

**LOW-ACTIVITY WASTE PRETREATMENT SYSTEM  
ADDENDUM I  
INSPECTION PLAN  
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

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**ADDENDUM I  
INSPECTION PLAN**

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**ADDENDUM I  
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## I. INSPECTION REQUIREMENTS

This addendum describes the requirements and schedule for inspections of the Low-Activity Waste Pretreatment System (LAWPS) Operating Unit Group (OUG), which includes Tank Side Cesim Removal (TSCR) tank systems and components and the Spent Ion Exchange Columns (IXC) storage areas (IXC staging area and IXC storage pad) in accordance with Washington Administrative Code (WAC) 173-303-806(4)(a)(v), WAC 173-303-320, and WAC 173-303-340. This inspection plan is designed to prevent malfunctions, deterioration, operator errors, and discharges that may cause or lead to the release of dangerous waste that could pose a threat to human health and the environment. This inspection plan is designed to provide early warning of the potential for such events in order to make timely corrections and/or take preventative actions. The plan contains a written inspection schedule that is maintained electronically in the LAWPS OUG Operating Record.

### General Inspection Requirements

Inspections within the schedule are performed by qualified personnel according to a frequency that has been developed through both regulatory requirements and operating experience. Inspection requirements will continue until certification of completion of closure. For frequencies that are not defined by specific regulatory requirements a justification for the frequency will be documented and maintained in the LAWPS OUG Operating Record. During an inspection, inspectors evaluate each inspection item against its associated acceptance criteria, defined in the schedule (Table I-1). The results of the inspections are documented in inspection logs that are dated and signed (handwritten or electronic signature) by the inspector.

This inspection plan addresses the following unit group specific items:

- Tank systems and secondary containment.
- Container storage.
- Monitoring instrumentation.
- Security equipment.
- Safety and communication equipment.
- Emergency equipment.
- Ignitable or reactive waste.

Management-level staff responsible for implementation of the Inspection Plan and for ensuring corrective actions are taken are the Shift Operations Manager, Shift Manager, or Operations Manager as described in Addendum G, "Personnel Training," and the facility Dangerous Waste Training Plan (DWTP). Corrective action is discussed in Remedy Schedule section. Inspections are performed by either facility operations personnel, or Hanford Fire Department personnel. All inspectors are trained in accordance with Addendum G, "Personnel Training," DWTP; and/or Permit Attachment 5, *Hanford Facility Training*.

A preventive maintenance recall system is employed to direct preventive maintenance activities at TSCR. Equipment requiring maintenance is checked as indicated by the maintenance history, the manufacturer's recommendations, or engineering recommendations.

Instrumentation at TSCR is calibrated regularly to ensure accuracy and reliability. All process control instrumentation is calibrated on a schedule depending on previous calibration experience, manufacturers recommendation, or engineering recommendations. An instrument calibration and recall system is employed to manage calibrations.

## 1 **I.1 Frequency of Inspections**

2 The frequency of inspection is how often (at a minimum) an inspection must be performed.

3 The frequency of inspections is based on the rate of possible deterioration of equipment, operational  
4 history, engineering judgement or the probability of a threat to human health or the environment.

5 Unless otherwise noted, inspection frequencies are defined by the following periodicities:

- 6 • Daily means once per calendar day.
- 7 • Weekly means once per calendar week, spanning from Sunday to Saturday.
- 8 • Monthly means once each calendar month.
- 9 • Quarterly means once per calendar quarter.
- 10 • Annually means at least once per 12-month period  $\pm 30$  days.
- 11 • Continuous monitoring means instrument monitoring is performed remotely in the TSCR Control  
12 Enclosure continuously during waste processing operations, and at least daily when TSCR is not  
13 processing waste. If instrumentation is not functioning, daily visual inspections are performed as  
14 identified in Table I-1.

