

PART III UNIT-SPECIFIC CONDITIONS FOR FINAL STATUS OPERATIONS
OPERATING UNIT 11

Integrated Disposal Facility

Chapter 3.0 **Waste Analysis Plan**

5	WASTE ANALYSIS [C].....	Part III.11.3.iii
6		
7	CHEMICAL, BIOLOGICAL, AND PHYSICAL ANALYSIS [C-1].....	Part III.11.3.iii
8		
9	WASTE ANALYSIS PLAN [C-2].....	Part III.11.3.iii
10		
11	3.0 INTEGRATED DISPOSAL FACILITY WASTE ANALYSIS PLAN	Part III.11.3.1
12		
13	3.1 DESCRIPTION OF UNIT PROCESSES AND ACTIVITIES	Part III.11.3.1
14		
15	3.2 IDENTIFICATION AND CLASSIFICATION OF WASTE.....	Part III.11.3.2
16		
17	3.3 MANAGEMENT OF WASTE.....	Part III.11.3.3
18	3.3.1 Newly Generated Waste within the IDF	Part III.11.3.3
19		
20	3.4 CONFIRMATION PROCESS.....	Part III.11.3.5
21	3.4.1 Pre-Shipment Review	Part III.11.3.5
22	3.4.2 Verification	Part III.11.3.9
23	3.4.3 Waste Acceptance.....	Part III.11.3.10
24	3.4.4 Selecting Waste Analysis Parameters	Part III.11.3.12
25	3.4.5 Selecting Sampling Procedures.....	Part III.11.3.12
26	3.4.6 Selecting A Laboratory, Laboratory Testing, And Analytical Methods	Part III.11.3.12
27	3.4.7 Selecting Waste Re-Evaluation Frequencies	Part III.11.3.12
28	3.4.8 Special Waste Analysis Procedural Requirements	Part III.11.3.13
29	3.4.9 Procedures for Ignitable, Reactive, and Incompatible Waste	Part III.11.3.13
30	3.4.10 Provisions for Complying With Federal and State Land Disposal Restriction	
31	Requirements	Part III.11.3.13
32	3.4.11 Off-Specification Waste.....	Part III.11.3.14
33		
34	3.5 WASTE TRACKING	Part III.11.3.14
35		
36	3.6 RECORDKEEPING	Part III.11.3.14
37		
38	3.7 REFERENCES	Part III.11.3.15
39		

1 **Figures**

2 Figure 1. Waste Transfers and Analysis Plan Onsite TSD Units Flow Diagram.Part III.11.3.4
3 Figure 2. Vitrification or Alternative Method Transfer and Waste Analysis Plan
4 Process Flow DiagramPart III.11.3.11

5 **Tables**

6 Table 1. Chemicals Incompatible With the High Density Polyethylene Liner
7 (in concentrated form)*.....Part III.11.3.4
8 Table 2. Parameters and Rationale for Physical Screening.....Part III.11.3.12.

1 **WASTE ANALYSIS [C]**

2 This chapter provides information on the chemical, biological, and physical characteristics of the waste
3 treated for disposal. The information includes descriptions required by WAC 173-303-300(5) contained
4 in the *Waste Analysis Plan for the Integrated Disposal Facility*.

5 **CHEMICAL, BIOLOGICAL, AND PHYSICAL ANALYSIS [C-1]**

6 The primary mission of the IDF will be to dispose of vitrified waste generated on the Hanford Site. This
7 includes vitrified LAW from the RPP-WTP and DBVS, and low-level radioactive waste. Additionally,
8 waste generated through IDF operations will be disposed of in IDF. Waste to be disposed of in IDF is
9 assigned dangerous waste numbers found in Chapter 1.0.

10 **WASTE ANALYSIS PLAN [C-2]**

11 The *Waste Analysis Plan for the Integrated Disposal Facility* summarizes waste acceptance processes and
12 contains the following information: unit description, confirmation process, selection of waste analysis
13 parameters, selection of sampling procedures, selection of a laboratory, laboratory testing, and analytical
14 methods, selection of waste re-evaluation frequencies, special procedural requirements, and
15 recordkeeping requirements.

GLOSSARY

1		
2		
3	AEA	Atomic Energy Act of 1954
4	BVW	bulk vitrification waste
5	CAP	corrective action plan
6	CFR	Code of Federal Regulations
7	COLIWASA	composite liquid waste sampler
8	°C	degree Celsius
9		
10	DOE-ORP	U.S. Department of Energy, Office of River Protection
11	DOE-RL	U.S. Department of Energy, Richland Operations Office
12	DBVS	Demonstration Bulk Vitrification System
13	DST	double-shell tank
14		
15	Ecology	Washington State Department of Ecology
16		
17	IDF	Integrated Disposal Facility
18	ILAW	immobilized low-activity waste
19	LDR	land disposal restriction
20		
21	NDE	nondestructive examination
22		
23	PPE	personal protective equipment
24		
25	QA	quality assurance
26	QC	quality control
27		
28	RCRA	<i>Resource Conservation and Recovery Act of 1976</i>
29	RCW	Revised Code of Washington
30	RPP-WTP	River Protection Project-Waste Treatment Plant
31		
32	SWITS	Solid Waste Information Tracking System
33		
34	TRU	transuranic
35	TSCA	<i>Toxic Substances Control Act of 1976</i>
36	TSD	treatment, storage, and/or disposal
37		
38	WAC	Washington Administrative Code
39	WAP	waste analysis plan
40		
41		

