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Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

19-ESQ-0024

JAN 0 2 2019

Ms. Alexandra K. Smith, Program Manager
Nuclear Waste Program
Washington State Department of Ecology
3100 Port of Benton Boulevard
Richland, Washington 99354

Dear Ms. Smith:

CLASS 1 MODIFICATIONS TO THE HANFORD FACILITY RESOURCE CONSERVATION AND RECOVERY ACT PERMIT, QUARTER ENDING DECEMBER 31, 2018

In accordance with the Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion for the Treatment, Storage, and Disposal of Dangerous Waste (Permit) Condition I.C.3, enclosed are Class 1 permit modification documents for the quarter ending December 31, 2018.

The enclosed modification package updates information in Parts I and II, Part III, Part V, and Enclosures 2 and 9 of the Permit Revision 8C. The Parts I and II changes address the List of Enclosures and permit change history information. The Part III changes address the Liquid Effluent Retention Facility and 200 Area Effluent Treatment Facility (OUG 3), 325 Hazardous Waste Treatment Units (OUG 5), Waste Treatment and Immobilization Plant (OUG 10) and the 400 Area Waste Management Unit (OUG 16). The Part V changes address the 1325-N Liquid Waste Disposal Facility (CUG 1) and 1301-N Liquid Waste Disposal Facility (CUG 2). The modifications are being made to ensure activities are conducted in compliance with the Permit. A record of the modifications is maintained in the Hanford Facility Operating Record.

The U.S. Department of Energy and Washington State Department of Ecology use Permit Change Notices (PCNs) to help track Class 1 Permit Modifications. This modification package addresses the following PCNs:

RECEIVED
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EDMC

PCN Identifier:	Affected Permit Section:
PCN-HFSW-2016-02	Enclosure 2 and Parts I & II (List of Enclosures)
PCN-LERF-ETF-2018-01	OUG-3, Unit Specific Conditions and Addenda B and C
PCN-325-2018-02	OUG-5, Unit Specific Conditions
PCN-325-2018-03	OUG-5, Unit Specific Conditions and Addendum J
24590-LAW-PCN-ENV-18-002	OUG-10, Appendix 9.6
24590-LAW-PCN-ENV-18-005	OUG-10, Appendix 9.6
24590-LAW-PCN-ENV-18-006	OUG-10, Appendix 9.11
24590-LAW-PCN-ENV-18-007	OUG-10, Appendix 9.11
24590-WTP-PCN-ENV-18-001	OUG-10, Appendices 9.5 and 11.5
24590-WTP-PCN-ENV-18-003	OUG-10, Appendix 7.15 and Chapters 4, 4D, 4E, and 4F
24590-WTP-PCN-ENV-18-008	OUG-10, Appendix 1.5
24590-WTP-PCN-ENV-18-012	OUG-10, Chapter 3A
PCN-400WMU-2018-01	OUG-16, Unit Specific Conditions
PCN-1325-2016-02	CUG-1, Parts I & II, Attachment 9, Unit Conditions and Addenda
PCN-1301-2016-02	CUG-2, Parts I & II, Attachment 9, Unit Conditions and Addenda

If you have any questions, please contact me, or your staff may contact Brian J. Stickney, Acting Assistant Manager for Safety and Environment, on (509) 376-9079.

Sincerely,

Doug S. Shoop
Manager

ESQ:ACM

Enclosure:
Class 1 Modifications for Qtr.
Ending 12/31/18

cc: See page 3

cc w/encl:
Debra J. Alexander, Ecology (CD ROM)
Glyn D. Trenchard, ORP (CD ROM)
Jennifer L. Cantu, Ecology (CD ROM)
Administrative Record, TSD: H-0-1, S-2-8, T-2-8, T-3-4, S-4-2, D-1-2, H-0-8 (Hard Copy & CD ROM)
Ecology NWP Library (Hardcopy & CD ROM)
Environmental Portal, G3-30 (CD ROM)
HF Operating Record (J. K. Perry, MSA, A3-01)

cc w/o encl:
Lucinda E. Borneman, WRPS
Jeff E. Bramson, CHPRC
Robert E. Bullock, CHPRC
Annette S. Carlson, Ecology
Brittany Costas, BNI
Laura J. Cusack, CHPRC
Suzanne L. Dahl, Ecology
Lorna M. Dittmer, CHPRC
Per E. Eberlein, CHPRC
Mark D. Ellefson, PNNL
Rana L. Evans, ORP
Randal E. Fox, CHPRC
Lori A. Huffman, ORP
Mandy E. Jones, Ecology
Chris J. Kemp, ORP
Paul W. Martin, CHPRC
Gae M. Neath, ORP
Brett Peck, BNI
Fred A. Ruck, CHPRC
Margaret E. Schappell, BNI
Debra G. Singleton, CHPRC
Ron R. Skinnarland, Ecology
Suzzette A. Thompson, WRPS
Robin E. Varljen, WRPS
Michael B. Wilson, MSA
Donna M. Yasek, BNI

ENCLOSURE

Class 1 Modifications for Quarter Ending December 31, 2018

Consisting of 285 pages,
including this cover page

Hanford Facility RCRA Permit Modification Notification Forms

Attachment 2 and List of Attachments

Index

Page 2 and 3 of 5	Attachment 2, Hanford Facility Legal Description and Operating Boundary
Page 4 of 5	Parts I & II, List of Attachments
Page 5 of 5	Revision Instructions

Reviewed by RL Program Office:

Mike Elsen 11-19-18

Date

Hanford Facility RCRA Permit Modification Notification Form	
Unit:	Permit Part
N/A	**Attachment 2, Hanford Facility Permit Legal Description & Operating Boundary**

Description of Modification:

The enclosed redline changes are described below.

(1) Changes address the transfer of 1,641acres of land from the Department of Energy (DOE) to the Tri-City Development Council (TRIDEC). This change supports the land conveyance requirements of Section 3013 of Public Law (PL) 113-291, "National Defense Authorization Act for Fiscal Year 2015." With the transfer of land to the TRIDEC, two parcels of DOE-owned/operated land (126 acres, combined) were rendered noncontiguous with Hanford Facility. Attachment 2 revisions are needed to reflect the transfer of 1,641 acres of land to the TRIDEC, and to show that the 126 acres of DOE-owned/operated land are no longer contained within Hanford Facility Legal Description and Operating Boundary. This modification is being processed consistent with prior correspondence [15-ESQ-0072, dated 5/15/15 and 15-NWP-133, dated 7/17/15].

(2) Changes address a quitclaim deed boundary line correction near HAMMER (approximately 0.55 acres).

(3) Changes address the reassignment of 85.6 acres from the DOE Office of Environmental Management to the DOE Office of Science (approximately 85.6 acres).

(4) Pages 2.11 and 2.18 identify parcels "excepted" from the Hanford Facility Legal Description and Operating Boundary. "Exceptions" are used when DOE-owned/operated land circumscribes land not owned/operated by the DOE. The National Utility Training and Education Center (NUTEC) parcel is not circumscribed by DOE owned/operated land. Hence, an "exception" is unnecessary. The proposed revisions eliminate the "exception" for the National Utility Training and Education Center parcel. Also, the revisions included re-naming what was "Parcel H" to "Parcel G" because of elimination of NUTEC (was Parcel G).). Note: The NUTEC parcel was merged with the Regional Education Training Center (RETC) in 2014. In addition, the NUTEC parcel is described as the National Utility Training Services, Inc., (NUTS) property in a quitclaim deed, recorded April 27, 2005, under Auditors File Number 2005-013181, Records of Benton County, Washington, and the survey by Daniel L. Strasser, PLS No. 32445, recorded September 13, 2001, under Auditors File Number 2001-028660, records of Benton County, Washington.

(5) Page 2.11, line 13, moved the southern boundary of the Facility in the vicinity of Stevens Drive and Horn Rapids Road intersection from the northerly right-of-way line to the southerly, and added more verbiage to incorporate that into the narrative. This change is needed to correct a prior error. The error was discovered by the US Bureau of Land Management surveyor in the Summer of 2017 as he finalized the legal documents for the quitclaim deed of the 1,641-acre parcel to TRIDEC.

(6) Replaced the term "along" with the term "on" throughout the document per the recommendation of the US Bureau of Land Management (BLM) surveyor (e.g., page 2.7, line 12).

(7) Changed "N." to "northerly" where applicable throughout the document (e.g., page 2.7, line 12).

(8) Changed the distance of 28,600 feet to 18,650 feet as a result of the above changes #s 1 – 3 (page 2.7, lines 12-13 and page 2.14, lines 12-13).

(9) Changed the term "the line's intersection" to "the intersection" (page 2.7, line 13 and page 2.14, line 13)

(10) Standardized throughout the document, on the syntax "R##E., W.M., WA.;" where applicable (e.g., page 2.7, line 14).

(11) Refined several terms or phrases based on recommendations of BLM surveyor ("a distance of", "said", "on an offset line" (page 2.7, lines 12, 15, 16, 19, 20, 27, 28 and page 2.14, lines 12, 15, 16, 19, 20, 27, 28)

(12) Changed 2 spaces to 1 space (page 2.7, lines 39 and 41, page 2.8 line 12, and page 2.10, lines 26 and 33)

(13) Changed many "E" characters to degrees' symbols (°) in the excepted parcels' descriptions in the "Operating Boundary" section.

(14) Abandoned the previous "True Point of Beginning" for the legal description and established a new one at a point on the new, robust property line for the TRIDEC parcel surveyed in 2017. This is change provides a more well defined point of reference and will facilitate future survey activities.

(15) Changed page 2.7, line 39 and page 2.14 line 40 "E" to "W" to correct an error not previously noticed.

(16) Change "the" to "said" page 2.7, line 15 and page 2.14 line 15

(17) Change "E." to "east" page 2.7, line 21 and page 2.14, line 21

(18) Change "a" to "the" page 2.7, line 18 and page 2.14, line 18

(19) Revisions to the Operating Boundary, page 2.12, line 2 are needed to correct a WAC 173-303 citation reference error.

WAC 173-303-830 Modification Class	Class 1	Class '1	Class 2	Class 3
Please mark the Modification Class:	X	X		

The Department of Energy requests changes for items (1) – (5) above be processed as a Class 1-prime modification pursuant to WAC 173-303-830(4)(d).

The changes for items (6) – (18) above are categorized as A.1: *Administrative and informational changes,* per WAC 173-303-830(Appendix I)

The change for item (19) above is categorized as A.2: *Correction of typographical errors,* per WAC 173-303-830(Appendix I)

Modification Approved: ☑ Yes ☐ No Items (1) - (4) Reason for denial:	Reviewed by Ecology: S. L. Dahl-Crumpler 12-12-18 Date
Modification Concurrence: ☑ Yes ☐ No Items (5) - (19) Reason for non-concurrence:	Reviewed by Ecology: S. L. Dahl-Crumpler 12-12-18 Date

Hanford Facility RCRA Permit Modification Notification Form	
Unit: **N/A**	Permit Part **List of Attachments** Parts I & II (Standard & General Conditions) file

Description of Modification:

Revise the "List of Attachments" to update the change history information for Attachment 2. The revision is needed to reflect the changes being made in this PCN (i.e., PCN-HFSW-2016-02).

WAC 173-303-830 Modification Class	Class 1	Class 1	Class 2	Class 3
Please mark the Modification Class:	X			

Enter relevant WAC 173-303-830, Appendix I Modification citation number: *A.1*
General Permit Provisions: Administrative and informational change

Modification Concurrence: ☑ Yes ☐ No Reason for non-concurrence:	Reviewed by Ecology: S. L. Dahl-Crumpler 12-12-18 Date

Revision Instructions:

Revise Attachment 2, Hanford Facility Permit Legal Description & Operating Boundary to incorporate the changes shown herein.

Revise Parts I & II (List of Attachments) to incorporate the changes shown herein.

LIST OF ATTACHMENTS

The following listed documents are attached in their entirety. However, only those portions of the attachments specified in Parts I through VI are enforceable conditions of this Permit and subject to the permit modification requirements of Permit Condition I.C.3. Changes to portions of the attachments, which are not subject to the permit modification process, will be addressed in accordance with Permit Conditions I.E.8, I.E.11, I.E.13, I.E.15, through I.E.20, and I.E.22. The Washington State Department of Ecology (Ecology) has, as deemed necessary, modified specific language in these attachments. These modifications are described in the conditions (Parts I through VI), and thereby supersede the language of the attachment.

Attachment 1	Hanford Federal Facility Agreement and Consent Order, (as amended) http://www.hanford.gov/tpa/coverpg.htm
Attachment 2	Hanford Facility Legal Description, from Class [1]1 modification, dated ~~January 7, 1999~~September 30, 2018
Attachment 3	Security, dated September 30, 2010
Attachment 4	*Hanford Emergency Management Plan*, DOE/RL-94-02 Revision 6, as amended and approved modifications
Attachment 5	Hanford Facility Personnel Training Program, dated September 30, 2015
Attachment 6	Reports and Records, dated September 30, 2015
Attachment 7	Policy on Remediation of Existing Wells and Acceptance Criteria for RCRA and CERCLA, June 1990
Attachment 8	Hanford Well Maintenance and Inspection Plan, HNF-56398, Revision 2, September 30, 2016
Attachment 9	Permit Applicability Matrix, dated September 30, 2017
Attachment 10	Purgewater Management Plan, July 1990

PERMIT ATTACHMENT 2
HANFORD FACILITY PERMIT
LEGAL DESCRIPTION & OPERATING BOUNDARY
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
09/30/2011	

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PERMIT ATTACHMENT 2
HANFORD FACILITY PERMIT
LEGAL DESCRIPTION & OPERATING BOUNDARY

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PERMIT ATTACHMENT 2
HANFORD FACILITY PERMIT
LEGAL DESCRIPTION & OPERATING BOUNDARY

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Hanford Facility Permit Operating Boundary ..... 12~~10~~

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Hanford Facility Permit Legal Description

The following legal description describes the overall facility boundaries of the U.S. Department of Energy- Richland Office (DOE-RL) controlled Hanford Site. Individual treatment storage, and disposal (TSD) units use only a very small portion of the Hanford Site. Additional descriptive information on the individual TSD units is contained in Unit-Specific Portions.

