

**LOW-ACTIVITY WASTE PRETREATMENT SYSTEM
PART III, OPERATING UNIT GROUP 1
UNIT-SPECIFIC PERMIT CONDITIONS**

CHANGE CONTROL LOG

Change Control Logs ensure that changes to this unit are performed in a methodical, controlled, coordinated, and transparent manner. Each unit addendum will have its own change control log with a modification history table. The “**Modification Number**” represents Ecology’s method for tracking the different versions of the permit. This log will serve as an up to date record of modifications and version history of the unit.

Modification History Table

Modification Date	Modification Number
02/20/2025	8C.2024.4F
12/09/2024	PCN-LAWPS-2024-06 (8C.2024.Q4)
10/18/2024	8C.2024.2F
02/28/2023	PCN-LAWPS-2022-02 (8C.2023.Q1)
09/17/2021	8C.2021.8F
01/29/2021	8C.2020.12F

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PART III, OPERATING UNIT GROUP 1
UNIT-SPECIFIC PERMIT CONDITIONS**

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2 **PART III, OPERATING UNIT GROUP 1, UNIT-SPECIFIC PERMIT CONDITIONS**
3 **LOW-ACTIVITY WASTE PRETREATMENT SYSTEM**
4

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6 **UNIT DESCRIPTION**

7 The first phase of the Low-Activity Waste Pretreatment System (LAWPS) consists of the Tank Side
8 Cesium Removal (TSCR) System. The TSCR comprises a Low-Activity Liquid Mixed-Waste Tank
9 Storage and Treatment System. The facility also includes two storage areas for Spent Ion Exchange
10 Columns (IXCs) that are generated during the treatment process.

11 TSCR is designed and operated to treat Double Shell Tank (DST) supernatant waste. The waste pretreated
12 through TSCR is accumulated in DST 241-AP-106 for subsequent transfer to the Waste Treatment and
13 Immobilization Plant (WTP) Low-Activity Waste (LAW) Facility for vitrification. TSCR is located
14 immediately adjacent to the east side of the 241-AP Tank Farm in the 200 East Area of the Hanford site.

15 Construction of TSCR will begin in 2020 with waste management operations anticipated to begin in 2021.

16 This chapter provides unit-specific permit conditions applicable to the dangerous waste management units
17 (DWMUs) for Phase 1 of LAWPS.

18 **LIST OF ADDENDA SPECIFIC TO OPERATING UNIT GROUP 1**

19	Addendum A	Part A Form
20	Addendum B	Waste Analysis Plan
21	Addendum C	Process Information
22	Addendum D	Reserved
23	Addendum E	Security
24	Addendum F	Preparedness and Prevention
25	Addendum G	Personnel Training
26	Addendum H	Closure Plan
27	Addendum I	Inspection Plan
28	Addendum J	Contingency Plan

29 **III.1.A COMPLIANCE WITH UNIT-SPECIFIC PERMIT CONDITIONS**

30 **III.1.A.1** The Permittees will comply with all permit conditions in this chapter with respect to
31 dangerous waste management and DWMUs associated with the LAWPS, in addition to
32 requirements in Permit Part I-Standard Conditions and Part II-General Facility
33 Conditions of the Permit.

34 In the event that the Part III, Unit-Specific Permit Conditions for Operating Unit Group
35 (OUG) 1, LAWPS conflict with the Part I and/or Part II Conditions of the Permit, the
36 Unit-Specific Permit Conditions for OUG 1, LAWPS prevail.

37 **III.1.B GENERAL WASTE MANAGEMENT**

38 **III.1.B.1** Treatment or storage of dangerous and/or mixed waste in any new or modified portion of
39 the facility may commence when the Permittees have submitted to Department of
40 Ecology (Ecology), by certified mail, or hand delivery, a letter signed by the Permittees
41 and signed and stamped by a registered professional engineer stating that the facility has

- 1 been constructed or modified in compliance with the Permit in accordance with
2 Washington Administrative Code (WAC) 173-303-810(14)(a); and
- 3 **III.1.B.1.a** The Permittee has received a permit modification approval pursuant to Permit Condition
4 III.1.B.11, and
- 5 **III.1.B.1.b** Ecology has inspected the modified or newly constructed facility and finds it is in
6 compliance with the conditions the Permit, or
- 7 **III.1.B.1.b.i** Within 15 days of the date of receipt of the Permittees' letter, Ecology has not
8 notified the Permittees of intent to inspect.
- 9 **III.1.B.2** The Permittees are authorized to accept dangerous and/or mixed waste at the DWMUs in
10 LAWPS that satisfy the waste acceptance requirements described in Addendum B,
11 "Waste Analysis Plan." [WAC 173-303-300]
- 12 **III.1.B.3** The Permittees are authorized to treat and store dangerous and/or mixed wastes
13 physically located in the DWMUs at LAWPS TSCR Process Enclosure, and IXC Storage
14 and Staging Pads as of the effective date of this Permit, and wastes accepted for treatment
15 and storage within the LAWPS according to the requirements of Permit Condition
16 III.1.B.2.
- 17 **III.1.B.4** All dangerous and/or mixed waste must be managed only in areas authorized for
18 dangerous and/or mixed waste management under the permit conditions, except as
19 allowed under WAC 173-303-170 through -230. The authorized dangerous and/or mixed
20 waste management areas of the LAWPS OUG are specified in Conditions III.1.B,
21 III.1.M, III.1.N and III.1.O.
- 22 **III.1.B.5** Dangerous and/or mixed waste may be transferred from DWMUs within the LAWPS
23 OUG to an on-site DWMU or an off-site permitted Treatment, Storage, or Disposal
24 Facility using the manifest/tracking system required by Permit Condition I.I.P.
- 25 **III.1.B.6** The Permittees are authorized to treat and store dangerous and/or mixed waste in the
26 DWMUs in LAWPS according to the following requirements:
- 27 **III.1.B.6.a** The Permittees are not authorized to store dangerous and/or mixed waste identified in
28 LAWPS OUG 1 until Compliance Schedule Items LAWPS-1 and LAWPS-2 are
29 completed in full, as detailed below.
- 30 • Permittees will submit a complete operating permit modification request for the
31 LAWPS OUG, which will also include related AP Farm tank 241-AP-106,
32 241-AP-107 and 241-AP-108 operational requirements to support the LAWPS
33 operations. **[Complete 04/27/2021]**
- 34 • Tri-Party Agreement Milestones will be in place for the long term treatment and
35 disposal pathway of the IXCs and waste media. **[Complete 06/08/2021]**
- 36 **III.1.B.6.b** The Permittees are authorized to treat, and store as necessary, dangerous and/or mixed
37 waste in the TSCR tank system as identified in LAWPS OUG 1, Addendum C,
38 Sections C.1, C.2, and Section C.3.
- 39 **III.1.B.6.c** The Permittees are authorized to store dangerous and/or mixed waste identified in
40 LAWPS OUG 1, Addendum C, Section C.5, in containers according to the requirements
41 of this Addendum. All container management activities pursuant to this permit condition
42 will take place within the container storage areas identified in LAWPS OUG 1,
43 Addendum C, Figures C-1 and C-5.

