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PART III OPERATING UNIT GROUP 11
INTEGRATED DISPOSAL FACILITY

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PART III OPERATING UNIT GROUP 11
INTEGRATED DISPOSAL FACILITY

UNIT DESCRIPTION

The Integrated Disposal Facility (IDF) is an expandable lined landfill located in the 200 East Area of the Hanford Facility. The landfill is divided lengthwise into distinct east and west cells, one for disposal of low-level radioactive waste (the east cell) and the other for disposal of mixed waste (the west cell). The cell for disposal of low-level radioactive waste is outside the scope of this Permit. The waste disposal capacity of the initial construction is 82,000 cubic meters. This volume will be revised through the permit modification process as required for future expansion. No waste has yet been disposed at IDF and the unit is in a "pre-active life" status.

Mixed waste disposed at the IDF will be limited to immobilized (vitrified) low-activity waste (ILAW) from the Waste Treatment Plant (WTP) (Operating Unit Group 10) and Demonstration Bulk Vitrification System (DBVS) waste, authorized by a research, design and development permit. Additionally, mixed waste generated by IDF operations that meet the IDF waste acceptance criteria, either as generated or after necessary treatment at a dangerous waste management unit other than IDF, will be disposed in IDF.

LIST OF ADDENDA SPECIFIC TO OPERATING UNIT GROUP 11

Addendum A	Part A Form, dated October 1, 2008
Addendum B	Waste Analysis Plan
Addendum C	Process Information
Addendum C.1	Critical Systems Design Drawings
Addendum C.2	Critical Systems Tables and Data Sheets
Addendum C.3	Construction Quality Assurance Plan
Addendum C.4	Response Action Plan
Addendum C.5	Technical specifications document (RPP-18489 Rev 0)
Addendum D	Groundwater Monitoring
Addendum E	Security Requirements
Addendum F	Preparedness and Prevention
Addendum G	Personnel Training
Addendum H	Closure Plan
Addendum I	Inspection Requirements
Addendum J.1	Contingency Plan – Pre-Active Life
Addendum J.2	Contingency Plan – Active Life

DEFINITIONS

The term "**Critical Systems**" as applied to determining whether a Permit modification is required, means those specific portions of an operating unit group's structure, or equipment, whose failure could lead to the release of dangerous waste into the environment, or systems which include processes which treat, transfer, store, or dispose of regulated wastes. Changes to specific portions of a dangerous waste management TSD identified as a critical system, are subject to the permit modification requirements of [WAC 173-303-830](#).

ACRONYMS

ALR	Action Leak Rate
CQA	Construction Quality Assurance Plan
DBVS	Demonstration Bulk Vitrification System

1	ECN	engineering change notice
2	HDPE	high-density polyethylene
3	HLVIT	high-level vitrification
4	IDF	Integrated Disposal Facility
5	ILAW	Immobilized Low Activity Waste
6	IWTRD	ILAW Waste Form Technical Requirements Document
7	LAW	Low Activity Waste
8	LCRS	leachate collection and removal system
9	LDR	land disposal restrictions
10	LDS	leak detection system
11	NCR	nonconformance report
12	SLDS	secondary leak detection system
13	SLMOP	sub-surface liquid monitoring operations plan
14	TCLP	toxicity characteristic leaching procedure
15	WTP	Waste Treatment and Immobilization Plant

16

17 **III.11.A COMPLIANCE WITH UNIT SPECIFIC PERMIT CONDITIONS**

18 **III.11.A.1** The Permittees will comply with all conditions in this Chapter and its Addenda with
19 respect to dangerous waste management and dangerous waste management units in
20 Operating Group 11, in addition to requirements in Part I and II.

21 **III.11.A.2** The scope of these unit specific conditions is restricted to the landfill operation and
22 maintenance as necessary to dispose of: 1) immobilized low activity waste from the
23 WTP, 2) Immobilized Low Activity waste from the Demonstration Bulk Vitrification
24 System and 3) IDF operational waste as identified in Addendum B. Future expansion of
25 the dangerous/mixed waste trench, or disposal of other wastes not specified in this
26 Permit, is prohibited unless authorized via modification of this Permit.

27 **III.11.A.3** With respect to the scope of conditions in this Chapter, the regulated portion of the
28 Integrated Disposal Facility will be considered to be IDF Cell 1, all related support,
29 ancillary and other equipment specific to this trench, or shared in common between IDF
30 Cell 1 (mixed waste cell) and IDF Cell 2 (low-level waste only cell), and the waste
31 management activities that may be associated with these components of Operating Unit
32 Group 11.

33 **III.11.B GENERAL WASTE MANAGEMENT**

34 **III.11.B.1** The Permittees will maintain the physical structure of the Integrated Disposal Facility as
35 documented in the as-built drawings in the Hanford Facility Operating Record, IDF File
36 required by Permit Condition II.I.2.

37 **III.11.B.2** The Permittees will not dispose of any mixed waste that is not in compliance with state
38 and federal requirements as identified in Addendum B.