The Hanford Site being a tract of land located in Adams, Grant, Benton, and Franklin Counties, WA, the aforesaid tract being more particularly described as follows:

~~Commencing at the point of intersection of the E. W. centerline of sec. 14, T.10N., R.28E. Willamette Meridian, with the western navigation line of the Columbia River;~~

~~Thence northerly 200 feet along said line of navigation to the true point of beginning;~~

~~Thence North approximately 3237.08 feet to a line formed by the existing southernmost projection of the 300 Area fence line extending east N89°10'00"E;~~

~~Thence West S89°10'00"W along said fence line approximately 3886.22 feet to the East right of way line of Stevens Drive, an unplatted road;~~

~~Thence South along said right of way line approximately 3444.97 feet to the line's intersection with the North right of way line of Horn Rapids Road, an unplatted road.~~

Beginning at the true point for Angle Point No. 1 of Tract 37 of the Bureau of Land Management (BLM) official survey, accepted February 6, 2018, on file in the BLM office in Portland, Oregon, located at the intersection of a 70 foot distance perpendicular offset north from the center line of Horn Rapids Road, as described in the Easement Quitclaim Deed, recorded May 21, 1971, under Auditor's File No. 621762, Records of Benton County, Washington, with a 30 foot distance offset west from the westerly edge of pavement of Stevens Drive (Route 4S), in sec. 15, T. 10 N., R. 28 E., Willamette Meridian (W.M.), Washington (WA.), from which the monument for the Witness Corner for Angle Point No. 1 of Tract 37 bears N. 46° 53' 46" W., a distance of 30.08 feet;

Thence N. 2° 08' 49" E., on the offset line from the westerly edge of pavement of Stevens Drive (Route 4S), being 30.00 feet distance and west therefrom, identical with line 1-23 of Tract 37, a distance of 409.53 feet to the monument for Angle Point No. 23 of Tract 37;

Thence N. 0° 25' 27" E., on said 30.00 foot offset line, identical with line 23-22 of Tract 37, a distance of 3741.27 feet, to the monument for Angle Point No. 22 of Tract 37, identical with Angle Point No. 5 of Tract 38 in sec. 10, T. 10 N., R. 28 E., W.M., WA.;

Thence, leaving said offset line, N. 89° 08' 46" W., on line 22-21 of Tract 37, identical with line 5-4 of Tract 38, a distance of 420.97 feet to the monument for Angle Point No. 21 of Tract 37, identical with Angle Point No. 4 of Tract 38;

Thence N. 44° 52' 17" W., on line 21-20 of Tract 37, identical with line 4-3 of Tract 38, a distance of 2376.75 feet to the monument for the witness point on the Tract lines, from which the Army Corps of Engineers (ACE) Control Point HSM-030 1992 bears S. 71° 24' 48" E. a distance of 922.12 feet;

Thence N. 44° 52' 17" W., continuing on line 21-20 of Tract 37, identical with line 4-3 of Tract 38, a distance of 2376.63 feet to the monument for Angle Point No. 20 of Tract 37, identical with Angle Point No. 3 of Tract 38;

Thence N. 0° 36' 23" E., on line 20-19 of Tract 37, identical with line 3-2 of Tract 38, a distance of 4101.77 feet, to the monument for Angle Point No. 19 of Tract 37, identical with Angle Point No. 2 of Tract 38, in sec. 3, T. 10 N., R. 28 E., W.M., WA.;

Thence S. 89° 11' 27" E., on line 19-18 of Tract 37, identical with line 2-1 of Tract 38, a distance of 3819.34 feet to the monument for Angle Point No. 18 of Tract 37, identical with Angle Point No. 1 of Tract 38 point, at an offset from the westerly edge of pavement of Stevens Drive (Route 4S), being 30.00 feet distance and west therefrom;

Thence N. 0° 03' 45" E., on said 30 foot offset line, identical with line 18-17 of Tract 37, a distance of 2990.04 to the monument for the Witness Point on line 18-17 of Tract 37, in sec. 34, T. 11 N., R. 28 E., W.M., WA., from which U.S. Coast and Geodetic Survey Bench Mark M323 1949 bears N. 1° 09' 17" W. a distance of 634.79 feet;

Thence N. 0° 03' 45" E., continuing on line 18-17 of Tract 37 on said 30.00 foot offset line, a distance of 2558.56 feet to the monument for Angle Point No. 17 of Tract 37;

Thence, leaving said offset line, S. 86° 19' 33" W., on line 17-16 of Tract 37 a distance of 2675.63 feet to the monument for the Witness Point on line 17-16 of Tract 37;

Thence S. 86° 19' 33" W., continuing on line 17-16 of Tract 37 a distance of 2675.66 feet to the monument for Angle Point No. 16 of Tract 37 in sec. 33, T. 11 N., R. 28 E., W.M., WA., identical with the northeast corner of the Hanford Patrol Training Academy (HPTA) property;

Thence S. 0° 30' 15" W., on line 16-15 of Tract 37, identical with the east boundary line of the HPTA property, a distance of 2163.97 feet to the monument for Witness Point No. 4 on line 16-15 of Tract 37, from which the corner of secs. 3, 4, 33, and 34, of Tps. 10 and 11 N., R. 28 E., W.M., WA. bears S. 8° 00' 04" E., a distance of 1450.09 feet;

Thence S. 0° 30' 15" W., continuing on line 16-15 of Tract 37, identical with said east boundary line a distance of 3289.13 feet to the monument for Witness Point No. 3 on line 16-15 of Tract 37, in sec. 4, T. 10 N., R. 28 E., W.M., WA.;

Thence S. 0° 30' 15" W., continuing on line 16-15 of Tract 37, identical with said east boundary line a distance of 3410.41 feet to the monument for Witness Point No. 2 on line 16-15 of Tract 37, from which the corner of secs. 3, 4, 9, and 10, bears S. 85° 51' 48" E., a distance of 231.22 feet;

Thence S. 0° 30' 15" W., continuing on line 16-15 of Tract 37, identical with said east boundary line a distance of 2480.26 feet to the monument for Witness Point No. 1 on line 16-15 of Tract 37, in sec. 9, T. 10 N., R. 28 E., W.M., WA., from which the 1/4 section corner of secs. 9 and 10, bears S. 54° 07' 01" E., a distance of 299.72 feet;

Thence S. 0° 30' 15" W., continuing on line 16-15 of Tract 37, identical with said east boundary line a distance of 2470.19 feet to the monument for Angle Point No. 15 of Tract 37, identical with the southeast corner of the HPTA property on the southerly right-of-way line of the Bonneville Power Administration (BPA) BENTON - WHITE BLUFFS No. 1 transmission line;

Thence N. 87° 59' 38" W., on line 15-14 of Tract 37, identical with said southerly right-of-way line and the south boundary of the HPTA property, a distance of 3129.83 feet to the monument for Angle Point No. 14 of Tract 37 from which the 1/4 section corner of secs. 9 and 16, bears S. 59° 33' 48" E., a distance of 859.55 feet;

Thence S. 0° 51' 57" W., on line 14-13 of Tract 37, a distance of 446.07 feet to the monument for Angle Point No. 13 of Tract 37 in sec. 16, T. 10 N., R. 28 E. W.M., WA., identical with the NE corner of the National Utility Training Services, Inc., (NUTS) property as described in a quitclaim deed, recorded April 27, 2005, under Auditors File Number 2005-013181, Records of Benton County, Washington, and the survey by Daniel L. Strasser, PLS No. 32445, recorded September 13, 2001, under Auditors File Number 2001-028660, records of Benton County, Washington;

Thence S. 89° 59' 11" W., a distance of 644.83 feet to ACE Control Point 9456-6, a 3" aluminum cap;

Thence continuing S. 89° 59' 11" W., a distance of 517.29 feet;

Thence S. 0° 00' 09" W., a distance of 524.00 feet;

Thence N. 89° 59' 51" W., a distance of 250.00 feet;

Thence S. 0° 00' 09" W., a distance of 202.28 feet;

Thence continuing S. 0° 00' 09" W., a distance of 393.39 feet;

Thence S. 89° 59' 51" E., a distance of 251.35 feet;

Thence S. 0° 04' 27" E., a distance of 418.09 feet;

Thence on a non-tangent curve to the left with a delta of 17° 37' 12", a course of S. 7° 48' 26" E., and a radius of 258.08 feet, a distance of 79.37 feet;

Thence continuing on the curve left with a delta of 24° 40' 22", a course of S. 28° 57' 13" E., and a radius of 258.08 feet, a distance of 111.14 feet;

Thence on a non-tangent reverse curve with a delta of 43° 15' 44", a course of S. 15° 23' 40" E., and a radius of 264.52 feet, a distance of 199.73 feet;

Thence S. 1° 15' 39" W., a distance of 247.84 feet;

Thence on a non-tangent curve to the right with a delta of 7° 33' 06", a course of S. 3° 53' 20" W., and a radius of 1724.11 feet, a distance of 227.24 feet;

Thence S. 24° 50' 38" W., a distance of 118.81 feet to a point on the northerly right-of-way line of Horn Rapids Road;

Thence northwesterly ~~along~~ on the ~~N.~~northerly right-of-way line of Horn Rapids Road, a distance of ~~28,600~~18,650 feet more or less to the ~~line's~~ intersection with the ~~N.~~northerly right-of-way line of State Highway 240, in the N~~.~~E. ¼ of sec. 11, T.10N., R.27E~~. W.M.;~~., W.M., WA.;

Thence northwesterly ~~along~~ on said ~~N.~~northerly right-of-way line of ~~the~~ said highway, on an offset line 75 feet distance ~~N.~~north of and parallel with the centerline of said highway to a point in sec. 3, T.10N., R.27~~E. W.M.~~E., W.M., WA., which point is on the eastward extension of the ~~N.~~northerly right-of-way line of ~~a~~the county road from Horn Rapids to Benton City;

Thence ~~along~~ on the northerly and westerly right-of-way line of said road, on an offset line 75 feet distance northerly and westerly of, and parallel with, the center line of said road to a point on the ~~E.~~east line of sec. 8, T.10N., R.27E~~. W.M.;~~., W.M., WA.;

Thence N. to the E. quarter corner of said section;

Thence W. to the S.W. corner of the E. ½ of the N.E. ¼ of sec. 12, T.10N., R.26E~~. W.M.;~~., W.M., WA.;

Thence N. to the N. line of said sec. 12;

Thence W. to the N.E. corner of the N.W. ¼ of the N.W. ¼ of the N.W. ¼ of sec. 11, T.10N., R.26E~~. W.M.;~~., W.M., WA.;

Thence S. a distance of 660 feet;

Thence W. a distance of 660 feet to the E. line of sec. 10, T.10N., R.26E~~. W.M.;~~., W.M., WA.;

Thence S. to the S.E. quarter corner of said sec. 10;

Thence W. ~~along~~on the E.-W. centerline of sec. 10 to the W. line of said section;

Thence N. ~~along~~on the W. section line to the S.E. corner of sec. 4, T.10N., R.26E~~. W.M.;~~., W.M., WA.;

Thence W. ~~along~~on the S. line of sec. 4 and sec. 5 to the S.W. corner of the S.E. ¼ of the S.E. ¼ of sec. 5;

Thence N. to the S.E. corner of the N.W. ¼ of the S.E. ¼ of sec. 5;

Thence W. ~~along~~on the S. line of the N.W. ¼ of the S.E. ¼ to the S.W. corner of the N.W. ¼ of the S.E. ¼;

Thence N. to the S.E. corner of the N. ½ of the N.W. ¼;

Thence W. ~~along~~on the S. line of the N. ½ of the N.W. ¼ to the W. line of sec. 5;

Thence N. to the S.E. corner of sec. 31, T.11N., R.26E~~. W.M.;~~., W.M., WA.;

Thence W. ~~along~~on the S. line of the E. ~~½ of~~½ of the S.E. ¼ of sec. 31 to the ~~E~~W. line of said E. ~~½ of~~½ of the S.E. ¼ of sec. 31;

Thence N. ~~along~~on the W. line of the E. ~~½ of~~½ of the S.E. ¼ to the S.E. corner of the S.W. ¼ of the N.E. ¼ of sec. 31;

Thence W. ~~along~~on the S. line of the S.W. ¼ of the N.E. ¼ to the S.W. corner of the S.W. ¼ of the N.E. ¼;

Thence N. ~~along~~on the W. line of the S.W. ¼ of the N.E. ¼ to the S.E. corner of the N. ~~½ of~~½ of the N.W. ¼ of said sec. 31;

Thence W. ~~along~~on the S. line of the N. ½ of the N.W. ¼ to the W. line of said sec. 31;

Thence N. ~~along~~on the W. line of sec. 31 to the S.E. corner of sec. 25, T.11N., R.25E~~.W.M.;~~., W.M., WA.;

Thence W. ~~along~~on the S. line of sec. 25 to the S.W. corner of the S.E. ¼ of the S.E. ¼ of said sec. 25;

Thence N. ~~along~~on the W. line of the S.E. ¼ of the S.E. ¼ to the S.E. corner of the N.W. ¼ of the S.E. ¼;

Thence W. ~~along~~on the S. line of the N.W. ¼ of the S.E. ¼ to the S.W. corner of the N.W. ¼ of the S.E. ¼;

Thence N. ~~along~~on the W. line of the N.W. ¼ of the S.E. ¼ to the S.E. corner of the N.W. ¼ of sec. 25;

Thence W. ~~along~~on the S. line of the N.W. ¼ of sec. 25 to the W. line of sec 25;

Thence N. ~~along~~on the W. line of sec. 25 and the W. line of sec. 24 to the N. line of the S. ~~½ of~~½ of the S. ½ of sec. 23;

Thence W. ~~along~~on the N. line of the S. ½ of the S. ½ of sec. 23 and the N. line of the S. ½ of the S. ½ of sec. 22 and the N. line of the S. ½ of the S. ½ of sec. 21 to the E. line of sec. 20;

Thence S. to the S.E. corner of sec. 20;

Thence W. ~~along~~on the S. line of sec. 20 and the S. line of sec. 19 to the S.E. corner of the S.W. ¼ of the S.W. ¼ of sec. 19;

Thence N. to the N.E. corner of the S.W. ¼ of the S.W. ¼ of sec. 19;

Thence W. to the W. line of sec. 19, all being in T.11N., R.25E~~.W.M.;~~., W.M., WA.;

Thence continuing W. to the S.W. corner of the N.E. ¼ of the S.E. ¼ of sec. 24, T.11N., R.24E~~.W.M.;~~., W.M., WA.;

Thence N. to the N.W. corner of said N.E. ¼ of the S.E. ¼ of sec. 24;

Thence W. to the S.W. corner of the S.E. ¼ of the N.W. ¼ of sec. 24;

Thence N. to the N.W. corner of said S.E. ¼ of the N.W. ¼ of sec. 24;

Thence W. to the W. line of sec. 24;

Thence N. to the N.W. corner of sec. 24;

Thence W. to the S.E. quarter corner of sec. 14;

Thence N. to the N. quarter corner of sec. 14;

Thence W. ~~along~~on the N. line of sec. 14 to the N.W. corner of sec. 14;