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METRIC CONVERSION CHART

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	0.03937	inches
inches	2.54	centimeters	centimeters	0.393701	inches
feet	0.3048	meters	meters	3.28084	feet
yards	0.9144	meters	meters	1.0936	yards
miles (statute)	1.60934	kilometers	kilometers	0.62137	miles (statute)
Area			Area		
square inches	6.4516	square centimeters	square centimeters	0.155	square inches
square feet	0.09290304	square meters	square meters	10.7639	square feet
square yards	0.8361274	square meters	square meters	1.19599	square yards
square miles	2.59	square kilometers	square kilometers	0.386102	square miles
acres	0.404687	hectares	hectares	2.47104	acres
Mass (weight)			Mass (weight)		
ounces (avoir)	28.34952	grams	grams	0.035274	ounces (avoir)
pounds	0.45359237	kilograms	kilograms	2.204623	pounds (avoir)
tons (short)	0.9071847	tons (metric)	Tons (metric)	1.1023	tons (short)
Volume			Volume		
ounces (U.S., liquid)	29.57353	milliliters	milliliters	0.033814	ounces (U.S., liquid)
quarts (U.S., liquid)	0.9463529	liters	liters	1.0567	quarts (U.S., liquid)
gallons (U.S., liquid)	3.7854	liters	liters	0.26417	gallons (U.S., liquid)
cubic feet	0.02831685	cubic meters	cubic meters	35.3147	cubic feet
cubic yards	0.7645549	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
Energy			Energy		
kilowatt hour	3,412	British thermal unit	British thermal unit	0.000293	kilowatt hour
kilowatt	0.94782	British thermal unit per second	British thermal unit per second	1.055	kilowatt
Force/Pressure			Force/Pressure		
pounds (force) per square inch	6.894757	kilopascals	kilopascals	0.14504	pounds per square inch

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 3
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Source: *Engineering Unit Conversions*, M. R. Lindeburg, PE., Third Ed., 1993, Professional Publications, Inc., Belmont, California.

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1 **3.0 INTEGRATED DISPOSAL FACILITY WASTE ANALYSIS PLAN**

2 Pursuant to WAC 173-303-300(5) this waste analysis plan (WAP) documents the waste
3 acceptance process, sampling methodologies, analytical techniques, and overall processes that
4 will be undertaken for mixed waste accepted for disposal at the Integrated Disposal Facility
5 (IDF). . Mixed waste disposed at the IDF will be limited to vitrified low-activity waste (LAW)
6 from the RPP-WTP and DBVS and mixed waste generated by IDF operations. (see Chapter 1,
7 Part A Form). Vitrified LAW generated by RPP-WTP is known as Immobilized Low Activity
8 Waste (ILAW) and generated by DBVS is known as Bulk Vitrified Waste (BVW). The IDF will
9 be located in the 200 East Area of the Hanford Facility.

10 The IDF also will receive low-level waste for disposal. Mixed waste will not be placed in the low-level
11 waste portion of the IDF. The requirements of this WAP are applicable to mixed waste and are not
12 applicable to the low-level radioactive waste. The term 'treatment, storage, and/or disposal (TSD) unit' is
13 used throughout this WAP to refer to the IDF. Activities will be performed by the IDF operating
14 organization, waste acceptance organization, or its delegated representative.

15 Although the treatment and disposal of radioactive waste (i.e., source, special nuclear, and by-product
16 materials as defined by the *Atomic Energy Act of 1954*) are not within the scope of *Resource*
17 *Conservation and Recovery Act (RCRA) of 1976* or WAC 173-303, information is provided for general
18 knowledge.

19 **3.1 DESCRIPTION OF UNIT PROCESSES AND ACTIVITIES**

20 The IDF will be a single, expandable disposal facility constructed to RCRA Subtitle C standards, half of
21 which is for disposal of mixed waste the other half will be for disposal of low-level waste. Initial capacity
22 for mixed waste disposal is 82,000 cubic meters of waste with an ultimate capacity of up to 450,000 cubic
23 meters of waste. Disposal capacity beyond the initial 82,000 cubic meters will require a modification to
24 the Part B Permit. The mixed waste types to be disposed in the IDF include vitrified LAW from the RPP-
25 WTP and DBVS. Additionally, mixed waste generated by IDF operations will be disposed of in IDF.

26 The mission of the RCRA portion of the IDF is to provide an approved disposal facility for the
27 permanent, environmentally safe disposition of mixed waste and RCRA waste.

28 For ILAW, and BVW the container packaging and handling will be designed to maintain containment of
29 each waste type, limit intrusion, and limit human exposure at the IDF. ILAW containers will be
30 transported from the RPP-WTP to the IDF using a tractor-trailer system. BVW will be transported from
31 the DBVS staging area to IDF using a similar system. Transport of the ILAW and BVW to the landfill
32 will occur along a pre-determined route.

33 The lined landfill will have a leachate collection and removal system. The leachate collection tanks will
34 be operated in accordance with the generator provisions of WAC 173-303-200 and are not subject to this
35 WAP.

36 Additional information is located in Chapter 1.0 (IDF Part A), Chapter 2.0 (Facility Description), and
37 Chapter 4.0 (Process Information).

1 **3.2 IDENTIFICATION AND CLASSIFICATION OF WASTE**

2 The ILAW, BVW, and newly generated mixed waste will be accepted for disposal. The mixed waste
3 disposed of at the IDF is received from waste generated within IDF, and two other Hanford Facility TSD
4 units (RPP-WTP and DBVS). The following waste will not be accepted for disposal at this TSD unit:

- 5 • Waste is not accepted for disposal when the waste contains free-standing liquid unless all
6 free-standing liquid:
 - 7 – Has been removed by decanting or other methods
 - 8 – Has been mixed with sorbent or stabilized (solidified) so that free-standing liquid is no longer
9 observed
 - 10 – Otherwise has been eliminated
 - 11 – Container is very small, such as an ampoule
 - 12 – Container is a labpack and is disposed in accordance with WAC 173-303-161 or 40 Code of
13 Federal Regulations (CFR) 264.316
 - 14 – Container is designed to hold free liquids for use other than storage, such as a battery or
15 capacitor.

16 There could be cases in which small amounts of residual liquids are present in mixed waste containers
17 because condensate has formed following packaging or free liquids remain in debris items (e.g.,
18 pumps, tubing) even after draining. When it is not practical to remove this residual liquid, the free
19 liquid must be eliminated to the extent possible by adding a quantity of sorbent sufficient to sorb all
20 residual liquids.

