



U.S. Department of Energy
~~Office of River Protection~~

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FEB 19 2008

08-ESQ-023

Ms. Jane A. Hedges, Program Manager
Nuclear Waste Program
Washington State
Department of Ecology
3100 Port of Benton Blvd.
Richland, Washington 99354

RECEIVED
FEB 26 2008
EDMC

Dear Ms. Hedges:

SUBMITTAL OF HANFORD FACILITY RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) PERMIT MODIFICATION NOTIFICATION FORM 24590-LAW-PCN-ENV-08-001

- References:
1. WA7890008967, "Dangerous Waste Portion of the Hanford Facility Resource Conservation and Recovery Act Permit for the Treatment, Storage, and Disposal of Dangerous Waste, Part III, Operating Unit 10, 'Waste Treatment and Immobilization Plant.'"
 2. ORP letter from S. J. Olinger to J. A. Hedges, Ecology, "Submittal of Hanford Facility Resource Conservation and Recovery Act (RCRA) Permit Modification Notification Form 24590-LAW-PCN-ENV-07-012," 07-ESQ-237, dated January 7, 2008.

0075082

This letter transmits the Hanford Facility RCRA Permit Modification Notification Form 24590-LAW-PCN-ENV-08-001, for the Washington State Department of Ecology (Ecology) review and approval. The form describes a requested Class 1 modification to the Reference.

This modification updates the "LAW Facility Sump Data" document (24590-LAW-PER-M-02-001) found in Appendix 9.5 of Reference 1.

The attached Permit Change Notice (PCN) supersedes PCN 24590-LAW-PCN-ENV-07-012 currently pending at Ecology (Reference 2). This change has been coordinated in advance with Brenda Becker-Khaleel, Ecology.

Ms. Jane A. Hedges
08-ESQ-023

-2-

FEB 19 2008

If you have any questions, please contact me, or your staff may contact Gae M. Neath, Office of Environmental Safety and Quality, (509) 376-7828.

Sincerely,



Shirley J. Ohinger, Manager
Office of River Protection

ESQ:GMN

Attachment

cc w/attach:

Administrative Record H-0-8, H-0-1

BNI Correspondence

Environmental Portal, LMSI

cc electronic:

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Attachment
08-ESQ-023

Hanford Facility RCRA Permit Modification Notification
Form 24590-LAW-PCN-ENV-08-001

Quarter Ending March 31, 2008

24590-LAW-PCN-ENV-08-001

Hanford Facility RCRA Permit Modification Notification Form
Part III, Operating Unit 10
Waste Treatment and Immobilization Plant

Index

Page 2 of 3: Hanford Facility RCRA Permit, Part III, Operating Unit 10, Waste Treatment and Immobilization Plant
Update "LAW Facility Sump Data" document in Appendix 9.5 of the Dangerous Waste Permit.

Submitted by Co-Operator:

Reviewed by ORP Program Office:

D. A. Klein 1/28/08
D. A. Klein Date

S. J. Oltger 2/19/08
S. J. Oltger Date



ISSUED BY
RPP-WTP PDC



Document title: **LAW Facility Sump Data**

Contract number: DE-AC27-01RV14136
Department: Mechanical Systems
Author(s): Ronnie Moore

Principal author
signature:

Document number: 24590-LAW-PER-M-02-001, Rev 5

Checked by: David Reinemann



EXPIRES: 3/16/08

Checker signature:

Date of issue:

7/19/07

Issue status:

Issued for Permitting Use

Approved by:

John Julyk

Approver's position:

Mechanical Systems Engineering Group Supervisor

Approver signature:

This bound document contains a total of 9 sheets

River Protection Project
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24590-PADC-F00041 Rev 5 (6/28/2004)

Notice

Please note that source, special nuclear, and byproduct materials, as defined in the Atomic Energy Act of 1954 (AEA), are regulated at the US Department of Energy (DOE) facilities exclusively by DOE acting pursuant to its AEA authority. DOE asserts, that pursuant to the AEA, it has sole and exclusive responsibility and authority to regulate source, special nuclear, and byproduct materials at DOE-owned nuclear facilities. Information contained herein on radionuclides is provided for process description purposes only.

History Sheet

Rev	Date	Reason for revision	Revised by
0	7/16/02	Issued for permitting use	P.S. Holgado
1	8/27/02	Added statement regarding location of sumps	P.S. Holgado
2	9/19/02	Added Table 2	P.S. Holgado
3	3/19/03	Major revision, issued for permitting use	P.S. Holgado
4	4/21/05	Revised for permitting use	P.S. Holgado
5	7/02/07	Major revision, issued for permitting use	Ronnie Moore

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1 Introduction

The Washington Administrative Code, WAC 173-303, *Dangerous Waste Regulations*, requires the use of secondary containment for systems managing dangerous waste. This document provides a brief description of the secondary containment sumps regulated under the Dangerous Waste Permit that are located at elevation -21 ft and elevation +3 ft of the Low-Activity Waste (LAW) Vitrification Facility. Detailed information about these sumps is included in Table 1. Effluent streams that drain into these sumps are listed in Table 2.

