



STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

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July 09, 2020

20-NWP-108

Brian T. Vance, Manager  
Office of River Protection  
United States Department of Energy  
PO Box 450, MSIN: H6-60  
Richland, Washington 99352

Valerie McCain, Project Director  
Bechtel National, Inc.  
2435 Stevens Center Place, MSIN: MS19-A  
Richland, Washington 99354

Re: Approval of 24590-LAW-PCN-ENV-19-010, Class <sup>1</sup>1 Modification to the *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, Waste Treatment and Immobilization Plant (WTP Permit), WA7890008967*

Reference: See page 2

Dear Brian T. Vance and Valerie McCain:

The Department of Ecology approves the referenced Class <sup>1</sup>1 Modification. The approved Hanford Facility RCRA Permit Modification Notification Form is enclosed.

This modification provides 14 updated Piping and Instrumentation Diagrams (P&IDs) for the Low-Activity Waste Melter Processing (LMP) System.

These changes are listed on the enclosure and replace the corresponding permit P&IDs in Appendix 9.2 of the WTP Permit.

If there are any questions, please contact Jeff Marusich, Permit Writer, at [jeff.marusich@ecy.wa.gov](mailto:jeff.marusich@ecy.wa.gov) or (509) 372-7990.

Sincerely,

Digitally signed

 by Schleif,  
Stephanie (ECY)

Stephanie Schleif  
Deputy Program Manager  
Nuclear Waste Program

jm/ag  
Enclosure

cc: See page 2

Brian T. Vance and Valerie McCain  
July 09, 2020  
Page 2 of 2

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Reference: Letter 20-ECD-0030, dated June 3, 2020, "Submittal of Hanford Facility Resource Conservation and Recovery Act Permit Modification Notification Form, 24590-LAW-PCN-ENV-19-010"

cc electronic w/enc:

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USEPA Correspondence Control  
Environmental Portal  
Hanford Administrative Record  
Hanford Facility Operating Record

cc w/o enc:

Mason Murphy, CTUIR  
Jack Bell, NPT  
Laurene Contreras, YN  
Rex Buck, Jr., Wanapum

Attachment 1  
20-ECD-0030

Hanford Facility RCRA Permit Modification Notification  
Form 24590-LAW-PCN-ENV-19-010

(8 Pages Including Cover Sheet)

Quarter Ending: June 30, 2020

24590-LAW-PCN-ENV-19-010

RCRA Operating record number: R605

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

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Index

Page 2 of 6: Hanford Facility RCRA Permit, Part III, Operating Unit 10, Waste Treatment and Immobilization Plant  
This PCN updates the revisions of fourteen LAW Facility LAW Melter Process System P&IDs in Appendix 9.2 of the WTP Dangerous Waste Permit

Submitted by Co-Operator:

*Robert Haggard*

05/08/2020

Robert D. Haggard

Date

Reviewed by ORP Program Office:

*Thomas W. Fletcher*

Digitally signed by Thomas W. Fletcher  
Date: 2020.06.02 11:19:51 -0700

Thomas W. Fletcher

06/02/2020

Date



**E-SIGN**  
**ELECTROSIGN**

24590-LAW-PCN-ENV-19-010

This document has been digitally signed using the Electrosign process.

## Document for Signature

**Document Number:** 24590-LAW-PCN-ENV-19-010 **Rev:** 0

Participants	Signature	Completed	Status	Result	Comments
<b>Signers</b> 5/8/2020 9:48 AM					
Haggard, Robert		5/8/2020 10:34 AM	Completed	Approve	
<b>Final Approver</b> 5/8/2020 10:34 AM					
Casey, Dianne		5/8/2020 11:06 AM	Completed	Approve	