21 Free liquid is determined by SW-846, *Test Methods for Evaluating Solid Waste: Physical/Chemical*
22 *Method*, Method 9095 (Paint Filter Liquids Test) [WAC 173-303-140(4)(b) and 40 CFR 264.314(d)]
23 only for waste that has the potential for free liquid formation.

- 24 • Gaseous waste not accepted for disposal if the is waste packaged at a pressure in excess of 1.5
25 atmospheres at 20°C
- 26 • Pyrophoric waste is not accepted for disposal. Waste containing less than 1 weight percent pyrophoric
27 material partially or completely dispersed in each package is not considered pyrophoric for the
28 purposes of this requirement.
- 29 • Solid acid waste is not accepted for disposal [WAC 173-303-140 (4)(c)]
- 30 • Extremely hazardous waste that does not meet WAC 173-303-140(4)(d) is not accepted for disposal.
31 Extremely hazardous waste that has been treated could be disposed in accordance with Revised Code
32 of Washington (RCW) 70.105.050(2), "Hazardous Waste Management"
- 33 • Organic/carbonaceous waste that does not meet WAC 173-303-140(4)(d) is not accepted for disposal
- 34 • Waste not meeting the LDR treatment standards is not accepted for disposal [40 CFR 268 and
35 WAC 173-303-140(4)]
- 36 • Waste streams will be evaluated during pre-shipment review to ensure that the waste streams do not
37 contain constituents incompatible with the liner system in concentration sufficient to degrade the
38 liner. Table 1 provides a list of chemicals shown to be incompatible with the liner material at 100%
39 concentrations (WHC-SD-WM-TI-714). In general, mixed waste that meets federal and state
40 treatment standards would be compatible with the TSD unit liner system. Waste accepted at the IDF
41 will be compatible with the liner. Constituents in Table 1 will not be accepted for disposal (refer to
42 Section 2.1.3 for waste stream compatibility).

1 **3.3 MANAGEMENT OF WASTE**

2 The ILAW, BVW, and newly generated wastes (see Section 1.3.1) generated during normal operations of
3 this TSD unit are accepted at this TSD unit for disposal. The two onsite TSD units (RPP-WTP and
4 DBVS) transferring/shipping waste to this TSD unit hereafter are referred to as the 'generator' unless
5 otherwise denoted in this WAP. The waste acceptance process for transfers from the generator is
6 identified in Figure 1.

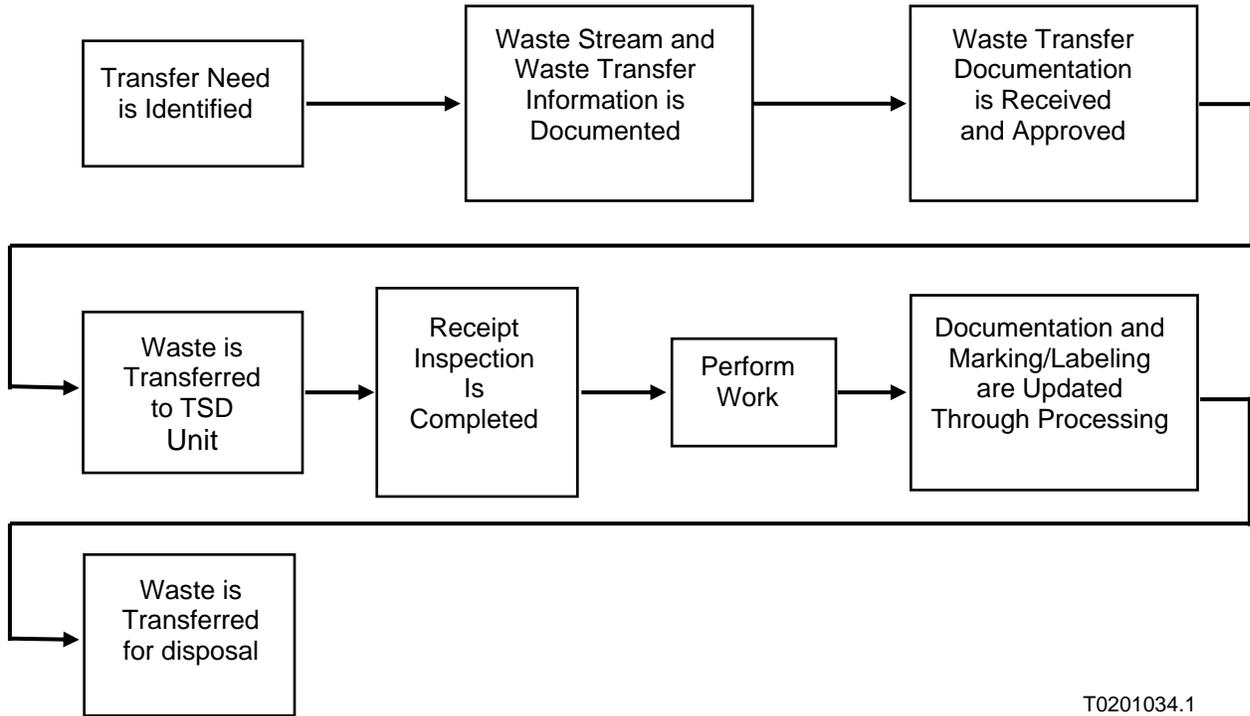
7 Written waste tracking procedure(s) are implemented to ensure waste received at the TSD unit matches
8 the manifest or transfer papers, to ensure that the waste is tracked through the TSD unit to final
9 disposition, and to maintain the information required in WAC 173-303-380. The waste tracking process
10 provides a mechanism to track waste through a uniquely identified container. The unique identifier is a
11 barcode (or equivalent) that is recorded in the Solid Waste Information Tracking System (SWITS). This
12 mechanism encompasses the waste acceptance process, the movement of waste, the processing of waste,
13 and management of the waste. The container identification number provides traceability between the
14 TSD unit and the hard copy of records that are maintained as part of the operating record to ensure
15 information relative to the location, quantity, and physical and chemical characteristics of the waste are
16 available.