Thence N. ~~along~~on the W. line of sec. 11 and sec. 2 to the N.W. corner of sec. 2, all being in T.11N., R.24~~E.W.M.~~E., W.M., WA., and continuing N. ~~along~~on the W. lines of secs., 35, 26, 23, 14, 11, and 2, all being in T.12N., R.24E~~.W.M.;~~., W.M., WA.;

Thence continuing N. ~~along~~on the W. lines of secs. 35 and 26 in T.13N., R.24~~E.W.M.~~E., W.M., WA., to the N.W. corner of sec. 26;

Thence W. ~~along~~on the S. line of sec. 22 to the S.E. quarter corner of sec. 22;

Thence N. ~~along~~on the N.-S. centerline of sec. 22 to the N. quarter corner of sec. 22;

Thence W. ~~along~~on the S. line of sec. 15 to the S.W. corner of sec. 15;

Thence N. ~~along~~on the W. line of sec. 15 to the S.W. corner of the N. ½ of the N.W. ¼ of sec. 15;

Thence E. ~~along~~on the S. line of the N. ½ of the N.W. ½ of sec. 15 to the S.W. corner of the S.W. ¼ of the N.E. ¼ of sec. 15;

Thence N. ~~along~~on the W. line of the S.W. ¼ of the N.E. ¼ of sec. 15 and continuing N. ~~along~~on the centerline of sec. 10 to the N. line of sec. 10;

Thence E. ~~along~~on the N. line of sec. 10 to the N.E. corner of sec. 10;

Thence N. ~~along~~on the W. line of sec. 2 to the N.W. corner of sec. 2;
Thence E. ~~along~~on the N. line of sec. 2 to the N.E. corner of sec. 2 all being in T.13N., R.24E~~. W.M.;~~., W.M., WA.;
Thence N. ~~along~~on the W. line of sec. 36, T.14N., R.24~~E. W.M.~~E., W.M., WA. to the N.W. corner of sec. 36;
Thence E. to the S. quarter corner of sec. 25;
Thence N. to the center of sec. 25;
Thence E. to the E. quarter corner of sec. 25 all being in T.14N., R.24E~~. W.M.;~~., W.M., WA.;
Thence N. to the N.W. corner of sec. 30, T.14N., R.25E~~. W.M.;~~., W.M., WA.;
Thence E. to the N. quarter corner of sec. 30;
Thence N. to the center of sec. 19;
Thence E. to the E. quarter corner of sec. 19;
Thence N. to the N.W. corner of sec. 20;
Thence E. to the N. quarter corner of sec. 20;
Thence N. to the center of sec. 17;
Thence E. to the E. quarter corner of sec. 17 and continuing E. to the center of sec. 16;
Thence N. to the N. quarter corner of sec. 16;
Thence E. to the N.E. corner of sec. 16 and continuing E. to the N. quarter corner of sec. 15;
Thence N. to the center of section 10;
Thence E. to the E. quarter corner of sec. 10;
Thence N. to the N.W. corner of sec. 11;
Thence E. to the N. quarter corner of sec. 11;
Thence N. to the center of sec. 2;
Thence E. to the E. quarter corner of sec. 2;
Thence N. to the N.W. corner of sec. 1;
Thence E. to the N. quarter corner of sec. 1, all being in T.14N., R.25E~~. W.M.;~~., W.M., WA.;
Thence N. to the center of sec. 36;
Thence E. to the E. quarter corner of sec. 36, all being in T.15N., R.25E~~. W.M.;~~., W.M., WA.;
Thence N. to the N.W. corner of sec. 31, T.15N., R.26E~~. W.M.;~~., W.M., WA.;
Thence E. to the N. quarter corner of sec. 31;
Thence N. to the center of sec. 30;
Thence E. to the E. quarter corner of sec. 30 and continuing E. to the center of sec. 29;
Thence N. to the N. quarter corner of sec. 29;
Thence E. to the N.E. corner of sec. 29;
Thence N. to the W. quarter corner of sec. 21;
Thence E. to the center of sec. 21;
Thence N. to the N. quarter corner of sec. 21;
Thence E. to the N.E. corner of sec. 21;
Thence N. to the W. quarter corner of sec. 15;
Thence E. to the E. quarter corner of sec. 15;
Thence N. to the N.W. corner of sec. 14;
Thence E. to the N.E. corner of sec. 14 and continuing E. to the N.E. corner of sec. 13, all being in T.15N., R.26E~~. W.M.;~~., W.M., WA.;

Thence continuing E. ~~along~~on the N. lines of secs. 18, 17, and 16 of T.15N., R.27~~E. W.M.~~E., W.M., WA. to the N.E. corner of sec. 16;

Thence S. to the W. quarter corner of sec. 15;

Thence E. to the E. quarter corner of sec. 15;

Thence S. to the S.E. corner of sec. 15;

Thence E. to the N. quarter corner of sec. 23;

Thence S. to the center of sec. 23;

Thence E. to the E. quarter corner of sec. 23;

Thence S. to the S.E. corner of sec. 23;

Thence E. to the N. quarter corner of sec. 25;

Thence S. to the center of sec. 25;

Thence E. to the E. quarter corner of sec. 25;

Thence S. to the S.E. corner of sec. 25, all being in T.15N., R.27E~~. W.M.;~~., W.M., WA.;

Thence E. to the N. quarter corner of sec. 31, T.15N., R.28E~~. W.M.;~~., W.M., WA.;

Thence S. to the S. quarter corner of sec. 31, all being in T.15N., R.28E~~. W.M.;~~., W.M., WA.;

Thence continuing S. to the center of sec. 6, T.14N., R.28E~~. W.M.;~~., W.M., WA.;

Thence E. to the E. quarter corner of sec. 6;

Thence S. to the S.E. corner of sec. 6 and continuing S. ~~along~~on the E. lines of secs. 7 and 18 to the S.E. corner of sec. 18;

Thence E. to the N. quarter corner of sec. 20;

Thence S. to the S. quarter corner of sec. 20 and continuing S. to the S. quarter corner of sec. 29;

Thence E. to the S.E. corner of sec. 29;

Thence S. to the S.E. corner of sec. 32, all being in T.14N., R.28E~~. W.M.;~~., W.M., WA.;

Thence continuing S. ~~along~~on the E. lines of secs. 5, 8, 17, 20, and 29 to the S.E. corner of sec. 29;

Thence E. to the N.E. corner of sec. 33 and continuing to the E. line of the W. ½ of the W. ½ of sec. 34;

Thence S. ~~along~~on the E. line of the W. ½ of the W. ~~½ of~~½ of sec. 34 to the N. line of the S. ½ of the S.W. quarter of said sec. 34;

Thence E. to the N.E. corner of the S. ½ of the S.W. ¼ of sec. 34;

Thence S. to the S. quarter corner of sec. 34, all being in T.13N., R.28E~~. W.M.;~~., W.M., WA.;

Thence E. ~~along~~on the N. line of sec. 3, T.12N., R.28~~E. W.M.~~E., W.M., WA. to the N.E. corner of sec. 3;

Thence S. ~~along~~on the E. lines of secs. 3 and 10 to the W. quarter corner of sec. 11;

Thence E. to the E. line of the W. ½ of the W. ½ of sec. 11;

Thence S. ~~along~~on the E. line of the W. ½ of the W. ~~½ of~~½ of sec. 11 to the S. line of sec. 11;

Thence E. to the S. quarter corner of sec. 11;

Thence S. to the S. line of the N. ½ of the N. ½ of sec. 14;

Thence E. ~~along~~on the S. line of the N. ½ of the N. ½ of sec. 14 to the W. line of the E. ½ of the N.E. ¼ of sec. 14;

Thence S. ~~along~~on the W. line of the E. ½ of the N.E. ¼ of sec. 14 to the E.-W. centerline of sec. 14;

Thence E. to the E. quarter corner of sec. 14;

Thence S. to the S.E. corner of sec. 14;

Thence continuing S. to the S. line of Tract 4 of Ringold Tracts according to the plat filed in the records of Franklin County, WA;

Thence W. to the W. line of navigation of the Columbia River;

Thence southerly ~~along the~~on said W. line of navigation approximately 56,700 feet to a point on said line of navigation in sec. 11, T.10N., R.28E., W.M., WA., identical with the northeast corner of the Pacific Northwest National Laboratory (PNNL) property as described in Rogers Surveying, Inc. Survey #02516, Auditor's File No. 4768, Records of Benton County, Washington, from which the intersection of said line of navigation with the south line of sec. 11, T.10N., R.28E., W.M., WA. bears southerly 1770 feet more or less;

Thence S. 89° 09' 20" W., a distance of 3700 feet more or less, aligning with the 300 Area fence that is approximately 350 feet distant south from and parallel with the center line of Ash Street, to the easterly right-of-way line of Stevens Drive (Route 4S), an unplatted road, 40 feet distance east from the center line of the Northbound lanes thereof;

Thence S. 0° 19' 06" E., on said right-of-way line a distance of 979.72 feet;

Thence continuing S. 0° 19' 06" E., a distance of 748.55 feet;

Thence continuing S. 0° 19' 06" E., a distance of 2696.42 feet to the line's intersection with the southerly right-of-way line of Horn Rapids Road in sec. 15, T.10N., R.28E., W.M., WA.;

Thence N. 89° 23' 44" W., on said right-of-way line a distance of 181.70 feet;

Thence N. 3° 22' 07" W., a distance of 110.31 feet to a point on line 1-2 of Tract 37;

Thence S. 89° 23' 44" E., continuing on line 1-2 of Tract 37 a distance of 7.47 feet to the point of beginning.

EXCEPTING from the above-described land, Section 1, Township 11N., Range 26 East Willamette Meridian in the ownership under quitclaim deed, of the STATE OF WASHINGTON.

~~EXCEPTING from the above-described land, a parcel under quitclaim deed, to the National Utility Training and Education Center being a portion of the Northwest quarter of Section 16, Township 10 North, Range 28 East, W.M., Benton county, Washington and more particularly described as the follows:~~

~~Beginning at the Northwest corner of said section 16, Thence N89°32'46"E along the North line of said Section 16 a distance of 481.36 feet, Thence S00°00'09"W a distance of 4.87 feet to the true point of beginning; Thence N89°59'11"E a distance of 1412.12 feet; Thence S00°00'18"E a distance of 2569.49 feet to the North right of way line of Horn Rapids Road as recorded in Auditors File Number 621762, Records of Benton County; Thence commencing along said right of way of Horn Rapids Road S89°43'56"W a distance of 656.59 feet to a point of curve; Thence continuing along said North line along a curve to the right having a central angle of 17°26'30", a radius of 1084.57 feet, an arc distance of 330.16 feet; Thence continuing along said North line N72°49'34"W, a distance of 188.97 feet; Thence N00°00'09"E a distance of 852.06 feet; Thence N89°59'51"W a distance of 250.00 feet; Thence N00°00'09"E a distance of 1616.01 to the True Point of Beginning and containing 77.46 acres, more or less.~~

Hanford Facility Permit Operating Boundary

In response to requirement Washington Administrative Code ~~(WAC) 173-303-806(xviii)(G)~~ (WAC) 173-303-806(4)(a)(xviii)(G) the following describes the legal boundary of the Hanford Site. Individual TSD units use only a very small portion of the Hanford Site. Additional descriptive information on the individual TSD units is contained in the Unit-Specific Portion of this permit application:

The Hanford Site being a tract of land located in Benton County, WA, the aforesaid tract being more particularly described as follows:

~~Commencing at the point of intersection of the E. W. centerline of sec. 14, T.10N., R.28E. Willamette Meridian, with the western navigation line of the Columbia River;~~

~~Thence northerly 200 feet along said line of navigation to the TRUE POINT OF BEGINNING;~~

~~Thence North approximately 3237.08 feet to a line formed by the existing southernmost projection of the 300 Area fence line extending east N89°10'00"E;~~

~~Thence West S89°10'00"W along said fence line approximately 3886.22 feet to the East right of way line of Stevens Drive, an unplatted road;~~

~~Thence South along said right of way line approximately 3444.97 feet to the line's intersection with the North right of way line of Horn Rapids Road, an unplatted road.~~

Beginning at the true point for Angle Point No. 1 of Tract 37 of the Bureau of Land Management (BLM) official survey, accepted February 6, 2018, on file in the BLM office in Portland, Oregon, located at the intersection of a 70 foot distance perpendicular offset north from the center line of Horn Rapids Road, as described in the Easement Quitclaim Deed, recorded May 21, 1971, under Auditor's File No. 621762, Records of Benton County, Washington, with a 30 foot distance offset west from the westerly edge of pavement of Stevens Drive (Route 4S), in sec. 15, T. 10 N., R. 28 E., Willamette Meridian (W.M.), Washington (WA.), from which the monument for the Witness Corner for Angle Point No. 1 of Tract 37 bears N. 46° 53' 46" W., a distance of 30.08 feet;

Thence N. 2° 08' 49" E., on the offset line from the westerly edge of pavement of Stevens Drive (Route 4S), being 30.00 feet distance and west therefrom, identical with line 1-23 of Tract 37, a distance of 409.53 feet to the monument for Angle Point No. 23 of Tract 37;

Thence N. 0° 25' 27" E., on said 30.00 foot offset line, identical with line 23-22 of Tract 37, a distance of 3741.27 feet, to the monument for Angle Point No. 22 of Tract 37, identical with Angle Point No. 5 of Tract 38 in sec. 10, T. 10 N., R. 28 E., W.M., WA.;

Thence, leaving said offset line, N. 89° 08' 46" W., on line 22-21 of Tract 37, identical with line 5-4 of Tract 38, a distance of 420.97 feet to the monument for Angle Point No. 21 of Tract 37, identical with Angle Point No. 4 of Tract 38;

Thence N. 44° 52' 17" W., on line 21-20 of Tract 37, identical with line 4-3 of Tract 38, a distance of 2376.75 feet to the monument for the witness point on the Tract lines, from which the Army Corps of Engineers (ACE) Control Point HSM-030 1992 bears S. 71° 24' 48" E. a distance of 922.12 feet;

Thence N. 44° 52' 17" W., continuing on line 21-20 of Tract 37, identical with line 4-3 of Tract 38, a distance of 2376.63 feet to the monument for Angle Point No. 20 of Tract 37, identical with Angle Point No. 3 of Tract 38;

Thence N. 0° 36' 23" E., on line 20-19 of Tract 37, identical with line 3-2 of Tract 38, a distance of 4101.77 feet, to the monument for Angle Point No. 19 of Tract 37, identical with Angle Point No. 2 of Tract 38, in sec. 3, T. 10 N., R. 28 E., W.M., WA.;

Thence S. 89° 11' 27" E., on line 19-18 of Tract 37, identical with line 2-1 of Tract 38, a distance of 3819.34 feet to the monument for Angle Point No. 18 of Tract 37, identical with Angle Point No. 1 of Tract 38 point, at an offset from the westerly edge of pavement of Stevens Drive (Route 4S), being 30.00 feet distance and west therefrom;