- 1 **III.1.B.7** The Permittees must complete Compliance Schedule interim requirements as specified in
2 OUG 1, Appendix 1.0. If an interim requirement is not completed as specified, the
3 Permittees will, within 14 days, notify Ecology in writing of its non-compliance. The
4 notification will include the following: LAWPS-1 [Complete 04/27/2021] and LAWPS-2
5 [Complete 06/08/2021].
- 6 **III.1.B.7.a** A description of any portion of the interim requirement completed;
- 7 **III.1.B.7.b** Summaries of any problems affecting timely completion of the interim requirement;
- 8 **III.1.B.7.c** A description of the plans for completing the remaining portion of the interim
9 requirement, including any alternatives;
- 10 **III.1.B.7.d** Projected interim requirement completion date.
- 11 **III.1.B.8** A modified closure plan must be submitted as a permit modification request with a
12 detailed description of the methods to be used during partial closures and final closure,
13 including, but not limited to, methods for removing, transporting, treating, storing, or
14 disposing of all dangerous wastes, and identification of the type(s) of DWMUs to be
15 used, in accordance with Permit Condition III.1.K.2. [WAC 173-303-610(3)(a)]
- 16 **III.1.B.9** The Permittees will maintain the physical structure of the LAWPS as documented in the
17 applicable section of LAWPS OUG 1, Addendum C, Section C.2. [WAC 173-303-630(7),
18 -640(3) and (4)]
- 19 **III.1.B.10** The Permittees will maintain and operate systems for LAWPS documented in LAWPS
20 OUG 1, Addendum C, as necessary for proper operation of LAWPS, compliance with the
21 conditions of this Permit, and protection of human health and the environment. For
22 purposes of this permit condition, the process control and monitoring system documented
23 in Addendum C, Section C.2.8, is considered to include indicators, sensors, transducers,
24 actuators and other control devices listed in Addendum I, Table I-1, that are connected to,
25 but remote from, the Monitor and Control System (MCS) computer.
- 26 **III.1.B.11** Permit modifications pursuant to this Permit for dangerous and/or mixed waste at the
27 request of the Permittees must be done according to the three-tiered modification system
28 specified in WAC 173-303-830(4) and Permit Condition I.C.3. The permit modification
29 request must include page changes to the Permit, attachments, and permit application
30 supporting documentation necessary to incorporate the proposed permit modification.
- 31 **III.1.B.12** Treatment methods for secondary waste streams projected to be generated by the LAWPS
32 that are slated for disposal at the Hanford Site will be engineered to ensure that treated
33 secondary wastes will comply with the on-site disposal facility WAC and applicable Land
34 Disposal Restrictions (LDRs) prior to generation. Prior to treatment, secondary wastes
35 must be evaluated to ensure that selected treatment methods are still appropriate and
36 continue to comply with the on-site disposal facility WAC and applicable LDRs;
- 37 **III.1.B.12.a** The Permittees must assign LDR treatment standards for disposal of final waste forms for
38 appropriate waste codes, underlying hazardous constituents, and other information based
39 on the waste's original point of generation according to the applicable provisions of
40 40 Code of Federal Regulations (CFR) Part 268, incorporated by reference by
41 WAC 173-303-140. All waste forms subject to LDR standards must be demonstrated to
42 meet all applicable treatment standards and requirements (40 CFR 268, incorporated by
43 reference by WAC 173-303-140) prior to land disposal. For waste that has treatment
44 standards that are not concentration based, the generator and/or treatment facility must
45 demonstrate that the waste meets the applicable treatment standards using process

1 knowledge and/or by waste designation, as required by this Permit and the applicable
 2 sections of WAC 173-303-140/40 CFR 268.

3 **III.1.B.12.a.i** Ecology has determined that the High-Level Waste Vitrification (HLVIT) treatment
 4 standard is attached to this Ion Exchange (IX) media waste in addition to the
 5 applicable 40 CFR 268.40 treatment standards for the dangerous waste codes other
 6 than D002 and D004-011 identified in association with the original point of
 7 generation of the tank waste.

8 **III.1.B.12.a.ii** Treated waste IX media from IX columns must be disposed of in a deep geologic
 9 repository.

10 **III.1.B.12.a.iii** The Permittees shall complete LDR certification paperwork in accordance with
 11 40 CFR 268.7, incorporated by reference in WAC 173-303-140.

12 **III.1.C WASTE ANALYSIS**

13 **III.1.C.1** The Permittees will comply with all requirements of Addendum B, “Waste Analysis
 14 Plan,” for sampling and waste analysis of all dangerous and/or mixed waste within the
 15 LAWPS DWMUs. [WAC 173-303-300(5)]

16 **III.1.C.2** The Permittees will have an accurate and complete waste profile as described in
 17 Addendum B, “Waste Analysis Plan,” for every feed qualification tank accepted for
 18 treatment, and waste stream accepted for storage at the LAWPS DWMUs.
 19 [WAC 173-303-300(2)]

20 **III.1.C.3** The Permittees will place a copy of each waste profile required by Permit Condition
 21 III.1.C.2 in the Hanford Facility Operating Record, LAWPS OUG 1 file required by
 22 Permit Condition II.I.1. [WAC 173-303-380(1)(a) and (b)]

23 **III.1.C.4** The Permittees will make a copy of the feed qualification characterization records
 24 required by Permit Condition III.1.C.2 available upon request. [WAC 173-303-380(1)(a)
 25 and (b)]

26 **III.1.C.5** Records and results of waste analysis required by Addendum B, “Waste Analysis Plan,”
 27 will be maintained in the Hanford Facility Operating Record, LAWPS OUG 1 file
 28 required by Permit Condition II.I.1. [WAC 173-303-380(1)(c)]

29 **III.1.C.6** Although generator information is used for all parts of the waste stream analysis required
 30 by WAC 173-303-300(2), the Permittee is responsible for the quality of the information.
 31 Inaccurate or inadequate information from the generator is not a defense for
 32 noncompliant management of waste stream at LAWPS DWMUs. [WAC 173-303-300(1)]

33 **III.1.D RECORDKEEPING AND REPORTING**

34 **III.1.D.1** The unit-specific portion of the Hanford Facility Operating Record will include the
 35 documentation specified in Permit Attachment 6, Permit Condition II.I, (applicable to the
 36 LAWPS OUG), and other documentation specified in OUG 1. Permit Attachment 6
 37 provides a list of required records, and the methods of submittal for the facility and each
 38 unit group. Records related to operations of 241-AP-106, 241-AP-107 and 241-AP-108,
 39 as they relate to LAWPS operations will be included in the LAWPS Operating Record.
 40 These specific records will be determined in the development of the LAWPS Operating
 41 Permit.

42 **III.1.D.1.a** Records required by WAC 173-303-380(1)(k), and -(o) incorporated by reference.

43 **III.1.D.1.b** Records and results of sampling or waste analysis and waste feed qualifications required
 44 by WAC 173-303-300, and Addendum B. [WAC 173-303-380(1)(c)]

- 1 **III.1.D.1.c** An inspection log summarizing inspections conducted pursuant to Permit Condition
2 III.1.H.1. [WAC 173-303-380(1)(e)]
- 3 **III.1.E SECURITY**
- 4 **III.1.E.1** The Permittees will comply with the security requirements specific to LAWPS OUG 1, in
5 Addendum E and Permit Attachment 3 as required by Permit Condition II.M.
6 [WAC 173-303-310(2)]
- 7 **III.1.E.2** The Permittees will post warning signs at all entrances to the LAWPS OUG 1 DWMUs.
8 [WAC 173-303-310(2)(a)]
- 9 **III.1.F PREPAREDNESS AND PREVENTION**
- 10 **III.1.F.1** The Permittees will implement the practices specific to the LAWPS OUG 1 as described
11 in Addendum F, “Preparedness and Prevention.” [WAC 173-303-340]
- 12 **III.1.F.1.a** The LAWPS fire protection system will consist of an Underwriters Laboratories-listed
13 water mist system capable of being activated by a smoke detection system.
- 14 **III.1.F.1.b** The Permittees will equip the LAWPS with the equipment specified in LAWPS OUG 1,
15 Addendum F, Section F.1.1.3.
- 16 **III.1.F.1.c** The Permittees will test and maintain the equipment specified in LAWPS OUG 1,
17 Addendum F, Section F.1.1.3 as necessary to assure proper operation in the event of
18 emergency.
- 19 **III.1.F.2** The Permittees will inspect the LAWPS to prevent malfunctions and deterioration,
20 operator errors, and discharges that may cause or lead to the release of dangerous waste
21 constituents to the environment, or a threat to human health. Inspections must be
22 conducted in accordance with the LAWPS OUG 1, Addendum I, “Inspection Plan.”
- 23 **III.1.F.3** The Permittees will maintain access to communications or alarms as provided in the
24 LAWPS OUG 1, Addendum J, “Contingency Plan.”
- 25 **III.1.G CONTINGENCY PLAN**
- 26 **III.1.G.1** The Permittees will comply with LAWPS OUG 1, Addendum J, “Contingency Plan,” in
27 addition to the requirements of Permit Condition II.A when applicable. [WAC 173-303-
28 350]
- 29 **III.1.G.1.a** The Permittees will immediately carry out applicable provisions of Permit Condition
30 II.A.1 and the LAWPS OUG 1, Addendum J, “Contingency Plan,” whenever there is a
31 release of dangerous and/or mixed waste or dangerous waste constituents, or other
32 emergency circumstance, any of which threatens human health or the environment.
- 33 **III.1.G.1.b** After initial receipt of dangerous and/or mixed waste at the LAWPS, the Permittees will
34 review and amend, if necessary, the applicable portions of LAWPS OUG 1, Addendum J,
35 “Contingency Plan,” in accordance with the provision of WAC 173-303-350(5).
36 Addendum J will be amended if necessary, as a permit modification pursuant to Permit
37 Condition III.1.B.11. Only the portions of RPP-27869 *Building Emergency Plan for Tank*
38 *Farms* (latest revision) applicable to the LAWPS OUG 1 are enforceable and subject to
39 the provisions on WA7890008967 Hanford Site Dangerous Waste Permit.
- 40 **III.1.H INSPECTIONS**
- 41 **III.1.H.1** The Permittees will comply with LAWPS OUG 1, Addendum I, “Inspection Plan,”
42 inspection schedule for tanks and containers in addition to the requirements of Permit
43 Condition II.X. [WAC 173-303-320]