17 The following sections describe the process for waste acceptance and the different types of information
18 and knowledge reviewed/required during the acceptance process. The process for management of waste
19 is described in Chapter 4.0

20 **3.3.1 Newly Generated Waste within the IDF**

21 This TSD unit generates mixed waste as a result of operational (e.g., chemical, radiological) activities.
22 These activities include, transfer functions along with inspection, decontamination, cleanup, maintenance
23 tasks and leachate collection. The IDF generated operational waste will be maintained in accordance with
24 generator provisions of WAC 173-303-200 and WAC 173-303-600 (3) (d). Any newly generated waste
25 (except leachate) not meeting IDF waste acceptance criteria will be designated and sent to another
26 permitted TSD or to a 90 day accumulation area. IDF leachate will be managed in accordance with
27 WAC 173-303-200 and transferred to LERF/ETF (or other permitted TSD) for treatment. Solids or
28 residuals resulting from IDF leachate treatment may be designated/packaged and sent back to the IDF for
29 burial or to another permitted TSD.

Figure 1. Waste Transfers and Analysis Plan Onsite TSD Units Flow Diagram.



T0201034.1

Table 1. Chemicals Incompatible With the High Density Polyethylene Liner (in concentrated form)*

Chemical	CAS Number
Amyl chloride	543-59-9
Aqua regia	8007-56-5
Bromic acid	15541-45-4
Bromobenzene	108-86-1
Bromoform	75-25-2
Calcium bisulfite	13780-03-5
Calcium sulfide	20548-54-3
Diethyl benzene	25340-17-4
Diethyl ether	60-29-7
Bromine	7726-95-6
Chlorine	7782-50-5
Fluorine	7782-41-4
Ethyl chloride	75-00-3
Ethylene trichloride	79-01-6
Nitrobenzene	98-95-3
Perchlorobenzene	118-74-1
Propylene dichloride	78-87-5
Sulfur trioxide	7446-11-9
Sulfuric acid (fuming)	8014-95-7
Thionyl chloride	7719-09-7
Vinylidene chloride.	75-35-4

CAS = Chemical Abstract Service.

* WHC-SD-WM-TI-714

1 **3.4 CONFIRMATION PROCESS**

2 WAC 173-303-300 (1) requires confirmation on mixed waste before acceptance of waste into a waste
3 management unit. The confirmation process consists of two parts, pre-shipment review, and verification.
4 Confirmation activities are performed in accordance with TSD unit-specific governing documentation.
5 The confirmation process is detailed in Figure 2 for ILAW and BVW.

6 **3.4.1 Pre-Shipment Review**

7 Pre-shipment review takes place before waste can be scheduled for transfer or shipment to this TSD unit.
8 The review focuses on whether the waste stream is defined accurately and meets the TSD unit waste
9 acceptance criteria and whether the LDR status is determined correctly. Only waste determined to be
10 acceptable for storage (see Section 4.0) and/or disposal is scheduled. This determination is based on the
11 information provided by the generator. The pre-shipment review consists of waste stream approval and
12 the waste shipment approval process. The following sections discuss the pre-shipment review process.
13 The information obtained during the pre-shipment review, at a minimum, includes all information
14 necessary to safely dispose of the waste. The pre-shipment review ensures the waste is characterized and
15 the data provided qualify as 'acceptable knowledge' (Section 2.1.5).

16 **3.4.1.1 Pre-Shipment Review of Wastes**

17 Pre-shipment review for ILAW and BVW waste containers will take place at RPP-WTP and the DBVS
18 staging area respectively before either type of containers can be scheduled for transfer to the IDF. The
19 review will focus on whether the waste stream is defined accurately, meets the waste acceptance criteria,
20 and the land disposal restrictions (LDR) status was determined correctly. Only waste determined to be
21 acceptable for storage (see section 4.0) and/or disposal will be scheduled. This determination will be
22 based on the information provided by the generator. The pre-transfer review will consist of the waste
23 profile documentation and waste transfer approval process. The following sections discuss the
24 pre-transfer review process. ILAW and BVW containers received for land disposal will be at least 90 %
25 full. The information obtained from the generator, at a minimum, will contain five elements: (1)
26 documentation to ensure waste can be managed pursuant to the Part A, Form 3, (2) documentation to
27 ensure the waste is not a prohibited waste in accordance with Section 1.2, (3) a determination if the waste
28 is an ignitable, reactive, or incompatible waste as defined in WAC 173-303-040, (4) documentation that
29 waste meets LDR requirements of 40 CFR 268 and WAC 173-303-140, and (5) operational restrictions
30 on acceptance of waste.

31 During the waste profile documentation process for ILAW and BVW containers, the generator will have
32 the responsibility to provide relevant information pertaining to the proper management of the waste.
33 Characterization information pertaining to the treatment of ILAW and BVW will be obtained during the
34 waste profile documentation process.

35 **3.4.1.2 Waste Stream Approval Process for Wastes**

36 The waste stream approval process consists of reviewing stream information supplied on a waste stream
37 profile and supporting documentation to allow receipt of the waste into the IDF. Waste stream
38 compatibility (i.e., compatibility between individual waste streams and compatibility between waste
39 streams and landfill design and construction parameters) will be assessed on a case-by-case basis.
40 Criteria for assessing and determining compatibility will be identified in either the facility Waste
41 Acceptance Criteria, Waste Analysis Plan, or other protocol or procedure as appropriate

1 **3.4.1.2.1 Waste Stream Approval for ILAW and BVW**

2 During the waste profile documentation process, the IDF waste acceptance organization will obtain the
3 following information:

- 4 • Description of waste generating process
- 5 • Characterization data
- 6 • Dangerous waste numbers
- 7 • LDR data (as specified in Section 7.0)
- 8 • Composition of ILAW and BVW including regulated constituents of concern (refer to Chapter 1.0 of
9 the permit application -Part A Form).

10 The waste profile documentation process will be as follows.

- 11 1. Appropriate generator fills out waste profile documentation.
- 12 2. The IDF designated waste acceptance organization reviews the waste profile information against the
13 waste acceptance criteria for each ILAW or BVW transfer.
- 14 3. If discrepancies are noted, the IDF designated waste acceptance organization requests additional
15 information from the generator to address discrepancies for either: (1) inconsistent information and
16 (2) information not constituting acceptable knowledge (refer to Section 2.1.5).