Thence N. 0° 03' 45" E., on said 30 foot offset line, identical with line 18-17 of Tract 37, a distance of 2990.04 to the monument for the Witness Point on line 18-17 of Tract 37, in sec. 34, T. 11 N., R. 28 E., W.M., WA., from which U.S. Coast and Geodetic Survey Bench Mark M323 1949 bears N. 1° 09' 17" W. a distance of 634.79 feet;

Thence N. 0° 03' 45" E., continuing on line 18-17 of Tract 37 on said 30.00 foot offset line, a distance of 2558.56 feet to the monument for Angle Point No. 17 of Tract 37;

Thence, leaving said offset line, S. 86° 19' 33" W., on line 17-16 of Tract 37 a distance of 2675.63 feet to the monument for the Witness Point on line 17-16 of Tract 37;

Thence S. 86° 19' 33" W., continuing on line 17-16 of Tract 37 a distance of 2675.66 feet to the monument for Angle Point No. 16 of Tract 37 in sec. 33, T. 11 N., R. 28 E., W.M., WA., identical with the northeast corner of the Hanford Patrol Training Academy (HPTA) property;

Thence S. 0° 30' 15" W., on line 16-15 of Tract 37, identical with the east boundary line of the HPTA property, a distance of 2163.97 feet to the monument for Witness Point No. 4 on line 16-15 of Tract 37, from which the corner of secs. 3, 4, 33, and 34, of Tps. 10 and 11 N., R. 28 E., W.M., WA. bears S. 8° 00' 04" E., a distance of 1450.09 feet;

Thence S. 0° 30' 15" W., continuing on line 16-15 of Tract 37, identical with said east boundary line a distance of 3289.13 feet to the monument for Witness Point No. 3 on line 16-15 of Tract 37, in sec. 4, T. 10 N., R. 28 E., W.M., WA.;

Thence S. 0° 30' 15" W., continuing on line 16-15 of Tract 37, identical with said east boundary line a distance of 3410.41 feet to the monument for Witness Point No. 2 on line 16-15 of Tract 37, from which the corner of secs. 3, 4, 9, and 10, bears S. 85° 51' 48" E., a distance of 231.22 feet;

Thence S. 0° 30' 15" W., continuing on line 16-15 of Tract 37, identical with said east boundary line a distance of 2480.26 feet to the monument for Witness Point No. 1 on line 16-15 of Tract 37, in sec. 9, T. 10 N., R. 28 E., W.M., WA., from which the 1/4 section corner of secs. 9 and 10, bears S. 54° 07' 01" E., a distance of 299.72 feet;

Thence S. 0° 30' 15" W., continuing on line 16-15 of Tract 37, identical with said east boundary line a distance of 2470.19 feet to the monument for Angle Point No. 15 of Tract 37, identical with the southeast corner of the HPTA property on the southerly right-of-way line of the Bonneville Power Administration (BPA) BENTON - WHITE BLUFFS No. 1 transmission line;

Thence N. 87° 59' 38" W., on line 15-14 of Tract 37, identical with said southerly right-of-way line and the south boundary of the HPTA property, a distance of 3129.83 feet to the monument for Angle Point No. 14 of Tract 37 from which the 1/4 section corner of secs. 9 and 16, bears S. 59° 33' 48" E., a distance of 859.55 feet;

Thence S. 0° 51' 57" W., on line 14-13 of Tract 37, a distance of 446.07 feet to the monument for Angle Point No. 13 of Tract 37 in sec. 16, T. 10 N., R. 28 E. W.M., WA., identical with the NE corner of the National Utility Training Services, Inc., (NUTS) property as described in a quitclaim deed, recorded April 27, 2005, under Auditors File Number 2005-013181, Records of Benton County, Washington, and the survey by Daniel L. Strasser, PLS No. 32445, recorded September 13, 2001, under Auditors File Number 2001-028660, records of Benton County, Washington;

Thence S. 89° 59' 11" W., a distance of 644.83 feet to ACE Control Point 9456-6, a 3" aluminum cap;

Thence continuing S. 89° 59' 11" W., a distance of 517.29 feet;

Thence S. 0° 00' 09" W., a distance of 524.00 feet;

Thence N. 89° 59' 51" W., a distance of 250.00 feet;

Thence S. 0° 00' 09" W., a distance of 202.28 feet;

Thence continuing S. 0° 00' 09" W., a distance of 393.39 feet;

Thence S. 89° 59' 51" E., a distance of 251.35 feet;

Thence S. 0° 04' 27" E., a distance of 418.09 feet;

Thence on a non-tangent curve to the left with a delta of 17° 37' 12", a course of S. 7° 48' 26" E., and a radius of 258.08 feet, a distance of 79.37 feet;

Thence continuing on the curve left with a delta of 24° 40' 22", a course of S. 28° 57' 13" E., and a radius of 258.08 feet, a distance of 111.14 feet;

Thence on a non-tangent reverse curve with a delta of 43° 15' 44", a course of S. 15° 23' 40" E., and a radius of 264.52 feet, a distance of 199.73 feet;

Thence S. 1° 15' 39" W., a distance of 247.84 feet;

Thence on a non-tangent curve to the right with a delta of 7° 33' 06", a course of S. 3° 53' 20" W., and a radius of 1724.11 feet, a distance of 227.24 feet;

Thence S. 24° 50' 38" W., a distance of 118.81 feet to a point on the northerly right-of-way line of Horn Rapids Road;

Thence northwesterly ~~along~~on the ~~N.~~northerly right-of-way line of Horn Rapids Road, a distance of ~~28,600~~18,650 feet more or less to the ~~line's~~ intersection with the ~~N.~~northerly right-of-way line of State Highway 240, in the N.E. 1/4 of sec. 11, T.10N., R.27E~~.W.M.;~~., W.M., WA.;

Thence northwesterly ~~along~~on said ~~N.~~northerly right-of-way line of ~~the~~ said highway, on an offset line 75 feet distance ~~N.~~north of and parallel with the centerline of said highway to a point in sec. 3, T.10N., R.27~~E.W.M.~~E., W.M., WA., which point is on the eastward extension of the ~~N.~~northerly right-of-way line of ~~a~~ the county road from Horn Rapids to Benton City;

Thence ~~along~~on the northerly and westerly right-of-way line of said road, on an offset line 75 feet distance northerly and westerly of, and parallel with, the center line of said road to a point on the ~~E.~~east line of sec. 8, T.10N., R.27E~~.W.M.;~~., W.M., WA.;

Thence N. to the E. quarter corner of said section;

Thence W. to the S.W. corner of the E. 1/2 of the N.E. 1/4 of sec. 12, T.10N., R.26E~~.W.M.;~~., W.M., WA.;

Thence N. to the N. line of said sec. 12;

Thence W. to the N.E. corner of the N.W. 1/4 of the N.W. 1/4 of the N.W. 1/4 of sec. 11, T.10N., R.26E~~.W.M.;~~., W.M., WA.;

Thence S. a distance of 660 feet;

Thence W. a distance of 660 feet to the E. line of sec. 10, T.10N., R.26E~~.W.M.;~~., W.M., WA.;

Thence S. to the S.E. quarter corner of said sec. 10;

Thence W. ~~along~~on the E.-W. centerline of sec. 10 to the W. line of said section;

Thence N. ~~along~~on the W. section line to the S.E. corner of sec. 4, T.10N., R.26E~~.W.M.;~~., W.M., WA.;

Thence W. ~~along~~on the S. line of sec. 4 and sec. 5 to the S.W. corner of the S.E. 1/4 of the S.E. 1/4 of sec. 5;

Thence N. to the S.E. corner of the N.W. 1/4 of the S.E. 1/4 of sec. 5;

Thence W. ~~along~~on the S. line of the N.W. 1/4 of the S.E. 1/4 to the S.W. corner of the N.W. 1/4 of the S.E. 1/4;

Thence N. to the S.E. corner of the N. 1/2 of the N.W. 1/4;

Thence W. ~~along~~on the S. line of the N. 1/2 of the N.W. 1/4 to the W. line of sec. 5;

Thence N. to the S.E. corner of sec. 31, T.11N., R.26E~~.W.M.;~~., W.M., WA.;

Thence W. ~~along~~on the S. line of the E. 1/2 of the S.E. 1/4 of sec. 31 to the ~~E~~W. line of said E. 1/2 of the S.E. 1/4 of sec. 31;

Thence N. ~~along~~on the W. line of the E. 1/2 of the S.E. 1/4 to the S.E. corner of the S.W. 1/4 of the N.E. 1/4 of sec. 31;

Thence W. ~~along~~on the S. line of the S.W. 1/4 of the N.E. 1/4 to the S.W. corner of the S.W. 1/4 of the N.E. 1/4;

Thence N. ~~along~~on the W. line of the S.W. 1/4 of the N.E. 1/4 to the S.E. corner of the N. 1/2 of the N.W. 1/4 of said sec. 31;

Thence W. ~~along~~on the S. line of the N. 1/2 of the N.W. 1/4 to the W. line of said sec. 31;

Thence N. ~~along~~on the W. line of sec. 31 to the S.E. corner of sec. 25, T.11N., R.25E~~. W.M.;~~., W.M., WA.;

Thence W. ~~along~~on the S. line of sec. 25 to the S.W. corner of the S.E. 1/4 of the S.E. 1/4 of said sec. 25;

Thence N. ~~along~~on the W. line of the S.E. 1/4 of the S.E. 1/4 to the S.E. corner of the N.W. 1/4 of the S.E. 1/4;

Thence W. ~~along~~on the S. line of the N.W. 1/4 of the S.E. 1/4 to the S.W. corner of the N.W. 1/4 of the S.E. 1/4;

Thence N. ~~along~~on the W. line of the N.W. 1/4 of the S.E. 1/4 to the S.E. corner of the N.W. 1/4 of sec. 25;

Thence W. ~~along~~on the S. line of the N.W. 1/4 of sec. 25 to the W. line of sec 25;

Thence N. ~~along~~on the W. line of sec. 25 and the W. line of sec. 24 to the N. line of the S. 1/2 of the S. 1/2 of sec. 23;

Thence W. ~~along~~on the N. line of the S. 1/2 of the S. 1/2 of sec. 23 and the N. line of the S. 1/2 of the S. 1/2 of sec. 22 and the N. line of the S. 1/2 of the S. 1/2 of sec. 21 to the E. line of sec. 20;

Thence S. to the S.E. corner of sec. 20;

Thence W. ~~along~~on the S. line of sec. 20 and the S. line of sec. 19 to the S.E. corner of the S.W. 1/4 of the S.W. 1/4 of sec. 19;

Thence N. to the N.E. corner of the S.W. 1/4 of the S.W. 1/4 of sec. 19;

Thence W. to the W. line of sec. 19, all being in T.11N., R.25E~~. W.M.;~~., W.M., WA.;

Thence continuing W. to the S.W. corner of the N.E. 1/4 of the S.E. 1/4 of sec. 24, T.11N., R.24E~~. W.M.;~~., W.M., WA.;

Thence N. to the N.W. corner of said N.E. 1/4 of the S.E. 1/4 of sec. 24;

Thence W. to the S.W. corner of the S.E. 1/4 of the N.W. 1/4 of sec. 24;

Thence N. to the N.W. corner of said S.E. 1/4 of the N.W. 1/4 of sec. 24;

Thence W. to the W. line of sec. 24;

Thence N. to the N.W. corner of sec. 24;

Thence W. to the S.E. quarter corner of sec. 14;

Thence N. to the N.W. quarter corner of sec. 14;

Thence W. ~~along~~on the N. line of sec. 14 to the N.W. corner of sec. 14;

Thence N. ~~along~~on the W. line of sec. 11 and sec. 2 to the N.W. corner of sec. 2, all being in T.11N., R.24~~E. W.M.~~E., W.M., WA., and continuing N. ~~along~~on the W. lines of secs., 35, 26, 23, 14, 11, and 2, all being in T.12N., R.24E~~. W.M.;~~., W.M., WA.;

Thence continuing N. ~~along~~on the W. lines of secs. 35 and 26 in T.13N., R.24~~E. W.M.~~E., W.M., WA., to the N.W. corner of sec. 26;

Thence W. ~~along~~on the S. line of sec. 22 to the S.E. quarter corner of sec. 22;

Thence N. ~~along~~on the N.-S. centerline of sec. 22 to the N.E. quarter corner of sec. 22;

Thence W. ~~along~~on the S. line of sec. 15 to the S.W. corner of sec. 15;

Thence N. ~~along~~on the W. line of sec. 15 to the S.W. corner of the N. 1/2 of the N.W. 1/4 of sec. 15;

Thence E. ~~along~~on the S. line of the N. 1/2 of the N.W. 1/4 of sec. 15 to the S.W. corner of the N.W. 1/4 of the N.E. 1/4 of sec. 15;

Thence N. ~~along~~on the W. line of the S.W. 1/4 of the N.E. 1/4 of sec. 15 and continuing N. ~~along~~on the centerline of sec. 10 to the W. navigation line of the Columbia River, following said navigation line easterly, northerly, and southerly to a point directly W. of the S. line of Tract 4 of Ringold Tracts according to the plat filed in the records of Franklin County.

Thence southerly ~~along~~on ~~the~~ said W. line of navigation approximately 56,700 feet to a point on said line of navigation in sec. 11, T.10N., R.28E., W.M., WA., identical with the northeast corner of the Pacific Northwest National Laboratory (PNNL) property as described in Rogers Surveying, Inc. Survey #02516, Auditor's File No. 4768, Records of Benton County, Washington, from which the intersection of said line of navigation with the S. line of sec. 11, T.10N., R.28E., W.M., WA. bears southerly 1770 feet more or less;

Thence S. 89° 09' 20" W. a distance of 3700 feet more or less, aligning with the 300 Area fence line that is approximately 350 feet distant south from and parallel with the center line of Ash Street, to the easterly right-of-way line of Stevens Drive (Route 4S), an unplatted road, 40 feet distant east from the center line of the Northbound lanes thereof;

Thence S. 0° 19' 06" E. on said right-of-way line a distance of 979.72 feet;

Thence continuing S. 0° 19' 06" E. a distance of 748.55 feet;

Thence continuing S. 0° 19' 06" E. a distance of 2696.42 feet to the line's intersection with the southerly right-of-way line of Horn Rapids Road in sec. 15, T.10N., R.28E., W.M., WA.;

Thence N. 89° 23' 44" W. on said right-of-way line a distance of 181.70 feet;

Thence N. 3° 22' 07" W. a distance of 110.31 feet to a point on the south boundary of Tract 37;

Thence S. 89° 23' 44" E. a distance of 7.47 feet to the ~~TRUE POINT OF BEGINNING.~~point of beginning.