- 1 **III.1.H.2** When adverse conditions result in access restrictions to the active portions of LAWPS
 2 (Process Enclosure, IXC Storage Pad, and Staging Area), inspections will be performed
 3 immediately, within 24 hours, upon return to normal conditions. Any delayed or missed
 4 inspection will be recorded and entered into the LAWPS OUG 1 Operating Record.
- 5 **III.1.H.3** The Permittees will record and maintain inspection records in the LAWPS OUG 1
 6 Operating Record, compiled under the conditions of this Permit, in accordance with
 7 Permit Condition III.1.D.
- 8 **III.1.I PERSONNEL TRAINING**
- 9 **III.1.I.1** Prior to the initial receipt of dangerous and/or mixed waste in the LAWPS DWMUs, the
 10 Permittees will develop a training plan consistent with WAC 173-303-330, incorporated
 11 by reference, and place a copy in the Hanford Facility Operating Record LAWPS OUG 1
 12 file.
- 13 **III.1.I.2** The Permittees will ensure that the LAWPS systems are operated and maintained, at all
 14 times, by persons who are trained and qualified to properly operate LAWPS systems.
- 15 **III.1.I.3** The Permittees will conduct personnel training in accordance with the LAWPS OUG 1,
 16 Addendum G, "Personnel Training," pursuant to WAC 173-303-330. The Permittees will
 17 maintain documents in accordance with Permit Condition II.C.1 and WAC 173-303-
 18 330(2) and (3).
- 19 **III.1.J GENERAL REQUIREMENTS**
- 20 **III.1.J.1** The LAWPS OUG is prohibited from managing ignitable, reactive, or incompatible
 21 wastes. Therefore, the requirements of WAC 173-303-395(1) do not apply.
- 22 **III.1.J.2** The Permittees will conduct all construction subject to this Permit in accordance with the
 23 approved designs, plans, and specifications that are required by this Permit, except as
 24 specified in Condition III.1.J.3. For purposes of Permit Condition III.1.J.3, the Ecology
 25 representative will be an Ecology construction inspector, project manager, or other
 26 designated representative of Ecology.
- 27 **III.1.J.3** The Permittees will submit a Nonconformance Report (NCR) or Construction Deficiency
 28 Report (CDR) to the Ecology representative(s), as applicable, within seven calendar days
 29 of the Permittees becoming aware of incorporation of minor nonconformance or
 30 construction deficiency from the approved designs, plans, and specifications into the
 31 construction of the LAWPS OUG. Such minor nonconformance or construction
 32 deficiency will be defined, for the purposes of this permit condition, as nonconformance
 33 or construction deficiency that is necessary to accommodate proper construction and the
 34 substitution or the use of equivalent or superior materials or equipment that do not
 35 substantially alter the permit conditions or reduce the capacity of the facility to protect
 36 human health or the environment. Such minor nonconformance or construction
 37 deficiency will not be considered a modification of this Permit. If Ecology determines
 38 that the nonconformance or construction deficiency is not minor, it will notify the
 39 Permittees in writing that a permit modification is required for the deviation and whether
 40 prior approval is required from Ecology before work proceeds which affect the
 41 nonconforming or construction deficiency item.
- 42 **III.1.J.4** The Permittees will formally document changes to approved designs, plans, and
 43 specifications with design change documentation (e.g., Design Change Notice [DCN],
 44 Field Change Request [FCR], Field Change Notice [FCN], Specification Change Notice
 45 [SCN], and Supplier Deviation Disposition Request [SDDR]). All design change
 46 documentation will be maintained in the LAWPS OUG Record and will be made

1 available to Ecology upon request or during the course of an inspection. For any design
 2 change documentation affecting any critical systems, the Permittees will provide copies
 3 to Ecology within seven calendar days. If Ecology determines that the design change is
 4 not minor, it will notify the Permittees in writing that a permit modification is required
 5 for the design change and whether prior approval is required from Ecology before work
 6 affected by the design change may proceed.

7 **III.1.J.5** Equivalent Materials

8 **III.1.J.5.a** If certain equipment, materials, and administrative information (such as names, phone
 9 numbers, addresses, formatting) are specified in this Permit, the Permittees may use
 10 equivalent or superior substitutes. Use of such equivalent or superior items within the
 11 limits (e.g., ranges, tolerances, and alternatives) already clearly specified in sufficient
 12 detail in LAWPS OUG 1, are not considered a permit modification. However, the
 13 Permittees must place documentation of the substitution, accompanied by a narrative
 14 explanation and the date the substitution became effective in the LAWPS OUG Record
 15 within seven days of putting the substitution into effect, and submit documentation of the
 16 substitution to Ecology, for approval. Upon review of the documentation of the
 17 substitution, if deemed necessary, Ecology may require the Permittees to submit a permit
 18 modification in accordance with Permit Condition III.1.B.11.

19 **III.1.J.5.b** If Ecology determines that a substitution was not equivalent to the original, they will
 20 notify the Permittees that the Permittees' claim of equivalency has been denied, of the
 21 reasons for the denial, and that the original material or equipment must be used. If the
 22 product substitution is denied, the Permittees will comply with the original approved
 23 product specification, find an acceptable substitution, or apply for a permit modification
 24 in accordance with Permit Condition III.1.B.11.

25 **III.1.J.6** Upon completion of the LAWPS construction subject to this Permit, the Permittees will
 26 produce as-built drawings of the project which incorporate the design and construction
 27 modifications resulting from all change documentation as well as modifications made
 28 pursuant to Permit Condition III.1.B.11. The Permittees will place the as-built drawings
 29 into the LAWPS OUG Record within 12 months of completing construction.

30 **III.1.J.7** Permittees will provide Ecology operating and monitoring data, with quarterly reports
 31 and summaries. For quarters with operational issues or incidents encountered, the
 32 quarterly report shall include, but not limited to:

33 **III.1.J.7.a** Description of the issue or incident and how the problem was resolved.

34 **III.1.J.7.b** Description and disposition of any generated mixed and/or dangerous waste (waste type,
 35 volume, treatment, and disposal locations, as applicable).

36 **III.1.J.8** The Permittees will provide Ecology escorted access to the LAWPS site during
 37 construction to support Ecology's construction oversight requirements.

38 **III.1.K** **CLOSURE**

39 **III.1.K.1** The Permittees must close DWMUs in the LAWPS OUG in accordance with LAWPS
 40 OUG 1, Addendum H, "Closure Plan," and Permit Condition II.J. Modifications to
 41 Addendum H will be made according to provisions of Permit Condition I.C.3.
 42 [WAC 173-303-610(3)(a)]

- 1 **III.1.K.2** One hundred eighty days prior to commencing final closure of OUG 1, the Permittees
 2 must submit to Ecology, for review and approval, a revised closure plan, including all
 3 documentation required by Permit Condition II.J, as a permit modification pursuant to
 4 Permit Condition III.1.B.11.
- 5 **III.1.K.3** To achieve clean closure, the Permittees will remove dangerous waste, dangerous waste
 6 constituents, and dangerous waste residues throughout the closing unit and throughout
 7 any areas affected by releases from the closing unit to concentrations that do not exceed
 8 numeric cleanup levels determined using residential exposure assumptions according to
 9 the Model Toxics Control Act (MTCA) Regulations, Chapter 173-340 WAC and all
 10 structures, equipment, bases, liners, and other materials containing or contaminated with
 11 dangerous waste, constituents, or residues have met specific waste removal and
 12 decontamination standards approved by Ecology, in accordance with WAC 173-303-
 13 610(2)(b)(i)(ii).
- 14 **III.1.K.4** Documentation supporting the Independent Qualified Registered Professional Engineer’s
 15 (IQRPE) certification of closure must be submitted to Ecology with the closure
 16 certification required by WAC 173-303-610(6). In addition to the items in LAWPS
 17 OUG 1, Sampling and Analysis Plan, (Addendum H, Section H.4) the documentation
 18 must include the following and other information Ecology may request.
- 19 **III.1.K.4.a** Sampling procedures that were followed;
- 20 **III.1.K.4.b** Soil and concrete locations that were sampled;
- 21 **III.1.K.4.c** Sample labeling and handling procedures that were followed, including chain-of-custody
 22 procedures;
- 23 **III.1.K.4.d** Description of procedures that were followed to decontaminate concrete or metal to meet
 24 the clean closure standards approved by Ecology, in accordance with the closure
 25 performance standards of WAC 173-303-610(2)(a)(ii) and in a manner that minimizes or
 26 eliminates post-closure escape of dangerous waste constituents, or to achieve a “clean
 27 debris surface” as specified in 40 CFR 268.45, Table 1, concrete surfaces, as incorporated
 28 by reference in WAC 173-303-140. [WAC 173-303-610(2)(b)(ii)]
- 29 **III.1.K.4.e** Laboratory and field data, including supporting quality assurance/quality control
 30 summary;
- 31 **III.1.K.4.f** Report that summarizes closure activities;
- 32 **III.1.K.4.g** Copy of all field notes taken by the IQRPE; and
- 33 **III.1.K.4.h** Copy of all contamination survey results.
- 34 **III.1.L** **POST CLOSURE – RESERVED**
- 35 **III.1.M** **CONTAINERS**
- 36 **III.1.M.1** Container Storage Unit Standards
- 37 **III.1.M.1.a** Storage of containers is limited to IXCs and media traps containing spent crystalline
 38 silicotitanate media that are generated during LAWPS operations and a spent IXC
 39 from the 2,000-Gallon Test Bed Initiative (TBI) Demonstration Project. The Permittees
 40 will document and maintain a copy of Final Dangerous Waste Research, Development
 41 and Demonstration Permit for the 2,000-Gallon TBI Demonstration along with the
 42 IQRPE installation report for in-tank pretreatment system (ITPS) per Permit Condition
 43 IV.A.2.e and IQRPE design and installation reports for ITPS extraction system per
 44 Permit Condition II.H.1.

