF.
7. Physical description	To determine the general physical characteristics of the waste (e.g., viscosity, color, texture, odor-free liquids) for comparison between generating unit-supplied information and confirmation by the SWDD staff.
8. Specific gravity	To establish a measurement for a parameter that effectively compares liquid waste characteristics against generating unit-supplied information.

Table 3. Parameters and Rationale for Waste Designation. (sheet 2 of 2)

Analytical Parameter	Rationale for Selection
9. PCB screen	To determine PCB content in oil-bearing waste for the purpose of managing this waste in accordance with regulations prescribed in the <i>Toxic Substance Control Act of 1976</i> .
10. TCLP	A method used to determine whether a waste is a regulated toxic waste due to its toxicity characteristics.
11. Toxicity	To determine whether a waste is Ecology-regulated dangerous waste or extremely hazardous waste because of its toxic constituents as determined by the NIOSH Registry of Toxic Effects.
12. Halogenated hydrocarbons	To determine whether a waste is Ecology-regulated dangerous waste or extremely hazardous waste because of its halogenated hydrocarbon content.
13. Polycyclic aromatic hydrocarbons	To determine whether a waste is Ecology-regulated dangerous waste or extremely hazardous waste because of its polycyclic aromatic hydrocarbon content.
14. Carcinogenicity	To determine whether a waste is Ecology-regulated dangerous waste or extremely hazardous waste because of its carcinogenic chemical constituents as determined by the International Agency for Research on Cancer.
15. Biological testing	To determine whether a waste is Ecology-regulated dangerous waste or extremely hazardous waste because of its toxic constituents as determined by tests on biological systems.

Ecology = Washington State Department of Ecology
NIOSH = National Institute for Occupational Safety and Health
PCB = polychlorinated biphenyl
TCLP = toxicity characteristics leaching procedure

Table 4. Sample/Container Compatibility.

Sample	Container		
	Plastic	Glass	Metal
Acids (except hydrofluoric)	*	*	
Hydrofluoric acids	*		
Alkalies	*	*	
Solvents/Solvent Contaminated Oils	* ¹	*	*
Oils	*	*	*
Solids	*	*	*
Aqueous Waste	*	*	

*Sample compatible for storage in this type of container.

¹Polypropylene can be used with some solvent and/or solvent oil wastes.

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APPENDIX 8A

RCRA TRAINING

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APPENDIX 8A
RCRA TRAINING

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8A-1.0 TRAINING PROGRAM DESCRIPTION

This appendix describes the *Resource Conservation and Recovery Act of 1976* (RCRA) training program that is implemented at Solid Waste Disposal Division (SWDD) waste management units. Terms used in this appendix include Hanford Facility personnel, visitors, and subcontractors. Hanford Facility personnel include employees of the U.S. Department of Energy, Richland Operations Office (DOE-RL), and employees of the Hanford Facility major contractors (i.e., Westinghouse Hanford Company, Pacific Northwest Laboratories, Bechtel Hanford Company). Visitors include personnel who do not have a contract in place with DOE-RL or the Hanford Facility major contractors, and regulatory agency personnel who conduct regulatory compliance inspections. Subcontractors refer to any contractor working for DOE-RL or the major Hanford Facility contractors. These definitions could differ from other definitions used on the Hanford Facility to describe training requirements.

8A-1.1 TRAINING PROGRAM DIRECTOR

The manager of each SWDD waste management unit has overall responsibility for all training at the SWDD units under their control. However, no one individual is designated as training director. The position is shared among SWDD, training, and support organizations. The SWDD can access training resources and experts from many different areas on hazardous material, dangerous waste management, and safety rather than rely on the knowledge of one or more persons. This shared responsibility ensures the identification of appropriate training requirements and that the training program meets all applicable dangerous waste management requirements. General responsibilities for training are discussed in the following sections.

8A-1.1.1 SWDD Responsibilities

The SWDD has the following responsibilities related to training:

- Determine training requirements and training compliance for all Hanford Facility personnel, subcontractors, and visitors who obtain access or work within SWDD units
- Request and/or conduct training
- Submit training completion records to the Training Records Information (TRI) system
- Identify training requirements to contractors working in or around SWDD units.

8A-1.1.2 Training Organization Responsibilities

Training organizations have the following responsibilities:

- Conduct informal job analysis and identify training commensurate with personnel duties and responsibilities
- Design and develop training programs
- Develop and instruct training courses
- Develop and maintain on-the-job training requirements
- Operate and maintain centralized computerized training record files
- Track refresher requirements and maintain current training status for SWDD personnel
- Maintain the TRI system
- Process training completion records received into the TRI system.

8A-1.1.3 RCRA Support Organization Responsibilities

The RCRA support organizations have the following responsibilities:

- Consult with training organizations and SWDD in the development and reevaluation of current training programs
- Assist SWDD managers in determining training requirements and RCRA compliance for personnel
- Maintain current knowledge of RCRA training requirements pertaining to Hanford Facility personnel.

8A-1.1.4 ICF Kaiser Hanford Company (ICF KH) Responsibilities

ICF KH, whose personnel are classified as Hanford Facility personnel, has the following responsibilities:

- Ensure ICF KH employees are trained to meet SWDD unit training requirements
- Maintain ICF KH employee training records and provide them if requested by SWDD.

8A-1.2 TRAINING FREQUENCY

New employee training is completed within the first 6 months of assignment to SWDD or to a new position within the SWDD units, whichever is later. After completing introductory training, employees are required to receive annual refresher training for RCRA-related courses to meet continuing training requirements, unless otherwise justified. When annual refresher training is not warranted, the justification will be provided in the

corresponding course description in Appendix 8C. Refresher training for non-RCRA courses can occur either annually or biennially. Untrained employees are not allowed to work at SWDD units without supervision by a trained employee. The SWDD operations management is responsible for ensuring that all SWDD employees are trained and that certifications are maintained. To help inform SWDD operations when training will expire, a tickler file is available to indicate when training is within 90 days of expiration.

8A-1.3 TRAINING RECORDS

8A-1.3.1 Location of Training Records

Training records, as described in WAC 173-303-330, consist of documentation that shows training has been completed. Hanford Facility training records include both electronic data storage and hard copies. The electronic data storage information is the training record initially presented to demonstrate that personnel at SWDD units have been trained. After a course is completed, the electronic data storage record is created on the TRI system. The electronic data storage record will contain the course number, course title, date of attendance, and any refresher dates.

Hard copies of training records that are sent to the training record organization for entry onto the TRI system are initially maintained in Richland, Washington. Original hard copy training records are transferred quarterly to the Records Holding Facility in Richland, Washington. After approximately 1 year, the original hard copy training records are archived at the Federal Records Center in Kent, Washington. Electronic data storage and hard copy training records on former employees are kept for at least 3 years from the date the employee last worked at a SWDD unit.

8A-1.3.2 Access of Training Records

When a training record is requested during an inspection, an electronic data storage record will initially be provided. When the electronic data record does not satisfy the inspection concern, a hard copy training record will be provided. Training records on former employees may not be available for normal users and may require a representative from the training records organization to access the TRI system for this information.

8A-1.3.3 Determining Current Training Status

After an electronic data storage training record is obtained, it will be compared to information in Appendices 8A and 8D of this plan. This plan can be used to determine the RCRA training status of all Hanford Facility personnel, visitors, and subcontractors. The electronic data storage training record coupled with this training plan will allow any inspector the ability to quickly determine the training status of personnel in the field. To accomplish this, the correct training must be assigned after properly categorizing personnel into a variety of program areas.

8A-2.0 ASSIGNING THE CORRECT TRAINING

8A-2.1 EMPLOYEE CATEGORIES, JOB POSITIONS, AND DESCRIPTIONS

Five general worker categories are defined for compliance with the Hanford Facility dangerous waste training requirements. Personnel duties and responsibilities may overlap between categories. When overlaps occur, personnel will complete appropriate training pertaining to each category. The determining factor for placing specific personnel within any of the worker categories is the corresponding job duties. The five worker categories are as follows:

1. All Employees
2. General Worker
3. Advanced General Worker
4. General Manager
5. General Shipper.

The duties corresponding to these categories can be divided between "generator" and "SWDD unit" operations. The level of training is determined by the duties associated with each worker category. The descriptions of job duties for each category are general in nature; however, they do provide adequate specifics that can be matched to individual job titles or job positions commonly employed at the Hanford Facility. A general description of the duties associated with each worker category is contained in Table 8A-1.

The SWDD unit personnel are assigned a job title (from the salaried nonexempt or bargaining unit classifications) or position (from the exempt classifications). The job or position descriptions include applicable requisite skills, work experience, education, other qualifications, and a brief list of duties and/or responsibilities for each job title or position. Information regarding work experience, education, and other qualifications required for each position is maintained on the Hanford Facility. In general, all personnel require a high school diploma or General Educational Development (GED) certificate. Personnel filling exempt management or engineering positions may require a college degree with 2 or more years of industry experience. Many prerequisites exist for these positions. In some cases, a college degree may be waived as a prerequisite requirement. An equivalent combination of education and experience also may be accepted. Additional information on specific prerequisites can be provided upon request to SWDD management.