39 **III.11.B.3** In accordance with DOE's authority under the Atomic Energy Act of 1954, as amended
40 and other applicable law, prior to disposing of any mixed immobilized low-activity waste
41 (ILAW) in the IDF, DOE will certify to the State of Washington that it has determined
42 that such ILAW is not high-level waste and meets the criteria and requirements outlined
43 in DOE's consultation with the U.S. Nuclear Regulatory Commission beginning in 1993
44 (Letter from R.M. Bernero, USNRC to J. Lytle, USDOE, dated March 2, 1993; Letter
45 from J. Kinzer, USDOE, to C. J. Paperiello, USNRC, Classification of Hanford Low-

1 Activity Tank Waste Fraction, dated March 7, 1996; and Letter from C.J. Paperiello,
2 USNRC, to J. Kinzer, USDOE, Classification of Hanford Low-Activity Tank Waste
3 Fraction, dated June 9, 1997). While the requirement to provide such certification is an
4 enforceable obligation of this Permit, the provision of such certification does not convey,
5 or purport to convey, authority to Ecology to regulate the radioactive hazards of the waste
6 under this Permit.

7 **III.11.C WASTE ANALYSIS/WASTE ACCEPTANCE**

8 **III.11.C.1** The Permittees are authorized to accept dangerous/mixed waste that satisfies the waste
9 acceptance criteria in Addendum B.

10 **III.11.C.2** The Permittees will follow the requirements in Addendum B for all sampling and
11 analysis required pursuant to this Chapter.

12 **III.11.C.3** The only acceptable mixed waste forms approved for disposal at the RCRA cell (Cell 1)
13 of IDF are Immobilized Low Activity Waste (ILAW) in glass form from the Waste
14 Treatment Plant (WTP) Low Activity Waste (LAW) Vitrification facility and ILAW
15 from the Bulk Vitrification Research Demonstration and Development facility (DBVS)
16 (up to 50 boxes) and IDF operational mixed waste.

17 **III.11.C.3.a** No other waste forms may be disposed at the RCRA cell (Cell 1) of IDF unless
18 authorized via a Final permit modification decision. Requests for Permit modifications
19 must be accompanied by an analysis adequate for Ecology to comply with SEPA, a risk
20 assessment and groundwater modeling that demonstrates the environmental impacts
21 according to the process defined in Permit Condition III.11.C.6.

22 **III.11.C.4** Liquid in the Leachate Collection and Removal System (LCRS) will be sampled and
23 analyzed monthly for the first year of operation of the facility and quarterly thereafter for
24 verifying liner integrity. Additionally, as a generator requirement, leachate will be
25 sampled and analyzed as necessary to meet waste acceptance criteria at the receiving
26 treatment storage and disposal facility.

27 **III.11.C.5 Waste Acceptance Criteria and Waste Verification Requirements**

28 **III.11.C.5.a** No later than six (6) months prior to the date the Permittees expects to first accept ILAW
29 or DBVS waste for disposal, the Permittees will, submit a Permit modification request to
30 establish in Addendum B the following: 1) waste analysis requirements and waste
31 acceptance criteria with respect to the requirements of WAC 173-303-300(5) for each
32 waste stream to be accepted, including any and all QA/QC requirements; 2) criteria and
33 processes for demonstrating compliance with LDR treatment standards in WAC 173-303-
34 140 applicable to each waste stream, as documented in each waste stream's approved
35 waste profile; and 3) any other applicable sampling and analysis requirements necessary
36 to ensure compliance with WAC 173-303.

37 **III.11.C.5.b** ILAW Verification Plan

38 **III.11.C.5.b.i** No later than six (6) months prior to the date the Permittees expect to begin accepting
39 ILAW wastes, the Permittees will submit a Permit modification request to include an
40 ILAW verification plan as part of the Waste Acceptance Criteria in Addendum B. This
41 plan will be coordinated with WTP, Ecology, and the Permittees personnel. This plan
42 will outline the specifics of verifying compliance with ILAW waste acceptance criteria
43 through WTP operating parameters, and/or glass sampling. The Plan will include or
44 reference physical sampling requirements for batches and glass formulations pursuant to
45 Permit conditions established in Operating Unit Group 10. The waste acceptance criteria
46 will also include requirements that waste be treated according to final tank waste
47 treatment technology.