17 Information (waste profile documentation) is resubmitted by the generator addressing concerns in
18 Item 3.

- 19 • If concerns are addressed, waste profile documentation is approved.
- 20 • If concerns are not addressed and met, waste profile documentation is not approved until
21 concerns are corrected.

22 **3.4.1.2.2 Waste Stream Approval for Newly Generated Mixed Waste**

23 The waste stream approval process for wastes generated during IDF operations (except for leachate)
24 consists of reviewing stream information supplied on a waste stream profile and supporting
25 documentation. The waste stream profile requires the following supporting documentation:

- 26 • Generator information (e.g., name, address, point-of-contact, telephone number)
- 27 • Waste stream name
- 28 • Waste generating process description
- 29 • Waste numbers
- 30 • Chemical characterization information [e.g., characterization method(s), chemicals present,
31 concentration ranges]
- 32 • Designation information
- 33 • LDR information including identification of underlying hazardous constituents if applicable
- 34 • Waste type information (e.g., physical state, adsorbents used, inert materials, stabilizing agents used)
- 35 • Packaging information (e.g., container type, maximum weight, size).

36 Attachments could consist of container drawings, process flow information, analytical data, etc.

37 In some cases, such as variable waste streams, the waste stream profile information could be general in
38 nature. In these cases, more detailed information is gathered during the waste shipment approval process
39 on a per shipment basis. This information is reviewed against the TSD unit waste acceptance criteria to

1 ensure the waste is acceptable for receipt. If conformance issues are found during this review, additional
2 information is requested that could include analytical data or a sample to be analyzed. If the waste cannot
3 be received, the TSD unit pursues acceptance of the waste at an alternate TSD unit. Once the waste meets
4 the waste acceptance criteria, the TSD unit assigns the profile to a waste specification record and
5 establishes a waste verification frequency based on the requirements found in Section 2.3. Profile
6 information is re-evaluated as discussed in Section 6.0.

7 **3.4.1.3 Waste Transfer/Shipment Approval Process**

8 After the appropriate generator has received the waste profile documentation approval from IDF (refer to
9 Section 2.1.3), the generator waste transfer will be subjected to the waste transfer approval process. Only
10 those ILAW and BVW containers approved under the waste profile documentation as part of the waste
11 transfer approval process will be transferred to the IDF. During the waste transfer approval process, the
12 IDF designated waste acceptance organization will obtain the following information.

13 For each ILAW or BVW container transfer that is a candidate for disposal in the TSD unit, the generator
14 will provide the following information:

- 15 • Container identification number
- 16 • Profile number
- 17 • Waste description
- 18 • Generator information (e.g., name, address, point-of-contact, telephone number)
- 19 • Container information (e.g., type, size, weight)
- 20 • Waste numbers
- 21 • LDR certification
- 22 • Packaging materials and quantities.

23 The ILAW and BVW container transfer approval process will be as follows.

- 24 1. The generator obtains information from existing database, operating record, or generator records on
25 each ILAW container to be transferred under the approved waste profile documentation.
- 26 2. Information is submitted to the TSD unit designated waste acceptance organization by the generator
27 and is reviewed for the following:
 - 28 • Consistency with approved waste profile documentation
 - 29 • Consistency with waste acceptance criteria within the IDF.
- 30 3. If discrepancies are identified, the TSD unit designated waste acceptance organization will request
31 additional information from the generator to address any discrepancies.
- 32 4. Information (waste package documentation) is resubmitted by the generator addressing concerns in
33 Item 3.
- 34 5. If discrepancies are addressed, this information is forwarded to the TSD waste acceptance
35 organization.
- 36 6. If discrepancies are not addressed, transfer is not approved until discrepancies are corrected.

37 **3.4.1.4 Acceptable Knowledge Requirements**

38 The TSD unit ensures that all information used to make waste management decisions is based on
39 adequate characterization data as described in the following sections. The TSD unit evaluates the data to
40 ensure that the data are adequate acceptable knowledge for management of the waste.

1 **3.4.1.4.1 General Acceptable Knowledge Requirements**

2 One or more of the following types of information could be considered, provided that the information is
3 of sufficient quality to demonstrate compliance with applicable waste acceptance criteria:

- 4 • Mass balance from a controlled process that has a specified output for a specified input
- 5 • Material safety data sheet on chemical products
- 6 • Test data from a surrogate sample
- 7 • Analytical data on the waste or a waste from a similar process.

8 In addition, acceptable knowledge requirements can be met using a combination of analytical data or
9 screening results and one and/or more of the following information:

- 10 • Interview information
- 11 • Logbooks
- 12 • Procurement records
- 13 • Qualified analytical data
- 14 • Radiation work package
- 15 • Procedures and/or methods
- 16 • Process flow charts
- 17 • Inventory sheets
- 18 • Vendor information
- 19 • Mass balance from an uncontrolled process (e.g., spill cleanup)
- 20 • Mass balance from a process with variable inputs and outputs (e.g., washing/cleaning methods).

21 If the information is sufficient to quantify the constituents of regulatory concern and to determine waste
22 characteristics as required by the regulations and TSD unit waste acceptance criteria, the information is
23 considered acceptable. Adequate acceptable knowledge includes (1) general waste knowledge
24 requirements and/or (2) LDR waste knowledge requirements.

25 **(1) General waste knowledge requirements.** At a minimum, the generator supplies enough
26 information for the waste to be managed at this TSD unit (refer to Section 2.1.3). The minimum
27 level of acceptable knowledge consists of designation data where the constituents causing a waste
28 number to be assigned are quantified and that data address any TSD unit operational parameters
29 necessary for proper management of the waste.

30 When process knowledge indicates that constituents, which if present in the waste might cause the
31 waste to be regulated, are input to a process, but not expected to be in the waste, sampling and
32 analysis must be performed to ensure the constituents do not appear in the waste above applicable
33 regulatory levels. This requirement can be met through chemical screening. This sampling and
34 analysis are required only for initial characterization of the waste stream.