The following sections describe, within the appropriate worker category, job titles and brief position descriptions of Hanford Facility personnel, visitors, and subcontractors associated with dangerous waste management at SWDD units. Subcontractors and visitors requiring access to work or tour SWDD units must complete the appropriate level of training determined by SWDD management according to their job duties. Most visitors and subcontractors will be trained as if they were in the All Employee or General Worker categories, respectively.

Table 8A-1. Worker Categories.

Worker Categories	Generator Job Duties	SWDD Unit Specific Job Duties
All Employees	Is not categorized as a General Worker, Advanced General Worker, General Manager, or General Shipper.	Duties are the same as for generator job duties.
General Worker	Generates dangerous waste and places waste into appropriate containers. Waste management activities are overseen by person-in-charge or other SWDD unit personnel. Contingency plan duties are to immediately evacuate incident area and report incident to appropriate personnel. Duties and responsibilities would not exceed those stated above.	SWDD unit-specific duties might include repair, replacement, calibration, modification, or any other similar activity on SWDD unit systems. Work performed is either supervised by individuals with in-depth knowledge of systems and components or is adequately addressed through organized pre-job briefing before commencing work. Contingency plan duties are to evacuate the SWDD unit during emergencies and notify appropriate personnel.
Advanced General Worker	Duties include the generation and management of dangerous waste. Selects, packages, and prepares containers of dangerous waste for movement including proper marking and labeling of containers. Performs inspections of waste accumulation areas. Samples containers of dangerous waste and prepares samples for delivery to a laboratory. Contingency plan duties include responding to small spills in accordance with procedures within plans.	SWDD unit-specific duties include the control, operation, manipulation, sampling, transfer, or recording of dangerous waste within tank or waste process systems. Other duties include annunciator response and other offnormal operational responses to maintain SWDD unit within operational parameters. Escorts or directs General Workers in activities within the SWDD unit. Contingency plan duties include implementation of emergency procedures and small spill responses.
General Manager	Someone who can act as the Building Emergency Director, Environmental Compliance Officer, or directs Advanced General Workers in accumulation of dangerous waste. Responsible for the accountability and directing of employees during dangerous waste emergency events. Must be trained to the same level as managed employees.	Duties are the same as for generator job duties
General Shipper	Duties include the preparation and shipment of dangerous waste containers in compliance with applicable requirements. Directs General and Advanced General workers in dangerous waste management and/or transportation activities. Authorized individual for signing offsite waste manifests.	Duties are the same as for generator job duties.

Personnel who have completed training offsite are required to provide a certificate or other suitable training course(s) evidence that meets the requirements of WAC 173-303 and this section. SWDD management, or a delegated representative, must verify the acceptability of offsite training as commensurate with the employee's anticipated job assignment and the minimum training requirements referenced in this section.

8A-2.1.1 All Employees

Hanford Facility personnel included in this category are not categorized into one of the other four worker categories. Personnel in the All Employees category will have no duties or responsibilities associated with the management of dangerous waste in accumulation containers, or with the critical system of the SWDD unit. Most of the personnel categorized as All Employees

will be administrative personnel and visitors, subcontractors, or support organizations who tour or provide oversight at the SWDD unit. Although visitors and subcontractors are not defined as Hanford Facility personnel, they are still trained to a level equivalent to the All Employees category.

8A-2.1.2 General Worker

Hanford Facility personnel or subcontractors with waste management duties limited to the generation of waste and placing that waste into a pre-approved container are classified as General Workers. In addition, these personnel could be working on the critical system(s) of a SWDD unit conducting maintenance or modification. Employees classified as General Workers will not assume responsibilities that involve the inspection, advanced marking, or movement of accumulation containers. Personnel who function as General Workers may include, but are not limited to, the following:

- Maintenance personnel
- Health physics technicians
- Supervisors of ICF KH general workers
- Contractor crafts
- Truck drivers.

8A-2.1.3 Advanced General Worker

Hanford Facility personnel are categorized as Advanced General Workers if their job duties exceed that of General Workers. These personnel manage dangerous waste that can include the inspection, advance marking, or movement of containers. These personnel can also be involved in the operation of the SWDD unit's critical system(s). These personnel typically have responsibility to act and/or notify SWDD operations management when an incident occurs which requires immediate response, such as a spilled container or process upset.

8A-2.1.3.1 SWDD Operators. The SWDD operators can rotate through SWDD units and be assigned to different units during the year. Responsibilities and duties are similar regardless of the SWDD unit where the operators are currently working. Responsibilities for all SWDD operators at SWDD units include the following:

- Perform SWDD unit work activities in accordance with current operating procedures
- Escort supporting crafts and visitors working in or entering the SWDD unit
- Receive, segregate, sort, inventory, store, and stage dangerous waste
- Perform sampling as required by procedure
- Conduct routine inspections
- Provide surveillance of SWDD unit area for offnormal conditions

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- Assist truck drivers in loading and unloading at the SWDD units
- Ensure that trucks transporting dangerous waste are properly placarded
- Respond to alarms at the SWDD units
- Respond to offnormal and/or emergency conditions according to established procedures
- Respond to dangerous waste leaks or spills
- Ensure that the waste has been properly secured in the transportation vehicle.

8A-2.1.4 General Manager

Various types of management are included in this category. In addition, engineers assigned to SWDD units can be classified as General Managers if their involvement in waste management warrants such a classification. Other than the difference in titles, managers and engineers at SWDD units have many similar responsibilities and are required to take the same courses. The following managers are included within this category: (1) personnel who act as the Emergency Coordinator and/or alternate(s), (2) the Environmental Compliance Officer for the SWDD unit, and (3) managers of Advanced General Workers (i.e., operations managers). Engineers can be classified as General Managers if their responsibilities affect the critical system(s) of a SWDD unit.

8A-2.1.4.1 SWDD Building Emergency Director/Alternate(s). Responsibilities of the SWDD Emergency Coordinator/alternate(s) include the following:

- Function as the Emergency Coordinator as defined in WAC 173-303-360
- Determine if a RCRA contingency plan has been implemented during the course of an incident or process upset
- Ensure all reports to the Washington State Department of Ecology have been made after an incident or process upset has occurred
- Become thoroughly familiar with SWDD unit contingency plans, operations, activities, location and properties of all wastes handled, location of all records for the SWDD unit, and the SWDD unit layout.

8A-2.1.4.2 SWDD Environmental Compliance Officer. Responsibilities of the SWDD Environmental Compliance Officer include the following:

- Provide support to the SWDD unit management to ensure compliance with the applicable environmental compliance requirements as identified in this manual, environmental permits, the *Hanford Federal Facility Agreement and Consent Order* (Ecology et al. 1994), and other compliance orders

- Ensure that the SWDD unit management is aware of the unit's environmental compliance status and the unit's environmental compliance activities
- Understand and be able to explain the SWDD unit's environmental compliance status with all applicable environmental requirements
- Advise the SWDD unit management of new environmental requirements and policies, the associated impacts, and recommended implementation mechanisms to ensure compliance.

8A-2.1.4.3 SWDD Operations Management. Responsibilities of the SWDD operations management include the following and are similar for each SWDD unit:

- Maintain control over SWDD unit operations in accordance with established operating procedures and policies, DOE orders, and federal and state regulations
- Direct, control, and coordinate the receipt, storage, transfer, and reprocessing of dangerous waste
- Ensure compliance with SWDD unit operating limits and specifications
- Ensure that pre-job safety and planning meetings are conducted, as applicable, with Hanford Facility personnel, visitors, and subcontractors involved with the SWDD unit operations
- Ensure that regulatory records are maintained
- Understand SWDD unit operating procedures as applicable
- Respond to and provide remedial guidance and decisions for operational anomalies, offnormal conditions, and equipment malfunctions
- Respond to offnormal and/or emergency conditions according to established procedures
- Coordinate the recovery from, measure, and reestablish control of unplanned releases to the environment and other emergency conditions
- Notify the Emergency Coordinator of any unplanned releases to the environment.

8A-2.1.4.4 SWDD Engineers. Responsibilities of SWDD engineers (may include cognizant, systems, test, and/or maintenance engineers) include the following:

- Ensure that emergency and monitoring equipment, process equipment, procedures, designs, etc., comply with DOE orders, federal and state regulations, national standards, and applicable engineering procedures and management standards

- Issue and maintain, or provide oversight and review of, operating documentation, operating procedures, flowsheets, sample schedules, specifications, process test plans and procedures, operational safety requirements, and other documents necessary to operate the SWDD units
- Perform routine and comprehensive evaluations of SWDD unit processes to ensure compliance with process control requirements, procedure compliance, and equipment performance, assessing problem areas and implementing timely corrective actions
- Prepare, issue, and review operating procedures and departure authorizations
- Maintain instrument and equipment flow diagrams
- Prepare design criteria and perform and approve design analysis
- Prepare and approve equipment and material specifications for new design
- Prepare and approve engineering design documents and drawings that are in compliance with applicable policies, procedures, and instructions in accordance with recognized national standards and codes
- Provide input to environmental permit applications
- Develop procedures for inspecting and replacing emergency and monitoring equipment
- Ensure compliance with requirements, applicable policies, programs, regulations, and DOE orders to ensure personnel safety, environmental compliance, and public safety
- Review and revise maintenance procedures and work plans, and ensure that procedures are current and accurate
- Provide technical direction for hazardous material and dangerous waste spill responses
- Respond to offnormal and/or emergency conditions according to established procedures.