Quarter Ending: June 30, 2020

24590-LAW-PCN-ENV-19-010

RCRA Operating record number: R605

<b>Hanford Facility RCRA Permit Modification Notification Form</b>			
Unit: <b>Waste Treatment and Immobilization Plant</b>		Permit Part: <b>Part III, Operating Unit 10</b>	
<u>Description of Modification:</u> The purpose of this Class 1 prime modification is to replace the following Piping and Instrument Diagram in Appendix 9.2 of the DWP:			
<b>Appendix 9.2</b>			
Replace:	24590-LAW-M6-LMP-00007001, Rev 0	With:	24590-LAW-M6-LMP-00007001, Rev 1
Replace:	24590-LAW-M6-LMP-00007002, Rev 0	With:	24590-LAW-M6-LMP-00007002, Rev 2
Replace:	24590-LAW-M6-LMP-00008001, Rev 0	With:	24590-LAW-M6-LMP-00008001, Rev 2
Replace:	24590-LAW-M6-LMP-00010001, Rev 0	With:	24590-LAW-M6-LMP-00010001, Rev 2
Replace:	24590-LAW-M6-LMP-00012001, Rev 0	With:	24590-LAW-M6-LMP-00012001, Rev 1
Replace:	24590-LAW-M6-LMP-00013002, Rev 0	With:	24590-LAW-M6-LMP-00013002, Rev 2
Replace:	24590-LAW-M6-LMP-00033001, Rev 0	With:	24590-LAW-M6-LMP-00033001, Rev 1
Replace:	24590-LAW-M6-LMP-00037001, Rev 0	With:	24590-LAW-M6-LMP-00037001, Rev 1
Replace:	24590-LAW-M6-LMP-00037002, Rev 0	With:	24590-LAW-M6-LMP-00037002, Rev 1
Replace:	24590-LAW-M6-LMP-00038001, Rev 0	With:	24590-LAW-M6-LMP-00038001, Rev 2
Replace:	24590-LAW-M6-LMP-00040001, Rev 0	With:	24590-LAW-M6-LMP-00040001, Rev 2
Replace:	24590-LAW-M6-LMP-00042001, Rev 0	With:	24590-LAW-M6-LMP-00042001, Rev 1
Replace:	24590-LAW-M6-LMP-00043002, Rev 0	With:	24590-LAW-M6-LMP-00043002, Rev 2
Replace:	24590-LAW-M6-LMP-00003001, Rev 0	With:	24590-LAW-M6-LMP-00003001, Rev 1
This modification requests Ecology approval and incorporation into the permit the specific changes to the Piping and Instrument Diagram (P&ID).			
(24590-LAW-M6-LMP-00007001, Rev 1) Changes to the Piping and Instrument Diagram for the LAW Melter Process System, Melter 1 Glass Pouring and Monitoring Instrumentation, are summarized below:			
<ul style="list-style-type: none"> <li>• Note 7: updated the high high level from the thermal imaging system automatically shuts down the melter discharge.</li> <li>• Note 9: deleted</li> <li>• Note 11: deleted</li> <li>• New Note 12: Discrete output to the LMP-LT-1511 indicating container present (LPH-WE-4005A/B) and in pour position (LPH-ZS-4001). Reference 24590-LAW-M7-LPH-00001009.</li> <li>• New Note 13: Discrete output to LMP-LT-1511 indicating glass is pouring when LMP-YV-1047 valve is commanded open.</li> <li>• New Note 14: PCV has integral indicator</li> <li>• New Note 15: Revision 1 has incorporated 24590-LAW-M6N-LMP-M80T-00016, 24590-LAW-M6N-LMP-00090, -00094, and -00105. Deleted PSUP and note 11 in response to 24590-WTP-FC-E-18-0536. Updated reference 1 and ADR revision.</li> <li>• Hold/open items have been deleted</li> <li>• Reference has been updated as described above in Note 15</li> </ul>			
(24590-LAW-M6-LMP-00007002, Rev 2) Changes to the Piping and Instrument Diagram for the LAW Melter Process System, Melter 1 Glass Pouring and Monitoring Instrumentation, are summarized below:			
<ul style="list-style-type: none"> <li>• Note 7: Revision 1 updated the high high level from the thermal image system automatically shuts down the melter discharge.</li> <li>• Note 9: deleted with revision 1</li> <li>• Note 11: deleted</li> </ul>			

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- New Note 12: Discrete output to LMP-LT-1466 indicating container present (LPH-WE-3505A/B) and in pour position (LPH-ZS-3501). Reference 24590-LAW-M7-LPH-00001007.
- New Note 13: Discrete output to LMP-LT-1466 indicating glass is pouring when LMP-YV-1125 valve is commanded open.
- New Note 14: PCV has integral indicator
- New Note 15: Revision 1 incorporated 24590-WTP-FC-P-17-0209, 25490-LAW-M6N-M80T-00016, 24590-LAW-M6N-LMP-00090, -00094, and -00105. Deleted PSUP and note 11 in response to 24590-WTP-FC-E-18-0536. Updated reference 1 and ADR revision
- Hold/open items have been deleted
- Reference has been updated

(24590-LAW-M6-LMP-00008001, Rev 2) Changes to the Piping and Instrument Diagram for the LAW Melter Process System, Melter 1 Discharge Heaters, Power Controls (1-4) and Air Lift – Eastside, are summarized below:

- Note 11: Revision 1 updated the high high container weight (LPH-WE-4005A/b) closes valve LMP-YV-1047 to stop pour and prevent container overflow. Container weight (LPH-WE-4005A/B) and position (LPH-ZS-4001) prevents glass pouring when a container is not in pouring position. Reference drawing 24560-LAW-M7-LPH-00001009.
- Note 18: added with revision 1 to incorporate 24590-LAW-M6N-LMP-00089, -00104, and -00105. Updated reference 1 and ADR revision.
- New note 19: Revision 2 added ball valves to align with vendor drawings.
- Reference 1: changed to 24590-LAW-3ZD-LMP-00001, system description for the low-activity waste melter process system design description.

(24590-LAW-M6-LMP-00010001, Rev 2) Changes to the Piping and Instrument Diagram for the LAW Melter Process System, Melter 1 Discharge Heaters, Power Controls (1-4) and Air Lift – Westside, are summarized below:

- Note 11: Revision 1 updated the high high container weight (LPH-WE-3505A/B) closes valve LMP-YV-1125 to stop pour and prevent container overflow. Container weight (LPH-WE-3505A/B) and position (LPH-ZS-3501) prevents glass pouring when a container is not in pouring position. Reference drawing 24590-LAW-M7-LPH-00001007.
- Note 17: added with revision 1 to incorporate 24590-LAW-M6N-LMP-00089, -00104, and -00105. Updated reference 1 and ADR revision.
- New Note 18: revision 2 added ball valves to align with vendor drawings.
- Reference 1: 24590-LAW-3ZD-LMP-00001, low-activity waste melter process (LMP) system design description.
- Drawing index was updated to 24590-LAW-M6-LMP-00010001 LAW melter process system melter 1 discharge heaters, power controls (1-4) and air lift-westside.

(24590-LAW-M6-LMP-00012001, Rev 1) Changes to the Piping and Instrument Diagram for the LAW Melter Process System, Melter 1 Feed Nozzles Cooling System and Feed Nozzles, are summarized below:

- Note 5: updated valve setting shall limit flow to melt pool in the event of a breach in the cooling jacket of the feed nozzle. Valves shall be set for prescribed flow rate then administratively controlled in this position. Valve is purchased by mechanical systems per 24590-CM-MRA-PV21-00004.
- Note 10: revision 1 incorporated 24590-LAW-M6N-LMP-00109 and added Bechtel/Vendor boundary. Updated off sheet connectors, ADR revision, drawing index, Reference 1, and note 5.
- Reference 1: updated to 24590-LAW-3ZD-LMP-00001, Low-activity waste melter process (LMP) system design description
- Drawing index was updated to 24590-LAW-M6-LMP-00012001 LAW melter process system melter 1 feed nozzles cooling system and feed nozzles.

(24590-LAW-M6-LMP-00013002, Rev 2) Changes to the Piping and Instrument Diagram for the LAW Melter Process System, Melter 1 Lid Cooling Loop, are summarized below:

- Note 5: deleted

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- Note 6: revision 1 added, setpoint and physical location of PSV prevents overpressure in gas barrier lid cooling department
- Note 7: deleted in revision 1
- Note 10: revision 1 added, construction shall field route tubing from indicated location on pipe to flush port on vendor supplied pump shaft seal. Refer to mechanical systems tubing detail 24590-WTP-M0-50-00083
- Note 11: revision 1 added, distance from heat exchanger nozzle to branch for PSV not to exceed 3 feet
- Note 12: revision 1 incorporated 24590-LAW-M6N-LMP-00081, -00091, -00103, 24590-WTP-FC-M-14-0036, 24590-WTP-FC-P-15-0062, and 24590-LAW-EIE-NS-17-0001 Rev0. Changes associated with 24590-LAW-EIE-NS-17-0001 Rev0 were overcome by DSA driven changes contained in 24590-LAW-M6N-LMP-00103. Revised references and ADR revision number.
- Note 13: revision 2 deleted note 5 in response to 24590-WTP-FC-P-18-0173. Deleted PP from LMP-PMP-00001 and LMP-PMP-00002, which corrected omission from 24590-WTP-FC-P-15-0062 in previous revision.
- Reference 1: updated to 24590-LAW-3ZD-LMP-00001, Low-activity waste melter process system design description.