35 When the available information does not qualify as acceptable knowledge or is not sufficient to
36 characterize a waste for management, the sampling and testing methods outlined in
37 WAC 173-303-110 are used to determine whether a waste designates as ignitable, corrosive,
38 reactive, and/or toxic and whether the waste contains free liquids as applicable. If the analysis is
39 performed to complete characterization after acceptance of the waste by the TSD unit, this WAP
40 governs the sampling and testing requirements.

1 **(2) LDR waste knowledge.** The TSD unit operating record contains all information required to
2 document that the appropriate treatment standards have been met or will be met after the waste is
3 treated unless otherwise excepted in this section.

4 • Both ILAW and BVW will be LDR compliant waste streams prior to acceptance at the IDF.
5 Vitrification at the WTP and DBVS will facilitate LDR compliance for the majority of the mixed
6 waste disposed of at IDF. IDF operational waste will be treated as needed to meet LDR at
7 another TSD other than WTP or the DBVS

8 • This TSD unit may use analytical data as necessary to ensure that the applicable requirements
9 found in 40 CFR 268.7 and WAC 173-303-140 (4) are met.

10 **3.4.1.4.2 Methodology to Ensure Compliance with LDR Requirements**

11 The generators are subject to LDR requirements and are required to submit all information notifications
12 and certifications described in WAC 173-303-380 (1), (j), (k), (n), and (o). Mixed waste not meeting the
13 treatment standards cannot be disposed at this TSD unit.

14 The following are general requirements for certification or information notification.

15 • The waste is subject to LDR and the waste has been treated. The generator supplies the appropriate
16 LDR certification information (40 CFR 268).

17 • The waste is subject to LDR and the generator has determined that the waste meets the LDR as
18 generated. The generator develops the certification based on process knowledge and/or analytical
19 data and supplies the appropriate LDR certification information necessary to demonstrate compliance
20 with the LDR treatment standards of 40 CFR 268 and WAC 173-303-140. State-only LDRs do not
21 require this type of certification.

22 When demonstrating that a concentration-based LDR treatment standard has been met, a representative
23 sample of the waste must be submitted for analysis. This sample could be taken by the treatment facility
24 or the generator and is required to comply with the LDR treatment standards contained in 40 CFR 268.40
25 and 268.48 for underlining hazardous constituents.

26 **3.4.2 Verification**

27 Verification is an assessment performed by this TSD unit to substantiate that the waste received is the
28 same as represented by the analysis supplied by the generator for the pre-shipment review. Verification
29 for ILAW and BVW containers will contain one element, a 100% container receipt inspection.
30 Physical/chemical screening will not be performed on the ILAW or BVW containers. Waste is not
31 accepted by the TSD unit for disposal until the required elements of verification have been completed,
32 including evaluation of any data obtained from verification activities. All conformance issues identified
33 during the verification process are resolved in accordance with Section 2.3.3. Verification activity results
34 will be documented by the IDF designated waste acceptance organization.

35 Sampling and analysis for non-vitrification mixed waste (e.g., treatment residues from treatment of IDF
36 leachate that are returned to IDF for disposal) will not occur at the IDF but will occur at another permitted
37 TSD.

1 **3.4.2.1 Container Receipt Inspection**

2 Container receipt inspection is a mandatory element of the confirmation process.

3 **3.4.2.1.1 Container Receipt Inspection for ILAW and BVW**

4 The ILAW and BVW container receipt inspection will be performed by IDF designated waste acceptance
5 organization. The following criteria will be evaluated during container receipt inspection:

- 6 • Number of containers
- 7 • Size of containers
- 8 • Labels
- 9 • Container integrity.

10 Discrepancies identified during the container receipt inspection will be communicated to generator.
11 Discrepancies will be resolved before the containers are unloaded. Once the discrepancies are resolved,
12 the ILAW containers will be unloaded and disposed. Should discrepancies remain unresolved after
13 30 days, Ecology will be notified and daily walk around inspections conducted.

14 **3.4.2.2 Physical Screening Process**

15 The ILAW and BVW containers are not required to be physically screened because the generator verifies
16 the waste meet the waste acceptance criteria for IDF.

17 **3.4.2.3 Chemical Screening Process**

18 Chemical screening is a verification element for containerized mixed waste. The ILAW and BVW
19 containers are not required to be chemically screened because the generator verifies the waste meet the
20 waste acceptance criteria for IDF.