EXCEPTING FROM THE ABOVE-DESCRIBED LAND THE FOLLOWING PARCELS, EXCLUDING that portion of the Hanford Railroad and any Hanford Site access roads, which may traverse these parcels:

PARCEL A) The N. 1/2 of the N.W. 1/4, and that portion of the N.W. 1/4 of the N.E. 1/4 in sec. 14, T.13N., R.24~~E.W.M.~~E., W.M., WA. in the ownership and jurisdiction of the BONNEVILLE POWER ADMINISTRATION.

PARCEL B) Sec. 1, T.11N., R.26~~E.W.M.~~E., W.M., WA. in the ownership under quitclaim deed, of the STATE OF WASHINGTON.

PARCEL C) A tract of land leased to the STATE OF WASHINGTON and subleased to U.S. Ecology lying in section 9, T.12N., R.26~~E.W.M.~~E., W.M., WA., containing 100 acres more or less, more particularly described as follows: BEGINNING at the Southwest corner of said Section 9; thence North 0~~E~~° 53' 09" West ~~along~~on the East line of Section 9 a distance of 2,942 feet, thence South 88~~E~~° 50' 56" West 1,480 feet, thence South 88~~E~~° 53' 09" East 2,942 feet to the South line of the Section; thence North 88~~E~~° 50' 56" East ~~along~~on said South line of the Section 1,480 feet to the point of beginning.

Three tracts of land leased to the WASHINGTON PUBLIC POWER SUPPLY SYSTEM more particularly described as follows:

PARCEL D) ~~a~~A tract of land (for the Hanford Generating Plant), commencing at the S.E. corner of sec. 28, T.14N., R.26~~E.W.M.~~E., W.M., WA., said point having Washington State Coordinates, South Zone, of N. 486,994.01, and E. 2,236,672.11; thence N. 72~~E~~° 02' 15" W. 3,483.15 feet, thence N. 67~~E~~° 11' 41" W. 1,810 feet more or less to a point on the line of ordinary high water on the right bank of the Columbia River, which point is the TRUE POINT OF BEGINNING: thence S. 67~~E~~° 11' 41" E. 1,810 feet more or less to a point, having Washington State Coordinates, South Zone, of N. 488,068.19 and E. 2,233,358.73, thence N. 22~~E~~° 48' 19" E. a distance of 1,595 feet to a point, having Washington State Coordinates, South Zone, of N. 489,538.48 and E. 2,233,976.96, thence N. 67~~E~~° 11' 41" W. 1,108 feet more or less to a point on the line of ordinary high water on the right bank of the Columbia River, thence southwesterly ~~along~~on the said line of ordinary high water to the TRUE POINT OF BEGINNING, containing 53.42 acres more or less; THIS PARCEL AMENDED BY DELETING THE FOLLOWING: Beginning at the S.E. corner of the leased parcel, which point is at coordinates N. 488,068.19 and E. 2,233,358.73 on the Washington State Coordinate System, South Zone; thence N. 22~~E~~° 48' 19" E. 1,060 feet; thence N. 67~~E~~° 11' 41" W. 200 feet; thence S. 22~~E~~° 48' 19" W. 1,060 feet; thence S. 67~~E~~° 11' 41" E. 200 feet to the point of beginning; containing 4.85 acres, more or less;

PARCEL E) ~~a~~A tract of land (for WNP Site 2), beginning at the S.W. corner of sec. 11, T.11N., R.28~~E.W.M.~~E., W.M., WA., said corner having Washington State coordinates, South Zone, of N. 408,335.30 and E. 2,307,653.50, thence N. 0~~E~~° 41' 08" E. 8,065.28 feet to the TRUE POINT OF BEGINNING; thence W. 11,153.57 feet; thence S. 01~~E~~° 01' 23" E. 3,000.48 feet; thence S. 88~~E~~° 53' 54" W. 5,200.96 feet; thence N. 0~~E~~° 31' 41" W. 3,690.15 feet; thence E. 1,430.00 feet; thence N. 1,865.69 feet; thence N. 87~~E~~° 46' 08" E. 3,703.83 feet; thence S. 01~~E~~° 01' 23" E. 1,600.25 feet; thence E. 11,189.29 feet; thence N. 01~~E~~° 01' 23" E. 1,800.29 feet; thence N. 89~~E~~° 07' 55" E. 3,300.38 feet to the line of Navigation of the W. bank of the Columbia River, thence southerly ~~along~~on said line of Navigation to a point that bears N. 89~~E~~° 15' 21" E. from the TRUE POINT OF BEGINNING; thence S. 89~~E~~° 15' 21" W. 3,850.32 feet more or less to the TRUE POINT OF BEGINNING.

PARCEL F) A tract of land (for WNP Sites 1 and 4) lying in Section 4 of Township 11 North, Range 28 East, Willamette Meridian, described as follows:

Beginning at the Southwest corner of Section 11, Township 11 North, Range 28 East, ~~W.M.~~W.M., WA., (said corner being located by reference to the Washington State Coordinate System South Zone at coordinates North 408,335.30 and East 2,307,653.50) thence North 65~~E~~°-17'-03" West 12113.14 feet to the TRUE POINT OF BEGINNING (said point being located by reference to the Washington State Coordinate System South Zone at coordinates North 413,400.00 and East 2,296,650.00); thence North 01~~E~~°-01'-23" West 3000.48 feet to a point; thence East 5280.00 feet to a point; thence South 01~~E~~°-01'-23" East 3000.48 feet to a point; thence West 5280.00 feet more or less to the TRUE POINT OF BEGINNING, containing 363.69 acres more or less; and

A parcel of land lying in Sections 3 and 4 of Township 11 North, Range 28 East, and Sections 33 and 34 of Township 12 North, Range 28 East, Willamette Meridian, described as follows:

Beginning at the Southwest corner of Section 11, Township 11 North, Range 28 East, ~~W.M.~~W.M., WA., (said corner being located by reference to the Washington State Coordinate System South Zone at coordinates North 408,335.30 and East 2,307,653.50) thence North 50~~E~~°-42'-00" West 14,311.63 feet to the TRUE POINT OF BEGINNING (said point being located by reference to the Washington State Coordinate System South Zone at coordinates North 417,400.00 and East 2,296,578.57); thence North 01~~E~~°-01'-23" West 3000.48 feet to a point; thence East 5,280.00 feet to a point; thence South 01~~E~~°-01'-23" East 1200.19 feet to a point; thence East 5,973.57 feet to a point; thence South 1~~E~~°-01'-23" West 1800.29 feet to a point; thence West 11,189.29 feet more or less to the TRUE POINT OF BEGINNING, containing 609.15 acres more or less.

~~PARCEL G) A parcel of Hanford Site land transferred out of federal ownership to the National Utility Training and Education Center being a portion of the Northwest quarter of Section 16, Township 10 North, Range 28 East, W.M., Benton county, Washington and more particularly described as the follows:~~

~~Beginning at the Northwest corner of said section 16, Thence N89°32'46"E along the North line of said Section 16 a distance of 481.36 feet, Thence S00°00'09"W a distance of 4.87 feet to the true point of beginning; Thence N89°59'11"E a distance of 1412.12 feet; Thence S00°00'18"E a distance of 2569.49 feet to the North right of way line of Horn Rapids Road as recorded in Auditors File Number 621762, Records of Benton County; Thence commencing along said right of way of Horn Rapids Road S89°43'56"W a distance of 656.59 feet to a point of curve; Thence continuing along said North line along a curve to the right having a central angle of 17°26'30", a radius of 1084.57 feet, an arc distance of 330.16 feet; Thence continuing along said North line N72°49'34"W, a distance of 188.97 feet; Thence N00°00'09"E a distance of 852.06 feet; Thence N89°59'51"W a distance of 250.00 feet; Thence N00°00'09"E a distance of 1616.01 to the True Point of Beginning and containing 77.46 acres, more or less.~~

PARCEL ~~H~~G) The parcels on the Hanford Site used but not owned by the Bonneville Power Administration including the Ashe Substation, the Hanford Substation, the Benton Switch Substation, and the White Bluffs Substation.

ASHE SUBSTATION. A parcel of land in the W. 1/2 S.E. 1/4, the S.E. 1/2 N.W. 1/4 and the S.W. 1/4 of Section 32, Township 12 North, Range 28 East, Willamette Meridian, Benton County, Washington, more particularly described as follows:

Commencing at a Bonneville Power Administration monument set at the intersection of the north-south and east-west base lines for the Ashe Substation Site in the S.E. 1/4 S.W. 1/4 of Section 32, Township 12 North, Range 28 East, Willamette Meridian. This monument is located N. 26~~E~~° 49' 15" E., 1503.1 feet from a 2-inch brass disc on the south line of Section 32, said disc being set by WPPSS survey of August 11, 1971. Thence N. 52~~E~~° 10' 10" E., 1200.0 feet to the true point of beginning. Thence S. 37~~E~~° 49' 50" E., 400.0 feet; thence S. 52~~E~~° 10' 10" W., 1100.0 feet; thence S. 37~~E~~° 49' 50" E., 1287.7 feet to a point on the south line of Section 32; thence S. 87~~E~~° 46' 12" W., ~~along~~on said south line of Section 32, a distance of 984.0 feet; thence N. 37~~E~~° 49' 50" W., 2014.8 feet; thence N. 52~~E~~° 10' 10" E., 1900.0 feet; thence S. 37~~E~~° 49" 50" E., 900.0 feet to the true point of beginning; containing 75.09 acres, more or less.

ASHE SS SOUTH CORRIDOR, PARCEL 1. A portion of Government Lot 3 of Section 5, Township 11 North, Range 28 East, Willamette Meridian, Benton County, Washington, more particularly described as follows:

Commencing at a point in Bay 3 in the Ashe Substation Site in the N.E. 1/4 S.W. 1/4 of Section 32, Township 12 North, Range 28 East, Willamette Meridian, said point being N. 25~~E~~° 56' 16" E., 1716.1 feet from a 2-inch brass disc on the south line of Section 32, said disc being set by WPPSS survey of August 11, 1971. Thence S. 31~~E~~° 24' 10" E., 553.5 feet; thence S. 1~~E~~° 50' 00" E., 1029.6 feet to a point on the north line of Section 5, Township 11 North, Range 28 East, Willamette Meridian, the true point of beginning for this description. Thence N. 87~~E~~° 46' 12" E., ~~along~~on said north line of Section 5, a distance of 75 feet; thence S. 1~~E~~° 50' 00" E., 1299.7 feet; thence S. 88~~E~~° 10' 00" W., 281.5 feet; thence N. 1~~E~~° 50' 00" W., 1297.6 feet to a point on said north line; thence N. 87~~E~~° 46' 12" E., ~~along~~on said north line, a distance of 206.5 feet to the true point of beginning.

ASHE SS SOUTH CORRIDOR, PARCEL 2. All that portion of the S.E. 1/4 S.W. 1/4 of Section 32, Township 12 North, Range 28 East, Willamette Meridian, Benton County, Washington, that lies southerly and easterly of the Ashe Substation Site and westerly of a line 75 feet easterly from and parallel with the survey line for the Bonneville Power Administration WPPSS No. 2 Powerhouse-Ashe 500 kV line No. 2. The survey line is described, with reference to the Washington Coordinate System - South Zone, as follows:

Beginning at a point in Bay 3 in the Ashe Substation Site in the N.E. 1/4 S.W. 1/4 of Section 32, Township 12 North, Range 28 East, Willamette Meridian, at a survey Station 97+84.0, said point being N. 25~~E°~~ 56' 16" E., 1716.1 feet from a 2-inch brass disc on the south line of Section 32, said disc being set by WPPSS survey of August 11, 1971. Thence S. 31~~E°~~ 24' 10" E., 553.5 feet to station 92+30.5; thence S. 1~~E°~~ 50' 00" E., 1029.6 feet to a point on the south line of Section 32, said point being N. 87~~E°~~ 46' 12" E., 1072.1 feet from said brass disc.

ASHE-SS-AR-1. A portion of Lot 3 S.1/2 N.W. 1/4, and N.W. 1/4 S.W. 1/4 of Section 5, the E. 1/2 S.E. 1/4 and S.W. 1/4 S.E. 1/4 of Section 6, the N.W. 1/4 N.E. 1/4 and E. 1/2 N.W. 1/4 of Section 7, Township 11 North, Range 28 East, Willamette Meridian, Benton County. Washington.

HANFORD SUBSTATION SITE. Lot 1 of Block 8, Lots 13 and 14 of Block 9, and Lot 8 of Block 10 of Hanford, according to the recorded plat thereof, and that part of Thirteenth Street lying between the northeasterly line of Tract A of Hanford, according to the recorded plat thereof and the Columbia River, and that part of Dunham Street lying southeasterly of a line connecting the northwesterly lines of Lot 8 of Block 10 and Lot 13 of Block 9 of Hanford, according to the recorded plat thereof, all in Section 25, Township 13 North, Range 27 East, Willamette Meridian Benton County, Washington, containing 2.7 acres, more or less. Subject to easement to Pacific Power & Light Company for power line and access purposes.

BENTON SWITCH SUBSTATION. A parcel of land in the N.W. 1/4 of Section 11, Township 11 North, Range 28 East, Willamette Meridian, Benton County, Washington, described with reference to the Washington Coordinate System - South Zone, as follows:

Beginning at the northwest corner of said parcel, being S. 54~~E°~~ 50' E., 1804.0 feet more or less from the northwest corner of said Section 11; thence N. 49~~E°~~ 13' 45" E., 550.0 feet to the northeast corner, evidenced by a brass cap; thence S. 40~~E°~~ 46' 15" E., 500.0 feet to the southeast corner, evidenced by a brass cap; thence S. 49~~E°~~ 13' 45" W., 550.0 feet to the southwest corner, evidenced by a brass cap; thence N. 40~~E°~~ 46' 15" W., 500.0 feet to the point of beginning. The described parcel contains 6.31 acres, of which 2.75 acres lie within the boundaries of the existing Benton Switching Station.

WHITE BLUFFS SUBSTATION. A parcel of land in Government Lots 3 and 4 and the E. 1/2 S.W. 1/4 of Section 7, Township 10 North, Range 28 East, Willamette Meridian, Benton County, Washington, more particularly described as follows:

Commencing at a Bonneville Power Administration monument in said Government Lot 4 at the intersection of the east-west and north-south base lines for the White Bluffs Substation Site, said monument being N. 36~~E°~~ 45' 35" E., 1623.7 feet from the southwest corner of Section 7. This corner is evidenced by a rock mound. Thence N. 72~~E°~~ 55' 20" W., ~~alongon~~ the east-west base line, a distance of 500 feet to the true point of beginning. Thence N. 17~~E°~~ 04' 40" E., 400 feet; thence S. 72~~E°~~ 55' 20" E., 900 feet; thence S. 17~~E°~~ 04' 40" W., 1060 feet, more or less, to a point 40 feet north of the centerline of Horn Rapids Road; thence N. 72~~E°~~ 55' 20" W., 900 feet., thence N. 17~~E°~~ 04' 40" E., 660 feet, more or less, to the true point of beginning, containing 21.90 acres, more or less.