8A-2.1.5 General Shipper

General Shippers prepare and sign documentation for the shipment of dangerous waste. The SWDD units involve both onsite shipments and offsite shipments as defined by WAC 173-303-040. General Shippers who sign Uniform Hazardous Waste Manifests for offsite shipments are included within this appendix. Requirements for General Shippers who sign paperwork associated with onsite waste movements are discussed in Appendix 8B.

Offsite shipments are made from the 616 Nonradioactive Dangerous Waste Storage Facility (NRDWSF). In the future, offsite shipments may be made from other SWDD units; however, they are not occurring at this time. Offsite shipments may be received at some or all of the SWDD units. These shipments are received at the SWDD unit by SWDD operators who are categorized as Advanced General Workers. The SWDD operators will not be categorized as General Shippers because they are involved in the receipt of an offsite waste shipment.

8A-2.2 TRAINING PROGRAM AND STRUCTURE

The Hanford Facility training program was developed using a graded approach to training after reviewing DOE orders and federal and state regulations. Tasks performed by personnel in selected job positions were identified and evaluated to determine training requirements. In addition, training needs are evaluated continually in relation to current DOE orders and federal and state regulations. The current training program will be revised as necessary.

8A-2.2.1 Relevance of Training to Job Positions

After assigning Hanford Facility personnel, visitors, and subcontractors into a worker category, the training program must ensure that those individuals receive training commensurate with their duties and responsibilities. Some of these duties are general in nature and can be taught in a course for all personnel within a worker category on the Hanford Facility. Other considerations are specific to either all or one SWDD unit and do not apply to other treatment, storage, and disposal (TSD) units managed on the Hanford Facility. The training program is therefore designed to address concerns on a general perspective and a unit/building perspective.

8A-2.2.2 Training Program Descriptions and Courses

The Hanford Facility training program is divided into five program areas. These program areas are described in Table 8A-2 as orientation, awareness, advanced, administration, and unit/job specifics. Three of these program areas are further divided into general training and unit/building specific training categories. These three areas are orientation, awareness, and advanced.

8A-2.2.2.1 Waste Management Orientation. All Hanford Facility personnel are required to complete Waste Management Orientation training. In general, the waste management orientation program includes training to emergency responses, identifying contacts for personnel to obtain dangerous waste management information, and waste minimization concepts. Visitors and subcontractors also will receive appropriate training in the Waste Management

Table 8A-2. DOE-RL Program Area Descriptions.

Program	Descriptions
Waste Management Orientation	Training at this level involves a basic introduction to dangerous waste management and contacts involving dangerous waste. Correct response to emergencies involving releases of materials to the environment is addressed. Training also includes a discussion of the Hanford Facility Contingency Plan (DOE-RL 1993) and other applicable conditions.
Unit/Bldg Orientation	This level of training provides unit/building specific information on the hazards in the immediate and surrounding work environments. This training will ensure personnel are informed about potential emergency at a unit/building to which access is desired.
Waste Management Awareness	The training at this level is commensurate with the duties of generating dangerous waste and placing the waste into pre-approved containers. The training provides an overview of requirements pertaining to satellite accumulation areas. Additionally, the training covers contingency plan requirements and worker response to small spills, materials release reporting, and notifications. General safe practices for handling and storing dangerous waste/materials are addressed.
Unit/Bldg Awareness	This level of the training encompasses the job-specific or building-specific requirements that supplement the information provided in waste management awareness. The training provides personnel with proper waste handling and emergency procedures relevant to their responsibilities during normal operations and emergencies.
Waste Management Advanced	The training at this level is for personnel required to properly select, package, and prepare for the movement of dangerous waste containers. General advanced training is provided only for container management. Training for other RCRA units such as tank systems, surface impoundments, landfills, etc., must be covered through the unit/building specific portion of the advanced program. This is the most comprehensive container waste management training provided to personnel and covers the necessary information regarding documentation, reporting, recordkeeping, and other information pertaining to the generation of dangerous waste and movement of the waste to a TSD unit.
Unit/Bldg Advanced	This level of training provides specific information required to operate, control, and manage processes and dangerous waste management operations. Considerations for this program involve container management as well as all other RCRA units such as tank systems, surface impoundments, landfills, etc. This program can be deferred to the unit/job specific program area if operator/supervisor certification programs must be administered at the TSD unit. Personnel who monitor and inspect tank systems receive training in this program area for operations, maintenance, and response to nonroutine conditions.
Waste Management Admin.	Training at this level is for general shippers and those who must resolve problems and issues related to dangerous waste management. This training covers aspects of waste minimization, waste management, and recordkeeping for the Hanford Facility.
Unit/Job Specific	The training at this level is designed to provide additional generator/SWDD unit/building specific information for personnel to ensure the safe and efficient operation and maintenance of SWDD unit processes and operations. Not all training within this program will be RCRA related. Some operator/supervisor certification programs are not based on dangerous waste management. In these cases, the training plan will identify which portions of this program will be included within the RCRA training program.

Orientation program area for the locations such personnel will be at and the activities that will be undertaken. The concepts must be covered generally as they pertain to the Hanford Facility and on a unit/building basis to inform personnel of the hazards in their immediate and surrounding environments. When unit/building specific training requirements are waived, personnel must be escorted by qualified SWDD unit personnel. In these cases, it is the escorts responsibility to explain and announce the hazards in their immediate and surrounding environments. The following courses address training concerns within Waste Management Orientation:

Hanford Facility personnel

- New Hire Orientation (NHO)
Retraining: Hanford General Employee Training (HGET)
- SWDD unit/building specific orientation (this requirement is waived when non-SWDD unit personnel are escorted by qualified SWDD unit personnel)
Retraining: HGET

Visitors

- Visitor/Vendor Training
Retraining: none
- Escorted by qualified SWDD unit personnel (see Appendix 8B for cases when SWDD unit/building specific orientation may be required)
Retraining: none

Subcontractors

- NHO or Visitor/Vendor Training
Retraining: HGET or none: time dependent
- SWDD unit/building specific orientation or escorted by qualified SWDD unit personnel
Retraining: HGET or none: time dependent.

8A-2.2.2.2 Waste Management Awareness. In addition to Waste Management Orientation, General Workers, Advanced General Workers, General Managers, and General Shippers must complete Waste Management Awareness training. Subcontractors could also fall within this program description because many subcontractors are categorized as General Workers. Training at this level is commensurate with the duties of performing maintenance or construction activities where a dangerous or mixed waste is generated. Unit/building specific training also is provided in the awareness program area. The training courses that are provided for this program include the following:

Hanford Facility personnel

- Generator Hazards Safety Training
Retraining: Provided through the non-RCRA Occupational Safety and Health Administration (OSHA) training in Appendix 8B

- SWDD unit/building specific Building Emergency Plan training (training may be provided through SWDD unit/building specific orientation)
Retraining: same

Visitors

- SWDD unit/building specific emergency response training (see Appendix 8B for cases when SWDD unit/building specific orientation may be required)
Retraining: none

Subcontractors

- Generator Hazards Safety Training
Retraining: Provided through the non-RCRA OSHA training in Appendix 8B
- SWDD unit/building specific Building Emergency Plan training if not escorted by qualified SWDD personnel (training may be provided through SWDD unit/building specific orientation)
Retraining: same.

8A-2.2.2.3 Waste Management Advanced. Waste Management Advanced training must be completed by Advanced General Workers, General Managers, and General Shippers. General Managers complete training in the environmental regulations and/or environmental compliance course. Advanced General Workers and General Shippers complete training associated with containerized waste management. SWDD units subject to this training plan concern activities associated with container management (i.e., 616 NRDWSF, 224-T Transuranic Waste Storage and Assay Facility [TRUSAF], Central Waste Complex [CWC]), treatment (i.e., Waste Receiving and Processing Facility [WRAP]), and disposal (i.e., Low-Level Burial Grounds [LLBG], and Environmental Restoration Disposal Facility [ERDF]) of dangerous or mixed waste. Courses intended for this program area include the following:

- Core Waste Management training
Retraining: Core Waste Management Refresher
- Building Emergency Director Training
Retraining: Building Emergency Director refresher
- Environmental Regulations at Hanford
Retraining: Environmental Regulations and Compliance Refresher
- Environmental Compliance at Hanford
Retraining: Environmental Regulations and Compliance Refresher
- Unit/building specific training (see Section 8A2.2.2.5).

Visitors and subcontractors will not require training under the Waste Management Advanced program as their duties and responsibilities will not involve this program area.