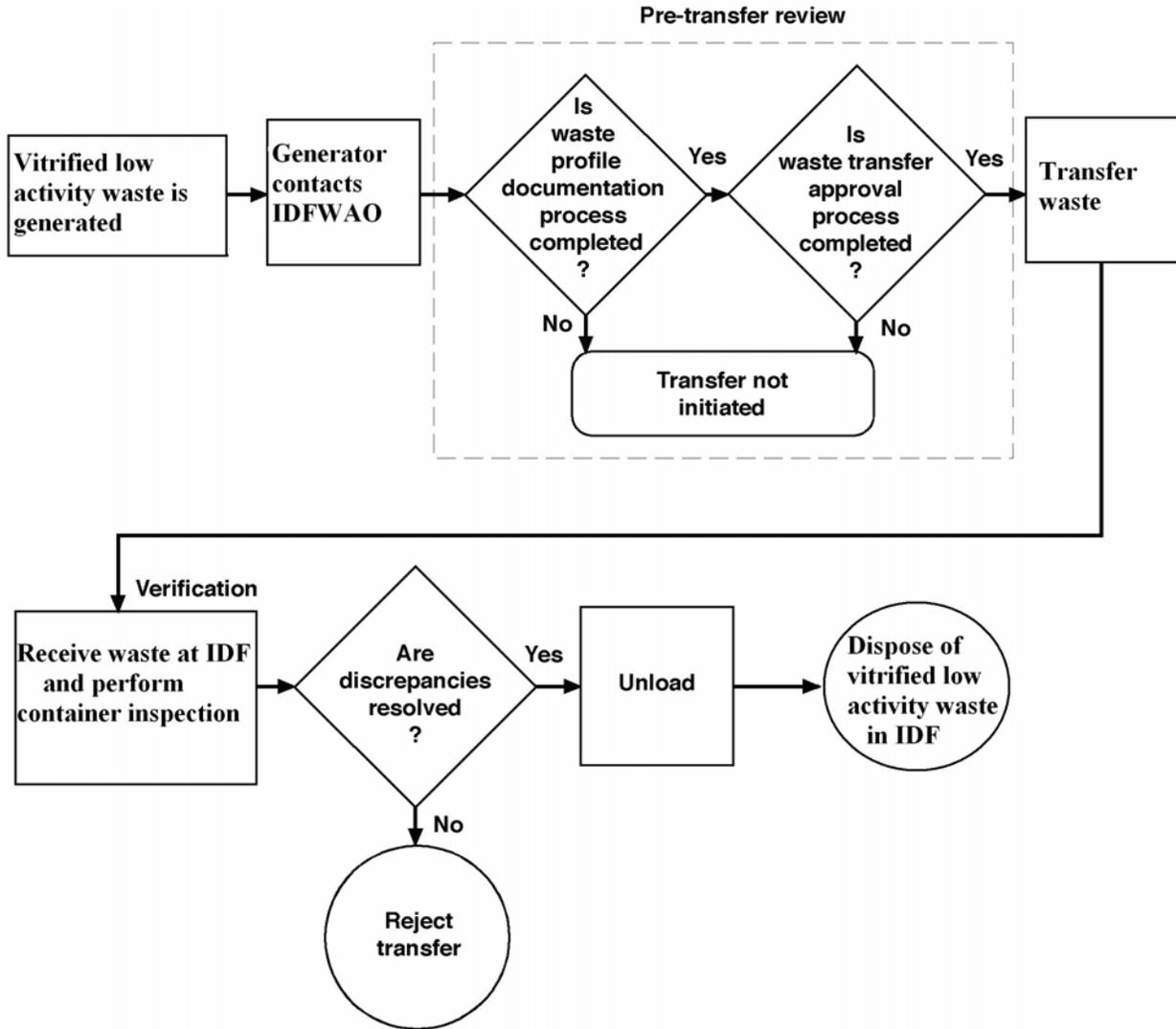
21 **3.4.3 Waste Acceptance**

22 Initial acceptance of waste occurs only after the confirmation process described in Section 2.0 is
23 complete. Conformance issues identified during the confirmation process are documented and managed
24 in accordance with Section 2.3. Conformance issues that must be corrected before waste acceptance
25 include the following:

- 26 • Waste that is not identified in the Part A, Form 3 (Chapter 1.0)
- 27 • Waste does not match approved profile documentation
- 28 • Designation, physical, and/or chemical characterization discrepancy
- 29 • Incorrect LDR paperwork
- 30 • Packaging discrepancy
- 31 • Manifest discrepancies as described in WAC 173-303-370(4).

32 For waste shipments with unresolved conformance issue(s) that exceed 90 days, this TSD will notify
33 Ecology at least once per calendar quarter.

Figure 2. Vitrification or Alternative Method Transfer and Waste Analysis Plan Process Flow Diagram



IDF = Integrated Disposal Facility
IDFWAO = IDF Waste Acceptance Organization

1 **3.4.4 Selecting Waste Analysis Parameters**

2 The ILAW and BVW containers will be managed without the need to perform sampling and analysis at
3 the TSD. No parameters will be required to be identified.

4 Table 2. Parameters and Rationale for Physical Screening

Parameter	Method*	Rationale for selection
Nondestructive examination	Field method	Confirm consistency between waste and shipping documentation.
*Procedures based on manufacturer's recommended methodology unless otherwise noted. When regulations require a specific method, the method is followed. SW-846, <i>Test Methods for Evaluating Solid Waste</i> , latest edition, U.S. Environmental Protection Agency, Washington, D.C. WAC 173-303, "Dangerous Waste Regulations"		

5 **3.4.5 Selecting Sampling Procedures**

6 Any required sampling and analysis of the ILAW and BVW containers will be performed at the generator
7 before the containers are closed. Sampling and analysis for IDF operational mixed waste will not occur at
8 the IDF but at another Hanford TSD.

9 **3.4.6 Selecting A Laboratory, Laboratory Testing, And Analytical Methods**

10 Any required sampling and analysis of the ILAW and BVW containers will be performed before the
11 containers are closed at the RPP-WTP and DBVS respectively. No Laboratory, laboratory testing or
12 analytical methods will be required to be identified.

13 **3.4.7 Selecting Waste Re-Evaluation Frequencies**

14 The re-evaluation (repeat and review) frequency for ILAW to review a waste generating process and
15 associated waste profile documentation is every 2 years, or more often if conditions in
16 WAC 173-303-300(4)(a) arise. Since BVW will be generated over a shorter time period, frequency for
17 review will be every six months.

18 When a waste generating process and associated waste profile documentation is re-evaluated, IDF
19 personnel or designated waste acceptance organization could request the generator to do one or more of
20 the following:

- 21 • Verify the current waste profile documentation is accurate
- 22 • Supply new waste profile documentation.

23 When a waste profile is re-evaluated, the TSD unit could request the organization generating the waste to
24 do one of the following:

- 25 • Verify the current waste profile is accurate
- 26 • Supply a new waste profile
- 27 • Submit a sample for parameter analysis.

1 **3.4.8 Special Waste Analysis Procedural Requirements**

2 Special procedural requirements for the IDF will include procedures for ignitable, reactive, and
3 incompatible waste, and provisions for complying with federal and state LDR requirements. This section
4 discusses any special process requirements for receiving mixed waste at this TSD unit.

5 **3.4.9 Procedures for Ignitable, Reactive, and Incompatible Waste**

6 Waste stream compatibility (i.e., compatibility between individual waste streams and compatibility
7 between waste streams and landfill design and construction parameters) and waste stream ignitability will
8 be assessed on a case-by-case basis. Criteria for assessing and determining compatibility and ignitability
9 will be identified in either the facility Waste Acceptance Criteria, Waste Analysis Plan, or other protocol
10 or procedure as appropriate. Should these wastes be accepted, appropriate administrative and engineering
11 controls will be implemented as necessary.