For purposes of application of Part IV Corrective Action of the Hanford Facility Permit only, the Hanford Facility also includes PARCELS C, D, E, F, and G of the lands identified as Excepted from the ABOVE-DESCRIBED LAND, in the foregoing legal description.

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Hanford Facility RCRA Permit Change Notice

Part III, Operating Unit Group 3

Liquid Effluent Retention Facility & 200 Area Effluent Treatment Facility

Index

Page	Permit Section
Page 2 of 4:	Part III, Operating Unit Group 3, Permit Conditions
Page 3 of 4:	Addendum B, Waste Analysis Plan
Page 4 of 4:	Addendum C, Process Information

Submitted by WRPS Co-Operator:

Jeremy T. Hartley — 12/3/18 Date

Reviewed by DOE-ORP Program Office:

Rob G. Hastings — 12/4/18 Date

Hanford Facility RCRA Permit Change Notice

Unit:	Permit Part
Liquid Effluent Retention Facility & 200 Area Effluent Treatment Facility	**Part III, Operating Unit Group 3**

Description of Modification:

Part III, Operating Unit Group 3 Permit Conditions:

Update the following List of Addenda Specific to Operating Unit Group 3 with modification approval date:

Addendum B Waste Analysis Plan, dated ~~January 23, 2018~~

Addendum C Process Information, dated ~~January 23, 2018~~

WAC 173-303-830 Modification Class	Class 1	Class 1	Class 2	Class 3
Please mark the Modification Class:	X			

Enter relevant WAC 173-303-830, Appendix I Modification citation number: A.1

Enter wording of WAC 173-303-830, Appendix I Modification citation: Administrative and informational changes.

Modification Concurrence: ☑ Yes ☐ No (state reason)

Reason for Non-concurrence:

Reviewed by Ecology:

S. L. Dahl-Crumpler, Date 12-7-18

Hanford Facility RCRA Permit Change Notice

Unit:	Permit Part
Liquid Effluent Retention Facility & 200 Area Effluent Treatment Facility	**Part III, Operating Unit Group 3**

Description of Modification:

Addendum B, Waste Analysis Plan:

- Section B.2.1.1, Waste Characterization: added text to address mixed waste exemption to implement Subpart CC emission standards [WAC 173-303-300(5)(i)(i), WAC 173-303-300(5)(i)(ii)]
- Section B.2.2, Waste Management Decision Process: added text to address rejection of aqueous waste, which is not allowed under the Subpart CC mixed waste exemption as described in Section B.2.1.1.
- Table B.2, Waste Acceptance Criteria: added text to address Subpart CC compliance as described in Section B.2.1.1.

WAC 173-303-830 Modification Class	Class 1	Class 1	Class 2	Class 3
Please mark the Modification Class:		X		

Enter relevant WAC 173-303-830, Appendix I Modification citation number: WAC 173-303-830(4)(d)(i)

Enter wording of WAC 173-303-830, Appendix I Modification citation: Request modification be reviewed and approved as a Class 1 prime.

Approved

Modification ~~Concurrence~~: ☑ Yes ☐ No (state reason)

Reason for Non-concurrence:

Reviewed by Ecology:

S. L. Dahl-Crumpler 12-7-18 Date

Hanford Facility RCRA Permit Change Notice

Unit:	Permit Part
Liquid Effluent Retention Facility & 200 Area Effluent Treatment Facility	**Part III, Operating Unit Group 3**

Description of Modification:

Addendum C, Process Information:

- Section C.5.2.4.2, Control of Air Emissions: added text to describe the LERF basins floating cover material and function.
- Section C.6.3, Applicability of Subpart CC Standards: Deleted paragraph 2 pertaining to concentration of volatile organic compounds (VOCs) and addressed VOCs in Section C.6.3.3, Demonstrating Compliance with Subpart CC for Surface Impoundments; and added "radioactive" to second sentence.
- Section C.6.3.3, Demonstrating Compliance with Subpart CC for Surface Impoundments: Inserted text to clarify that the LERF Basins rely on the mixed waste exemption to implement Subpart CC emission standards [WAC 173-303-692(1)(b)(vi)]. Deleted text that is no longer applicable as the LERF basins rely on the mixed waste exemption and not the cover for meeting Subpart CC emission standards (refer to EPA documentation on testing done in conjunction with the Subpart CC rulemaking, EPA-453/R-94-076b, pgs. 6-65 through 6-68, and F-91-CESP-S0487, *Cover Material Emission Rates Protocol - Final Version*.)

WAC 173-303-830 Modification Class	Class 1	Class 1	Class 2	Class 3
Please mark the Modification Class:		X		

Enter relevant WAC 173-303-830, Appendix I Modification citation number: WAC 173-303-830(4)(d)(i)

Enter wording of WAC 173-303-830, Appendix I Modification citation: Request modification be reviewed and approved as a Class 1 prime.

Modification Approved: ☑ Yes ☐ No (state reason)

Reason for denial:

Reviewed by Ecology:

S. L. Dahl-Crumpler 12-7-18

Date

Remove and Replace the Following:

- Part III, LERF and 200 Area ETF Permit Conditions
- Addendum B, Waste Analysis Plan
- Addendum C, Process Information

LIQUID EFFLUENT RETENTION FACILITY & 200 AREA EFFLUENT TREATMENT FACILITY

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 a "**Last Modification Date**" which represents the last date the portion of the unit has been modified. 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.

Last modification to Liquid Effluent Retention Facility & 200 Area Effluent Treatment Facility
January 23, 2018

Addenda	Last Modification Date	Modification Number
Unit-Specific Conditions	01/23/2018	PCN-LERF/ETF-2017-02 PCN-LERF/ETF-2017-01 (8C.2018.Q1)
A. Part A Form	10/25/2017	8C.2017.3F
B. Waste Analysis Plan	01/23/2018	PCN-LERF/ETF-2017-01 (8C.2018.Q1)
C. Process Information	01/23/2018	PCN-LERF/ETF-2017-02 (8C.2018.Q1)
D. Groundwater Monitoring Plan	01/23/2018	PCN-LERF/ETF-2017-01 (8C.2018.Q1)
E. Security Requirements	06/30/2011	
F. Preparedness and Prevention	01/23/2018	PCN-LERF/ETF-2017-02 (8C.2018.Q1)
G. Personnel Training	06/30/2015	
H. Closure Plan	10/25/2017	8C.2017.3F
I. Inspection Requirements	01/23/2018	PCN-LERF/ETF-2017-02 (8C.2018.Q1)
J. Contingency Plan	08/25/2016	8C.2016.Q2

PART III, OPERATING UNIT GROUP 3 PERMIT CONDITIONS LIQUID EFFLUENT RETENTION FACILITY & 200 AREA EFFLUENT TREATMENT FACILITY

UNIT DESCRIPTION

The Liquid Effluent Retention Facility (LERF) and 200 Area Effluent Treatment Facility (200 Area ETF) consists of an aqueous waste treatment system that provides treatment, storage integral to the treatment process, and storage of secondary wastes from the treatment process for a variety of aqueous mixed waste. The 200 Area ETF is located in the 200 East Area. Aqueous wastes managed by the 200 Area ETF include process condensate from the LERF and 200 Area ETF and other aqueous waste generated from onsite remediation and waste management activities.

The LERF consists of three lined surface impoundments, or basins. Aqueous waste from LERF is pumped to the 200 Area ETF for treatment in a series of process units, or systems, that remove or destroy essentially all of the dangerous waste constituents. The treated effluent is discharged to a State-Approved Land Disposal Site (SALDS) north of the 200 West Area, under the authority of a Washington State Waste Discharge Permit Number ST0004500 (Ecology 2014) and 200 Area ETF Delisting (40 Code of Federal Regulations (CFR) 261, Appendix IX, Table 2). Construction of the LERF began in 1990. Waste management operations began at LERF in April 1994. Construction of the 200 Area ETF began in 1992. Waste management operations began at 200 Area ETF in November of 1995.

This Chapter provides unit-specific Permit conditions applicable to the dangerous waste management units for LERF and 200 Area ETF.

LIST OF ADDENDA SPECIFIC TO OPERATING UNIT GROUP 3

Addendum A	Part A Form, dated October 25, 2017
Addendum B	Waste Analysis Plan, dated ~~January 23, 2018~~
Addendum C	Process Information, dated ~~January 23, 2018~~
Addendum D	Groundwater Monitoring, dated January 23, 2018
Addendum E	Security Requirements, dated June 30, 2011
Addendum F	Preparedness and Prevention, dated January 23, 2018
Addendum G	Personnel Training, dated June 30, 2015
Addendum H	Closure Plan, dated October 25, 2017
Addendum I	Inspection Requirements, dated January 23, 2018
Addendum J	Contingency Plan, dated June 30, 2016

DEFINITIONS

Flow equalization: Flow equalization is the process by which concentrations of constituents are homogenized through blending of the wastewater in the LERF basins, resulting in a more uniform loading of constituents prior to entering the appropriate treatment train.

State and federal delisting actions: The state delisting action pursuant to Washington Administrative Code (WAC) 173-303-910(3), August 8, 2005, and the federal delisting action appearing in 40 CFR 261, Appendix IX, Table 2 applicable to the United States, Department of Energy, Richland, Washington.

ACRONYMS

LERF and 200 Area ETF	200-Area Liquids Processing Facility

LIQUID EFFLUENT RETENTION FACILITY (LERF) & 200 AREA EFFLUENT TREATMENT FACILITY (ETF) ADDENDUM B WASTE ANALYSIS 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
01/23/2018	PCN-LERF/ETF-2017-01 (8C.2018.Q1)
10/25/2017	8C.2017.3F
08/25/2015	8C.2016.Q2

B.2.1 Waste Information

When an aqueous waste stream is identified for treatment or storage in the LERF or 200 Area ETF, the generator is required to characterize the waste stream according to the requirements in Section B.2.1.1 and document the results of characterization on an aqueous waste profile sheet. This requirement is the first waste acceptance criterion.

The LERF and 200 Area ETF personnel work with the generators to ensure that the necessary information is collected for the characterization of a waste stream (i.e., the appropriate analyses or adequate knowledge), and that the information provided on the waste profile sheet is complete. The completed waste profile sheet is maintained in the Hanford Facility Operating Record, LERF and 200 Area ETF File according to Permit Condition II.I.1.j.

B.2.1.1 Waste Characterization

Because the constituents in the individual aqueous waste streams vary, each waste stream is characterized and evaluated for acceptability on a case-by-case basis. The generator is required to designate an aqueous waste, which generally will be based on analytical data. However, a generator may use knowledge to substantiate the waste designation, or for general characterization information. Examples of acceptable knowledge include the following:

- Documented data or information on processes similar to that which generated the aqueous waste stream.
- Information/documentation that the waste stream is from specific, well documented processes, e.g., F-listed wastes.
- Information/documentation that sampling/analyzing a waste stream would pose health and safety risks to personnel.
- Information/documentation that the waste stream does not lend itself to collecting a laboratory sample for example, wastewater collected (e.g., sump, tank) where the source water characterization is documented. Typically, these circumstances occur at decommissioned buildings or locations, not at operating units.

When a generator performs characterization of a dangerous and/or mixed waste stream based on knowledge, LERF and 200 Area ETF personnel review the knowledge as part of the waste acceptance process to ensure the knowledge satisfies the definition of *knowledge* in WAC 173-303-040. Specifically, LERF and 200 Area ETF personnel review the generator's processes to verify the integrity of the knowledge, and determine whether the knowledge is current and consistent with requirements of this WAP. LERF and 200 Area ETF management or their designee determines the final decision on the adequacy of the knowledge. The persons reviewing generator process knowledge and those making decisions on the adequacy of knowledge are trained according to the requirements of Addendum G, Personnel Training.

The generator is responsible for providing analytical data and/or knowledge that the influent aqueous waste meets the mixed waste exemption to implement Subpart CC emission standards [WAC 173-303-300(5)(i)(i), WAC 173-303-300(5)(i)(ii)]. The LERF Basins rely on the mixed waste exemption to implement Subpart CC emission standards [WAC 173-303-692(1)(b)(vi)]. Should the LERF basins receive non-radioactive dangerous waste, the volatile organic concentration at the point of waste origination shall be less than 500 parts per million (ppm) by weight [40 CFR 264.1082(c)(1)]. These waste streams may be combined with mixed waste in the LERF basins without affecting the use of the mixed waste exemption because the non-radioactive dangerous waste streams would be below 500 ppm by weight volatile organic concentration. Non-dangerous radioactive waste, state-only dangerous waste, and non-radioactive/ non-dangerous waste may also be combined with mixed waste in the LERF Basins without affecting the use of the mixed waste exemption.

The generator is also responsible for identifying Land Disposal Restrictions (LDRs) treatment standards applicable to the influent aqueous waste as part of the characterization, as required under 40 CFR 268.40

- The paperwork and/or laboratory analyses from the generator are insufficient.
- Discrepancies with the regulatory and operational acceptance criteria cannot be reconciled, including:
  - An aqueous waste, which is not allowed under the current Final Delisting 200 Area ETF, and LERF and 200 Area ETF management elect not to pursue an amendment, or the Final Delisting 200 Area ETF cannot be amended (Section B.2.2.1).
  - An aqueous waste is incompatible with LERF liner materials or with other aqueous waste in LERF and no other management method is available (Section B.2.2.3.1).
  - An aqueous waste, which is not allowed under the Subpart CC mixed waste exemption as described in Section B.2.1.1.
- Adequate storage or treatment capacity is not available.

B.2.2.1 Regulatory Acceptability

Each aqueous waste stream is evaluated on a case-by-case basis to determine if there are any regulatory concerns that would preclude the storage or treatment of a waste in the LERF or 200 Area ETF based on the criteria in Sections B.2.2.1.1. Before an aqueous waste can be stored or treated in either the LERF or 200 Area ETF, the waste designation must be determined. Information on the waste designation of an aqueous waste is documented in the waste profile sheet. This information is used to confirm that treating or storing the aqueous waste in the LERF or 200 Area ETF is allowed under and in compliance with WAC 173-303, Permit (WA7890008967), Final Delisting 200 Area ETF in 40 CFR 261, Appendix IX, Table 2 incorporated by reference by WAC 173-303-910(3), and the corresponding State-Issued Delisting for 200 Area ETF.