8A-2.2.2.4 Waste Management Administration. Waste Management Administration training is targeted for General Shippers and personnel who must resolve problems and issues related to waste management. This program area covers administrative aspects of waste minimization, waste management, and recordkeeping. Courses in this program area include the following:

- Hazardous Waste Shipment Certification
Refresher: same
- Waste Management Administrative
Retaining: Waste Management Refresher
- Waste Designation Support
Retraining: same
- Facility Waste Sampling and Analysis
Retraining: N/A, one-time course.

8A-2.2.2.5 Unit/Job Specific Training. To ensure that Hanford Facility personnel receive appropriate training in SWDD unit operations, SWDD operators and operations managers/supervisors complete specific courses in preparation for work assignments. Certifications for job-specific work assignments have been developed in accordance with DOE Order 5480.20. The training at this level is designed to provide additional information to ensure the safe and efficient operation and maintenance of SWDD unit processes and operations. Additionally, the training provides more detailed information for the response to emergencies and offnormal events that could occur within the SWDD unit.

A certification program is available for each of the SWDD units. Each certification is developed around dangerous and mixed waste operations and, therefore, all SWDD unit certification packages are included within the RCRA portion of this training plan. Whenever an SWDD operator rotates from one unit to another within SWDD, a different certification package will be completed before personnel are allowed to work unescorted within the SWDD unit.

Certification is required for personnel working in selected job positions (operations managers/supervisors and nuclear operators). To become certified, personnel must successfully complete classroom training, self-study, and on-the-job training as applicable. Classroom instruction and/or self-study is designed to provide personnel with the knowledge required to work safely at SWDD units.

The on-the-job training requires affected SWDD employees to gain experience with the operating procedures. All work involving hazardous materials and dangerous waste management is performed according to approved operating procedures; therefore, an understanding of procedures is crucial to ensure the proper and safe operation of the SWDD units' critical system(s). Personnel learn the procedures by performing, simulating, and/or describing a particular task as specified by the appropriate operating procedure. Personnel demonstrating the required knowledge and skills are observed by certified personnel. An operational examination administered by an independent evaluator is required following satisfactory completion of the written examination and observation by certified personnel. Certification

follows satisfactory completion of the operational examination. Courses identified under this program area include the following:

- 616 Nonradioactive Dangerous Waste Storage Facility Operator Certification program
Retraining: same
- 224-T Transuranic Storage and Assay Facility Operator Certification program
Retraining: same
- Central Waste Complex Operator Certification program
Retraining: same
- Low-Level Burial Grounds Operator Certification program
 1. Low-Level Burial Grounds
 2. TRU Retrieval
 3. Environmental Restoration Disposal Facility: TBD
 Retraining: same (for all three)
- Waste Receiving and Processing Facility Operator Certification program: TBD
Retraining: same
- Manager/Supervisor Certification program
Retraining: same.

8A-2.2.3 Emergency Response Training

Federal and state regulations require that personnel be able to respond effectively to emergencies. In accordance with WAC 173-303-330(1)(d), personnel are trained on emergency equipment, systems, and procedures. SWDD units involve the management of waste within containers in storage units and waste in disposal units. Treatment of mixed waste is planned for WRAP. Table 8A-3 indicates those items within WAC 173-303-330(1)(d) that are applicable to SWDD unit operations.

Table 8A-3. Applicability of WAC 173-303-330(1)(d) to SWDD Units.

WAC 173-303-330(1)(d) Criteria	Applicability to SWDD Units
Procedures for using, inspecting, repairing, and replacing SWDD unit emergency and monitoring equipment	Y
Key parameters for automatic waste feed cut-off systems	Y ¹
Communications or alarm systems	Y
Response to fires or explosions	Y
Response to groundwater contamination incidents	Y ²
Shutdown of operations	Y ¹

¹Applicable only to WRAP.

²Applicable only to LLBG and ERDF.

Specific topics required by federal and state dangerous waste regulations are included in many courses taught at the Hanford Facility. The courses cover many different program areas. For example, some courses address the orientation program area required of all Hanford Facility personnel. At the other end of the spectrum, some of these courses concern responsibilities of the Emergency Coordinator as defined in WAC 173-303-360. All of the following courses are described in Appendix 8C:

- NHO
- HGET
- Building Emergency Plan
- SWDD operator certification training for each SWDD unit
- Solid waste manager/supervisor certification training
- Building Emergency Director training.

8A-2.3 TRAINING TABLES AND ATTACHMENTS

After categorizing Hanford Facility personnel, visitors, and subcontractors into the worker categories, duties and responsibilities are evaluated. The duties and responsibilities will determine appropriate courses from the five training program areas. Table 8A-4 shows the interaction between worker categories and program areas. Table 8A-5 includes the additional unit/job specific training required for the operator/supervisor certification packages.

Appendix 8C contains a brief description of the training courses for the SWDD RCRA training program, including course title and number, brief course description, mandating document(s) (as applicable), target audience, instructional delivery, evaluation method, length of course, and frequency of retraining.

Appendix 8D provides tables for Hanford Facility personnel who are categorized as Advanced General Workers, General Managers, and General Shippers. These tables identify the required RCRA courses for these Hanford Facility personnel by personnel name. Example tables are provided to eliminate the need to modify Appendix 8D every time a name is changed at the SWDD units. Appendix 8D is used to illustrate the type of training table that will be available upon request to an inspector on a regulatory compliance inspection. The inspector should expect to see a table similar to those in Appendix 8D when making inquiries regarding the proper training of these types of personnel.

Text discussing Waste Management Orientation and Waste Management Awareness in Section 8A2.2.2 will be used to determine if visitors and subcontractors have received the correct training. Table 8A-4 will be used to determine the training status of Hanford Facility personnel who are categorized as All Employees or General Workers.

Table 8A-4. SWDD Dangerous Waste Training Matrix.

Program Area	Course Title	Freq	Worker Category				
			All Employees	General Worker	Advanced General Worker	General Manager	General Shipper
Waste Management Orientation	NHO 02006A: Refresher 000001	(1)	x ¹	x ¹	X	X	X
Unit/Bldg Orientation	SWDD Unit Orientation: Refresher 000001	(1)	x ^{1,2}	x ^{1,2}	X	X	X
Waste Management Awareness	Generator Hazards Safety Training 02006G (refer to course description)	(1)		x ¹	X	X	X
Unit/Bldg Awareness	SWDD Unit Specific Building Emergency Plan (refer to course description)	(1)		x ^{1,2}	X	X	X
Waste Management Advanced	Core Waste Management Training 035100: Refresher 035110	(1)			x ³	x ⁴	
	Building Emergency Director Training 02028B: Refresher 037510	(1)				x ⁵	
	Environmental Compliance at Hanford - 035050 or Environmental Regulations at Hanford - 035040: Refresher 035055	(1)				x ⁶	
Waste Management Administration	Hazardous Waste Shipment Certification 020159	(2)					X
	Waste Management Administration 035120: Refresher 035130	(1)					X
	Waste Designation Support 035010	(1)					X
	Facility Waste Sampling and Analysis 035020	One time					X
Unit/Job Specific	Certifications or Other Training	(1) or (2)			x ⁷	x ⁷	

(1) Annually

(2) Repeated every 2 years

¹ Equivalent training exists for visitors and subcontractors.² Training requirement waived when escorted by qualified SWDD personnel.³ Required only for Advanced General Workers managing waste in containers.⁴ Required only for Advanced General Worker Managers.⁵ Required only for Emergency Coordinator and Alternates.⁶ ECO, Engineers, and Level 4, 5, and 6 Managers take 035050.⁷ Refer to Table 8A-5.

Table 8A-5. SWDD Units Dangerous Waste Unit/Job Specific Training Requirements for Advanced General Workers (SWDD Operators) and General Managers.

SWDD Units	616 NRWSF	CWC	224-T TRUSAF	WRAP	LLBG			General Managers
								All SWDD Units
	300050 (B)	300020 (B)	300030 (B)	(TBD)	LLBG	ERDF	TRU Retrieval	300590 (B)
					300040 (B)	(tbd)	300010 (B)	
616 NRWSF	X/C	X/C	X/C					X/C
CWC		X/C	X/C		X/C			X/C
224-T TRUSAF	X/C		X/C				X/C	X/C
LLBG		X/C			X/C		X/C	X/C
WRAP								

NOTE: For actual list of courses by personnel name, contact SWDD training organizations. Refer to Appendix 8D for an example of those lists.

(B) = Retraining every other year

C = Continuing

X = Initial

TBD = To be developed

8A-2.4 LIST OF COURSES AND COURSE NAMES

Table 8A-6 contains a listing of courses by number and title.

Table 8A-6. Course Listing.