- 1 **III.11.C.5.c** DBVS Verification Plan
- 2 **III.11.C.5.c.i** No later than six (6) months prior to the date the Permittees expect to begin accepting
3 DBVS wastes, the Permittees will submit a Permit modification request to include a
4 DBVS verification plan as part of Addendum B, Waste Acceptance Criteria. This plan,
5 which will include the following, DBVS Waste Acceptance Verification requirements,
6 will apply to 100 percent of the waste packages. Waste acceptance will be based on full
7 satisfaction of the DBVS RD&D permit test plan treatment requirements for each waste
8 package. The Permittees will verify waste acceptance of DBVS waste by demonstrating
9 compliance with the waste acceptance criteria established pursuant to Permit
10 Condition III.11.C.5.a using data documented in the detailed campaign test report that
11 will be produced pursuant to the DBVS RD&D.
- 12 **III.11.C.5.c.ii** Demonstration Bulk Vitrification System waste forms that are acceptable to be disposed
13 at IDF are up to 50 boxes of vitrified glass produced pursuant to the DBVS RD&D
14 Permit from processing Hanford Tank S-109 tank waste.
- 15 **III.11.C.5.c.iii** If Bulk Vitrification is selected as a technology to supplement the Waste Treatment Plant,
16 the IDF portion of the Permit will need to be modified to accept Bulk Vitrification Full
17 Scale production waste forms. This modification will need to be accompanied by risk
18 assessment information sufficient for the Department of Ecology to meet its SEPA
19 obligations.
- 20 **III.11.C.5.d** Operational Waste Acceptance Criteria
- 21 **III.11.C.5.d.i** No later than six (6) months prior to the date the Permittees expect to first accept any
22 mixed waste for disposal at the IDF, the Permittees will submit a Permit modification
23 request to establish specific waste acceptance criteria in Addendum B for operational
24 mixed waste which may be disposed in the regulated portion of IDF. These waste
25 acceptance criteria will demonstrate compliance with applicable Land Disposal
26 Treatment Standards. [[WAC 173-303-300](#), [WAC 173-303-140](#)]
- 27 **III.11.C.6** **Modeling – Risk Budget Tool**
- 28 **III.11.C.6.a** The Permittees must create and maintain a modeling - risk budget tool, which models the
29 future impacts of the planned IDF waste forms including input from analysis performed
30 as specified in Permit Condition III.11.C.7 [ILAW Waste Form Technical Requirements
31 (IWTRD)] and their impact to underlying vadose and ground water.
32 [[WAC 173-303-815](#)(2)(b)(i)]
- 33 **III.11.C.6.b** This model will be submitted for Ecology review as soon as possible after issuance of
34 Final Tank Closure and Waste Management EIS, and at least 180 days prior to the date
35 the Permittees expect to receive waste at IDF but in no case later than July 2013 (or a
36 later date if agreed to by Ecology).
- 37 **III.11.C.6.c** The model will be updated at least every 5 years. The model will be updated more
38 frequently if needed, to support Permit modifications or SEPA Threshold Determinations
39 whenever a new waste stream or significant expansion is being proposed for the IDF.
- 40 **III.11.C.6.d** This modeling-risk budget tool will be conducted in manner that is consistent with state
41 and federal requirements, and represents a cumulative risk analysis of all waste
42 previously disposed of in the entire IDF (both cell 1 and cell 2) and those wastes expected
43 to be disposed of in the future for the entire IDF.
- 44 **III.11.C.6.e** The groundwater impact should be modeled in a concentration basis and should be
45 compared against various performance standards including but not limited to drinking
46 water standards ([40 CFR 141](#) and [40 CFR 143](#)).

- 1 **III.11.C.6.f** Ecology will review modeling assumptions, input parameters, and results and will
2 provide comments to the Permittees. Ecology comments will be dispositioned through
3 the Review Comment Record process and will be reflected in further modeling to modify
4 the IDF ILAW waste acceptance as appropriate.
- 5 **III.11.C.6.g** The modeling-risk budget tool will include a sensitivity analysis reflecting parameters,
6 their uncertainties, and changes to parameters as requested by Ecology.
- 7 **III.11.C.6.h** If these modeling efforts indicate results within 75 percent of a performance standard
8 [including but not limited to federal drinking water standards ([40 CFR 141](#) and
9 [40 CFR 143](#))], Ecology and the Permittees will meet to discuss mitigation measures or
10 modified waste acceptance criteria for specific waste forms.
- 11 **III.11.C.6.i** When considering all the waste forms to be disposed of in IDF, the Permittees will not
12 dispose of any waste that will result (through forward looking modeling or in real
13 groundwater concentrations data) in a violation of any state or federal regulatory limit,
14 specifically including but not limited to drinking water standards for any constituent as
15 defined in [40 CFR 141](#) and [40 CFR 143](#).
- 16 **III.11.C.7** All containers/packages will meet void space requirements pursuant to
17 [WAC 173-303-665\(12\)](#).
- 18 **III.11.C.8 ILAW Waste Form Technical Requirements Document (IWTRD)**
- 19 **III.11.C.8.a** For any ILAW glass form(s) that the Permittees intend to dispose of in IDF, the
20 Permittees will provide to Ecology for review, an ILAW Waste Form Technical
21 Requirements Document (IWTRD). The IWTRD will contain:
- 22 **III.11.C.8.a.i** A description of each specific glass formulation that the Permittees intend to use. This
23 description shall include a basis for why each specific formulation is proposed for use,
24 which specific tank wastes the glass formulation is proposed for use with and the
25 characteristics of the glass that are key to satisfactory performance.
- 26 VHT, PCT, and TCLP and/or other approved performance testing methodologies that the
27 parties agree are appropriate and necessary will be used to demonstrate the performance
28 characteristics of the glass.
- 29 The description will also include the range in key characteristics anticipated if the
30 specific glass formulation is produced on a production basis with tank waste, and the
31 factors that the Permittees must protect against in producing the glass to ensure the
32 intended glass characteristics will exist in the actual ILAW.
- 33 **III.11.C.8.a.ii** A performance assessment that provides a reasonable basis for assurance that each glass
34 formulation will, once disposed of in IDF in combination with the other waste volumes
35 and waste forms planned for disposal at the entire Integrated Disposal Facility, be
36 adequately protective of human health and the environment; and will not violate or be
37 projected to violate all applicable state and federal laws, regulations and environmental
38 standards.
- 39 **III.11.C.8.a.iii** A description of production processes including management controls and quality
40 assurance/quality control requirements that assure that glass produced for each
41 formulation will perform in a reasonably similar manner to the waste form assumed in the
42 performance assessment for that formulation.
- 43 **III.11.C.8.b** Within 60 days of a request by Ecology, the Permittees will provide a separate model run
44 using Ecology's assumptions and model input.