15 The LAWPS inspections, instrument monitoring, and functional testing frequencies are indicated in  
16 Table I-1.

### 17 **I.1.1 Inspection Log**

18 Notations of observations made and deficiencies noted during an inspection are recorded on an inspection  
19 log (data sheets, round sheets, work packages, electronic inspection logs, logbooks, etc.). The inspection  
20 log will also include an account of spills or discharges in accordance with WAC 173-303-145, and the  
21 date and nature of any repairs or remedial actions taken. On completion, the inspection log includes the  
22 inspector's printed name, handwritten or electronic signature, and date and time of the inspection. The  
23 inspection log is submitted for review and approval by management or their designee. Once approved,  
24 the inspection log is retained for at least 5 years in the LAWPS OUG Operating Record, or other  
25 approved locations, in accordance with Permit Condition II.I.1.

26 If an inspection log cannot be located in the LAWPS OUG Operating Record, substitute  
27 documentation/log will be added that documents the missing log. If an inspection was scheduled or  
28 attempted; but could not be performed or fully completed due to a planned event (e.g., planned power  
29 outage), then a reasonable attempt will be made to re-schedule and complete the inspection within the  
30 identified inspection frequency. If the cause was due to an unplanned event (e.g., weather, Hanford Site  
31 or local area emergency or injury; unplanned power outage; unexpected or radiological conditions, work,  
32 training, or safety restrictions); the missed inspection or portions thereof that were not completed shall be  
33 documented on the relevant inspection log or facility logbook. And if applicable, reported in the Hanford  
34 Facility Annual Noncompliance Report.

35 If while performing an inspection, a leak or spill to secondary containment is discovered, facility  
36 operations responds per the emergency response procedures. Action is taken to stop the leak, determine  
37 the cause, and the waste is removed from the secondary containment as soon as possible, preventing harm  
38 to human health and the environment. The inspection records are used to help determine any necessary  
39 corrective actions.

### 1 **I.1.2 Remedy Schedule**

2 Problems and unanticipated substandard conditions identified by the inspector are documented on the  
3 inspection log and reported to facility management for prioritization, and scheduling of remedial actions  
4 to minimize environmental or human health incidents. Problems identified during inspections are  
5 categorized into three general areas and addressed accordingly. The areas include imminent hazards to  
6 human health and/or the environment, problems that can be easily remedied with little or no planning, and  
7 maintenance items that require planning and coordination to correct:

- 8 • When an identified problem poses an imminent risk to human health or the environment actions  
9 are taken immediately to mitigate the hazard and may include activation of the Addendum J,  
10 “Building Emergency Plan” and Permit Attachment 4, *Hanford Emergency Management Plan*  
11 (DOE/RL-94-02), when contingency plan action levels are exceeded. Examples of problems that  
12 warrant immediate action include active releases of dangerous waste to the environment  
13 (e.g., container or tank system releases), failure of systems that mitigate potential releases  
14 (e.g., secondary containment systems), lack of emergency response equipment, and a security  
15 breach.
- 16 • Problems identified during inspection that are easily corrected (e.g., no maintenance planning  
17 required), such as label replacement, will be corrected within 24-hours of inspection or tracked  
18 until completion.
- 19 • Other problems, which cannot be easily corrected, are addressed on a prioritized schedule. These  
20 problems and the prioritized schedule are tracked using the Rounds Action Tracking List  
21 (RATL); for problems identified during Hanford Fire Department inspections, the Job Control  
22 System (JCS) is used.
- 23 • An overall schedule for remedying problems would include time to develop a maintenance  
24 instruction in conjunction with any schedule constraints such as parts availability, fabrication,  
25 environmental and facility access limitations. The time to develop a maintenance instruction  
26 is dependent upon a number of factors including, nuclear, radiological, and industrial safety  
27 hazards associated with the task, complexity of the task, human factors and performance  
28 considerations, skill of worker(s), risk to the worker, public, or the environment.
- 29 • The inspection problem resolution process may include an inspection data sheet, which  
30 identifies the criteria for the inspection; relaying identified problems onto an action-tracking  
31 list; and development of maintenance instructions for problems based on the actions tracking  
32 list. The remedies for problems identified are developed using maintenance instructions and  
33 prioritized on a schedule as described. Problems pending resolution, and their associated  
34 tracking number/designation, will be noted in subsequent inspection logs until the remedy is  
35 complete.
- 36 • Information from the inspection problem resolution process will be maintained in the  
37 LAWPS OUG Operating Record.

