



U.S. Department of Energy
Office of River Protection

0100542

P.O. Box 450, MSIN H6-60
Richland, Washington 99352

DEC 13 2011

11-ESQ-308

Mr. R. W. Bradford
Deputy Project Director/Project Manager
Bechtel National, Inc.
2435 Stevens Center Place
Richland, Washington 99354

Dear Mr. Bradford:

CONTRACT NO. DE-AC27-01RV14136 – SUBMITTAL OF U.S. DEPARTMENT OF ENERGY, OFFICE OF RIVER PROTECTION SURVEILLANCE REPORT, S-11-ESQ-RPPWTP-024, ANALYTICAL LABORATORY (LAB) RADIOACTIVE LIQUID WASTE DISPOSAL (RLD) SYSTEM FLOOR DRAINS

Reference: ORP letter from J. R. Eschenberg to W. S. Elkins, BNI, "Notification of Dangerous Waste Permit (DWP) Condition/Waste Management Surveillances," 06-ED-019, dated March 6, 2006.

This letter transmits the Waste Treatment and Immobilization Plant Surveillance for the Analytical Laboratory Radioactive Liquid Waste Disposal System Floor Drains. The surveillance verified that the field conditions of the LAB RLD disposal system met Dangerous Waste Permit conditions.

This letter is not considered to constitute a change to the Contract. In the event the Contractor disagrees with this interpretation, it must immediately notify the Contracting Officer orally, and otherwise comply with the requirements of the Contract clause entitled 52.243-7, "Notification of Changes."

If you have any questions, please contact me, or your staff may contact Paul G. Harrington, Acting Assistant Manager, Office of Environmental Safety and Quality, (509) 376-5700.

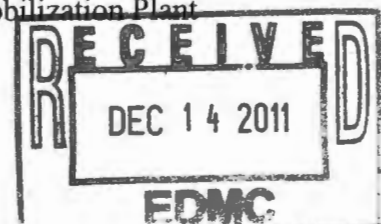
Sincerely,

Delmar L. Noyes, Deputy Federal Project Director
Waste Treatment and Immobilization Plant

ESQ:GMN

Attachment

cc: See page 2



Mr. R. W. Bradford
11-ESQ-308

-2-

DEC 13 2011

cc w/attach:

B. G. Erlandson, BNI

S. L. Dahl, Ecology

Administrative Record (H-0-8)

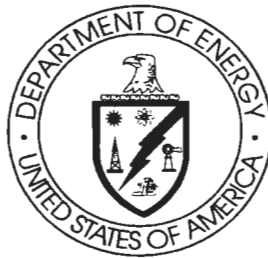
BNI Correspondence

Environmental Portal, LMSI

Attachment
11-ESQ-308
(9 Pages)

Surveillance Report, S-11-ESQ-RPPWTP-024,
for the
WTP Analytical Laboratory Radioactive Liquid Waste
Disposal System Floor Drains

Analytical Laboratory Radioactive Liquid Waste Disposal System Floor Drains Surveillance



OCTOBER 2011

Office of Environmental Safety and Quality

U.S. Department of Energy
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P.O. Box 450, H6-60
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LAB FLOOR DRAINS SURVEILLANCE (S-11-ESQ-RPPWTP-024)

Title of Surveillance:

S-11-ESQ-RPPWTP-024, Analytical Laboratory Radioactive Liquid Waste Disposal System Floor Drains

Integrated Assessment Schedule Activity Number:

06

Dates Surveillance Conducted:

October 24, 2011

Surveillance Team:

Gae Neath (Lead), Environmental Compliance Division (ECD)
Nick Mandelenakis, Waste Treatment and Immobilization Plant (WTP) Engineering Division
Garth Reed, WTP Construction Oversight and Assurance Division
Don Sommer, ECD Support Services.

Summary of Surveillance Activities:

The purpose of the surveillance was to evaluate whether the field conditions of the Analytical Laboratory (LAB) Radioactive Liquid Waste Disposal (RLD) system met Dangerous Waste Permit (DWP) conditions.

Documentation Reviewed:

- Washington Administrative Code (WAC) 173-303-640 Tank systems.
- Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste, Part III, Operating Unit Group 10 [WTP], WA7890008967.
- General Arrangement Drawing, 24590-LAB-P1-60-P0008, Revision 2.
- Piping and Instrumentation Drawings (P&ID) – LAB RLD System C5 Drain Collection Headers, 24590-LAB-M6-RLD-00008002, Revision 0.
- System Description for the LAB RLD System, 24590-LAB-3YD-RLD-00001, Revision 4.
- Facility Description for the LAB, 24590-LAB-3YD-60-00003, Revision A.
- System Description for the Analytical Hotcell Laboratory 24590-LAB-3YD-AHL-00001, Revision 2.
- Piping Material Class Description, 24590-WTP-PER-PL-02-001, Revision 6.