2 Applicable Documents

WAC 173-303. *Dangerous Waste Regulations*. Washington Administrative Code.

3 Description

3.1 Elevation -21 Ft Sumps

3.1.1 C3/C5 Drains/Sump Collection Vessel RLD-VSL-00004 Cell Sump

The C3/C5 Drains/Sump Collection Vessel cell sump (RLD-SUMP-00028) is in a C5 area at elevation -21 ft. It is a dry sump, approximately 24 inches in diameter and 30 inches deep, and is equipped with liquid level detection and alarm. Any overflow or leakage from the C3/C5 Drains/Sump Collection vessel (RLD-VSL-00004) or piping in the C3/C5 Drains/Sump Collection vessel cell flows to RLD-SUMP-00028. Overflow from the C3/C5 Drains/Sump Collection vessel (RLD-VSL-00004) flows to RLD-SUMP-00028. Similarly, leakage from piping or valves in LAW RLD-BULGE-00001 also flows to sump RLD-SUMP-00028. Any liquid collecting in the sump can be transferred within 24 hours to the Plant Wash Vessel (RLD-VSL-00003) at el. +3 ft. using permanently installed submersible sump pumps. Sump waste that is transferred to the Plant Wash Vessel (RLD-VSL-00003) is eventually transferred to the Pretreatment Facility for processing.

3.2 Elevation +3 Ft Sumps

At elevation +3 ft, there are eight sumps, RLD-SUMP-00029, RLD-SUMP-00030, RLD-SUMP-00031, RLD-SUMP-00032, RLD-SUMP-00033, RLD-SUMP-00034, RLD-SUMP-00035, and RLD-SUMP-00036. All of these sumps are dry sumps. Two of the sumps, (RLD-SUMP-00033 and RLD-SUMP-00034), are both located in the third melter process cell (Room L-0125) and currently not included in the Dangerous Waste Permit. These sumps (RLD-SUMP-00033 and RLD-SUMP-00034) have been constructed but, at this time sumps RLD-SUMP-00033 and RLD-SUMP-00034 do not have permanently installed sump pumps or liquid level detectors. The other remaining six sumps (RLD-SUMP-00029, RLD-SUMP-00030, RLD-SUMP-00031, RLD-SUMP-00032, RLD-SUMP-00035, and RLD-SUMP-00036) are provided with liquid level detection, alarms, and permanently installed submersible sump pumps. The submersible sump pumps transfer the sump contents to the Plant Wash Vessel (RLD-VSL-00003) located at the same elevation.

3.2.1 Process Cell Sumps

The melter feed system vessels and the primary offgas equipment for the two (2) LAW melters are located in two (2) lined process cells in the LAW Vittrification building. Each process cell contains the vessels and primary offgas equipment for a single LAW melter.

Process Cell for Melter 1, Room L-0123

LCP-VSL-00001	Concentrate Receipt Vessel
LFP-VSL-00001	Melter 1 Feed Preparation Vessel
LFP-VSL-00002	Melter 1 Feed Vessel
LOP-SCB-00001	Melter 1 Submerged Bed Scrubber (SBS)
LOP-WESP-00001	Melter 1 Wet Electrostatic Precipitator
LOP-VSL-00001	Melter 1 SBS Condensate Vessel

Process Cell for Melter 2, Room L-0124

LCP-VSL-00002	Concentrate Receipt Vessel
LFP-VSL-00003	Melter 2 Feed Preparation Vessel
LFP-VSL-00004	Melter 2 Feed Vessel
LOP-SCB-00002	Melter 2 Submerged Bed Scrubber
LOP-WESP-00002	Melter 2 Wet Electrostatic Precipitator
LOP-VSL-00002	Melter 2 SBS Condensate Vessel

Process Cell for Melter 3, Room L-0125

NONE

Each process cell is equipped with two sumps. The floor of the cell is sloped to drain potential spillage to a sump at the base of the east wall or west wall.

Water can be introduced into the sumps if needed for flushing.

Any liquids collecting in the process cell sumps can be transferred within twenty four hours to the Plant Wash Vessel (RLD-VSL-00003) using permanently installed submersible sump pumps.

The Melter 1 and Melter 2 process cell sumps are 12 inches deep by 30 inches in diameter, and are equipped with liquid level detection, liquid level alarms, and permanently installed submersible sump pumps. Sump waste transferred to the Plant Wash Vessel (RLD-VSL-00003) is eventually transferred to the Pretreatment Facility for processing.