Course Numbers	Course Titles
000001	Hanford General Employee Training
000090	Visitor/Vendor Orientation
02006A	New Hire Orientation
02006G	Generator Hazards Safety Training
020159	Hazardous Waste Shipment Certification
02028B	Building Emergency Director Training
03E044	Building Emergency Plan Training - LLBG
03E045	Building Emergency Plan Training - 616
03E046	Building Emergency Plan Training - TRUSAF
03E047	Building Emergency Plan Training - CWC
TBD	Building Emergency Plan Training - WRAP
TBD	Building Emergency Plan Training - ERDF
035010	Waste Designation Support
035020	Facility Waste Sampling and Analysis
035040	Environmental Regulations at Hanford
035050	Environmental Compliance at Hanford
035055	Environmental Regulations and Compliance Refresher
035100	Core Waste Management Training - Initial
035110	Core Waste Management Training - Requalification
035120	Waste Management Administrative - Initial
035130	Waste Management Administrative - Requalification
037510	Building Emergency Director/Warden Requalification
300010	TRU Retrieval - Operator Certification
300020	CWC - Operator Certification
300030	224-T TRUSAF - Operator Certification
300040	LLBG - Operator Certification
300050	616 NRDWSF- Operator Certification
TBD	WRAP - Operator Certification
TBD	ERDF - Operator Certification
300590	SWDD Supervisor/Manager Certification
300700	SWDD Unit Orientation Refresher (refer to HGET)
300705	616 NRDWSF Building Orientation
300710	LLBG Orientation
300715	224-T TRUSAF Orientation
300720	CWC Orientation
300725	TRU Retrieval Orientation
TBD	ERDF Orientation
TBD	WRAP Orientation

8A-3.0 REFERENCES

DOE Order 5480.20, *Personnel Selection, Qualification, Training and Staffing Requirements at DOE Reactor and Non-Reactor Nuclear Facilities*, U.S. Department of Energy, Washington, D.C.

DOE-RL, 1993, *Hanford Facility Contingency Plan*, DOE/RL-93-75, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Ecology, EPA, and DOE, 1994, *Hanford Federal Facility Agreement and Consent Order*, Fourth Amendment, Washington State Department of Ecology, U.S. Environmental Protection Agency, and U.S. Department of Energy, Olympia, Washington.

Resource Conservation and Recovery Act of 1976, 42 USC 6901, et seq.

WAC 173-303, 1990, "Dangerous Waste Regulations," *Washington Administrative Code*, as amended.

APPENDIX 8B

NON-RCRA TRAINING

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APPENDIX 8B
NON-RCRA TRAINING

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8B-1.0 ACCESS TO SWDD UNITS

This appendix describes the non-RCRA training programs that are closely related to the RCRA programs that are implemented at SWDD waste management units. Terms used in this appendix include Hanford Facility personnel, visitors, and subcontractors. Hanford Facility personnel include employees of DOE-RL, and employees of the Hanford Facility major contractors (i.e., Westinghouse Hanford Company, Pacific Northwest Laboratories, Bechtel Hanford Company). Visitors include personnel who do not have a contract in place with DOE-RL or the Hanford Facility major contractors, and regulatory agency personnel who conduct regulatory compliance inspections. Subcontractors refer to any contractor working for DOE-RL or the major Hanford Facility contractors. These definitions could differ from other definitions used on the Hanford Facility to describe training requirements.

8B-1.1 HANFORD FACILITY ACCESS

Access to the Hanford Facility is controlled through the issuance of badges. The type of badge that is issued will depend on the access frequency of the visitor or subcontractor. In most cases, visitors such as regulatory agency inspectors are issued permanent badges. There are instances where the regulatory agency inspector visit frequency is low and a temporary badge is issued instead of a permanent badge. In either case, to have a badge issued, the visitor or subcontractor must prove U.S. citizenship, provide identification, and view the visitor/vendor video (course number 000090) described in Appendix 8A. Subcontractors may require escorting (vendor) until security background checks have been completed. When the subcontractor vendor status is removed, the subcontractor will complete New Hire Orientation (NHO) (course number 02006A) and has the potential to work unescorted without Solid Waste Disposal Division (SWDD) unit personnel present.

In cases where the visitor is a foreign national, the individual must be processed through the Foreign Visitor and Assignment Program before they are allowed access to the Hanford Facility. When a foreign national requests access to the Hanford Facility, the extent of documentation will depend on the duration of the stay and whether either the visitor or the facility being visited is classified as "sensitive." Approvals typically take anywhere from 3 to 8 weeks from start to finish. The name of the guest, country of origin, date(s) of visit, and facility(ies) to be visited must be supplied. All personnel escorting the foreign national must be trained in escort training for foreign nationals (course number 000094).

8B-1.2 SWDD UNIT/BUILDING ACCESS

Unit/building access is evaluated on whether the visitor or subcontractor must be escorted (this does not include foreign national considerations). If the visitor or subcontractor is escorted by qualified Hanford Facility personnel assigned to the building or SWDD unit, unit/building orientation is not required unless the visitor or subcontractor will be working and not touring under a Radiation Work Permit (RWP). For example, when a regulatory

inspector wants to sample a container during part of an inspection, the inspector must complete the appropriate SWDD unit/building orientation training if the sampling will be conducted under an RWP. This orientation fulfills radiological safety training considerations specific to the hazards present at the SWDD unit. Hanford Facility personnel being escorted by qualified SWDD unit personnel also fall under the same orientation considerations as do the visitors and subcontractors. Although included in Appendix 8A as part of the RCRA training program, the SWDD unit orientation courses are reiterated and include the following:

- 300700 SWDD unit Orientation refresher (refer to HGET)
- 300705 616 NRDWSF Building Orientation
- 300710 LLBG Orientation
- 300715 224-T TRUSAF Orientation
- 300720 CWC Orientation
- 300725 TRU Retrieval Orientation
- TBD ERDF Orientation
- TBD WRAP Orientation.

8B-1.3 RADIOLOGICAL AREA ACCESS

In addition to the requirements for building access, there are also specific requirements pertaining to Radiological Area access. For entry into Radiological Areas, visitors (e.g., regulatory agency inspectors) are allowed access when accompanied by a qualified escort (Hanford Facility personnel assigned to the unit/building). There are limitations, however, on the amount of exposure that visitors may receive, which may impact access over time. Health physics organizations can help ascertain these types of limits.

To enter a radiological area, dosimeters must be acquired. Appropriate dosimeters will be issued to visitors and subcontractors either on a temporary or permanent basis. Regulatory agency inspectors assigned permanent dosimetry are not required to complete a Radiological Area Visitor Form (BC-3000-002) for each visit if a Personnel Radiation Exposure History Form has been completed. Those regulatory agency personnel with permanent dosimetry should possess a valid Qualification Card and should present it at the time of entry to eliminate the need to complete the Radiation Area Visitor Form. Temporary dosimetry is also issued (depending on visit frequency) to visitors and subcontractors and is returned with the temporary badge after the visit. Visitors and subcontractors that are issued temporary dosimetry need to complete the Radiological Area Visitor Form upon each visit to a Radiological Area. The form may be completed at the unit/building which will be accessed, but should be completed at the time the visitor or subcontractor is badged. Visitors and subcontractors who anticipate wearing a respirator, handling radioactive materials, contaminated or potentially contaminated materials, or contaminated equipment shall comply with access qualifications met by Hanford Facility personnel as stipulated by an RWP. In addition, some unit/buildings may require an exit contamination survey.

Whole body counts are only required by the specific RWPs that are written for a specific Radiological Area or for specific radiological work. Radiological Areas and the respective RWPs for those areas must be identified before the visitors or subcontractors visit the site so whole body counts can

be completed. Whole body counts can be required for both entry and exit considerations to establish a baseline and to determine any intake of radioactive materials.

There are three types of Radiological Areas that require additional training for visitors and subcontractors: Very High Radiation Areas, High Contamination Areas, and Airborne Areas. For these areas, additional qualifications include those of Hanford Facility radiological workers. These courses/items include the following:

- SWDD unit/building orientation (see Section 8B1.2)
- Radiological Worker II Training - Initial (course number 020001)
- Bioassay testing (if applicable)
- Criticality training (if applicable)
- Mask fit user test (pulmonary capacity).

Finally, all Hanford Facility personnel, visitors, and subcontractors are required to read the applicable RWP upon initial entry. Personnel must sign that they have read and understood the RWP and agree to comply with the requirements.

8B-2.0 OCCUPATIONAL SAFETY AND HEALTH TRAINING

Occupational Safety and Health Administration (OSHA) training on the Hanford Facility is described in three terms: Hazard Communication (HAZCOM), Hazardous Waste Operations Training (24/40 hour training), other health and safety training. HAZCOM training and Hazardous Waste Operations training are discussed in Sections 8B2.1 and 8B2.2. Other health and safety training can include, but is not limited to, confined space entry, noise conservation, fork lift training, and lock and tag. Hanford Facility health and safety organizations can provide additional clarity on all of these training areas. Regulatory agency inspectors will not be held to any requirements discussed in this section. It is the responsibility of each regulatory agency to provide the necessary training to their personnel in these areas before the inspectors visit the Hanford Facility.