### 38 **I.1.3 Specific Process Inspection Requirements**

39 The following sections describe the specific process inspections to be performed at the LAWPS OUG.

### 40 **I.1.4 Container Inspections**

41 Container inspections and frequencies are provided in Table I-1 and apply to Spent IXC's located at either  
42 the IXC Staging Area or the IXC Storage Pad.

### 1 **I.1.5 Tank System Inspections**

2 Tank system inspections and instrument monitoring criteria and frequencies are provided in Table I-1.  
3 Tank system inspections occur at least once each operating day. Each operating day is defined as every  
4 day the TSCR system is in operation (i.e. processing dangerous waste). Tank system inspections are  
5 performed at least once each operating day to ensure the tank system is being operated according to its  
6 design.

7 Integrity assessments for TSCR tank systems are discussed in Addendum C. The integrity assessment  
8 program will continue over the life of the tank system at a frequency to be determined by an initial  
9 integrity assessment. The schedule will be based initially on the materials of construction, characteristics  
10 of the waste, and recommendation by an Independent Qualified Registered Professional Engineer.  
11 Follow-on integrity assessments would also take into consideration the age of the tank system. A detailed  
12 description of the TSCR tank system, including ancillary equipment, is provided in Addendum C,  
13 “Process Information.”

14 The TSCR tank system process components are located within the Process Enclosure and is not accessible  
15 during process operations because of As Low as Reasonable Achievable (ALARA) restrictions. The tank  
16 system has secondary containment and leak detection; any leakage from the process components and  
17 piping drains to the secondary containment sump and will alarm upon detection of liquid. The alarm  
18 annunciates in the TSCR Control Enclosure. Liquid collected in the sump can be pumped out to effluent  
19 receipt tank 241-AP-108. A second leak detector is located within a drain line from a National Electrical  
20 Manufacturers Associated (NEMA) rated box that houses misroute prevention components. The NEMA  
21 box is located in the airlock and provides secondary containment for the misroute prevention interface  
22 between reagents and waste process components. Activation of this leak detector will alarm upon  
23 detection of fluid and will automatically open a valve that drains any fluid to the drain header within the  
24 Process Enclosure. The alarm annunciates in the TSCR Control Enclosure.

25 TSCR is a once-through closed system, therefore overflow protection is not applicable. Refer to see  
26 Addendum C, “Process Information,” for additional detail regarding leak detection and process  
27 component details.

28 Because of high radiation dose and entry restriction during process operations, daily visual inspections are  
29 performed remotely via closed circuit television (CCTV).

### 30 **I.1.6 Security Equipment Inspections**

31 Security equipment inspection criteria and frequencies are provided in Table I-1. The inspections pertain  
32 to posting warning signs, and doors as described in Addendum E, “Security.”

### 33 **I.1.7 Safety and Communication Equipment**

34 Safety equipment visual inspection criteria and frequencies are provided in Table I-1, and pertain to the  
35 spill response kits, eye wash stations, and safety showers. Safety and communication equipment  
36 functional testing criteria and frequencies are provided in Table I-1. The functional testing pertains to the  
37 telephone, 2-way portable radios, eyewash stations, safety showers, and fire alarms/pull boxes. The  
38 Hanford Fire Department performs the functional testing for the fire alarm/pull boxes. The inspection  
39 criteria and frequency for the spill response kits is provided in Table I-1. The safety and communication  
40 equipment locations will be specified in Addendum J, “Contingency Plan.”