3.2.2 Effluent Cell Sumps

The Plant Wash Vessel (RLD-VSL-00003) and the SBS Condensate Collection Vessel (RLD-VSL-00005) are located in the effluent cell, room L-0126. The Effluent Cell is provided with two sumps, one in the west end and another in the east end. Any material collected in the Effluent Cell sump can be transferred to the Plant Wash Vessel (RLD-VSL-00003) within twenty four hours, using permanently installed electric submersible sump pumps.

The Effluent Cell sumps are 12 inches deep by 30 inches in diameter, and are equipped with liquid level detection, liquid level alarms, and permanently installed sump pumps. Sump waste transferred to the Plant Wash Vessel (RLD-VSL-00003) is eventually transferred to the Pretreatment Facility for processing.

Table 1 - LAW Regulated Sumps

Sump Number	LAW Room Number & Elevation	Maximum Sump Capacity, gal	Sump Type	Sump Dimensions, Inch	Piping and Instrumentation Diagram Number 24590-LAW-M6-	Leak Detection Type	Sump Material of Fabrication
RLD-SUMP-00028	L-B001B C3/C5 Drains/Sump Collection Vessel Cell Elev. -21 ft	59	Dry Sump	24 Dia. x 30 Deep	RLD-P0002	Radar	UNS NO8367
RLD-SUMP-00029	L-0123 Process Cell West End Elev. +3 ft	30	Dry Sump	30 Dia. x 12 Deep	RLD-P0003	Radar	UNS NO8367
RLD-SUMP-00030	L-0123 Process Cell East End Elev. +3 ft	30	Dry Sump	30 Dia. x 12 Deep	RLD-P0003	Radar	UNS NO8367
RLD-SUMP-00031	L-0124 Process Cell Sump West End Elev. +3 ft	30	Dry Sump	30 Dia. x 12 Deep	RLD-P0003	Radar	UNS NO8367
RLD-SUMP-00032	L-0124 Process Cell Sump West End Elev. +3 ft	30	Dry Sump	30 Dia. x 12 Deep	RLD-P0003	Radar	UNS NO8367
RLD-SUMP-00035	L-0126 Effluent Cell West End Elev. +3 ft	30	Dry Sump	30 Dia. x 12 Deep	RLD-P0003	Radar	UNS NO8367
RLD-SUMP-00036	L-0126 Effluent Cell East End Elev. +3 ft	30	Dry Sump	30 Dia. x 12 Deep	RLD-P0003	Radar	UNS NO8367

Table 2 - Drains to LAW Sumps

Drain	Sump, LAW Room Number & Elevation	Max. Flow Capacity, gal/min*	Drain Type/Nom. Operating Volume, Gal	Drain Line Size (Pipe Dia.), Inch	Piping and Instrumentation Diagram Number 24590-LAW-M6-	Pipe Material of Fabrication
Pump Bulge RLD-BULGE-00001 Drain	RLD-SUMP-00028 L-B001B C3/C5 Drains/Sump Collection Vessel Cell Elev. -21 ft	60	N/A	2	RLD-P0002	316L SS
Double-Walled Piping Outer Containment Drains		10		1		316L SS
RLD-VSL-00004 Overflow		425		8		6 Moly
Primary Offgas (LOP) Melter 1 Valve Bulge Drain	RLD-SUMP-00029 L-0123 Process Cell West End Sump Elev. +3 ft	60	N/A	2	LOP-P0001	6 Moly
LCP-BULGE-00001/2 Drain		60		2		316L SS
Melter Feed Line Encasement Assembly (LMP-LDB-00001 drain)	RLD-SUMP-00030 L-0123 Process Cell East End Sump Elev. +3 ft	10	N/A	1	RLD-P0003	316L SS
Melter 1 Feed Prep/Feed Vessel Valve Bulge Drain		60		2	LFP-P0001	316L SS
Primary Offgas (LOP) Melter 2 Valve Bulge Drain	RLD-SUMP-00031 L-0124 Process Cell West End Sump Elev. +3 ft	60	N/A	2	LOP-P0002	6 Moly
LCP-BULGE-00003 Drain		60		2	LCP-P0002	316L SS
Melter Feed Line Encasement Assembly (LMP-LDB-00002 drain)	RLD-SUMP-00032 L-0124 Process Cell East End Sump Elev. +3 ft	10	N/A	1	LFP-P0003	316L SS
Melter 2 Feed Prep/Feed Vessel Valve Bulge Drain		60		2		316L SS
None	RLD-SUMP-00035 L-0126 Effluent Cell West End Sump Elev. +3 ft	N/A	N/A	N/A	N/A	N/A
Plant Wash Vessel/SBS Condensate Collection Vessel Valve Bulge Drain	RLD-SUMP-00036 L-0126 Effluent Cell East End Sump Elev. +3 ft	60	N/A	2	RLD-P0001	6 Moly

*Flow values are bounding, and based on Design Guide: 24590-WTP-GPG-M-022