B.2.2.1.1 Dangerous Waste Regulations, State and Federal Delisting Actions, and Permits

Before an aqueous waste stream is sent to the LERF or 200 Area ETF, the generator will characterize and designate the stream with the appropriate dangerous/hazardous waste numbers according to WAC 173-303-070. Addendum A, the Final Delisting 200 Area ETF and the corresponding State-Issued Delisting identify the specific waste numbers for dangerous/mixed waste that can be managed in the LERF and 200 Area ETF. Dangerous waste designated with waste numbers not specified in these documents cannot be treated or stored in the LERF or 200 Area ETF, unless the documents are appropriately modified.

Additionally, aqueous wastes designated with listed waste numbers identified in the Final Delisting 200 Area ETF and the corresponding State-Issued Delisting will be managed in accordance with the conditions of the delisting, or an amended delisting.

B.2.2.2 Operational Acceptability

Because the operating configuration or operating parameters at the LERF and 200 Area ETF can be adjusted or modified, most aqueous waste streams generated on the Hanford Site can be effectively treated to below Delisting and Discharge Permit limits. Because of this flexibility, it would be impractical to define numerical acceptance or decision limits. Such limits would constrain the acceptance of appropriate aqueous waste streams for treatment at the LERF and 200 Area ETF. The versatility of the LERF and 200 Area ETF is better explained in the following examples:

- The typical operating configuration of 200 Area ETF is to process an aqueous waste through the UV/OX unit first, followed by the RO unit. However, high concentrations of nitrates may interfere with the performance of the UV/OX. In this case, 200 Area ETF could be configured to process the waste in the RO unit prior to the UV/OX unit.
- For a small volume aqueous waste with high concentrations of some anions and metals, the approach may be to first process the waste stream in the secondary treatment train. This approach would prevent premature fouling or scaling of the RO unit. The liquid portion (i.e., untreated

[1] Analytical methods for the parameters and constituents are provided in Section B.8.

[2] Analytical data are evaluated using the following 'sum of the fraction' technique. The individual constituent concentration is evaluated against the compatibility limit for its chemical family. The sum of the evaluations must be less than 1. pH is not part of this evaluation.

$$\sum_{n=1}^{i}\left(\frac{Conc_n}{LIMIT_n}\right) \leq 1$$

[3] Ketone containing saturated alkyl group(s)

[4] Ketone containing unsaturated alkyl group(s)

Where 'i' is the number of organic constituents detected

mg/L = milligrams per liter

ppm = parts per million

NA = not applicable

Table B.2. Waste Acceptance Criteria

General Criteria Category	Criteria Description
1. Characterization	A. Each generator must provide an aqueous waste profile.
	B. Each generator must designate the aqueous waste stream.
	C. Each generator must provide analytical data and/or knowledge.
2. Regulatory acceptability	A. The LERF and 200 Area ETF can store and treat influent aqueous wastes with waste numbers identified in Addendum A for the LERF and 200 Area ETF, and the Final Delisting 200 Area ETF, 40 CFR 261, Appendix IX, Table 2 incorporated by reference by WAC 173-303-910(3).
	B. The aqueous waste must comply with conditions of the Discharge Permit.
	C. An aqueous waste must comply with the conditions described in Section B.2.1.1 for Subpart CC compliance.
3. Operational acceptability	A. Determine whether an aqueous waste stream is treatable, considering: 1. Whether the removal and destruction efficiencies on the constituents of concern will be adequate to meet the Discharge Permit and Delisting levels 2. Other treatability concerns; analyses for this evaluation may include: total dissolved solids — iron total organic carbon — magnesium total suspended solids — nitrate specific conductivity — nitrite alkalinity — phosphate ammonia — potassium barium — silicon calcium — sodium chloride — sulfate fluoride — pH

LIQUID EFFLUENT RETENTION FACILITY (LERF) & 200 AREA EFFLUENT TREATMENT FACILITY (ETF)
ADDENDUM C
PROCESS INFORMATION

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
01/23/2018	PCN-LERF/ETF-2017-02 (8C.2018.Q1)
10/25/2017	8C.2017.3F
08/25/2016	8C.2016.Q2

Both high-density polyethylene liners, geotextile layers, and geonet are anchored permanently to a concrete wall at the top of the basin berm. During construction, liners were held in place with many sandbags on both the basin bottoms and side slopes to prevent wind from lifting and damaging the materials. Calculations were performed to determine the amount of fluid needed in a basin to prevent wind lift damage to the primary geomembrane. Approximately 6 to 8 inches of solution are kept in each basin to minimize the potential for uplifting the primary liner (*Calculations for Liquid Effluent Retention Facility Part B Permit Application*, HNF-SD-LEF-TI-005, 1997).

The upper 11 to 15 feet of the sidewall liner also could experience stresses in response to temperature changes. Accommodation of thermal influences for the LERF geosynthetic layers is affected by inclusion of sufficient slack as the liners were installed. Calculations demonstrate that approximately 2.2 feet of slack is required in the long basin bottom dimension, 1.5 feet across the basin, and 1.1 feet from the bottom of the basin to the top of the basin wall (*Calculations for Liquid Effluent Retention Facility Part B Permit Application*, HNF-SD-LEF-TI-005, 1997).

The entire lining system is covered by a floating cover that is bolted to the concrete anchor wall (see Section C.5.11).

C.5.2.4.1 Liner Repairs During Operations

Should repair of a basin liner be required while the basin is in operation, a sufficient quantity of the basin contents will be transferred to the 200 Area ETF or another available basin to allow access for the repair activities. After the liner around the leaking or damaged section is cleaned, repairs to the geomembrane will be made as recommended by the liner vendor or others knowledgeable in liner repair; such as a professional engineer that has adequate knowledge and experience to make recommendations in liner repairs. The criteria for selecting a person or company to make liner repair recommendations is determined by the Permittees for the LERF basins. Selection criteria could include educational background, related experience, and professional qualifications.

C.5.2.4.2 Control of Air Emissions

The LERF basins use a floating membrane cover that is stretched over each basin to form a continuous barrier over the entire surface area. These covers serve to keep unwanted material from entering the basins, and minimize evaporation of the aqueous waste contents. The covers have chemical/physical properties that maintain the material integrity for the intended service life of the material.

~~The floating covers limit evaporation of aqueous waste and releases of volatile organic compounds into the atmosphere.~~ To accommodate volumetric changes in the air between the fluid in the basin and the cover, and to avoid problems related to 'sealing' the basins too tightly, each basin is equipped with a carbon filter breather vent system. Any air escaping from the basins must pass through this vent, consisting of a pipe that penetrates the anchor wall and extends into a carbon adsorption filter unit.

C.5.2.5 Liner Coverage

The liner system covers the entire ground surface that underlies the retention basins. The primary liner extends up the side slopes to a concrete anchor wall at the top of the dike encircling the entire basin (Figure C.15).

C.5.3 Prevention of Overtopping

Overtopping prevention is accomplished through administrative controls and liquid-level instrumentation installed in each basin. The instrumentation includes local liquid-level indication as well as remote indication at the 200 Area ETF. Before an aqueous waste is transferred into a basin, administrative controls are implemented to ensure overtopping will not occur during the transfer. The volume of feed to be transferred is compared to the available volume in the receiving basin. The transfer is not initiated unless there is sufficient volume available in the receiving basin or a cut-off level is established. The transfer into the basin would be stopped when this cut-off level is reached.

are destroyed).

3. Assuming all the remaining organics are emitted, determine the rate, which the organics are emitted using the feed flow rate and the concentrations of organics after the UV/OX process.
4. The amount of organics emitted from the vessel off gas system is the sum of the amount calculated in steps 1 and 3.

The organic emission rates and quantity of organics emitted during processing are determined using these calculations and are included in the Hanford Facility Operating Record, LERF and 200 Area ETF file.

C.6.2.3 Reevaluating Compliance with Subpart AA Standards

Calculations to determine compliance with Subpart AA will be reviewed when any of the following conditions occur at the 200 Area ETF:

- Changes in the maximum feed rate to the 200 Area ETF (i.e., greater than the 150 gallons per minute flow rate).
- Changes in the configuration or operation of the 200 Area ETF that would modify the assumptions given in Section C.6.2.2 (e.g., taking credit for the carbon absorbers as a control device).
- Annual operating time exceeds 310 days.

C.6.3 Applicability of Subpart CC Standards

The air emission standards of 40 CFR 264, Subpart CC apply to tank, surface impoundment, and container storage units that manage wastes with average volatile organic concentrations equal to or exceeding 500 parts per million by weight, based on the hazardous waste composition at the point of origination (61 FR 59972). However, TSD units that are used solely for management of radioactive mixed waste are exempt. Mixed waste is managed at the LERF and 200 Area ETF and dangerous waste could be treated and stored at these TSD units.

~~TSD owner/operators are not required to determine the concentration of volatile organic compounds in a hazardous waste if the wastes are placed in waste management units that employ air emission controls that comply with the Subpart CC standards. Therefore, the approach to Subpart CC compliance at the LERF and 200 Area ETF is to demonstrate that the LERF and 200 Area ETF meet the Subpart CC control standards (40 CFR 264.1084 – 40 CFR 264.1086).~~

C.6.3.1 Demonstrating Compliance with Subpart CC for Tanks

Since the 200 Area ETF tanks already have process vents regulated under 40 CFR 264, Subpart AA (WAC 173-303-690), they are exempt from Subpart CC [40 CFR 264.1080(b)(8)].

C.6.3.2 Demonstrating Compliance with Subpart CC for Containers

Container Level 1 and Level 2 standards are met at the 200 Area ETF by managing all dangerous and/or mixed wastes in U.S. Department of Transportation containers [40 CFR 264.1086(f)]. Level 1 containers are those that store more than 3.5 cubic feet and less than or equal to 16 cubic feet. Level 2 containers are used to store more than 16 cubic feet of waste, which are in 'light material service'. Light material service is defined where a waste in the container has one or more organic constituents with a vapor pressure greater than 0.04 pounds per square inch at 68˚F, and the total concentration of such constituents is greater than or equal to 20 percent by weight.

The monitoring requirements for Level 1 and Level 2 containers must include a visual inspection when the container is received at the 200 Area ETF, when waste is initially placed in the container, and at least once every 12 months when stored onsite for 1 year or more.

If compliant containers are not used at the 200 Area ETF, alternate container management practices are used that comply with the Level 1 standards. Specifically, the Level 1 standards allow for “A container equipped with a cover and closure devices that form a continuous barrier over the container openings such

that when the cover and closure devices are secured in the closed position there are no visible holes, gaps, or other open spaces into the interior of the container. The cover may be a separate cover installed on the container...or may be an integral part of the container structural design…" [40 CFR 264.1086(c)(1)(ii)]. An organic-vapor-suppressing barrier, such as foam, may also be used [40 CFR 264.1086(c)(1)(iii)]. Section C.3 provides detail on container management practices at the 200 Area ETF.

Container Level 3 standards apply when a container is used for the "treatment of a hazardous waste by a waste stabilization process" [40 CFR 264.1086(2)]. Because treatment in containers using the stabilization process is not provided at the 200 Area ETF, these standards do not apply.

C.6.3.3 Demonstrating Compliance with Subpart CC for Surface Impoundments

The LERF Basins rely on the mixed waste exemption to implement Subpart CC emission standards [WAC 173-303-692(1)(b)(vi)]. Should the LERF basins receive non-radioactive dangerous waste, the volatile organic concentration at the point of waste origination shall be less than 500 parts per million (ppm) by weight [40 CFR 264.1082(c)(1)]. These waste streams may be combined with mixed waste in the LERF basins without affecting the use of the mixed waste exemption because the non-radioactive dangerous waste streams would be below 500 ppm by weight volatile organic concentration, as designated at the point of origin. Non-dangerous radioactive waste, state-only dangerous waste, and non-radioactive/ non-dangerous waste may also be combined with mixed waste in the LERF Basins without affecting the use of the mixed waste exemption.~~The Subpart CC emission standards are met at LERF using a floating membrane cover that is constructed of very low-density polyethylene that forms a continuous barrier over the entire surface area [40 CFR 264.1085(c)]. This membrane has both organic permeability properties equivalent to a high-density polyethylene cover and chemical/physical properties that maintain the material integrity for the intended service life of the material. The additional requirements for the floating cover at the LERF have been met (Section C.5.2.4).~~

C.7 Engineering Drawings

C.7.1 Liquid Effluent Retention Facility

Drawings of the containment systems at the LERF are summarized in Table C.2. Because the failure of these containment systems at LERF could lead to the release of dangerous waste into the environment, modifications that affect these containment systems will be submitted to the Washington State Department of Ecology, as a Class 1, 2, or 3 Permit modification, as required by WAC 173-303-830.

Table C.2. Liquid Effluent Retention Facility Containment System

LERF System	Drawing Number	Drawing Title
Bottom Liner	H-2-79590, Sheet 1	Civil Plan, Sections & Det; Cell Basin Bottom Liner
Top Liner	H-2-79591, Sheet 1	Civil Plan, Sections & Det; Cell Basin Top Liner
Catch Basin	H-2-79593, Sheet 1, 3-5	Civil Plan, Sections & Det; Catch Basin

The drawings identified in Table C.3 illustrate the piping and instrumentation configuration within LERF, and of the transfer piping systems between the LERF and the 242-A Evaporator. These drawings are provided for general information, and to demonstrate the adequacy of the design of the LERF as a surface impoundment.

Hanford Facility RCRA Permit Modification Notification Forms

Part III, Operating Unit Group 5

325 Hazardous Waste Treatment Units

Index

Page 2 of 3: Unit specific conditions

Page 3 of 3: Revision Instructions

Submitted by Co-Operator:

Cameron M Andersen — 11/9/18

Cameron M. Andersen — Date

Reviewed by DOE Program Office:

11-14-18

Jeffery L. Bird — Date

Hanford Facility RCRA Permit Modification Form

Unit:	Permit Part
325 Hazardous Waste Treatment Units	***Part III, Operating Unit Group 5***

Description of Modification:

Unit Specific Conditions:

1. References to Permit Condition II.I.2 will be replaced with II.I.1. This change applies to Conditions: III.5.C.3, III.5.D.1, III.5.H.4, III.5.O.1.b and III.5.P.5.b.
2. Correct the reference in Permit Condition III.5.C.2 to Addendum B, Section B.1.1.1.3.
3. Correct the reference in Permit Condition III.5.C.3. to III.5.C.2.
4. Correct the reference in Permit Condition III.5.H.5.d to I.E.15.d.