- 1 **III.1.M.1.b** Container management of waste streams other than those allowed under Permit Condition
2 III.1.M.1.a are subject to large quantity generator requirements in accordance with
3 WAC 173-303-170 through -230.
- 4 **III.1.M.1.b.i** Storage of containers is limited to the IXC staging area and IXC storage pad in
5 accordance with LAWPS OUG 1, Addendum C, Section C.2.6 and C.5.
- 6 **III.1.M.1.b.ii** Permittees will place documentation of any damage to and subsequent repairs of
7 containers in container storage areas in the Hanford Facility Operating Record,
8 LAWPS OUG 1 file required by Permit Conditions II.I.1. [WAC 173-303-630(7)]
- 9 **III.1.M.1.c** As part of or in addition to the requirements of Permit Conditions III.1.M.1.a and
10 III.1.M.1.b, the Permittees will ensure the integrity of container storage area pads
11 described in Addendum C, Section C.2.6 and C.5 as necessary to ensure containers are
12 maintained in a safe and stable condition.
- 13 **III.1.M.2** Container Management Standards
- 14 **III.1.M.2.a** The Permittees will maintain and manage containers in accordance with the requirements
15 of Addendum C, Section C.2.6 and C.5. [WAC 173-303-630(2)]
- 16 **III.1.M.2.b** The Permittees will comply with the requirements for managing wastes in containers.
17 [WAC 173-303-630(5)]
- 18 **III.1.M.2.c** The Permittees will ensure wastes are compatible with containers and with other wastes
19 stored in containers according to the requirements of Addendum C, Section C.2.6 and
20 C.5. [WAC 173-303-630(4), WAC 173-303-630(9)]
- 21 **III.1.M.2.d** The Permittees will ensure design and construction of the container storage areas are
22 adequately sloped to remove precipitation and prevent containers from coming into
23 contact with precipitation according to the requirements of Addendum C, Section C.5.
24 [WAC 173-303-630(7)(c)]
- 25 **III.1.M.2.e** The Permittees will ensure all containers placed into storage are labeled in accordance
26 with WAC 173-303-630(3) and Addendum C, Section C.5 and Section C.6.5.
- 27 **III.1.M.2.f** The Permittees will post entrances and access points to IXC staging area and IXC storage
28 pad with signs meeting the requirements of WAC 173-303-310(2)(a).
- 29 **III.1.M.2.g** The Permittees will submit to Ecology a copy of the final TSCR Factory Acceptance
30 Testing (FAT) report demonstrating removal of IXC media from an ion exchange column.
31 The report shall document proof of concept results showing that IX media, simulated
32 using glass beads instead of IX media for this test, can be physically removed from a
33 column prior to LAWPS Unit Group becoming operational. **[Complete 04/27/2021]**
- 34 **III.1.M.2.h** The LAWPS OUG is prohibited from storing ignitable, reactive, or incompatible waste.
35 [WAC 173-330-630(8), WAC 173-303-630(9)]

Table III.1.M Low-Activity Waste Pretreatment System Operating Unit Group Container Storage Areas

Container Storage Area	Capacity per Container (solid gallons)^a	Maximum Number of Containers
IXC staging area	158 per IXC	3
IXC storage pad	158 per IXC	150
	2.5 per media trap	3
IXC storage pad	13 per TBI IXC	1

^aCapacity is for crystalline silicotitanate ion exchange media and represents the nominal media charge in each column.

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III.1.N TANK SYSTEMS

III.1.N.1 Tank System Requirements

III.1.N.1.a The Permittees may store and treat in the TSCR tank system all dangerous and/or mixed waste listed in the LAWPS OUG 1, Addendum A, “Part A Form,” of this Permit and in accordance with the LAWPS OUG 1, Addendum B, “Waste Analysis Plan,” pursuant to Permit Condition III.1.C of this Permit. Total tank system dangerous and/or mixed waste storage and treatment at the facility will not exceed the volume(s) specified in Addendum A, “Part A Form,” of this Permit.

III.1.N.1.b Prior to initial receipt of dangerous and/or mixed waste in the LAWPS, the Permittees will obtain, and keep on file in the LAWPS OUG Operating Record, written statements by those persons required to certify the design of the tank system and supervise the installation of the tank system in accordance with the requirements of WAC 173-303-640(3)(b), (c), (d), (e), (f), and (g), attesting that each tank system and corresponding containment system were properly designed and installed. [WAC 173-303-640(3)(a), WAC 173-303-640(3)(h)]

III.1.N.1.b.i The Permittees will develop a schedule for conducting Integrity Assessments (IA). The schedule will meet the requirements of Addendum C, Section C.6.1.2, and consideration of the factors in WAC 173-303-640(2)(e) or WAC 173-303-640(3)(b) as applicable. Results of the integrity assessments will be included in the LAWPS OUG Operating Record until ten years after closure, or corrective action is complete and certified, whichever is later.

III.1.N.1.b.ii The Permittees will maintain a copy of the schedule required by Permit Condition III.1.N.1.b.i, in the Hanford Facility Operating Record, LAWPS OUG file, and conduct integrity assessments according to the schedule. The Permittees will document results of integrity assessments conducted according to the IA in the Hanford Facility Operating Record, LAWPS OUG file.

III.1.N.1.b.iii The Permittees will address problems if any detected during tank integrity assessments specified in Permit Condition III.1.N.1.b.i following the integrity assessment program Addendum C.

III.1.N.1.b.iv If the tank system is found to be leaking, or is unfit for use, as defined in WAC 173-303-040, the Permittees must follow the requirements of WAC 173-303-640(7), incorporated by reference. [WAC 173-303-640(3)(b)]

III.1.N.1.b.v The Permittees will ensure all certification required by specialists (e.g., IQRPE; independent corrosion expert; independent qualified installation inspector; etc.) use the following statement or equivalent pursuant to WAC 173-303-810(13):

1 “I, (Insert Name) have (choose one or more of the following: overseen, supervised,
 2 reviewed, and/or certified) a portion of the design or installation of a new tank system
 3 or component located at (address), and owned/operated by (name[s]). My duties
 4 were: (e.g., installation inspector, testing for tightness, etc.), for the following tank
 5 system components (e.g., the tank, venting piping, etc.), as required by the Dangerous
 6 Waste Regulations, namely, WAC 173-303-640(3) (applicable paragraphs (i.e., [a]
 7 through [g]).

8 “I certify under penalty of law that I have personally examined and am familiar with
 9 the information submitted in this document and all attachments and that, based on my
 10 inquiry of those individuals immediately responsible for obtaining the information, I
 11 believe that the information is true, accurate, and complete. I am aware that there are
 12 significant penalties for submitting false information, including the possibility of fine
 13 and imprisonment.”

14 **III.1.N.1.c** The Permittees will construct the TSCR unit tank systems as approved/modified pursuant
 15 to the LAWPS OUG 1 Permit. Modifications to approved design, plans, and
 16 specifications in LAWPS OUG 1 of this Permit for the TSCR unit tank systems will be
 17 allowed only in accordance with Permit Condition III.1.B.11.

18 **III.1.N.1.d** The Permittees must ensure that proper handling procedures are adhered to in order to
 19 prevent damage to the system during installation. Prior to covering, enclosing, or placing
 20 a new tank system or component in use, an independent qualified installation inspector or
 21 an IQRPE, either of whom is trained and experienced in the proper installation of tank
 22 systems or components, must inspect the system for the presence of any of the following
 23 items:

24 **III.1.N.1.d.i** Weld breaks;

25 **III.1.N.1.d.ii** Punctures;

26 **III.1.N.1.d.iii** Scrapes of protective coatings;

27 **III.1.N.1.d.iv** Cracks;

28 **III.1.N.1.d.v** Corrosion;

29 **III.1.N.1.d.vi** Other structural damage or inadequate construction/installation.