8B-2.1 HAZARD COMMUNICATION

HAZCOM training consists of general training and unit/building specific training as required by 29 CFR 1910.1200. All Hanford Facility personnel receive general HAZCOM training through NHO (course number 02006A). Only Hanford Facility personnel who handle or manage hazardous materials or dangerous wastes (except consumer commodities) must receive unit/building specific HAZCOM training. To administer unit/building specific HAZCOM programs, the Hazard Evaluation Workshop (course number 035030) is provided to managers and personnel who are responsible for developing the unit/building specific program.

8B-2.2 HAZARDOUS WASTE OPERATIONS TRAINING

Hazardous Waste Operations training, among other things, is required for personnel entering a hazardous waste site or a treatment, storage, and disposal (TSD) unit in accordance with 29 CFR 1910.120. Training requirements for hazardous waste sites involve 40 hours of training (classroom and field experience) whereas training requirements for TSD units involve 24 hours of training (classroom only). Entry requirements for all SWDD units require that Hanford Facility personnel receive 24-hour training under this standard. The 24-hour training is applicable to personnel who have a "reasonable possibility of employee exposure to health or safety hazards" at the TSD unit. Some areas of a TSD unit do not have this possibility (e.g., the administrative offices at the 616 Nonradioactive Dangerous Waste Storage Facility [NRDWSF]).

The only RCRA training consideration applied to 24 hour OSHA training involves the 8-hour refresher course (course number 032020 or 032030). The 8-hour refresher course is taken by personnel who maintain either a 24- or 40-hour qualification. When Hanford Facility personnel attend the 8-hour refresher, credit is given for refresher training in the Waste Management Awareness program area, Generator Hazards Safety Training (course number 02006G). The Waste Management Awareness program area is discussed in Appendix 8A.

8B-3.0 U.S. DEPARTMENT OF TRANSPORTATION TRAINING

U.S. Department of Transportation (DOT) training is conducted onsite for Hanford Facility personnel who are involved with transportation, or who offer materials and wastes for transportation. At this time, there are four courses being offered through the transportation organizations on the Hanford Facility:

- 020064 Basic DOT Hazardous Materials Regulation
- 020159 DOT Hazardous Waste Shipment Certification
- 020059 Basic Radioactive Materials Shipment Awareness
- 020069 Radioactive Materials Shipment Certification.

Basic DOT Hazardous Materials Regulation is designed to meet the training needs of "HAZMAT Employees." The Hazardous Waste Shipment Certification course is only included in the RCRA portion of this training plan (Appendix 8A) when the General Shipper will be shipping an offsite shipment as defined in WAC 173-303. Otherwise, this course will not be enforceable under the Hanford Facility RCRA Permit when issued. The transportation organizations on the Hanford Facility can provide additional information concerning these courses.

8B-4.0 OTHER ENVIRONMENTAL TRAINING

In addition to RCRA training, other environmental training requirements exist. For example, *Toxic Substances Control Act* (TSCA) training exists on the Hanford Facility for polychlorinated biphenyl (PCB) spill response. Training also exists for compliance with reporting under the *Emergency Planning and Community Right-to-Know Act*. There also are asbestos training requirements for workers and supervisors involved in asbestos abatement. In all of these cases, this is non-RCRA training. The environmental training and regulatory support organizations can assist Hanford Facility personnel in determining training needs in these areas.

8B-5.0 REFERENCES

Emergency Planning and Community Right-to-Know Act of 1986, 42 USC 11001, et seq.

Resource Conservation and Recovery Act of 1976, 42 USC 6901, et seq.

Toxic Substances Control Act, 1976, 15 USC 2601 et seq.

WAC 173-303, 1990, "Dangerous Waste Regulations," *Washington Administrative Code*, as amended.

29 CFR 1910.120, "Hazardous Waste Operations and Emergency Response, *Code of Federal Regulations*, as amended.

29 CFR 1910.1200, "Hazard Communication," *Code of Federal Regulations*, as amended.

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APPENDIX 8C

TRAINING COURSE DESCRIPTIONS

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APPENDIX 8C
TRAINING COURSE DESCRIPTIONS

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8C-1.0 HANFORD FACILITY DANGEROUS WASTE TRAINING COURSES

Title	000001 Hanford General Employee Training
Description	Course covers U.S. Department of Energy (DOE) orders and applicable policies pertaining to employer and employee rights and responsibilities, general radiation training, hazard communications, dangerous waste, fire prevention, personal protective equipment, safety requirements, certain unit/building orientation refresher training, emergency preparedness, accident reporting, and avenues for addressing safety concerns.
Mandating Document(s)	Hanford Facility RCRA Permit (when issued), General Conditions
Target Audience	All Hanford Facility personnel
Delivery	Computer-based training with interactive video
Evaluation	Computer-generated questions
Length	Average = 2 to 6 hours
Frequency	Annual

Title	000090 Visitor/Vendor Orientation
Description	Course is designed to acquaint and familiarize visitors and subcontractors with safety, security, and emergency preparedness requirements and their responsibilities to notify Hanford Facility personnel when situations arise. In addition, this orientation identifies the need to obey signs and labels that may be encountered regarding radiological areas, hazardous materials, and dangerous wastes.
Mandating Document(s)	Hanford Facility RCRA Permit (when issued), General Conditions
Target Audience	Visitors/vendors/subcontractors
Delivery	Video tape
Evaluation	Not applicable
Length	15 minutes
Frequency	Annual

Title	02006A New Hire Orientation
Description	Course covers DOE orders and applicable policies pertaining to employer and employee rights and responsibilities, general radiation training, hazardous waste, fire prevention, personal protective equipment, safety requirements, accident reporting, and avenues for addressing safety concerns.
Mandating Document(s)	Hanford Facility RCRA Permit (when issued), General Conditions
Target Audience	All Hanford Facility personnel
Delivery	Classroom
Evaluation	Not applicable
Length	3 hours
Frequency	Initial (Retrained annually by 000001 HGET)

Title	02006G Generator Hazards Safety Training
Description	Course introduces workers to federal laws governing chemical safety in the work place. The course provides the hazardous material/waste worker with the basic fundamentals for safe use and disposal of hazardous material. Course defines hazard communication and hazardous material, reviews labeling requirements, and introduces material safety data sheets and key terms used in chemical safety. The course also introduces methods for waste minimization.
Mandating Document(s)	WAC 173-303-200(2)
Target Audience	Hanford Facility personnel categorized as a General Worker, Advanced General Worker, General Manager, and General Shipper
Delivery	Classroom
Evaluation	Written examination - 80% passing grade
Length	4 hours
Frequency	Annual: Solid Waste Disposal Division (SWDD) personnel receive refresher training through 24-hour Occupational Safety and Health Administration (OSHA) 8-hour refresher.

Title	020159 DOT Hazardous Waste Shipment Certification
Description	Course introduces General Shippers to identify shippers' responsibilities and liabilities with regard to compliance to WAC 173-303 and U.S. Department of Transportation (DOT) regulations, including storage, inspection, and loading requirements.
Mandating Document(s)	WAC 173-303-180, -190, and -370
Target audience	General Shippers
Delivery	Classroom
Evaluation	Written examination - 80% passing grade
Length	4 hours
Frequency	Every other year

Title	02028B Building Emergency Director Training
Description	Course provides an overview of the responsibilities of the building emergency director, identifies the building emergency organizations, actions required during an event, implementing the contingency plan, and discusses drill and exercise requirements.
Mandating Document(s)	WAC 173-303-340, -350, and -360
Target audience	Building Emergency Directors and their alternates who can function as the Emergency Coordinator
Delivery	Classroom
Evaluation	Not applicable
Length	2 hours
Frequency	Initial (Retrained annually by 037510 Building Emergency Director/Warden Requalification)

Title	03E044 Building Emergency Plan Training- LLBG 03E045 Building Emergency Plan Training- 616 NRDWSF 03E046 Building Emergency Plan Training- 224-T TRUSAF 03E047 Building Emergency Plan Training- CWC TBD Building Emergency Plan Training- ERDF TBD Building Emergency Plan Training- WRAP
Description	Course consists of a review of specific hazards associated with the SWDD unit and job assignment, as covered by each SWDD unit's Building Emergency Plan (WHC-IP-0263-XXX). The training is completed by the supervisor, manager, or a designated individual using a checklist. The unit/building specific information is reviewed concerning hazards in the work area and emergency response requirements including, where applicable, waste feed cut-off, communication and alarm systems, and response to fires. The checklist acts as a guide to ensure consistent coverage of necessary topics.
Mandating Document(s)	WAC 173-303-330(1)(d), -340, and -350
Target Audience	All Hanford Facility personnel categorized as Advanced General Workers, General Managers, and General Shippers assigned to SWDD units. All General Workers may take this course, or equivalent training may be given during the pre-job safety meeting or the SWDD unit/building specific orientation course.
Delivery	One-on-one or as a group with supervisor, manager or designated individual
Evaluation	Training checklist documentation
Length	1 hour
Frequency	Annual