(24590-LAW-M6-LMP-00033001, Rev 1) Changes to the Piping and Instrument Diagram for the LAW Melter Process System, Melter 2 Walls and Floor Panels Cooling System, are summarized below:

- Note 4: updated to remove spring from piston check valve and install in horizontal piping
- Note 9: updated note with new documentation that the following 24590-WTP-M0-50-00074 drawing will define routing
- Note 11: revision 1 incorporated 24590-LAW-M6N-LMP-00055 and -00102. Updated reference, ADR revision and off sheet connectors
- Reference 1: updated to 24590-LAW-3ZD-LMP-00001, Low-activity waste melter process system design description

(24590-LAW-M6-LMP-00037001, Rev 1) Changes to the Piping and Instrument Diagram for the LAW Melter Process System, Melter 2 Glass Pouring and Monitoring Instrumentation, are summarized below:

- Note 7: updated the high high level from the thermal image system automatically shuts down the melter discharge
- Note 9: deleted
- Note 11: deleted
- Note 12: added discrete output to LMP-LT-2511 indicating container present (LPH-WE-5205A/B) and in pour position (LPH-ZS-5201). Reference 24590-LAW-M7-LPH-00001013.
- Note 13: added discrete output to LMP-LT-2511 indicating glass is pouring when LMP-YV-2047 valve is commanded open
- Note 14: added PCV had integral indicator
- Note 15: revision 1 incorporated 24590-LAW-M6N-LMP-M80T-00016, 24590-LAW-M6N-LMP-M80T-00083, -00090, -00094 and -000105. Deleted PSUP and note 11 in response to 24590-WTP-FC-E-18-0536. Updated reference 1 and ADR revision
- Hold/Open items: deleted
- Reference 1: updated to 24590-LAW-3ZD-LMP-00001, Low-activity waste melter process (LMP) system design description.

(24590-LAW-M6-LMP-00037002, Rev 1) Changes to the Piping and Instrument Diagram for the LAW Melter Process System, Melter 2 Glass Pouring and Monitoring Instrumentation, are summarized below:

- Note 7: updated the high high level from the thermal image system automatically shuts down the melter discharge
- Note 9: deleted
- Note 11: deleted
- Note 12: added the discrete output to LMP-LT-2466 indicating container present (LPH-WE-4605A/B) and in pour position (LPH-ZS-4601). Reference 24590-LAW-M7-LPH-00001011

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- Note 13: added the discrete output to LMP-LT-2466 indicating glass is pouring when LMP-YV-2125 valve is commanded open
- Note 14: PCV has integral indicator
- Note 15: revision 1 incorporated 24590-LAW-M6N-LMP-M80T-00016, 24590-WTP-FC-SU-18-0115, 24590-LAW-M6N-LMP-00090, -00094, and -00105. Deleted PSUP and note 11 in response to 24590-WTP-FC-E-18-0536. Updated reference 1 and ADR revision
- Hold/Open items: deleted
- Reference 1: updated to 24590-LAW-3ZD-LMP-00001, Low-activity waste melter process (LMP) system design description
- Reference 2: updated to 24590-LAW-M7-LPH-00001011, LAW vitrification system LPH mechanical handling diagram container pour handling system.

(24590-LAW-M6-LMP-00038001, Rev 2) Changes to the Piping and Instrument Diagram for the LAW Melter Process System, Melter 2 Discharge Heaters, Power Controls (1-4) and Air Lift – Eastside, are summarized below:

- Note 11: revision 1 updated to high high container weight (LPH-WE-5205A/B) closes valve LMP-YV-2047 to stop pour and prevent container overflow. Container weight (LPH-WE-5205A/B) and position (LPH-ZS-5201) prevent glass pouring when a container is not in pouring position. Reference drawing 24590-LAW-M7-LPH-00001013
- Note 18: revision 1 incorporated 24590-LAW-M6N-LMP-00089, -00104, and -00105 updated reference 1, ADR revision, and equipment tag number
- Reference 1: revision 1 updated to 24590-LAW-3ZD-LMP-00001, low-activity waste melter process (LMP) system design description.
- Note 19: revision 2 added ball valves to align with vendor drawings

(24590-LAW-M6-LMP-00040001, Rev 2) Changes to the Piping and Instrument Diagram for the LAW Melter Process System, Melter 2 Discharge Heaters, Power Controls (1-4) and Air Lift – Westside, are summarized below:

- Note 11: revision 1 updated to high high container weight (LPH-WE-4605A/B) closes valve LMP-YV-2125 to stop pour and prevent container overflow. Container weight (LPH-WE-4605A/B) and position (LPH-ZS-4601) prevents glass pouring when a container is not in pouring position. Reference drawing 24590-LAW-M7-LPH-00001011.
- Note 17: revision 1 incorporated 24590-LAW-M6N-LMP-00089, -00104, and -00105. Updated reference 1, drawing index, and ADR revision
- Reference 1: revision 1 updated to 24590-LAW-3ZD-LMP-00001, low-activity waste melter process (LMP) system design description
- Note 18: revision 2 added ball valves to align with the vendor drawings
- Drawing index was updated to 24590-LAW-M6-LMP-00040001, LAW melter process system melter 2 discharge heaters, power controls (1-4) and air-lift – westside
- The draw number shows 224590 on the document. This typo will be notified to Engineering to correct in the next revision.