1 **I.1.8 Emergency Equipment Functional Testing**

2 Emergency equipment functional testing criteria and frequencies is provided in Table I-1. Emergency  
 3 equipment locations are specified in Addendum J, “Contingency Plan.” The Hanford Fire Department  
 4 performs the functional testing on the fire suppression system.

5 **I.1.9 Ignitable and Reactive Waste Inspection**

6 LAWPS OUG does not store or treat ignitable or reactive waste in tanks or containers; therefore, the  
 7 requirements of WAC 173-303-395(1)(d) are not applicable.

8 **I.2 Visual Inspection**

9 The visual inspection schedule for the LAWPS OUG is provided in Table I-1, for tanks and secondary  
 10 containment systems. Permit Condition II.O.3, allows alternate inspections when visual inspections  
 11 cannot be performed due to ALARA concerns with high radiation dose. The inspection schedule for  
 12 LAWPS monitoring instrumentation and for Spent IXC container storage is provided in Table I-1.

13 TSCR is designed for remote operation of equipment containing radioactive tank waste. The TSCR  
 14 process components are located within the Process Enclosure and are not accessible during waste  
 15 processing operations because of ALARA concerns with high radiation dose. Daily visual daily  
 16 inspection of the TSCR tank system components will be performed remotely by CCTV and is augmented  
 17 by use of instrumentation monitoring for process operations and leak detection.

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**Table I-1. Inspection Schedule**

Description	Instrumentation	Frequency <sup>1</sup>	Type of Problem/Evaluation Criteria
<b>Secondary Containment Areas</b>			
Process Enclosure process area secondary containment, including sump and coating	N/A	Once during IXC change-out.	<p><u>Problem:</u> Cracks, gaps, or other degradation of secondary containment, including the sumps that threaten the integrity of secondary containment.</p> <p>Visually inspect the secondary containment, including sump for evidence of significant cracks, gaps, or other degradation that may compromise the integrity of the containment. Check that the structure is in good condition, and that no liquid is present.</p>
Air lock, NEMA 4X Cabinet secondary containment  WP-ENCL-004	N/A	Once during IXC change-out.	<p><u>Problem:</u> Cracks, gaps, or other degradation of secondary containment, including the sumps that threaten the integrity of secondary containment.</p> <p>Visually inspect the secondary containment, for evidence of degradation that may compromise the integrity of the containment. Check that the item is in good condition and no liquid is present.</p>

**Table I-1. Inspection Schedule**

<b>Description</b>	<b>Instrumentation</b>	<b>Frequency<sup>1</sup></b>	<b>Type of Problem/Evaluation Criteria</b>
Media Trap	N/A	Once during IXC change-out	<u>Problem:</u> Degradation of component or fittings. Visually inspect the media trap for evidence of degradation. Check that the component is in good condition.
<b>Container Storage</b>			
Containers/container storage areas	N/A	Weekly	<u>Problem:</u> Damaged or degraded IXCs. Note: IXCs are fixed in place, ensuring 30-inch aisle spacing between rows.
Container labels	N/A	Weekly	<u>Problem:</u> Labels not present, difficult to read, falling off. Verify labels are present and visible. Assess legibility of labels; note any impediments to visibility and off-normal condition of labels.
<b>Tank Systems</b>			
Visual tank system inspection	N/A	Daily	<u>Problem:</u> Damage to tank/ancillary equipment or weld break threatening integrity of the tank system. Inspect viewable portions of the tank system for signs of corrosion or releases of waste; construction materials and the area immediately surrounding the externally accessible portion of the tank system, to detect erosion, or signs of releases of dangerous waste. Note: All areas within the Process Enclosure process area are viewed through cameras. If the camera system is inoperable, daily inspection of leak detection data will be performed.
Tank labeling	N/A	Annual	<u>Problem:</u> Label/sign not present, falling off, or unreadable. Check for tank sign/major risk labels.
Waste Feed	Pressure Indicating Transmitter  POR655-WP-PIT-310	Daily	<u>Problem:</u> Operating pressure out of acceptable range. Verify pressure is within acceptable range.