30 All discrepancies must be remedied before the tank system is covered, enclosed, or
 31 placed in use. [WAC 173-303-640(3)(c)]

32 **III.1.N.1.e** The Permittees must test for tightness all new tanks and ancillary equipment prior to
 33 those components being covered, enclosed, or placed into use. If a tank system is found
 34 not to be tight, all repairs necessary to remedy the leak(s) in the system must be
 35 performed prior to the tank system being covered, enclosed, or placed in use.
 36 [WAC 173-303-640(3)(e)]

37 **III.1.N.1.f** The Permittees must ensure ancillary equipment is supported and protected against
 38 physical damage and excessive stress due to settlement, vibration, expansion, or
 39 contraction. [WAC 173-303-640(3)(f)]

40 **III.1.N.1.g** The Permittees must provide the type and degree of corrosion protection recommended
 41 by an independent corrosion expert, based on the information provided in and pursuant to
 42 the LAWPS OUG 1 Permit or other corrosion protection if Ecology believes other
 43 corrosion protection is necessary to ensure the integrity of the tank system during use of
 44 the tank system. The installation of a corrosion protection system that is field fabricated

- 1 must be supervised by an independent corrosion expert to ensure proper installation.
2 [WAC 173-303-640(3)(g)]
- 3 **III.1.N.1.h** The independent tank system installation inspection and subsequent written statements
4 will be certified in accordance with WAC 173-303-810(13)(a) and comply with all
5 requirements of WAC 173-303-640(3)(h) and will consider, but not be limited to, the
6 following tank system installation documentation:
- 7 **III.1.N.1.h.i** Field installation report with date of installation;
- 8 **III.1.N.1.h.ii** Approved welding procedures;
- 9 **III.1.N.1.h.iii** Welder qualifications and certification;
- 10 **III.1.N.1.h.iv** Hydro-test reports, as applicable, in accordance with the American Society of
11 Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section VIII,
12 Division 1, American Petroleum Institute (API) Standard 620, or Standard 650 as
13 applicable;
- 14 **III.1.N.1.h.v** Tester credentials;
- 15 **III.1.N.1.h.vi** Field inspector credentials;
- 16 **III.1.N.1.h.vii** Field inspector reports;
- 17 **III.1.N.1.h.viii** Field waiver reports; and
- 18 **III.1.N.1.h.ix** Non-compliance reports and corrective action (including field waiver reports) and
19 repair reports.
- 20 **III.1.N.1.i** Replacement of any component of the tank system, e.g., IXC, are subject to the permit
21 conditions as detailed in III.1.N.1, and require:
- 22 A. A leak test for replacement of any component of the tank system, and
23 B. Submission for review and approval any changes to the TSCR column design.
- 24 **III.1.N.2** Tank System Operating Requirements
- 25 **III.1.N.2.a** The Permittees will operate the TSCR tank system to prevent spills and overflows using
26 the description of controls and practices as required under WAC 173-303-640(5)(b)
27 described in Addendum C. [WAC 173-303-640(5)(b), WAC 173-303-806(4)(c)(ix)]
- 28 **III.1.N.2.b** The Permittees will comply with the requirements of Addendum C, Section C.6.4 and
29 C.6.4.1. [WAC 173-303-640(5)(b)]
- 30 **III.1.N.2.c** The Permittees will comply with the requirements of Addendum C, Section C.6.5.
31 [WAC 173-303-640(5)(d)]
- 32 **III.1.N.2.d** The Permittees will comply with the requirements of WAC 173-303-640(7), incorporated
33 by reference, in response to spills or leaks from the TSCR tank system that are detected
34 by the leak detection system required by Permit Condition III.1.N.2.h. [WAC 173-303-
35 640(5)(c)]
- 36 **III.1.N.2.e** TSCR is prohibited from receiving ignitable or reactive waste. [WAC 173-303-640(9)]
- 37 **III.1.N.2.f** TSCR is prohibited from receiving incompatible waste. WAC 173-303-640(10),
38 incorporated by reference.
- 39 **III.1.N.2.g** No dangerous and/or mixed waste will be managed in the TSCR unit tank system unless
40 the operating conditions, specified under Permit Condition III.1.N.2 are complied with.

- 1 **III.1.N.2.h** The Permittees will install and test all process and leak detection system
 2 monitoring/instrumentation, as specified in Permit Table III.1.N.A, in accordance with
 3 LAWPS OUG 1 Permit Appendices 2.2 and 2.6.
- 4 **III.1.N.2.i** The Permittees will not place dangerous and/or mixed waste, treatment reagents, or other
 5 materials in the TSCR Unit tank system if these substances could cause the tank system
 6 to rupture, leak, corrode, or otherwise fail. [WAC 173-303-640(5)(a)]
- 7 **III.1.N.2.j** The Permittees will ensure that the secondary containment systems for the TSCR Unit
 8 tank systems are free of cracks or gaps to prevent any migration of dangerous and/or
 9 mixed waste or accumulated liquid out of the system to the soil, groundwater, or surface
 10 water at any time that waste is in the tank system. Any indication that a crack or gap may
 11 exist in the containment systems will be investigated and repaired. [WAC 173-303-320,
 12 WAC 173-303-640(4)(b)(i), WAC 173-303-2 640(4)(e)(i)(C), WAC 173-303-640(6), and
 13 WAC 173-303-806(4)(c)(vii)]
- 14 **III.1.N.2.k** The Permittees will inspect all secondary containment systems for TSCR Unit tank
 15 systems in accordance with LAWPS OUG 1, Addendum I, “Inspection Plan,” and take
 16 the following actions if a leak or spill of dangerous and/or mixed waste is detected by the
 17 leak detection system required by Permit Condition III.1.N.2.h in these containment
 18 systems [WAC 173-303-320, WAC 173-303-640(5)(c), WAC 173-303-30 640(6),
 19 WAC 173-303-640(7), WAC 173-303-806(4)(a)(v)]:
- 20 **III.1.N.2.k.i** Immediately and safely stop the flow of dangerous and/or mixed waste into the tank
 21 system or secondary containment system, in accordance with procedures based on all
 22 applicable safety analysis documentation;
- 23 **III.1.N.2.k.ii** Determine the source of the dangerous and/or mixed waste;
- 24 **III.1.N.2.k.iii** Remove the waste from the secondary containment area pursuant to WAC 173-303-
 25 640(7)(b). The waste removed from containment areas of TSCR unit tank systems
 26 will be managed as dangerous and/or mixed waste;
- 27 **III.1.N.2.k.iv** If the cause of the release was a spill that has not damaged the integrity of the tank
 28 system, the Permittees may return the tank system to service pursuant to
 29 WAC 173-303-640(7)(e)(ii). In such a case, the Permittees will take action to remedy
 30 the problem(s) that caused liquid to enter the secondary containment systems
 31 [WAC 173-303-320(3)];
- 32 **III.1.N.2.k.v** If the source of the dangerous and/or mixed waste is determined to be a leak from a
 33 primary TSCR Unit tank system, or the system is unfit for use as determined through
 34 an integrity assessment or other inspection, the Permittees must comply with the
 35 requirements of WAC 173-303-640(7) and take the following actions [WAC 173-303-
 36 640(5)(c)];
- 37 A. Close the tank system according to procedures in WAC 173-303-640(7)(e)(i),
 38 and LAWPS OUG 1, Addendum H, “Closure Plan,” as approved pursuant to
 39 III.1.K; or
- 40 B. Repair and re-certify [in accordance with WAC 173-303-810(13)(a)] the tank
 41 system before the tank system is placed back into service [WAC 173-303-
 42 640(7)(e) and (f), and WAC 173-303-806(4)(c)(vii)];
- 43 **III.1.N.2.k.vi** The Permittees will document in the operating record actions/procedures taken to
 44 comply with III.1.N.2.k.i through v above in accordance with WAC 173-303-
 45 640(6)(d);