LAB FLOOR DRAINS SURVEILLANCE (S-11-ESQ-RPPWTP-024)

- Secondary Containment Design, 24590-WTP-PER-CSA-02-001, Revision 10.
- Class '1 permit modification 24590-LAB-PCN-ENV-11-001 to replace existing P&IDs for the LAB RLD System in Appendix 11.2 of the DWP.
- LAB Minimum Leak Rate Detection Capabilities for Leak Detection Boxes, Cell Sumps, and Pit Sumps, 24590-LAB-PER-M-04-0001, Revision 0.

Discussion of Area(s) Reviewed:

Analytical work involving samples containing radionuclide or hazardous materials is performed in fume hoods that contain a corrosion resistant cupsink and drain system for disposal of liquid wastes to the RLD system followed by a line flushing with available water. Each fume hood is provided with a drip pan that provides secondary containment and leak detection for the DWP regulated cupsink drains. Liquid effluents are disposed in the fume hood sink drains. The fume hoods or drip pans have not currently been installed. The objective of this surveillance was to select a drain pipeline for a cupsink drain and verify the current installation using DWP engineering documentation and DWP permit conditions.

Fume hood ARL-HOOD-00011 drain pipe line LAB-RLD-WU22099001-B was randomly selected (see Figure 1) in the Radiological Laboratories Room A-0132A (see Figure 2) to verify that the requirements (shown in the Surveillance Conformance Summary below) regarding the installation of this drain pipeline were followed. This drain pipeline was also verified in the P&ID, as depicted in Figure 3.

The Aboveground Piping Inspection Record 24590-LAB-APIR-CON-07-0189 was also inspected. This is an in-process record because the final piping installation and weld-up to the fume hood cup sink have not been completed. Mistras, the third party inspector, did inspect this spool and provided a "blue stamp" (record reviewed by third party inspection).

LAB FLOOR DRAINS SURVEILLANCE (S-11-ESQ-RPPWTP-024)

Figure 1

Drain pipe line LAB-RLD-WU22099001-B in Analytical Laboratory Room A-0132A



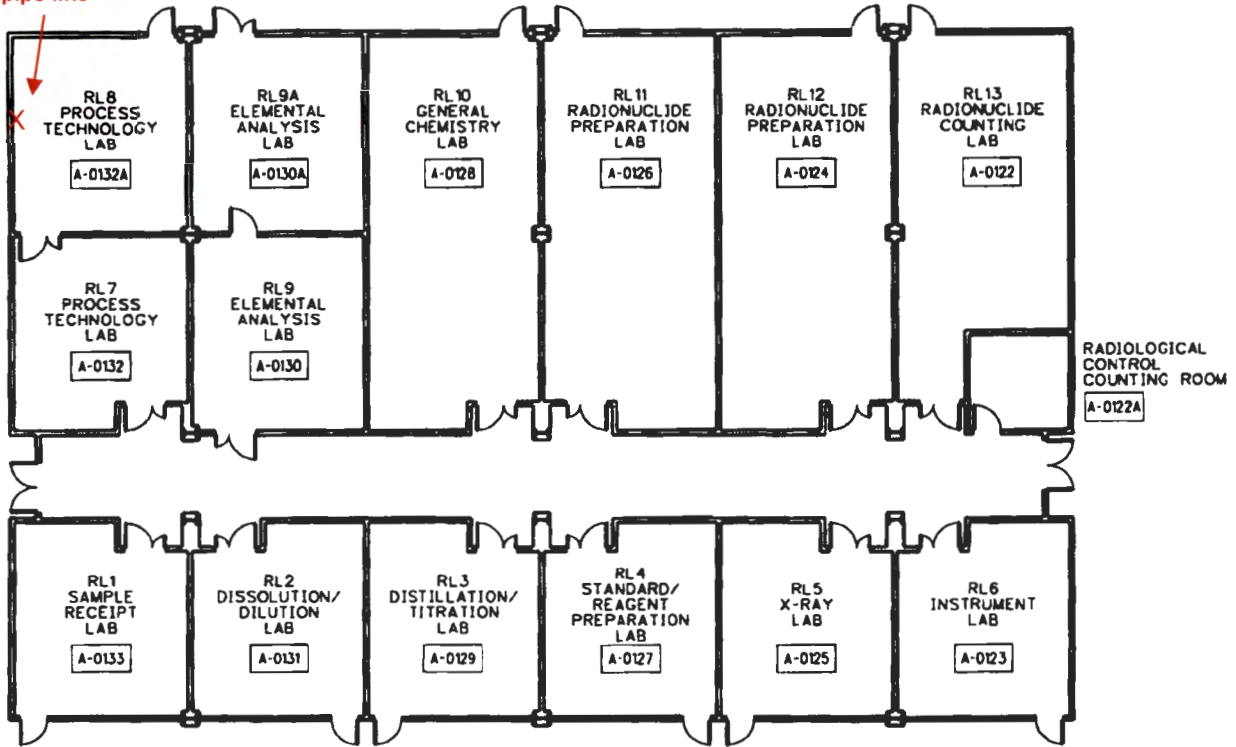
LAB FLOOR DRAINS SURVEILLANCE (S-11-ESQ-RPPWTP-024)