- 1 **III.11.C.8.c** The Permittees will update the IWTRD consistent with the above requirements for review
2 by Ecology consistent with their respective roles and authority as provided under the
3 TPA.
- 4 **III.11.C.8.d** Ecology comments on the IWTRD will be dispositioned through the Review Comment
5 Record process and will be reflected in further modeling to modify the IDF ILAW waste
6 acceptance as appropriate.
- 7 **III.11.C.8.e** The initial IWTRD will contain glass formulation data as required by Permit
8 Condition III.11.C.8.a.1, as agreed to by Ecology.
- 9 **III.11.C.8.f** The performance assessment required by Permit Condition III.11.C.8.a.2, and the quality
10 assurance/quality control requirements process required by Permit
11 Condition III.11.C.8.a.3 will be submitted for Ecology review as soon as possible after
12 issuance of the Final Tank Closure and Waste Management EIS, and at least 180 days
13 prior to the date the Permittees expect to receive waste at IDF, but in no case later than
14 July, 2013 (or a later date if agreed to by Ecology).
- 15 **III.11.C.8.g** At a minimum, the Permittees will submit updates to the IWTRD to Ecology every five
16 years or more frequently if either of the following conditions exist:
- 17 **III.11.C.8.g.i** The Permittees submits a Permit modification request allowing additional waste forms to
18 be disposed of at IDF,
- 19 **III.11.C.8.g.ii** If the WTP or other vitrification facilities change their glass formulations from those
20 previously included in the ITRWD.
- 21 **III.11.C.8.h** The Permittees will not dispose of any WTP ILAW not described and evaluated in the
22 IWTRD.
- 23 **III.11.D RECORDKEEPING AND REPORTING**
- 24 **III.11.D.1** The Permittees will comply with the following recordkeeping and reporting requirements
25 applicable to all Operating Unit Group 11 dangerous waste management units and waste
26 management activities.
- 27 **III.11.D.1.a** The Permittees will include the following information in the Hanford Facility Operating
28 Record, IDF File: [\[WAC 173-303-380\]](#)
- 29 **III.11.D.1.a.i** A description of and quantity of each dangerous/mixed waste accepted for disposal by
30 IDF, and documentation of its disposal according to the requirements of
31 [WAC 173-303-380\(2\)](#), incorporated by reference. [\[WAC 173-303-380\(1\)\(a\)\]](#)
- 32 **III.11.D.1.a.ii** The three-dimensional location of and quantity of waste in each waste container or
33 canister disposed of in IDF. The location of each waste container or canister may be
34 recorded on a map or diagram of the MLLW IDF cell, or recorded as geographical
35 coordinates (including specification of the coordinate system and/or coordinate reference
36 points) that can be used to relate to specific locations within an IDF cell. This
37 information must include cross-references to specific manifests or alternate tracking
38 system documentation accompanying wastes accepted at IDF from other on-site
39 dangerous waste management units or an off-site facility. [\[WAC 173-303-380\(1\)\(b\)\]](#)
- 40 **III.11.D.1.a.iii** Records and results of any sampling or analysis of wastes accepted for disposal at IDF,
41 and from any other sampling and analysis required by Addendum B, Waste Analysis
42 Plan. [\[WAC 173-303-380\(1\)\(c\)\]](#)
- 43 **III.11.D.1.a.iv** A copy of the notice, and the certification and demonstration if applicable, required by a
44 generator or the owner or operator of a treatment facility from which waste is accepted
45 for disposal at IDF under [40 CFR 268.7](#), incorporated by reference by

1 [WAC 173-303-140](#). For wastes accepted for disposal from an on-site generator or
2 dangerous waste management unit or unit group, information is required by WAC 173-
3 303-380(1)(m). [[WAC 173-303-380](#)(1)(l) and (1)(m)]

4 **III.11.E SECURITY**

5 **III.11.E.1** The Permittees will comply with the security requirements specific to Addendum E and
6 Permit Condition II.L.