- 1 **III.1.N.2.k.vii** The Permittees will notify and report releases to the environment to Ecology in
2 accordance with WAC 173-303-640(7)(d).
- 3 **III.1.N.2.l** The Permittees will submit to Ecology, prior to initial receipt of dangerous and/or mixed
4 waste at the LAWPS, descriptions of operational procedures demonstrating appropriate
5 controls and practices are in place to ensure the LAWPS DWMUs will be operated in a
6 safe and reliable manner that will not result in damage to regulated tank systems.
7 **[Complete 04/27/2021]**
- 8 **III.1.N.2.m** If accumulated liquids (e.g., dangerous and/or mixed waste leaks and spills, precipitation,
9 fire water liquids from damaged or broken pipes) detected by the leak detection system
10 required by Permit Condition III.1.N.2.h cannot be removed from the secondary
11 containment system within 24 hours, Ecology will be verbally notified within 24 hours of
12 discovery. The notification will provide the information in A, B, and C listed below. The
13 Permittees will provide Ecology with a written demonstration within seven business days,
14 identifying at a minimum [WAC 173-303-640(4)(c)(iv), WAC 173-303-640(7)(b)(ii),
15 WAC 173-303-806(4)(c)(vii)]:
- 16 A. Reasons for delayed removal;
- 17 B. Measures implemented to ensure continued protection of human health and the
18 environment;
- 19 C. Current actions being taken to remove liquids from secondary containment.
- 20 **III.1.N.2.n** The Permittees will operate the LAWPS tank system in accordance with LAWPS OUG 1,
21 Addendum C, "Process Information."
- 22 **III.1.N.2.n.i** The Permittees will operate the LAWPS tank system in order to maintain the systems
23 and process parameters, as approved/modified pursuant to Permit Condition
24 III.1.N.2.p, within the operating trips and operating ranges specified in Permit Table
25 III.1.N.A, and consistent with assumptions and basis which are reflected in LAWPS
26 OUG 1, Addendum F, "Preparedness and Prevention." [WAC 173-303-815(2)(b)(ii)
27 and WAC 173-303-640(5)(b)]
- 28 **III.1.N.2.n.ii** The Permittees will calibrate/function test the instruments listed in Permit Table
29 III.1.N.A in accordance with LAWPS OUG 1 Appendices of this Permit, as approved
30 pursuant to Permit Condition III.1.N.2.n.i.
- 31 **III.1.N.2.o** Prior to initial receipt of dangerous and/or mixed waste in the LAWPS, the Permittees
32 will submit to Ecology the following as specified below for incorporation into the
33 LAWPS OUG 1 Appendices. All information provided under this permit condition must
34 be consistent with information submitted for this Permit and approved by Ecology.
- 35 **III.1.N.2.o.i** Integrity assessment program and schedule for LAWPS tank systems will conduct
36 periodic integrity assessments on the TSCR tank systems over the life of the tank, if
37 the life expectancy of the TSCR facility exceeds the approximate five-year lifespan,
38 in accordance with WAC 173-303-640(3)(b), and descriptions of procedure for
39 addressing problems detected during integrity assessments. The schedule must be
40 based on the age of the tank system, materials of construction, characteristics of the
41 waste, and any other relevant factors [WAC 173-303-640(3)(b), WAC 173-303-
42 806(4)(c)(vi)];

- 1 **III.1.N.2.o.ii** Detailed plans and descriptions, demonstrating the leak detection system is operated
2 so that it will detect the failure of either the primary or secondary containment
3 structure or the presence of any release of dangerous and/or mixed waste, or
4 accumulated liquid in the secondary containment system within 24 hours.
5 [WAC 173-303-640(4)(c)(iii)]
- 6 **III.1.N.2.o.iii** Detailed operational plans and descriptions, demonstrating that spilled or leaked
7 waste and accumulated liquids detected by the leak detection system required by
8 Permit Condition III.1.N.2.h can be removed from the secondary containment system
9 within 24 hours [WAC 173-303-806(4)(c)(vii)];
- 10 **III.1.N.2.o.iv** Descriptions of operational procedures demonstrating appropriate controls and
11 practices are in place to prevent spills and overflows from tanks or containment
12 systems in compliance with WAC 173-303-640(5)(b)(i) through (iii) [WAC 173-303-
13 640(5)(b), WAC 173-303-806(4)(c)(ix)];
- 14 **III.1.N.2.o.v** A description of the system used to record dangerous and/or mixed waste through the
15 TSCR Unit tank system, pursuant to WAC 173-303-380;
- 16 **III.1.N.2.o.vi** Permit Table III.1.N.A will be completed for TSCR Unit tank system process and
17 leak detection system monitors and instruments (to include instruments and monitors
18 measuring and/or controlling flow, pressure, differential pressure, and temperature).
19 Process monitors and instruments for non-waste management operations
20 (e.g., utilities, raw chemical storage, non-contact cooling waters, etc.) are excluded
21 from this permit condition.
- 22 **III.1.N.2.o.vii** Supporting documentation for operating trips and expected operating range as
23 specified in Permit Table III.1.N.A for the TSCR Unit tank systems are to include but
24 not be limited to the following:
- 25 A. Procurement specifications;
26 B. Data sheets;
27 C. Range, precision, and accuracy as appropriate to specific instrumentation;
28 D. Detailed descriptions of calibration/functionality test procedures
29 (e.g., method number [American Society for Testing and Materials]) or
30 provide a copy of the manufacturer's recommended calibration procedures.
31 E. Calibration/functionality test, inspection, and routine maintenance schedules
32 and checklists, including justification for calibration, inspection, and
33 maintenance frequencies, and corrective action to be taken for instruments
34 found to be significantly out of calibration.
- 35 **III.1.N.3** Sample Port
- 36 **III.1.N.3.a** The Permittees will install a sample port on the Tank AP-108 drop-leg assembly
37 in order to sample and analyze the air return from the TSCR Process Enclosure to
38 Tank 241-AP-108.
- 39 **III.1.N.3.a.i** The Permittees will sample this air return to determine the total organic emission rate
40 of the air stream.
- 41 **III.1.N.3.a.ii** The ports will be sampled at an agreed to frequency. This frequency will be
42 determined prior to the start of operations.
- 43 **III.1.N.3.a.iii** The samples will be analyzed for total organics. A report estimating emissions of total
44 organics will be submitted annually to Ecology.

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Table III.1.N.A Tank Side Cesium Removal Tank System Process and Leak Detection System Instruments and Parameters

Equipment Identification Number	Type and Location	Monitored Parameter	Expected Operating Range	Accuracy	Set Points ¹	Control Function
AP106-WT-LDE-006A	Leak detector, 241-AP-106, Riser 002 drop-leg.	Presence of liquid	60 – 105 °F	N/A	Presence of liquid.	LDAH-001 alarm, Interlock 22 activated.
AP107F-WT-LDE-007A	Leak detector, 241-AP-107, AP07F pump pit.	Presence of liquid	60 – 105 °F	N/A	Presence of liquid.	LDAH-001 alarm, Interlock 23 activated.
AP108-WT-LDE-008A	Leak detector, 241-AP-108, Riser 015 drop-leg.	Presence of liquid	60 – 105 °F	N/A	Presence of liquid.	LDAH-001 alarm, Interlock 24 activated.
POR655-WP-LDE-618	Leak detector, Process Enclosure low-point.	Presence of liquid	60 – 105 °F	N/A	Presence of liquid.	LDA-618 alarm, airlock indicator LDK-618, Interlock 18 activated.
POR655-WP-LD-610	Leak detector, Airlock, misroute prevention cabinet.	Presence of liquid	60 – 105 °F	N/A	Presence of liquid.	LAHH-610 alarm, Interlock 20 activated.
POR655-WP-TT-300	Temperature transmitter - Process Enclosure processing area - northwest corner under grating on 1-12" LAW Feed Line.	LAW feed temperature	68 – 105 °F	+/- 0.45 °F	≥ 100 °F	TAHH-300 alarm, Interlock 5 activated.
POR655-WP-TT-500	Temperature transmitter - Process Enclosure Processing Area - east side of enclosure, north of Delay Tank.	Treated LAW temperature	68 – 105 °F	+/- 0.21 °F	≥ 104 °F	TAHH-500 alarm, Interlock 14 activated.
POR655-WP-PIT-310	Pressure Indicating Transmitter - Process Enclosure Processing Area - east side of walkway in front of Filter B.	Filter differential pressure (both POR655-WP-FLT-325A and POR655-WP-FLT-325B)	0 – 115 psig ³	+/- 0.15% of span	$[PDI_{(t)} - PDI_{(10)}] \geq 5$ PSID ³	PDAHH-325 alarm, Interlock 6 activated.
POR655-WP-PIT-313 Note: POR655-WP-PIT-313 provides the upstream pressure indication for all three IXC's.	Pressure Indicating Transmitter - Process Enclosure Processing Area - east side of walkway in front of Filter B.	Filter differential pressure (both POR655-WP-FLT-325A and POR655-WP-FLT-325B)	0 – 115 psig	+/- 0.15% of span	$[PDI_{(t)} - PDI_{(10)}] \geq 5$ PSID	PDAHH-325 alarm, Interlock 6 activated.