Figure 2

Radiological Laboratories Room Layout (Figure 6-1 from System Description for Fume hood ARL-HOOD-00011 drain pipe line located in top left Room A-0132A). Reference: 24590-LAB-3YD-ARL-00001

ARL-HOOD-00011
drain pipe line

Figure 6-1 General Arrangement of Radiological Laboratories



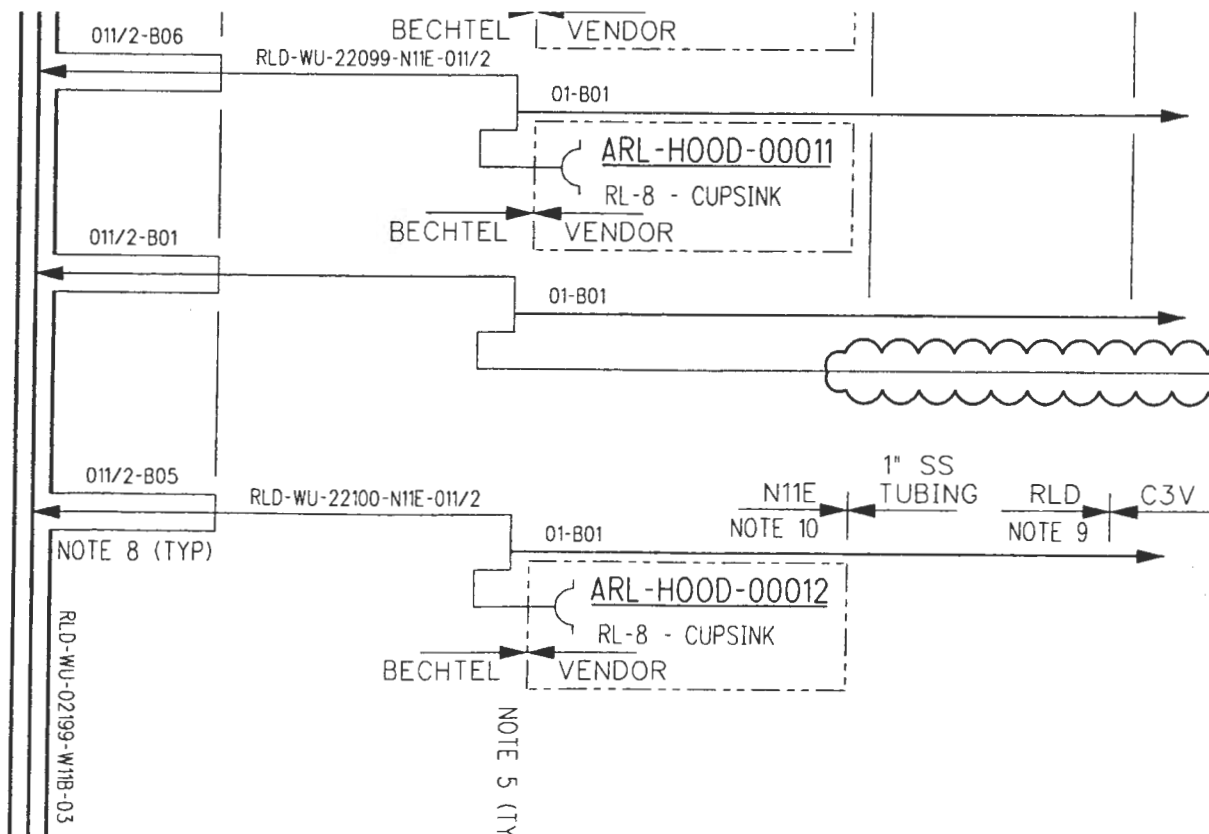
Surveillance Conformance Summary

Requirement	Conformance Summary
<p>III.10.E.5.g. The Permittees will ensure that the secondary containment systems for the WTP Unit Tank Systems listed in Permit Tables III.10.E.A through D, I, K, M, and O, as approved/modified pursuant to Permit Condition III.10.E.9, are free of cracks or gaps to prevent any migration of dangerous and/or mixed waste or accumulated liquid out of the system to the soil, ground water, or surface water at any time that waste is in the tank system. Any indication that a crack or gap may exist in the containment systems will be investigated and repaired in accordance with Operating Unit 10, Appendices 8.15, 9.18, 10.18, and 11.15 of this Permit, as approved pursuant to Permit Condition III.10.E.9.e.v [WAC 173-303-320, WAC 173-303-640(4)(b)(i), WAC 173-303-640(4)(e)(i)(C), WAC 173-303-640(6), and WAC 173-303-806(4)(c)(vii)].</p>	<p>The requirement for containment and detection of releases for the piping design was met, drain pipeline is free of cracks or gaps, and connects with pipeline RLD-WU-02199-W11B-03, double containment pipe.</p>
<p>III.10.E.9.e.ii. Detailed plans and descriptions, demonstrating the leak detection system is operated so that it will detect the failure of either the primary or secondary containment structure or the presence of any release of dangerous and/or mixed waste, or accumulated liquid in the secondary containment system within 24 hours. Detection of a leak of at least 0.1 gallons per hour within 24 hours is defined as being able to detect a leak within 24 hours. Any exceptions to this criteria must be approved by the Washington State Department of Ecology [WAC 173-303-640(4)(c)(iii), WAC 173-303-806(4)(c)(vii)]</p>	<p>The requirement for containment and detection of releases for the piping design was met. Leak Detection Box RLD-LDB-00005 is connected to the Rad Lab Sink Collection header double containment pipe. The LDB has a thermal dispersion leak detection device to detect potential leakage, having a leak detection sensitivity of 0.5 in. max liquid level or a max volume of 0.0767 US gal for detection, or a 24-hour leak detection rate to detect at .03 gallons per hour.</p>