Title	035010 Waste Designation Support
Description	Course teaches dangerous waste designation according to WAC 173-303. Class content includes section-by-section lecture on the regulations, with examples following each section. Students complete examples using a waste designation flow chart. Examples addressed include federally listed waste, discarded chemical products, dangerous waste source, Washington State criteria (e.g., toxicity, persistence, carcinogenic), and federal characteristics (e.g., ignitability, corrosivity, reactivity, and toxicity).
Mandating Document(s)	WAC 173-303-070, and -080 through -100
Target Audience	General Shippers
Delivery	Classroom
Evaluation	Written examination - 80% passing grade
Length	12 hours
Frequency	Annual

Title	035020 Facility Waste Sampling and Analysis
Description	<p>Course presents waste sampling methodologies according to EPA Protocols SW-846, Test Methods for Evaluating Solid Waste Physical/Chemical Methods. This course also covers documentation requirements in a sampling plan, field and laboratory quality control/assurance, and use of actual sampling equipment.</p> <p>One-time training is required because the General Shipper, in most cases, will utilize resources on the Hanford Facility to acquire samples. This training provides an overview of information to ensure that sampling efforts are properly set up.</p>
Mandating Document(s)	WAC 173-303-110 and -070
Target audience	General Shippers
Delivery	Classroom presentation, exercises, demonstration and discussion
Evaluation	Written Examination
Length	12 hours
Frequency	One time

Title	035040 Environmental Regulations at Hanford
Description	This course provides an overview of environmental regulations as they apply to the Hanford Facility. This course helps enable participants to make informed decisions relating to environmental compliance issues. It includes information on potential legal liabilities, applicable federal and state regulations, various reporting requirements, inspections/audits and record keeping. Information is presented using Hanford Facility examples.
Mandating Document(s)	WAC 173-303-145 and general overview of certain WAC 173-303 sections Training covers disciplines from <i>Resource Conservation and Recovery Act of 1976 (RCRA)</i> , <i>National Environmental Policy Act of 1969 (NEPA)</i> , air regulations, <i>Emergency Planning and Community Right-to-Know Act (EPCRA)</i> , <i>Toxic Substances Control Act (TSCA)</i> , spill reporting, and inspection considerations.
Target Audience	Level I, II, and III Managers
Delivery	Classroom
Evaluation	Written examination - 80% passing grade
Length	8 hours
Frequency	Initial (Retraining 035055)

Title	035050 Environmental Compliance at Hanford
Description	Provides an overview of environmental regulations and focuses on the use of environmental compliance manuals to address compliance issues. Information is presented through Hanford Facility examples.
Mandating Document(s)	WAC 173-303-145 and general overview of certain WAC 173-303 sections Training covers disciplines from RCRA, NEPA, air regulations, EPCRA, TSCA, spill reporting, and inspection considerations.
Target Audience	Environmental Compliance Officers, engineers categorized as General Managers, and level 4, 5, and 6 managers
Delivery	Classroom
Evaluation	Workbook
Length	8 Hours
Frequency	Initial (Retraining 035055)

Title	035055 Environmental Regulations and Compliance Refresher
Description	This course provides participants with an update of environmental regulation and compliance issues related to work at the Hanford Facility. Emphasis of instruction and information will be based on current Hanford issues. Information reviewed may include potential legal liabilities, applicable federal and state regulations, various reporting requirements, inspections/audits, and recordkeeping. Information is presented using Hanford Facility examples.
Mandating Document(s)	WAC 173-303-145 and general overview of certain WAC 173-303 sections Training covers disciplines from RCRA, NEPA, air and water regulations, EPCRA, TSCA, spill reporting, and inspection considerations related to current Hanford issues.
Target Audience	Managers, Environmental Compliance Officers, engineers categorized as General Managers who have attended either Environmental Regulations at Hanford or Environmental Compliance at Hanford.
Delivery	Classroom or self-study
Evaluation	Workbook
Length	About 4 hours
Frequency	Retrained annually

Title	035100 Core Waste Management - Initial
Description	Course covers basic requirements of waste management, incorporating 40 CFR 260 through 265, WAC 173-303, DOE orders, and company policy. Includes three practical exercises for hands-on experience with satellite and 90-day accumulation area requirements, labpacks for dangerous waste and mixed waste, and preparation of packages for final destination.
Mandating Document(s)	WAC 173-303-630, -200 and Waste Minimization
Target Audience	Advanced General Workers and General Managers of Advanced General Workers
Delivery	Classroom
Evaluation	Written Examination - 80% passing grade
Length	16 hours
Frequency	Initial (retrained annually by 035110 Core Waste Management Training - Refresher)

Title	035110 Core Waste Management - Refresher
Description	Refreshes Course 035100
Target Audience	Advanced General Workers and General Managers of Advanced General Workers
Delivery	Classroom
Evaluation	Written Examination - 80% passing grade
Length	4 Hours
Frequency	Annual

Title	035120 Waste Management Administration - Initial
Description	Course is designed for personnel preparing to become authorized shippers of dangerous and/or mixed waste. This course covers regulatory and company policies, forms, reports, forecasts, and plans. Topics also covered include: waste characterization, waste storage disposal request, low-level waste storage/disposal record, transuranic waste storage/disposal record, and radioactive mixed waste attachment sheet. In addition, students will learn how these forms are used to complete shipping papers.
Mandating Document(s)	Hanford Facility RCRA Permit (when issued), Part II, condition II.Q
Target Audience	General Shippers
Delivery	Classroom
Evaluation	Written examination - 80% passing grade
Length	8 hours
Frequency	Initial (Retrained annually by 035130 Waste Management Administration - Refresher)

Title	035130 Waste Management Administration - Refresher
Description	Refreshes course 035120
Target Audience	General Shippers
Delivery	Classroom
Evaluation	Written examination - 80% passing grade
Length	4 hours
Frequency	Annual

Title	037510 Building Emergency Director/Warden Regualification
Description	Refresher for Building Emergency Director Training
Target audience	Building Emergency Directors and alternates
Delivery	Classroom
Evaluation	Not applicable
Length	2 hours
Frequency	Annual

8C-2.0 HANFORD FACILITY DANGEROUS WASTE TRAINING COURSES

Title	300010 TRU Waste Retrieval Operator Certification
Description	Operator qualification course that defines the processes and equipment associated with transuranic (TRU) retrieval activities in and around the Low-Level Burial Grounds (LLBG) based on operations as defined in current plant operating procedures and controlled documents. Covers evaluation, inspection, acceptance, movement, and storage/disposal of transuranic solid waste packages.
Mandating Document(s)	DOE Order 5480.20, WAC 173-303-400, and -170
Target Audience	Nuclear Operators
Delivery	Classroom, self-study, on-the-job training (OJT)
Evaluation	Operational examination - 70% of job performance measures (JPM) must receive satisfactory grade.
Length	Approximately 24 hours
Frequency	Every 2 years (OJT excluded in refresher)

Title	300020 Central Waste Complex Operator Certification
Description	Operator qualification course that defines the processes and equipment associated with the Central Waste Complex (CWC) based on operations as defined in current plant operating procedures and controlled documents. Covers receipt, inspection, acceptance, movement, and storage of radioactive mixed waste packages.
Mandating Document(s)	DOE Order 5480.20, WAC 173-303-400, 40 CFR 265, Subpart I
Target Audience	Nuclear Operators
Delivery	Classroom, self-study, OJT
Evaluation	Operational examination - 70% of JPM must receive satisfactory grade.
Length	Approximately 24 hours
Frequency	Every 2 years (OJT excluded in refresher)

Title	300030 224-T TRUSAF Operator Certification
Description	Operator qualification course that defines the processes and equipment associated with the 224-T Transuranic Waste Storage and Assay Facility (224-T TRUSAF) based on operations as defined in current plant operating procedures and controlled documents. Covers evaluation, inspection, acceptance, assay, movement, and storage of transuranic waste packages.
Mandating Document(s)	DOE Order 5480.20, WAC 173-303-400, 40 CFR 265, Subpart I
Target Audience	Nuclear Operators
Delivery	Classroom, self-study, OJT
Evaluation	Operational examination - 70% of JPM must receive satisfactory grade.
Length	Approximately 24 hours
Frequency	Every 2 years (OJT excluded in refresher)

Title	300040 LLBG Operator Certification
Description	Operator qualification course that defines the processes and equipment associated with the LLBG based on operations as defined in current plant operating procedures and controlled documents. Covers evaluation, inspection, acceptance, movement, and storage/disposal of solid waste packages.
Mandating Document(s)	DOE Order 5480.20, WAC 173-303-400, 40 CFR 265, Subpart N
Target Audience	Nuclear Operators
Delivery	Classroom, self-study, OJT
Evaluation	Operational examination - 70% of JPM must receive satisfactory grade.
Length	Approximately 24 hours
Frequency	Every 2 years (OJT excluded in refresher)