(24590-LAW-M6-LMP-00042001, Rev 1) Changes to the Piping and Instrument Diagram for the LAW Melter Process System, Melter 2 Feed Nozzles Cooling System and Feed Nozzles, are summarized below:

- Note 5: revision 1 updated, valve setting shall limit flow to melt pool in the event of a breach in the cooling jacket of the feed nozzle. Valves shall be set for prescribed flow rate then administratively controlled in this position. Valve is purchased by mechanical systems per 24590-CM-MRA-PV21-00004.
- Note 10: revision 1 incorporated 24590-LAW-M6N-LMP-00109 and added Bechtel/vendor boundary. Updated off sheet connectors, ADR revision, drawing index, reference 1, and note 5.
- Reference 1 updated to 24590-LAW-3ZD-LMP-00001, low-activity waste melter process (LMP) system design description
- Drawing index updated to 24590-LAW-M6-LMP-00042001, LAW melter process system melter 2 feed nozzles cooling system and feed nozzles

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(24590-LAW-M6-LMP-00043002, Rev 2) Changes to the Piping and Instrument Diagram for the LAW Melter Process System, Melter 2 Melter Lid Cooling Loop, are summarized below:

- Note 5: deleted in revision 2
- Note 6: revision 1 updated setpoint and physical location of PSV prevents overpressure in gas barrier lid cooling compartment
- Note 7: revision 1 deleted
- New Note 10: revision 1 added construction shall field route tubing from indicated location on pipe to flush port on vendor supplied pump shaft seal. Refer to mechanical systems tubing detail 24590-WTP-M0-50-00083
- New Note 11: revision 1 added distance from heat exchanger nozzle to branch for PSV not to exceed 3 feet
- New Note 12: revision 1 incorporated 24590-LAW-M6N-LMP-00081, -00091, -00097, -00103, 24590-WTP-FC-P-15-0062, and 24590-LAW-EIE-NS-17-0001 Rev 0. Changes associated with 24590-LAW-EIE-NS-17-0001 Rev 0 were overcome by DSA driven changes contained in 24590-LAW-M6N-LMP-00103. Revised reference and ADR revision number.
- Reference 1: revision 1 updated 24590-LAW-3ZD-LMP-00001, Low-activity waste melter process system design description
- New Note 13: revision 2 deleted note 5 in response to 24590-WTP-FC-P-18-0173. Deleted PP from LMP-PMP-00003 and LMP-PMP-00004, which corrected omission from 24590-WTP-FC-P-15-0062 in previous revision

(24590-LAW-M6-LMP-00003001, Rev 1) Changes to the Piping and Instrument Diagram for the LAW Melter Process System Melter 1 Walls and Floor Panels Cooling System, are summarized below:

- Note 4: updated to remove spring from piston check valve and install in horizontal piping
- Note 9: revision 1 updated construction shall field route tubing from PSV sensing line port to cooling water supply piping near connection CLG08. Mechanical systems connection detail series 24590-WTP-M0-50-00074 drawing will define routing
- Note 11: revision 1 incorporated 24590-LAW-M6N-LMP-00055 and -00102. Updated reference 1 and off sheet connectors
- Reference 1 updated to 24590-LAW-3ZD-LMP-00001, Low-activity waste melter process system design description

WAC 173-303-830 Modification Class:	Class 1	Class 1 <sup>1</sup>	Class 2	Class 3
Please mark the Modification Class:		X		

Enter relevant WAC 173-303-830, Appendix I Modification citation number: A.3  
 Enter wording of WAC 173-303-830, Appendix I Modification citation: Equipment replacement or upgrading with functionality equivalent components (e.g., pipes, valves, pumps, conveyors, controls).

Modification Approved/Concur: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> Denied ( <i>state reason below</i> ) Reason for denial:	Reviewed by Ecology:  Schleif, Stephanie (ECY)
	Digitally signed by Schleif, Stephanie (ECY) Date: 2020.07.09 14:54:31 -07'00' S. Schleif Date