Table III.1.N.A Tank Side Cesium Removal Tank System Process and Leak Detection System Instruments and Parameters

Equipment Identification Number	Type and Location	Monitored Parameter	Expected Operating Range	Accuracy	Set Points ¹	Control Function
POR655-WP-PIT-419A	Pressure indicating transmitter - Process Enclosure Processing Area - east side of walkway, south side of IXC-A.	IXC-A differential pressure (POR655-WP-IX-400A)	0 – 115 psig	+/- 0.15% of span	≥ 25 PSID	PDAHH-400A alarm, Interlock 10 activated.
POR655-WP-PIT-419B	Process Enclosure Processing Area - east side of walkway, south side of IXC-B.	IXC-B differential pressure (POR655-WP-IX-400B)	0 – 115 psig	+/- 0.15% of span	≥ 25 PSID	PDAHH-400B alarm, Interlock 11 activated.
POR655-WP-PIT-419C	Pressure indicating transmitter - Process Enclosure Processing Area - east side of walkway, south side of IXC-C.	IXC-C differential pressure (POR655-WP-IX-400C)	0 – 115 psig	+/- 0.15% of span	≥ 25 PSID	PDAHH-400C alarm, Interlock 12 activated.
POR655-WP-PIT-505 Note 1: POR655-WTP-PIT-419A/B/C provides upstream pressure indication for the media trap. Note: POR655-WP-PIT-505 provides the upstream pressure indication for Delay Tank as well.	Pressure Indicating Transmitter - Process Enclosure Processing Area - east side of Enclosure, north of Delay Tank.	Media Trap differential pressure (POR655-WP-RT-500)	0 – 115 psig	+/- 0.15% of span	≥ 20 PSID	PDAHH-500 alarm, Interlock 13 activated.
POR655-WP-PIT-558	Pressure indicating transmitter - Process Enclosure Processing Area - east side of enclosure, south of Delay Tank.	Delay Tank differential pressure (POR655-WP-TK-550)	0 – 115 psig	+/- 0.15% of span	≥ 5 PSID	PDAHH-550 alarm, Interlock 13 activated.
POR655-WP-FIT-309	Flow indicating transmitter - Process Enclosure Processing Area - east side of enclosure, north of Delay Tank.	Treated LAW flow	5 – 10 gpm	+/- 0.95 % of span	N/A	N/A

Table III.1.N.A Tank Side Cesium Removal Tank System Process and Leak Detection System Instruments and Parameters

Equipment Identification Number	Type and Location	Monitored Parameter	Expected Operating Range	Accuracy	Set Points ¹	Control Function
POR655-WP-RIT-559A ²	Gamma radiation detector - Process Enclosure Processing Area - Airlock Wall. East Airlock Door, Upper Detector.	Treated LAW gamma detector	68 – 105 °F	15% of reading	Varies, target = <3.18 x 10 ⁻⁵ Ci 137Cs/mol Na	RAHH-559 alarm, Interlock 16 is activated.
POR655-WP-RIT-559B ²	Gamma radiation detector - Process Enclosure Processing Area - Airlock Wall. East Airlock Door, Lower Detector.	Treated LAW gamma detector	68 – 105 °F	15% of reading	Varies, target = <3.18 x 10 ⁻⁵ Ci 137Cs/mol Na	RAHH-559 alarm, Interlock 16 is activated.
Control Function	Description					
Interlock 5	If TSCR waste feed temperature (WP-TT-300) reads ≥100 °F, alarm TAHH-300 is activated, and WP-FCV-306 closes.					
Interlock 6	If Filter DP (as indicated by WP-PDI-325 using [PDI _(t) – PDI ₍₁₀₎]) reads ≥ 5 PSID, alarm PDAHH-325 is activated, and WP-FCV-306 closes. ³					
Interlock 10	If any IXC DP reads ≥ 25 PSID, alarm PDAHH-400A/B/C is activated, and WP-FCV-306 closes to stop flow through the system.					
Interlock 11	If any IXC DP reads ≥ 25 PSID, alarm PDAHH-400A/B/C is activated, and WP-FCV-306 closes to stop flow through the system.					
Interlock 12	If any IXC DP reads ≥ 25 PSID, alarm PDAHH-400A/B/C is activated, and WP-FCV-306 closes to stop flow through the system.					
Interlock 13	If Media Trap DP reads ≥ 20 PSID, alarm PDAHH-500 is activated, and WP-FCV-306 closes to stop flow through the system.					
Interlock 14	If Effluent temperature reaches ≥ 104 °F, alarm TAHH-500 is activated, and WP-FCV-306 closes to stop flow through the system.					
Interlock 18	If Sump Leak Detector (WP-LDE-618) senses liquid, alarm LDA-618 is activated, and the AP-107 feed pump stops, the Caustic pump (RA-P-130) stops, and the Reagent Water pump (RA-P-139) stops.					
Interlock 20	If Leak Detector (WP-LD-610) senses liquid, alarm LAHH-610 is activated, the AP-107 feed pump stops, the Caustic pump (RA-P-130) stops, the Reagent Water pump (RA-P-139) stops and WP-AOV-610 opens.					
Interlock 22	If AP-106-WT-LDE-006 detects a leak, alarm LDA-006B is activated and WP-FCV-306 closes.					
Interlock 23	If AP07F-WT-LDE-007 detects a leak, alarm LDA-007B is activated and WP-FCV-306 closes.					
Interlock 24	If AP-108-WT-LDE-008 detects a leak, alarm LDA-008B is activated and WP-FCV-306 closes.					

Table III.1.N.A Tank Side Cesium Removal Tank System Process and Leak Detection System Instruments and Parameters

Equipment Identification Number	Type and Location	Monitored Parameter	Expected Operating Range	Accuracy	Set Points ¹	Control Function
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¹Set points and associated alarms and interlock activation may require adjustment during initial operations in order to optimize waste processing. Adjustment of set points can be made during the first campaign of waste processing without being considered a modification to the permit. Following completion of the first campaign, any changes to the set points in this table will be submitted as a Class 1 permit modification.

²Gamma detectors are included for information only and are not subject to regulation under the *Resource Conservation and Recovery Act of 1976*. The gamma detectors are not included in Addendum I, "Inspection Plan" and inspection schedule.

³psig = Pounds per square inch gauge; PDI = Pressure differential indicator; PSID = Pounds per square inch differential; DP = Differential pressure.

- 1 **III.1.O WASTE TRANSFER LINES**
- 2 **III.1.O.1** Hose-in-Hose Waste Transfer Line Requirements
- 3 **III.1.O.1.a** Hose-in-Hose Transfer Lines (HIHTLs) will comply with the requirements of Addendum C,
4 Sections C.3.1 and C.6.3.2. [WAC 173-303-640(4)]
- 5 **III.1.O.1.b** Use of individual HIHTLs are limited to a maximum of ten years of service from the date
6 of manufacture, after which they must be replaced with hard-walled transfer lines.
7 RPP-RPT-64365, *Tank Side Cesium Removal Evaluation of Hose-in-Hose Transfer Line*
8 *Service Life* (in Appendix 2.15) and IQRPE certification, RPP-IQRPE-50140, *IQRPE*
9 *Evaluation of TSCR HIHTLs and Hose Jumper Service Life Extension* (in Appendix 2.11)
10 confirms this service life duration. The IQRPE's certification is contingent upon specific
11 operational parameters and assumptions that need to be met in order for the report's
12 recommended service life extension to be warranted (RPP-RPT-64365). The unit must be
13 operated and maintained within the limits of these conditions.
- 14 **III.1.O.1.c** When a HIHTL connection is broken and remade, leak testing will be required. The leak
15 testing will be reviewed to verify the new hose is properly installed.
- 16 **III.1.O.1.d** The Permittees will replace HIHTL waste transfer lines with hard-walled pipe transfer
17 lines no later than ten years from the manufacture date if HIHTL service life is extended
18 in accordance with Condition III.1.O.1.b. In the event of spills or leaks from or within
19 any of the HIHTLs, the Permittees will comply with the requirements of WAC 173-303-
20 640(7), incorporated by reference. Prior to resuming TSCR tank system operation, the
21 Permittees will replace the affected HIHTL with a new HIHTL or hard-walled pipe after
22 Ecology's approval to do so after submitting to Ecology any relevant and requested
23 information for the cause of the leaks.
- 24 **III.1.O.1.e** When HIHTLs are removed from service they will be correctly managed under the
25 generator regulations in the WAC 173-303-170 through -230. Within six months after
26 reaching the end of their service life, HIHTLs must be flushed and drained to remove
27 residual contamination, surveyed to estimate the radionuclide inventory, packaged in a
28 suitable waste container, and moved to a 90-day storage accumulation area for mixed
29 waste.
- 30 **III.1.O.1.f** The Permittees will submit to Ecology, prior to initial receipt of dangerous and/or mixed
31 waste in the TSCR Unit, descriptions of operational procedures demonstrating
32 appropriate controls and practices are in place to ensure the TSCR HIHTLs will be
33 operated in a safe and reliable manner that will not result in damage to regulated
34 HIHTLs. **[Complete 04/27/2021]**
- 35 **III.1.O.1.g** The following information will be kept in the operating record for the LAWPS OUG.
36 A. HIHTL assembly serial number.
37 B. Location – Originating point (from) and destination point (to) of the HIHTL.
38 C. Hose assembly drawing number.
39 D. Date of manufacture of the HIHTL.
40 E. HIHTL in-service date.