7 **III.11.F PREPAREDNESS AND PREVENTION**

8 **III.11.F.1** The Permittees will comply with the Preparedness and Prevention requirements specific
9 to Addendum F. [[WAC 173-303-340](#)]

10 **III.11.G CONTINGENCY PLAN**

11 **III.11.G.1** The Permittees will comply with Addendum J in addition to the requirements of Permit
12 Condition II.A when applicable. [[WAC 173-303-350](#)]

13 **III.11.H INSPECTIONS**

14 **III.11.H.1** The Permittees will perform inspections of the IDF according to the inspection plan in
15 Permit Addendum I and Permit Condition II.X. [[WAC 173-303-320](#)]

16 **III.11.I TRAINING PLAN**

17 **III.11.I.1** The Permittees will include the training requirements described in Addendum G specific
18 to the dangerous waste management unit and waste management activities at the IDF into
19 the written training plan required by Permit Condition II.C.

20 **III.11.J RESERVED**

21 **III.11.K CLOSURE**

22 **III.11.K.1** The Permittees will close the IDF in accordance with Addendum H, Closure Plan and
23 Permit Condition II.J.

24 **III.11.K.2** The Permittees will amend the Closure Plan in Addendum H in accordance with Permit
25 Condition II.J.2.

26 **III.11.K.3** The Permittees will provide Ecology with a Notice of Closure according to Permit
27 Condition II.J.1. The notice of closure may apply to a subset of dangerous waste
28 management units in the IDF if they are to be closed in advance of the remaining
29 dangerous waste management units in Operating Unit Group 11.
30 [[WAC 173-303-610](#)(3)(c)]

31 **III.11.K.4 Landfill Cap**

32 **III.11.K.4.a** At final closure of the landfill, the Permittees will cover the landfill with a final cover
33 (closure cap) designed and constructed to: 1) Provide long-term minimization of
34 migration of liquids through the closed landfill; 2) Function with minimum maintenance;
35 3) Promote drainage and minimize erosion or abrasion of the cover; 4) Accommodate
36 settling and subsidence so that the cover's integrity is maintained; and 5) have a
37 permeability less than or equal to the permeability of any bottom liner system or natural
38 sub soils present and 6) not exceed the load limit specified in Permit
39 Condition III.11.S.4.a.2. [[WAC 173-303-665](#)(6), [WAC 173-303-806](#)(4)(h)]

40 **III.11.K.4.b** Instrumentation selected for installation within the cover to demonstrate the performance
41 of the cover shall be submitted to Ecology for incorporation into the permit prior to
42 installation. The instrumentation must adequately measure the soil water content and
43 storage so that all water inputs may be known and a water balance calculated to

- 1 determine the effectiveness of the cover. In addition, other measurements submitted may
2 include elevations, bulk densities, gas exchanges, biota mass, plant height/rooting depth,
3 and plant leaf area indexes, to ensure the cover functions according to Permit Condition
4 III.11.K.4.a.
- 5 **III.11.K.4.c** Landfill Cap Compliance Schedule
- 6 **III.11.K.4.c.i** The Permittees will notify Ecology at least sixty (60) calendar days prior to the date it
7 expects to begin closure of the IDF landfill in accordance with WAC 173-303-610(3)(c).
- 8 **III.11.K.4.c.ii** The proposed conceptualized final cover design is presented in Addendum H (Closure
9 Plan). Six (6) months prior to start of construction of the IDF landfill final cover (but no
10 later than 6 months prior to acceptance of the last shipment of waste at the IDF), the
11 Permittees will submit the IDF landfill final cover design, specifications and a CQA plan
12 to Ecology per [WAC 173-303-665\(2\)](#) in the form of a Permit modification request.. No
13 construction of the final cover may proceed until Ecology approval of the final design is
14 given, through a Permit modification.
- 15 **III.11.L POST-CLOSURE**
- 16 **III.11.L.1** Following certification of closure according to the requirements of the closure plan in
17 Addendum H, the Permittees will initiate post-closure care. [[WAC 173-303-665\(6\)](#)]
- 18 **III.11.M CRITICAL SYSTEMS**
- 19 **III.11.M.1** IDF Critical Systems includes the following: The leachate collection and removal system
20 (LCRS), leachate collection tank (LCT), leak detection system (LDS), liner system (LS),
21 and closure cap. H-2 Drawings for the LCRS, LCT, LDS, and LS are identified in
22 Addendum C.1, of this Permit. Drawings for the closure cap will be provided pursuant to
23 Permit Condition III.11.K.4.
- 24 **III.11.M.2** The Permittees will operate the IDF in accordance with all specifications contained in
25 Addendum C.5.
- 26 **III.11.M.3** The Permittees will be subject to the Permit modification requirement of Permit
27 Condition I.C.3 with respect to any change to the critical systems associated with
28 dangerous waste management unit Operating Group 11.
- 29 **III.11.N RESERVED**
- 30 **III.11.O CONTAINERS**
- 31 Reserved
- 32 **III.11.P TANK SYSTEMS**
- 33 Reserved
- 34 **III.11.Q SURFACE IMPOUNDMENTS**
- 35 Reserved
- 36 **III.11.R WASTE PILES**
- 37 Reserved