**Table I-1. Inspection Schedule**

<b>Description</b>	<b>Instrumentation</b>	<b>Frequency<sup>1</sup></b>	<b>Type of Problem/Evaluation Criteria</b>
Filter  POR655-WP-FLT-325A	Pressure Indicator  POR655-WP-PI-334A	Daily	<u>Problem:</u> Operating pressure out of acceptable range. Verify pressure is within acceptable range.
Filter  POR655-WP-FLT-325B	Pressure Indicator  POR655-WP-PI-334B	Daily	<u>Problem:</u> Operating pressure out of acceptable range. Verify pressure is within acceptable range.
IXC  POR655-WP-IX-400A	Pressure Indicator  POR655-WP-PIT-426A	Daily	<u>Problem:</u> Operating pressure out of acceptable range. Verify pressure is within acceptable range.
IXC  POR655-WP-IX-400B	Pressure Indicator  POR655-WP-PIT-426B	Daily	<u>Problem:</u> Operating pressure out of acceptable range. Verify pressure is within acceptable range.
IXC  POR655-WP-IX-400C	Pressure Indicator  POR655-WP-PIT-426C	Daily	<u>Problem:</u> Operating pressure out of acceptable range. Verify pressure is within acceptable range.
Delay Tank  POR655-WP-TK-550	Pressure Indicator  POR655-WP-PIT-558	Daily	<u>Problem:</u> Operating pressure out of acceptable range. Verify pressure is within acceptable range.
LAW Flow	Flow Indicator  POR655-WP-FIT-309	Daily	<u>Problem:</u> Operating pressure out of acceptable range. Verify pressure is within acceptable range.
TSCR Waste Processing	Leak Alarm  LDA-618	Daily	<u>Problem:</u> Process Area leak alarm received at TSCR Control Enclosure. Verify no leak alarm for waste processing; or daily visually check during waste processing by camera inspection.
TSCR Waste Processing	Leak Alarm  LAHH-610	Daily	<u>Problem:</u> Leak alarm received at TSCR Control Enclosure. Verify no leak alarm for waste processing.

**Table I-1. Inspection Schedule**

<b>Description</b>	<b>Instrumentation</b>	<b>Frequency<sup>1</sup></b>	<b>Type of Problem/Evaluation Criteria</b>
Hose-in-Hose Transfer Line (HIHTL) from 241-AP-107 to TSCR  HIHTL-AP107-SN-103	Leak alarm  LDAH-001	Daily	<u>Problem:</u> Leak alarm received at the TSCR Control Enclosure.  Verify no leak alarm for HIHTL; or daily visually check during waste transfers by visual check for no liquid in AP-07F Pump Pit.
HIHTL from 241-AP-107 to TSCR  HIHTL-AP107-SN-103	Radiological detector and visual	Once during IXC change-out	<u>Problem:</u> Radiological or visual indication of a leak.  Verify no indication of a leak along HIHTL.
HIHTL from TSCR to 241-AP-107  HIHTL-AP107-SN-102	Leak alarm  LDAH-001	Daily	<u>Problem:</u> Leak alarm received at the TSCR Control Enclosure.  Verify no leak alarm for HIHTL; or daily visually check during waste transfers by visual check for no liquid in AP-07F Pump Pit.
HIHTL from TSCR to 241-AP-107  HIHTL-AP107-SN-102	Radiological detector and visual	Once during IXC change-out	<u>Problem:</u> Radiological or visual indication of a leak.  Verify no indication of a leak along HIHTL.
HIHTL from TSCR to 241-AP-106  HIHTL-AP106-SN-101	Leak alarm  LDAH-001	Daily	<u>Problem:</u> Leak alarm received at the TSCR Control Enclosure.  Verify no leak alarm for HIHTL.
HIHTL from TSCR to 241-AP-106  HIHTL-AP106-SN-101	Radiological detector and visual	Once during IXC change-out	<u>Problem:</u> Radiological or visual indication of a leak.  Verify no indication of a leak along HIHTL.
HIHTL from TSCR to 241-AP-108  HIHTL-AP108-SN-104	Leak alarm  LDAH-001	Daily	<u>Problem:</u> Leak alarm received at the TSCR Control Enclosure.  Verify no leak alarm for HIHTL.
HIHTL from TSCR to 241-AP-108  HIHTL-AP108-SN-104	Radiological detector and visual	Once during IXC change-out	<u>Problem:</u> Radiological or visual indication of a leak.  Verify no indication of a leak along HIHTL.