12 This TSD unit does not accept reactive waste (refer to Section 1.2 and Section 2.0). The TSD unit
13 ensures that reactive waste is not accepted at this TSD unit in the following manner.

- 14 • Pre-shipment review will identify whether the waste is reactive based on the definition contained in
15 WAC 173-303-040.
16 • If analysis of the characterization information leads to a conclusion that the waste is a reactive waste,
17 the containers, or waste will not be accepted.

18 The types of prohibited waste not accepted at this TSD unit as listed in Section 1.2.

19 **3.4.10 Provisions for Complying With Federal and State Land Disposal Restriction Requirements**

20 State-only and federal LDR requirements restrict the land disposal of certain types of waste subject to
21 RCRA and RCW 70.105, "Hazardous Waste Management", as amended. Waste managed on the Hanford
22 Facility falls within the purview of these LDRs per 40 CFR 268 and WAC 173-303-140. The treatment
23 standards for mixed waste disposed at IDF are based on the dangerous waste numbers accepted as
24 documented on the IDF Part A as well as additional information necessary for identifying treatability
25 groups etc.

26 The IDF will not perform sampling and analysis to determine compliance with treatment standards
27 contained in 40 CFR 268. Any sampling and analysis results required to demonstrate compliance with
28 concentration-based treatment standards contained in 40 CFR 268.40 will be obtained by IDF waste
29 acceptance organization from the generator, during the waste profile documentation process to meet the
30 requirements of 40 CFR 268.7(c)(2). Sampling and analysis results will be placed into the unit-specific
31 portion of the Hanford Facility operating record. Other LDR records are identified in WAC 173-303-
32 380(1)(m) and will be obtained from the generator, by IDF personnel as part of either the waste profile
33 documentation process or the waste transfer approval process. The treated waste must meet all applicable
34 LDRs to be accepted for disposal at the IDF. IDF will obtain the LDR certification from the treatment
35 unit.

36 Mixed waste constituents that are subject to LDRs are identified in 40 CFR 268.40 by reference in
37 WAC 173-303-140(2), the extremely hazardous waste disposal requirements for DOE facilities contained
38 in RCW 70.105.050(2), and the state-only LDRs contained in WAC 173-303-140(4)(b)-(d). The mixed
39 waste must meet certain treatment standards, as specified in 40 CFR 268.40, RCW 70.105.050(2), and
40 WAC 173-303-140(4)(b)-(d), if the waste is to be land disposed. Any waste requiring LDR treatment
41 must be treated prior to acceptance into the IDF.

1 State-only LDRs for mixed waste will be met in the following manner:

- 2 • Extremely hazardous waste disposal requirements in RCW 70.105.050(2) concerning "all reasonable
3 methods" will be met by the treatment performed to meet 40 CFR 268, WAC 173-303-140(4)(b)-(d),
4 and DOE requirements for disposal. If no treatment is required to meet 40 CFR 268,
5 WAC 173-303-140(4)(b)-(d), or DOE requirements, no treatment is required to dispose of extremely
6 hazardous waste at the IDF.
- 7 • Special requirements for bulk and containerized liquids in WAC 173-303-140(4)(b) are identical to
8 the landfill requirements contained in 40 CFR 264.314. For mixed waste, including the provisions
9 when to perform the paint filter test, these requirements are described in Section 1.2 of the WAP.
- 10 • Solid acid waste requirements in WAC 173-303-140(4)(c) can be met through knowledge of the
11 treatment process. Sampling and analysis following treatment is not required to meet this state-only
12 LDR. Disposal of treated solid acid waste still displaying the WSC2 characteristic can occur only
13 when the waste is treated to reduce the harmful properties or characteristics of the waste.
- 14 • Organic/Carbonaceous waste prohibition requirements in WAC 173-303-140(4)(d) do not apply to
15 the Hanford Facility because the Hanford Facility is operating under WAC 173-303-140(4)(d)(iii), in
16 accordance with a sitewide 1,609 kilometers (1,000-mile) inapplicability certification. Sampling and
17 analysis is not required to determine the organic/carbonaceous content of a mixed waste.
- 18 • Ecology allows treatment of Organic/Carbonaceous waste in lieu of meeting the inapplicability
19 certification requirements (WAC-173-303-140(4)(d)(iii) through macro-encapsulation for hazardous
20 debris only.

21 **3.4.11 Off-Specification Waste**

22 Off-Specification ILAW or BVW is waste not meeting the waste acceptance criteria as described in
23 Section 2.0, Confirmation Process. ILAW or BVW streams determined to be off-specification may be
24 temporarily stored in the RCRA lined portion of the IDF pending resolution of discrepancy or return to
25 generating TSD as long as these wastes meet LDR. ILAW and BVW may be temporarily stored in the
26 RCRA lined portion of the IDF, provided the temperature administrative control limit is not exceeded,
27 until sufficiently cool for disposal.

28 **3.5 WASTE TRACKING**

29 The IDF will monitor and record the placement of waste packages. At the time of final placement of each
30 package, the position and serial number of the package will be logged.

31 **3.6 RECORDKEEPING**

32 Recordkeeping requirements that will be applicable to this WAP are described in Chapter 12.0, and as
33 follows:

- 34 • Confirmation records described in Section 2.0 will be maintained in accordance with
35 Condition II.I.1.b of the Hanford Facility RCRA Permit, Dangerous Waste Portion (Ecology 2001).
- 36 • Waste profile documentation described in Section 2.0 will be maintained in accordance with
37 Condition II.I.1.j of the Hanford Facility RCRA Permit, Dangerous Waste Portion.
- 38 • LDR records described in Section 7.0 will be maintained in accordance with
39 WAC 173-303-380(1)(m) in the IDF unit-specific portion of the Hanford Facility operating record.

1 **3.7 REFERENCES**

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