- 1 **III.11.S LANDFILLS**
- 2 **III.11.S.1 Design Requirements**
- 3 **III.11.S.1.a** IDF is designed in accordance with [WAC 173-303-665](#) as described in Addendum C.
4 Design changes impacting IDF critical systems will be performed in accordance with
5 Permit Conditions III.11.S.2.b.and III.11.S.3 and [WAC 173-303-830](#).
- 6 **III.11.S.2 Engineering Change Notice and Non Conformance Report Process for**
7 **Critical Systems**
- 8 **III.11.S.2.a** During any construction at the IDF authorized by this Permit, the Permittees may make
9 changes to the corresponding approved designs, plans, and specifications that are
10 "equivalent materials" according to the requirements of Permit Condition II.K. The
11 Permittees will document all such changes with an engineering change notice (ECN), and
12 maintain copies of all such ECNs in the Hanford Facility Operating Record, IDF File.
13 All other changes must be made through the Permit modification process of
14 [WAC 173-303-830](#).
- 15 **III.11.S.2.b** Engineering Change Notice for Critical Systems
- 16 Changes to the approved designs, plans, and specifications, identified in Addenda C.1,
17 C.2, C.3, and C.5 of this Permit, must be documented with an Engineering Change Notice
18 (ECN). The Permittees will maintain all ECNs in the Hanford Facility Operating Record,
19 IDF File and will make them available to Ecology upon request or during the course of an
20 inspection. The Permittees will provide to Ecology copies of proposed ECNs affecting
21 any critical system within five (5) working days of initiating the ECN. Identification of
22 critical systems is included in Permit Condition III.11.M and Addenda C.1 and C.2 of this
23 Permit. Within five (5) working days, Ecology will review a proposed ECN modifying a
24 critical system and inform the Permittees whether the proposed ECN, when issued, will
25 require a Class 1, 2, or 3 Permit modification.
- 26 **III.11.S.3 Non-conformance Reporting**
- 27 **III.11.S.3.a** The Permittees will comply with the requirements of Permit Conditions I.E.7, I.E.8, or
28 I.F.7, as applicable, all instances of construction that does not or is not expected to meet
29 or exceed corresponding designs or standards required by Permit conditions of Operating
30 Unit 11 of this Permit. The Permittees will document such instances of non-compliance
31 or anticipated non-compliance with a non-conformance report (NCR), and place copies of
32 all such NCRs in the Hanford Facility Operating Record, IDF File.
- 33 **III.11.S.3.b** The Permittees will formally document with a Nonconformance Report (NCR), any work
34 completed which does not meet or exceed the standards of the approved design, plans,
35 and specifications, identified in Addenda C.1, C.2, C.3, and C.5 of this Permit. The
36 Permittees will maintain all NCRs in the Hanford Facility Operating Record, IDF File
37 and will make them available to Ecology upon request, or during the course of an
38 inspection.
- 39 **III.11.S.3.c** The Permittees will provide copies of NCRs affecting any critical or regulated system to
40 Ecology within five (5) working days after identification of the nonconformance.
41 Identification of critical systems is included in Permit Condition III.11.M and Addenda
42 C.1 and C.2 of this Permit. Ecology will review a NCR affecting a critical system and
43 notify the Permittees within five (5) working days, in writing, whether a Permit
44 modification is required for any nonconformance, and whether prior approval is required
45 from Ecology before work proceeds, which affects the nonconforming item.
- 46 **III.11.S.3.d** The Permittees will complete and place in the Hanford Facility Operating Record, IDF
47 File updated as-built drawings modified during the construction process of all

1 construction authorized by conditions in Operating Unit Group 11 of this Permit. The
2 Permittees will place as-built drawings into the Hanford Facility Operating Record, IDF
3 File within twelve (12) months of completing construction.

4 **III.11.S.4 Landfill Liner Integrity Management & Landfill Operations**

5 **III.11.S.4.a** Permittees will conduct all IDF operations in a manner to protect the landfill from
6 damage according to the following requirements:

7 **III.11.S.4.a.i** Primary Liner Temperature Limit: ILAW and DBVS will not be placed in the landfill in a
8 manner that could result in the temperature of primary liner exceeding 120° F (75 percent
9 of the liner design basis of 160° F) at any time.

10 **III.11.S.4.a.ii** Primary Liner Specific Load Limit: Prior to operating, the Permittees will submit
11 documentation to Ecology ensuring that the combined load of the operating layer, waste,
12 fill or cover material, any equipment operated within the lined portion of IDF Cell 1, and
13 the final cover does not exceed the allowable specific load limit for the primary liner of
14 13,000 lb/ft² at any time.

15 **III.11.S.4.a.iii** Primary Liner Integrity: The Permittees will ensure that procedures for waste placement
16 in IDF, and the selection and operation of any equipment used within the lined portion of
17 the IDF do not pose a risk of puncture or other damage to the primary liner, or damage
18 berms. Only equipment that can be adequately supported by the operations layer,
19 considering the geotechnical properties of the operating layer soils and the design and
20 configuration of such equipment, will be used within the lined portion of the IDF.
21 Changes to any equipment will follow the process established by Permit Condition II.K.
22 Within 120 days prior to first receipt of waste a process for demonstrating compliance
23 with this condition will be submitted for review by Ecology. This process will be
24 incorporated into appropriate IDF operating procedures prior to IDF operations.