- 1 F. Service life expiration date – For HIHTLs that have not been exposed to mixed
- 2 waste, hose use must be implemented within seven years from the date of
- 3 manufacture (shelf life). For HIHTLs that have been put in service, they must be
- 4 replaced within three years from the initial date of mixed waste use (service life)
- 5 unless a service life extension is granted in accordance with Condition
- 6 III.1.O.1.b. HIHTL service life ends ten years after manufacture.
- 7 G. HIHTL length.
- 8 H. Shelf life expired HIHTLs that have not been used – Shelf life expired hoses that
- 9 have not been used and are expired will be identified to prevent mixed waste use.
- 10 I. Disposal package identification number (PIN) – The PIN for the container that
- 11 the HIHTL was placed in for shipping.

12 **III.1.O.1.h** The Permittee must ensure that proper handling procedures are adhered to in order to prevent
 13 damage to the TSCR HIHTL transfer system during installation. Prior to covering,
 14 enclosing, placing the system in use, or replacing a HIHTL, an independent, qualified
 15 installation inspector or an IQRPE, either of whom is trained and experienced in the
 16 proper installation of tank systems or components, must inspect the system. The
 17 Permittee shall provide to Ecology a copy of the installation assessment prior to the start
 18 of operations. [WAC 173-303-640(3)(c)]

19 **III.1.O.1.i** The Permittee must test the TSCR HIHTL transfer system for leak tightness prior to
 20 being covered, enclosed, or placed in use. If the system is found not to be tight, all repairs
 21 necessary to remedy the leak(s) in the system must be performed prior to the system
 22 being covered, enclosed, or placed into use. The Permittee shall provide to Ecology a
 23 copy of the tightness testing procedure and results prior to the start of operations.
 24 [WAC 173-303-640(3)(e)]

25 **III.1.O.1.j** The Permittee will provide detailed plans and a description of how the secondary
 26 containment and leak detection system for the TSCR HIHTL transfer system will be
 27 installed, operated, and maintained. [WAC 173-303-806(4)(c)(vii)]

28 A. Based on the Permittees’ design and calculations, the TSCR HIHTL leak
 29 detection systems are capable of detecting a leak equal to or less than 7 gallons
 30 per hour (gph) within 24 hours. When these lines are transitioned to hard walled
 31 lines the Permittees will follow Permit Condition III.1.O.2.f. [WAC 173-303-
 32 640(4)(c)(iii)]

33 B. The secondary containment for the TSCR HIHTL transfer system must be sloped
 34 or operated to drain and remove liquids resulting from leaks. Leaked waste must
 35 be removed from the secondary containment system within 24 hours, or in as
 36 timely a manner as is possible to prevent harm to human health and the
 37 environment, if the Permittee can demonstrate to Ecology that removal of the
 38 released waste or accumulated precipitation cannot be accomplished within
 39 24 hours. [WAC 173-303-640(4)(c)(iv)]

40 C. Until such time as the secondary containment for the TSCR HIHTL transfer
 41 system meets the requirements of -640(4), a functional leak test, as approved by
 42 Ecology, must be conducted on the system annually. [WAC 173-303-
 43 640(4)(i)(iii)]

- 1 **III.1.O.1.k** Since TSCR HIHTLs are installed with low points which do not readily drain, the TSCR
 2 HIHTL transfer system shall employ an integrated system of administrative and
 3 engineered leak detection systems. The leak detection system shall include in-pit leak
 4 detection, and inspection of radiological conditions along HIHTL transfer routes, once
 5 during column change-out.
- 6 **III.1.O.2** Hard Walled Waste Transfer Lines Requirements
- 7 **III.1.O.2.a** Hard Walled Pipe Transfer lines will comply with the requirements of Addendum C,
 8 Section C.3.2. [WAC 173-303-640(4)(b)]
- 9 **III.1.O.2.b** The Permittees will construct the TSCR unit hard walled waste transfer lines as
 10 approved/modified pursuant to the LAWPS OUG 1 Permit. Modifications to approved
 11 design, plans, and specifications in LAWPS OUG 1 of this Permit will be allowed only in
 12 accordance with Permit Condition III.1.B.11.
- 13 **III.1.O.2.c** Prior to initial receipt of dangerous and/or mixed waste in the LAWPS, the Permittees
 14 will obtain, and keep on file in the LAWPS OUG Operating Record, written statements
 15 by those persons required to certify the design and supervise the installation of the hard
 16 walled waste transfer lines, attesting that the waste transfer lines were properly designed
 17 and installed.
- 18 **III.1.O.2.d** The Permittees will ensure all certification required by specialists (e.g., IQRPE;
 19 independent corrosion expert; independent qualified installation inspector; etc.) use the
 20 statement or equivalent, as provided in Permit Condition III.1.N.1.b.v. [WAC 173-303-
 21 810(13)]
- 22 **III.1.O.2.e** The Permittees must ensure hard walled waste transfer lines are supported and protected
 23 against physical damage and excessive stress due to settlement, vibration, expansion, or
 24 contraction. [WAC 173-303-640(3)(f)]
- 25 **III.1.O.2.f** The Permittees will install and test all process and leak detection system
 26 monitoring/instrumentation, as specified in Permit Tables III.1.N.A, in accordance with
 27 LAWPS OUG 1 Permit Appendices 2.2 and 2.6.
- 28 A. The leak detection system for the waste transfer lines must be designed and
 29 operated so that it will detect a leak of 0.1 gph within 24 hours, or at the earliest
 30 practicable time if the Permittee can demonstrate to Ecology that existing leak
 31 detection technologies or site conditions will not allow detection of a release of
 32 0.1 gph within 24 hours. The demonstration shall quantify that the sensitivity of
 33 the waste transfer line leak detection systems is capable of detecting a leak equal
 34 to or less than 3 gph within 24 hours. [WAC 173-303-640(4)(c)(iii)]
- 35 B. The secondary containment for the waste transfer lines must be sloped or
 36 operated to drain and remove liquids resulting from leaks. Leaked waste must be
 37 removed from the secondary containment system within 24 hours, or in as timely
 38 a manner as is possible to prevent harm to human health and the environment, if
 39 the Permittee can demonstrate to Ecology that removal of the released waste or
 40 accumulated precipitation cannot be accomplished within 24 hours.
 41 [WAC 173-303-640(4)(c)(iv)]
- 42 C. A functional leak test or other integrity assessment as approved by Ecology must
 43 be conducted on the system annually. [WAC 173-303-640(4)(i)(iii)]

- 1 D. Prior to operation of the hard-piped transfer lines, they will be added to their
 2 respective operating permit (DST or WTP), or the LAWPS Permit will add a
 3 detailed description of how the transfer lines are controlled and what operating
 4 parameters manage the transfer of liquid from the TSCR Process Enclosure to the
 5 AP Farm and from the AP Farm to the WTP Facility. **[Complete 02/28/2023]**
- 6 **III.1.O.2.g** The Permittees will notify and report releases to the environment to Ecology in
 7 accordance with WAC 173-303-640(7)(d).
- 8 **III.1.O.2.h** The independent installation inspection and subsequent written statements will be
 9 certified in accordance with WAC 173-303-810(13)(a) and comply with all requirements
 10 of WAC 173-303-640(3)(h) and will consider, but not be limited to, the following
 11 documentation:
- 12 **III.1.O.2.h.i** Field installation report with date of installation;
- 13 **III.1.O.2.h.ii** Approved welding procedures;
- 14 **III.1.O.2.h.iii** Welder qualifications and certification;
- 15 **III.1.O.2.h.iv** Hydro-test reports, as applicable, in accordance with the ASME 31.3 Process Piping
 16 code as applicable;
- 17 **III.1.O.2.h.v** Tester credentials;
- 18 **III.1.O.2.h.vi** Field inspector credentials;
- 19 **III.1.O.2.h.vii** Field inspector reports;
- 20 **III.1.O.2.h.viii** Field waiver reports; and
- 21 **III.1.O.2.h.ix** Non-compliance reports and corrective action (including field waiver reports) and
 22 repair reports.