Title	300050 616 NRDWSF Operator Certification
Description	Operator qualification course that defines the processes and equipment associated with the 616 Nonradioactive Dangerous Waste Storage Facility (616 NRDWSF) based on operations as defined in current plant operating procedures and controlled documents. Covers receipt, inspection, acceptance, movement, and storage of nonradioactive dangerous waste packages.
Mandating Document(s)	DOE Order 5480.20, WAC 173-303-600, Hanford Facility RCRA Permit (when issued), Part III
Target Audience	Nuclear Operators
Delivery	Classroom, self-study, OJT
Evaluation	Operational examination - 70% of JPM must receive satisfactory grade.
Length	Approximately 24 hours
Frequency	Every 2 years (OJT excluded in refresher)

Title	ERDF Operator Certification (TBD) WRAP Operator Certification (TBD)
Description	TBD
Mandating Document(s)	DOE Order 5480.20, WAC 173-303-400 and Corrective Action Management Unit (CAMU) RCRA Corrective Action requirements: WAC 173-303-646 and 40 CFR 264.552
Target Audience	Nuclear Operators
Delivery	Classroom, self-study, OJT
Evaluation	Operational examination - 70% of JPM must receive satisfactory grade.
Length	Approximately 24 hours
Frequency	Every 2 years (OJT excluded in refresher)

Title	300590 SWDD Supervisor/Manager Certification
Description	<p>Course includes the following topics to prepare the Manager in SWDD operations:</p> <ul style="list-style-type: none"> • Administrative information • Technical information • Hazardous material/dangerous waste requirements • Handling dangerous waste • Safety analysis reports • Operational safety requirements • Radiation work procedures • Occurrence reporting • Jobs conducted in the area of assigned responsibility • Conduct of operations • Processes and services • Equipment.
Mandating Document(s)	DOE Order 5480.20, WAC 173-303-400 or -600 depending on the SWDD unit
Target Audience	Operations supervisors and managers
Delivery	Classroom, self-study, OJT
Evaluation	Written examination - 80% passing grade, oral board
Length	Self-paced
Frequency	Every 2 years

Title	300705 616 NRDWSF Building Orientation 300710 LLBG Orientation 300715 224-T TRUSAF Orientation 300720 CWC Orientation 300725 TRU Retrieval Orientation TBD ERDF Orientation TBD WRAP Orientation
Description	This course covers SWDD orientation considerations pertaining to the health and safety hazards concerning the hazardous materials and dangerous wastes within the immediate and surrounding work environments. The course can also describe appropriate radiological procedures for access and exit of the SWDD unit.
Mandating Document(s)	Hanford Facility RCRA Permit (when issued), Part II.C, and Hazard Communication
Target Audience	All SWDD unit personnel requiring access to SWDD units. All Hanford Facility personnel, visitors, and subcontractors who will not be escorted by qualified SWDD unit personnel.
Delivery	Classroom presentation
Evaluation	None
Length	30 minutes
Frequency	Annual - Refresher training provided through HGET for all SWDD units (course number 300700)

8C-3.0 REFERENCES

DOE Order 5480.20, *Personnel Selection, Qualification, Training and Staffing Requirements at DOE Reactor and Non-Reactor Nuclear Facilities*, U.S. Department of Energy, Washington, D.C.

Emergency Planning and Community Right-to-Know Act of 1986, 42 USC 11001, et seq.

National Environmental Policy Act of 1969, 42 USC 4321 et seq.

Resource Conservation and Recovery Act of 1976, 42 USC 6901, et seq.

Toxic Substances Control Act, 1976, 15 USC 2601 et seq.

WAC 173-303, 1990, "Dangerous Waste Regulations," *Washington Administrative Code*, as amended.

40 CFR 260, "Hazardous Waste Management System-General," *Code of Federal Regulations*, as amended.

40 CFR 261, "Identification and Listing of Hazardous Waste," *Code of Federal Regulations*, as amended.

40 CFR 262, "Standards Applicable to Generators of Hazardous Waste," *Code of Federal Regulations*, as amended.

40 CFR 263, "Standards Applicable to Transporters of Hazardous Waste," *Code of Federal Regulations*, as amended.

40 CFR 264, "Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities," *Code of Federal Regulations*, as amended.

40 CFR 265, "Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities," *Code of Federal Regulations*, as amended.

APPENDIX 8D

**DANGEROUS WASTE TRAINING REQUIREMENTS LISTED BY
EMPLOYEE WORKER CATEGORY AND NAME**

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8D-3.0	SWDD DANGEROUS WASTE TRAINING REQUIREMENTS FOR COGNIZANT, TEST, AND SYSTEMS ENGINEERS	8D-3
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**8D-1.0 SWDD DANGEROUS WASTE TRAINING REQUIREMENTS FOR
ADVANCED GENERAL WORKERS (SWDD OPERATORS) (EXAMPLE)**

Training Courses												
Waste Management Orientation, Awareness, and Advanced								Unit/Job Specific				
SWDD Operators	02006A or 000001 (A)	02006G (A) ¹	LLBG	616 NRDWSF	224-T TRUSAF	CWC	035100 or 035110 (A)	616 NRDWSF	CWC	224-T TRUSAF	LLBG	
			03E044 and 300710 ² (A)	03E045 and 300705 ² (A)	03E046 and 300715 ² (A)	03E047 and 300720 ² (A)		300050 (B)	300020 (B)	300030 (B)	LLBG	TRU Retrieval
											300040 (B)	300010 (B)
Examples												
Anderson, J. Q.	X/C	X	X/C				X/C				X/C	X/C
Brown, B. L.	X/C	X		X/C			X/C	X/C				
Jones, H. A.	X/C	X	X/C		X/C		X/C			X/C	X/C	X/C
SMITH, T. R.	X/C	X				X/C	X/C		X/C			•
WHITE, M. L.	X/C	X	X/C				X/C				X/C	X/C

¹Continuing training provided through 24-hour OSHA TSD Hazardous Waste Worker Training Refresher.

²Continuing training provided through HGET (Course 300700).

(A) = Annually

(B) = Every 2 years

C = Continuing

X = Initial

8D-2.0 SWDD DANGEROUS WASTE TRAINING REQUIREMENTS FOR GENERAL MANAGERS (EXAMPLE)

Managers by Job Positions	Training Courses										Unit/Job Specific
	Waste Management Orientation, Awareness, and Advanced										
	02006A or 000001 (A)	02006g (A) ¹	03E044 and 300710 ² (A)	03E045 and 300705 ² (A)	03E046 and 300715 ² (A)	03E047 and 300720 ² (A)	020288 or 037510 (A)	035040 or 035055 (A)	035050 or 035055 (A)	035100 or 035110 (A)	All SMDD 300590 (B)
	Examples										
Building Emergency Directors											
Worker, J. Q.	X/C	X	X/C				X/C	X			
Operations Manager											
Olson, J. B.	X/C	X		X/C					X	X/C	X/C
Environmental Compliance Officer											
Brown, B. L.	X/C	X	X/C	X/C	X/C	X/C	X/C		X		

¹Continuing training provided through 24-hour OSHA TSD Hazardous Waste Worker Training Refresher.

²Continuing training provided through HGET (Course 300700).

(A) = Annually

(B) = Every 2 years

C = Continuing

X = Initial

**8D-3.0 SWDD DANGEROUS WASTE TRAINING REQUIREMENTS FOR COGNIZANT, TEST,
AND SYSTEMS ENGINEERS (EXAMPLE)**

Cognizant, Test, and Systems Engineers	Training Courses							
	Waste Management Orientation, Awareness, and Advanced							
	02006A or 000001 (A)	02006G (A) ¹	03E044 and 300710 ² (A)	03E045 and 300705 ² (A)	03E046 and 300715 ² (A)	03E047 and 300720 ² (A)	035050 or 035055 (A)	035100 or 035110 (A)
Examples								
Anderson, J. Q.	X/C	X	X/C	X\C			X	X/C
Brown, B. L.	X/C	X			X/C		X	X/C
Jones, H. A.	X/C	X				X/C	X	X/C

¹Continuing training provided through 24-hour OSHA TSD Hazardous Waste Worker Training Refresher.

²Continuing training provided through HGET (Course 300700).

(A) = Annually

(B) = Every 2 years

C = Continuing

X = Initial

8D-4.0 SWDD DANGEROUS WASTE TRAINING REQUIREMENTS FOR GENERAL SHIPPERS (EXAMPLE)

Shippers	Training Courses									
	Waste Management Orientation, Awareness, Advanced, and Administration									
	000001 or 02006A (A)	02006G (A)	03E044 ¹ and 300710 ² (A)	03E045 ² and 300705 ² (A)	03E046 ² and 300715 ² (A)	03E047 ² and 300720 ² (A)	035120 or 035130 (A)	035010 (A)	035020	020159 (B)
Examples										
Offsite Shipper										
White, M. L.	X/C	X	X/C		X/C	X/C	X/C	X/C	X	X/C
Young, M. R.	X/C	X	X/C		X/C	X/C	X/C	X/C	X	X/C
Zimmer, W. B.	X/C	X		X/C			X/C	X/C	X	X/C

¹Continuing training provided through 24-hour OSHA TSD Hazardous Waste Worker Training Refresher.

²Continuing training provided through HGET (Course 300700).

(A) = Annually
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