<p>III.10.E.9.d.v. Materials selection documentation for ancillary equipment (e.g., physical and chemical tolerances) [WAC 173-303-640(3)(a), WAC 173-303-806(4)(c)(i)]</p> <p>WAC 173-303-640 Tank systems (4) Containment and detection of releases. (c) To meet the requirements of (b) of this subsection, secondary containment systems must be at a minimum: (i) Constructed of or lined with materials that are compatible with the waste(s) to be placed in the tank system and must have sufficient strength and thickness to prevent failure owing to pressure gradients (including static head and external hydrological forces), physical contact with the waste to which it is exposed, climatic</p>	<p>The requirement for containment and detection of releases constructed of or lined with materials that are compatible with the waste(s) to be placed in the tank system for the piping design was met. The Design Code/Fluid Content and compatibility for piping class N11E (Hastelloy C-22) and W11B (Double Containment Pipe) are defined in the Piping and Material Class Description document 24590-WTP-PER-PL-02-001, Revision 6.</p>

LAB FLOOR DRAINS SURVEILLANCE (S-11-ESQ-RPPWTP-024)

Requirement	Conformance Summary
conditions, stress of installation, and the stress of daily operations (including stresses from nearby vehicular traffic);	
III.10.E.9.b.ii. Design drawings (General Arrangement Drawings in plan and cross sections) and specifications for the foundation, secondary containment, including, liner installation details, and leak detection methodology [Note: leak detection systems for areas where daily, direct, or remote visual inspection is not feasible, will be continuous in accordance with WAC 173-303-640(4)(e)(iii)(C)]. These items should show the dimensions, volume calculations, and location of the secondary containment system, and should include items such as floor/pipe slopes to sumps, tanks, floor drains [WAC 173-303-640(4)(b) through (f), WAC 173-303-640(3)(a), WAC 173-303-806(4)(c)(i)];	The requirement for containment and detection of releases for the piping design was met. The in-slab dangerous waste lines have a minimum slope of 1/16 in. per foot (1:192 slope). These lines all slope toward a vessel cell. The Leak Detection Box is connected to the low point of the double-wall piping where it terminates in the vessel cell.

Figure 3
 P&ID – LAB Radioactive Liquid Waste Disposal System C3 Drain Collection Headers, 24590-LAB-M6-RLD-00006001, Revision 0.



LAB FLOOR DRAINS SURVEILLANCE (S-11-ESQ-RPPWTP-024)

Conclusion:

The surveillance team found that the drain pipelines for the cupsink drains were installed correctly and in compliance with the DWP engineering documentation and DWP permit conditions.

Findings and Observations:

No findings or observations were made.

ORP Management Debriefed:

Lori Huffman, Director ECD

Signature



12/07/2011

Gae M. Neath
Surveillance Team Lead

Date