25 The Permittees will develop, maintain, and conduct waste management operations
26 according to procedures for waste placement in the IDF and the selection and operation
27 of any equipment used within the lined portion of the IDF to ensure such activities do not
28 pose a risk of puncture or other damage to the primary liner or damage berms. The
29 Permittees will maintain a current copy of these procedures in the Hanford Facility
30 Operating Record, IDF File and submit permit modifications for Addendum C.1 as
31 necessary. These procedures will ensure that only equipment that can be adequately
32 supported by the operations layer will be used.

33 **III.11.S.4.a.iv** The Permittees will construct berms and ditches to prevent run-on and run-off in
34 accordance with the requirements of Addendum C, Section C.3.8 of this Permit. Within
35 thirty (30) days of the effective date of this Permit, the Permittees will place as-built
36 drawings of berms and ditches in the Hanford Facility Operating Record, IDF File. As
37 built drawings will include a final grading and topographical map on a scale sufficient to
38 identify berms and ditches used to control run-on and run-off.

39 **III.11.S.4.a.v** The Permittees will maintain the stability of the side slopes of the IDF to prevent erosion,
40 intrusion, settling, and damage to the liner.

41 **III.11.S.4.a.vi** The Permittees will maintain institutional controls to prevent damage from intrusion and
42 ensure the cover functions as designed and approved. These controls may include, but
43 are not limited to active maintenance and repair of the vegetative cover to ensure
44 Evapotranspiration.

45 **III.11.S.4.a.vii** The Permittees will operate the RCRA IDF Cell (Cell 1) in accordance with the operating
46 practices described in Addenda C, D, E, F, G, I, and J.

- 1 **III.11.S.5 Leachate Collection Component Management**
- 2 **III.11.S.5.a** Permittees will operate all leachate collection systems to minimize clogging during the
3 Active Life and post closure period.
- 4 **III.11.S.5.b** Leachate Collection and Removal System (LCRS)
- 5 **III.11.S.5.b.i** No later than six (6) months prior to the date the Permittees expect to first accept any
6 mixed waste for disposal at the IDF, the Permittees will submit a Class 2 Permit
7 modification request to incorporate a Leachate monitoring and management plan into the
8 Permit in accordance with WAC 173-303-665(4)(c).
- 9 **III.11.S.5.b.ii** Upon Ecology approval of the leachate monitoring and management plan, leachate
10 monitoring, and groundwater monitoring activities should be coordinated as approved by
11 Ecology to form an effective and efficient means of monitoring the performance of the
12 IDF facility.
- 13 **III.11.S.5.b.iii** Permittees will manage the leachate in the LCRS system in a manner that does not allow
14 the fluid head to exceed 30.5 cm above the flat 50-foot by 50-foot LCRS sump HDPE
15 bottom liner except for rare storm events as discussed in Addendum C, Section 4.3.6.1
16 and the LCRS sump trough [(WAC 173-303-665(2)(h)(ii)]. Liquid with a depth greater
17 than 30.5 cm above the LCRS sump bottom liner will be removed at the earliest
18 practicable time after detection (not to exceed 5 working days).
- 19 **III.11.S.5.b.iv** After initial waste placement, Permittees will manage all leachate from the permitted cell
20 as dangerous waste (designated with Dangerous Waste Number F039) in accordance with
21 the generator requirements of [WAC 173-303](#).
- 22 **III.11.S.5.c** Monitoring and Management of Leak Detection System (LDS/ secondary sump)
- 23 **III.11.S.5.c.i** Permittees will manage the leachate in the LDS system in a manner that does not allow
24 the fluid head to exceed 30.5 cm above the LDS liner.
- 25 **III.11.S.5.c.ii** Permittees will monitor and record leachate removal for comparison to the action leakage
26 rate (ALR) as described in Addendum C.4. If the leachate flow rate in the LDS exceeds
27 the ALR, the Permittees will implement the Ecology approved response action plan
28 (Addendum C.4).
- 29 **III.11.S.5.c.iii** Leachate from the LDS (secondary sump) will be sampled semi-annually according to the
30 corresponding requirements in Addendum C, if a pumpable quantity of leachate is
31 available for sampling.
- 32 **III.11.S.5.c.iv** Accumulated liquid of pumpable quantities in the LDS will be managed in a manner that
33 does not allow the fluid head to exceed 30.5 cm above the LDS liner. Liquid with a
34 depth greater than 30.5 cm above the LDS liner will be removed at the earliest practicable
35 time after detection (not to exceed 5 working days).
- 36 **III.11.S.5.d** Monitoring and Management of the Secondary Leak Detection System (SLDS)
- 37 **III.11.S.5.d.i** At least six (6) months prior to the date at which the Permittees expect to first accept
38 waste for disposal at the IDF, the Permittees will submit a Class 2 Permit modification
39 request to incorporate a sub-surface liquid monitoring operations plan (SLMOP) for the
40 SLDS as an Appendix to Addendum B. The SLMOP will include the monitoring
41 frequency, pressure transducer configuration, liquid collection and storage processes,
42 sampling and analysis and response actions.
- 43 **III.11.S.5.d.ii** The Permittees will comply with the requirements of the SLMOP discussed in Permit
44 Condition III.11.S.5.d.1 following incorporation of the plan into the Permit through the
45 permit modification process.