**Table I-1. Inspection Schedule**

<b>Description</b>	<b>Instrumentation</b>	<b>Frequency<sup>1</sup></b>	<b>Type of Problem/Evaluation Criteria</b>
HIHTL from TSCR to 241-AP-108  HIHTL-AP108-SN-105	Leak alarm  LDAH-001	Daily	<u>Problem:</u> Leak alarm received at the TSCR Control Enclosure. Verify no leak alarm for HIHTL.
HIHTL from TSCR to 241-AP-108  HIHTL-AP108-SN-105	Radiological detector and visual	Once during IXC change-out	<u>Problem:</u> Radiological or visual indication of a leak. Verify no indication of a leak along HIHTL.
<b>Security Equipment</b>			
Posted warning signs	N/A	Annual	<u>Problem:</u> Damaged, faded, or missing hazardous waste warning signs. Verify warning signs are posted in locations identified in Addendum E, "Security," and that signs are readable, and not damaged.
Doors/gates	N/A	Daily	<u>Problem:</u> Open when facility is unattended. Verify TSCR Process Enclosure exterior doors, and access gates are locked when not staffed. Verify the IXC storage area access gates are locked when not staffed. Lock doors/gates as appropriate.
Fencing	N/A	Monthly	<u>Problem:</u> Damaged security fence. Verify fence is intact with no unexpected openings (see Addendum E, "Security"), and check for accumulated debris (e.g., tumbleweeds).
<b>Safety and Communication Equipment</b>			
Spill response kits	N/A	Monthly	<u>Problem:</u> Tamper seal is broken. Verify tamper seal is not broken. If the seal is broken, inventory the spill response kit contents, and affix new seal after inventory check/restocking.
2-way portable radios	N/A	Quarterly	<u>Problem:</u> Portable radios are not operational. Verify that portable radios are operational by performing radio check.
Eye wash stations	N/A	Monthly	<u>Problem:</u> Inadequate pressure, obstructions around and in front of eyewash station. Check for adequate pressure, and no obstructions

**Table I-1. Inspection Schedule**

Description	Instrumentation	Frequency <sup>1</sup>	Type of Problem/Evaluation Criteria
Safety showers	N/A	Monthly	<u>Problem:</u> Inadequate pressure, obstructions around and in front of safety shower. Check for adequate pressure, and no obstructions.
<b>Emergency Equipment</b>			
Fire suppression systems	N/A	Annual	<u>Problem:</u> Pressures below operable range, gauges not calibrated. Hanford Fire Department verify annual inspection is performed by qualified inspector [WAC 173-303-395(1)(d)], annual service completed, and pressures within tolerance.
Fire Extinguishers	N/A	Monthly	<u>Problem:</u> Missing fire extinguisher, or inadequate pressure. Verify fire extinguishers are in proper location, and that the fire extinguishers at adequate pressure for use.

Note1: Equipment locations are provided within the facility operating/inspection logs.

Note 2: Pipe-in-Pipe transfer lines are included in the LAWPS OUG permit application for design and installation only because there is not final status permit for the Double-Shell Tank (DST) OUG. It is anticipated for operations that these transfer lines will be transferred to a different final status OUG. Inspection of these lines will be performed by the OUG they are assigned to for operation in a future permit modification.

<sup>1</sup>Unless otherwise noted, inspection frequencies are defined in Section I.1.