- 1 **III.11.S.5.d.iii** Permittees will monitor and manage the SLDS (tertiary sump) pursuant to the approved
2 SLMOP.
- 3 **III.11.S.5.d.iv** Accumulated liquid of pumpable quantities in the SLDS will be managed in a manner
4 that does not allow the fluid head to exceed 30.5 cm above the SLDS liner. Liquid with a
5 depth greater than 30.5 cm above the SLDS liner will be removed at the earliest
6 practicable time after detection (not to exceed 5 working days)
- 7 **III.11.S.6 Rainwater Management**
- 8 **III.11.S.6.a** Prior to the start of the active life of the IDF, rainwater accumulated in the various liquid
9 collection sumps will be managed in accordance with the pollution prevention and best
10 management practices required by State Waste Discharge Permit Number ST 4511.
- 11 **III.11.S.6.b** Permittees will manage the rainwater in the LCRS system in a manner that does not allow
12 the fluid head to exceed 30.5 cm above the flat 50-foot by 50-foot LCRS sump HDPE
13 bottom liner except for rare storm events as discussed in Addendum C, Section C.3.6.1
14 and the LCRS sump trough [(WAC 173-303-665)(2)(h)(ii)]. Liquid with a depth greater
15 than 30.5 cm above the LCRS sump bottom liner will be removed at the earliest
16 practicable time after detection (not to exceed 5 working days).
- 17 **III.11.S.6.c** Accumulated liquid of pumpable quantities in the LDS and SLDS will be managed in a
18 manner that does not allow the fluid head to exceed 30.5 cm above the LDS liner or
19 SLDS liner. Liquid with a depth greater than 30.5 cm above a liner will be removed at
20 the earliest practicable time after detection (not to exceed 5 working days).
- 21 **III.11.S.6.d** The Permittees will use a flow meter to check if the amount of actual liquid pumped
22 corresponds to the amount accumulated in the leachate collection tank to verify the
23 proper function of the leachate collection and removal sump pumps with each use. The
24 Permittees will document in the Hanford Facility Operating Record, IDF File appropriate
25 quality assurance/quality control requirements for selection and operation of the flow
26 meter based on the required verification. In addition, the Permittees will evaluate the
27 leachate transfer lines for freeze and thaw damage when ambient conditions may cause
28 such damage to occur. The Permittees will document the methods and criteria used for
29 purposes of this evaluation, along with an appropriate justification.
- 30 **III.11.S.6.e** The Permittees will inspect the various liquid collection sumps for liquids after
31 significant rainfall events.
- 32 **III.11.S.6.f** The Permittees will annually verify monitoring gauges and instruments are in current
33 calibration; calibration will be performed annually or more frequently at intervals
34 suggested by the manufacturer (refer to Addendum C, Section C.3.7.4)
- 35 **III.11.S.6.g** The Permittees will monitor liquids in the leachate collection and removal system and
36 Leak Detection System to ensure the action leakage rate (Addendum C) is not exceeded.
37 The leachate collection and removal system will be inspected per Permit
38 Condition III.11.H.
- 39 **III.11.S.7 Soil Stabilization**
- 40 **III.11.S.7.a** Prior to the first placement of waste in the IDF, the Permittees will apply soil stabilization
41 materials as needed to prevent soil erosion in and around the landfill.
- 42 **III.11.T RESERVED**
- 43 **III.11.U MISCELLANEOUS UNITS**
- 44 Reserved

- 1 **III.11.V CONTAINMENT BUILDING UNITS**
2 Reserved
- 3 **III.11.W GROUNDWATER AND GROUND WATER MONITORING**
- 4 **III.11.W.1** The Permittees shall comply with the Groundwater Monitoring requirements specific to
5 Operating Unit Group 11 in Addendum D [WAC 173-303-645]
- 6 **III.11.W.2** By March 2012, the Permittees shall confirm the groundwater flow direction beneath the
7 IDF facility and describe any uncertainty and shall continue to comply with WAC 173-
8 303-645(9)(e)
- 9 **III.11.W.3** By January 1, 2013, the Permittees shall submit to Ecology for approval the revisions or
10 amendments to MEMO or its successor.
- 11 **III.11.W.4** The Permittees shall use software to select the number and location of monitoring wells
12 and submit this information for Ecology approval by April 1, 2013.
- 13 **III.11.W.5** The Permittees shall plan, design, and install wells for a revised groundwater monitoring
14 network of wells by December 1, 2013.
- 15 **III.11.W.6** The Permittees shall complete one year of baseline monitoring and submit monitoring
16 results to Ecology by March, 2015. Waste shall not be accepted at the facility prior to
17 completion of baseline monitoring.
- 18 **III.11.W.7** By September 1, 2015, the Permittees shall submit a groundwater monitoring plan to
19 Ecology for review and approval. This plan shall be a complete plan and not a
20 compliance schedule.
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