WAC 173-303-830 Modification Class	Class 1	Class 1	Class 2	Class 3
Please mark the Modification Class:	X			

Enter relevant WAC 173-303-830, Appendix I Modification citation number:
A.1 Administrative and informational changes

Modification Concurrence: [✓] Yes [ ] No

Reason for Non-concurrence:

Reviewed by Ecology:

S. L. Dahl-Crumpler — Date: 11/19/18

Revision Instructions:

Revise 325 HWTUs Unit Specific Permit Conditions to incorporate the changes shown herein.

325 HAZARDOUS WASTE TREATMENT UNITS
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 a "**Last Modification Date**" which represents the last date the portion of the unit has been modified. 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.

Last modification to 325 Hazardous Waste Treatment **June 29, 2018**

Addenda	Last Modification Date	Modification Number
Unit-Specific Conditions	06/29/2018	8C.2018.1A (8C.2018.Q2)
A. Part A Form	07/2015	
B. Waste Analysis Plan	05/2014	
C. Process Information	05/2014	
D. Reserved		
E. Procedures to Prevent Hazards	05/2014	
F. Preparedness & Prevention	05/2014	
G. Personnel Training	04/26/2017	8C.2017.Q1
H. Closure Plan	05/23/2016	8C.2016.Q1
I. Inspection Requirements	05/2014	
J. Contingency Plan	06/29/2018	8C.2018.1A (8C.2018.Q2)
Attachment to Addendum J – Building Emergency Procedure Applicability Matrix	06/11//2018	PCN-325-2018-01 (8C.2018.Q2)

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325 HAZARDOUS WASTE TREATMENT UNITS
OPERATING UNIT GROUP 5 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
06/29/2018	8C.2018.1A (8C.2018.Q2)
06/11/2018	PCN-325-2018-01 (8C.2018.Q2)
02/20/2018	PCN-325-2017-01
04/26/2017	8C.2017.Q1
05/23/2016	8C.2016.Q1

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OPERATING UNIT GROUP 5 PERMIT CONDITIONS
325 HAZARDOUS WASTE TREATMENT UNITS

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OPERATING UNIT GROUP 5 PERMIT CONDITIONS
325 HAZARDOUS WASTE TREATMENT UNITS

UNIT DESCRIPTION

The 325 Hazardous Waste Treatment Units (HWTUs) store and treat dangerous and/or mixed waste in containers and in a 1,218-liter tank. The 325 HWTUs consist of the Shielded Analytical Laboratory (SAL) that includes Rooms 32, 200, 201, 202, and 203; the Cask Handling Area that includes portions of Rooms 603 and 604A; the Truck Lock, Room 610; and the HWTU that includes Rooms 520, 524, and 528 of the 325 Building located in the south portion of the 300 Area. It also includes the nearby 3714 Pad area.

LIST OF ADDENDA SPECIFIC TO OPERATING UNIT GROUP 5

Addendum A	Part A Form, dated August 2015
Addendum B	Waste Analysis Plan, dated May 2014
Addendum C	Process Information, dated May 2014
Addendum D	Groundwater Monitoring, (Reserved)
Addendum E	Procedures to Prevent Hazards, dated May 2014
Addendum F	Preparedness and Prevention, dated May 2014
Addendum G	Personnel Training, dated March 2017
Addendum H	Closure Plan, dated March 2016
Addendum I	Inspection Requirements, dated May 2014
Addendum J	Contingency Plan, dated June 2018
Attachment to Addendum J	Building Emergency Procedure Applicability Matrix, dated June 2018

DEFINITIONS

Reserved

ACRONYMS

Reserved

III.5.A COMPLIANCE WITH UNIT-SPECIFIC PERMIT CONDITIONS

III.5.A.1 The Permittees will comply with all conditions in this Chapter and its addenda with respect to dangerous and/or mixed waste management and dangerous waste management units in 325 HWTUs, in addition to requirements in Permit Parts I and II.

III.5.B GENERAL WASTE MANAGEMENT

III.5.B.1 The Permittees are authorized to accept dangerous and/or mixed waste that satisfies the waste acceptance criteria in Addendum B according to the waste acceptance procedures in Addendum B for storage in the 325 HWTUs.

III.5.B.2 The Permittees are authorized to store and/or treat dangerous and/or mixed waste physically located in the 325 HWTUs as of the effective date of this Permit, and wastes accepted for storage or treatment pursuant to Permit Condition III.5.B.1.

III.5.B.3 The Permittees will maintain the physical structure of the 325 HWTUs as documented in Addendum C, Section C.1.4.1. [WAC 173-303-630(7)]

III.5.B.4 The Permittees will conduct waste loading and unloading operations consistent with and no less stringent than those practices described in Addendum F, Section F.2.1. [WAC 173-303-395]

III.5.C WASTE ANALYSIS

III.5.C.1 The Permittees will comply with requirements in Addendum B for waste analysis for all dangerous and/or mixed waste managed at this unit. [WAC 173-303-300(5)]

III.5.C.2 The Permittees will have an accurate and complete waste profile as described in Addendum B, Section B.1.1.1.~~2.1~~3 for every waste stream accepted by the 325 HWTUs. [WAC 173-303-380(1)(a)(b)]

III.5.C.3 The Permittees will place a copy of each waste profile required by Permit Condition III.5.C.2 in the Hanford Facility Operating Record, 325 HWTUs file required by Permit Condition II.I.1~~2~~. [WAC 173-303-380(1)(a)(b)]

III.5.C.4 The Permittees will comply with the requirements in Addendum C, Sections C.1.11, and C.2.1.5, to prevent hazards from ignitable, reactive, or incompatible wastes. [WAC 173-303-395(1)]

III.5.C.5 The Permittees will make a copy of the waste profile required by Permit Conditions III.5.C.2 available upon request. [WAC 173-303-380(1)(a) and (b)]

III.5.D RECORDKEEPING AND REPORTING

III.5.D.1 The Permittees will place the following into the Hanford Facility Operating Record, 325 HWTUs ~~F~~file required by Permit Conditions II.I.1~~2~~: [WAC 173-303-380]

III.5.D.1.a A description of and quantity of each dangerous and/or mixed waste accepted for storage in the 325 HWTUs; [WAC 173-303-380(1)(a)]

III.5.D.1.b Records and results of any sampling or analysis of wastes accepted for storage at the 325 HWTUs, and from any other sampling and analysis required by Addendum B; [WAC 173-303-380(1)(c)]

III.5.D.1.c Summary reports and details of all incidents that require implementation of Addendum J, Contingency Plan according to the requirements of Permit Conditions III.5.G.1; [WAC 173-303-380(1)(d)]

III.5.D.1.d An inspection log, or a summary of such log, of inspections conducted pursuant to Permit Conditions III.5.H.1; [WAC 173-303-380(1)(e)]

III.5.D.1.e Records required by WAC 173-303-380(1)(k) and (o), incorporated by reference.

III.5.E SECURITY

III.5.E.1 The Permittees will maintain security at the 325 HWTUs according to the requirements in Addendum E, and in accordance with Permit Conditions II.M. [WAC 173-303-310(2)(b)]

III.5.E.2 The Permittees will post warning signs at all entrances to the 325 HWTUs. [WAC 173-303-310(2)(a)]

III.5.F PREPAREDNESS AND PREVENTION

III.5.F.1 The Permittees will comply with the Preparedness and Prevention requirements in Addendum F. [WAC 173-303-340]

III.5.G **CONTINGENCY PLAN**

III.5.G.1 The Permittee will comply with Addendum J, in addition to the requirements of Permit Conditions II.A when applicable. Enforceable portions of Addendum J are identified in Permit Addendum J, Page J-i. [WAC 173-303-350]

III.5.H **INSPECTIONS**

III.5.H.1 The Permittee will perform inspections of the 325 HWTUs according to Addendum I, Inspection Requirements. The inspection shall include:

III.5.H.1.a All monitoring equipment, safety and emergency equipment, security devices and operating and structural equipment that help prevent, detect, or respond to hazards to the public health or the environment. [WAC 173-303-320(2)]

III.5.H.2 The inspection schedule required by Permit Conditions III.5.H.1 will provide the frequency of inspection for specific items. The frequency should be based on the rate of possible deterioration of equipment and the probability of an environmental or human health incident. Areas subject to spills must be inspected daily when in use. [WAC 173-303-320(2)(c)]

III.5.H.3 The Permittee must remedy any problems revealed by inspections conducted pursuant to Permit Conditions III.5.H.1, on a schedule that prevents hazards to the public health and the environment. Where a hazard is imminent or has already occurred, remedial action must be taken immediately. [WAC 173-303-320(3)]

III.5.H.4 The Permittees will place a copy of the inspection requirements and schedule prepared according to Permit Conditions III.5.H.1 in the Hanford Facility Operating Record, 325 HWTUs ~~File~~ file required by Permit Conditions II.I.~~2~~1. [WAC 173-303-320(2)(a)]

III.5.H.5 The Permittee will keep an inspection log or summary of inspections conducted pursuant to Permit Conditions III.5.H.1, including at a minimum the following:

III.5.H.5.a Date and time of the inspection;

III.5.H.5.b Printed name and the handwritten signature of the inspector;

III.5.H.5.c Notation of the observations made;

III.5.H.5.d An account of spills or discharges in accordance with Permit Conditions ~~I~~I.E.15.d, and the date and description of any repairs or remedial actions taken.

III.5.I **TRAINING PLAN**

III.5.I.1 The Permittee will include Addendum G training requirements in the written training plan required by Permit Conditions II.C. [WAC 173-303-330]

III.5.J **OTHER GENERAL REQUIREMENTS**

III.5.J.1 The Permittees will conduct waste management activities within 325 HWTUs authorized by this Permit according to the requirements in Addendum F, Sections F.3.1, and F.3.2. The Permittees will document compliance with these provisions in the Hanford Facility Operating Record, 325 HWTUs File. [WAC 173-303-395(1)(a)-(c)]

III.5.J.2 The Permittees will comply with the requirements of WAC 173-303-395(2), incorporated by reference.

III.5.K **CLOSURE**

III.5.K.1 The Permittees will close the 325 HWTUs in accordance with Addendum H, Closure Plan. [WAC 173-303-610(4)]

III.5.K.2 The Permittees will amend the Closure Plan in accordance with Permit Conditions II.J.3 and Addendum H. [WAC 173-303-610(3)(b)]

III.5.K.3 The Permittees will provide Ecology with a Notice of Closure in accordance with Addendum H. [WAC 173-303-610(3)(c)]

III.5.L **POST CLOSURE**

Reserved

III.5.M **CRITICAL SYSTEMS**

Reserved

III.5.N **RESERVED**

III.5.O **CONTAINERS**

III.5.O.1 Container Storage Unit Standards

III.5.O.1.a The Permittees will maintain the integrity of container storage secondary containment as documented in Addendum C, Sections C.1.4, and C.1.5, including all chemically resistant coatings and sealants described in Addendum C, Section C.1.4.1, as necessary to ensure any spills or releases do not migrate to the underlying concrete or soils.

III.5.O.1.b The Permittees will place documentation of any damage to and subsequent repairs of chemically resistant coatings in the Hanford Facility Operating Record, 325 HWTUs ~~File~~ file required by Permit Conditions II.I.1~~2~~. [WAC 173-303-630(7)]

III.5.O.1.c Within thirty (30) days of the effective date of this Permit, the Permittee will place documentation in the Hanford Facility Operating Record, 325 HWTUs File identifying the specific chemical resistant floor and wall coatings used for secondary containment in the 325 HWTUs. This documentation will demonstrate that these materials are impervious to the wastes managed in each of the 325 HWTUs cells to contain spills until the collected material is detected and removed. [WAC 173-303-630(7)(a)(i)]

III.5.O.2 Container Management Standards

III.5.O.2.a The Permittees are authorized to manage containerized wastes at the 325 HWTUs according to the requirements of Addendum C, Section C.1.2. [WAC 173-303-630(2)]

III.5.O.2.b The Permittees will store containers according to the waste segregation and storage arrangements specified in Addendum C, and the hazard class assigned as part of the waste acceptance process required by Addendum B. [WAC 173-303-630(7), WAC 173-303-395(2)]

III.5.O.2.c In addition to storage capacity limitations specified elsewhere in this Chapter, the Permittees will ensure that the storage limits for flammable liquids, combustible liquids, combustible fibers, flammable gasses and liquefied flammable gasses identified in WAC 173-303-630(8)(b) are not exceeded at any time. In addition, the Permittees will ensure the capacity limitation for explosive waste in WAC 173-303-630(8)(a) is not exceeded at any time. [WAC 173-303-630(8)]

III.5.O.2.d The Permittees will label containers according to the requirements of Addendum C, Section C.1.3. The Permittees will also ensure that:

III.5.O.2.d.i Container labels are not obscured or are otherwise unreadable;

III.5.O.2.d.ii Container labels are not obscured, removed, or otherwise unreadable in the course of inspection;

III.5.O.2.d.iii Container labels are removed or completely obscured when the container to which they are attached is rendered empty. [WAC 173-303-630(3)]

III.5.O.2.e The Permittees will ensure wastes are compatible with containers in which they are managed and with other wastes stored at the 325 HWTUs according to the requirements Addendum C, Section C.1.11, and Addendum F, Section F.3.2. [WAC 173-303-630(4), WAC 173-303-630(9)]

III.5.O.2.f The Permittees will comply with the requirements for managing wastes in containers in WAC 173-303-630(5)(a) and (b), incorporated by reference.

III.5.O.2.g The Permittees will ensure the physical arrangement and spacing of containers within the 325 HWTUs satisfies the following requirements. [WAC 173-303-630(5)(c)]

III.5.O.2.g.i The Permittees will comply with the requirements for waste stored in cells, storage cabinets and shelves, as documented in Addendum C, Section C.1.2;

III.5.O.2.g.ii The Permittees will ensure the physical arrangement and spacing of drums that are stored in the 325 HWTUs are stored in rows no more than two drums wide and with a separation of at least thirty (30) inches between rows of drums to ensure that all drums are readily accessible for movement and inspection. [WAC 173-303-630(5)(c), WAC 173-303-340(3)]

III.5.O.2.h The Permittees will remove any accumulated liquids from container storage areas in the 325 HWTUs, including individual secondary containment systems (spill pallets, portable booms, or other commercially available drum containment systems) that may be used to ensure containers are not in contact with free liquids and to prevent overflow of the container storage area secondary containment. [WAC 173-303-630(7)]

III.5.O.2.i The Permittees may treat wastes in containers via consolidation of wastes, decanting of free liquids and addition of absorbents. Absorbents must satisfy the requirements of WAC 173-303-140(4)(b)(iv), incorporated by reference, for wastes to be land disposed in Washington. The Permittees may not use addition of absorbents for purposes of changing the treatability group of a waste with respect to the land disposal restriction standards of 40 CFR 268, incorporated by reference by WAC 173-303-140.

III.5.O.2.j Waste stored in the SAL and the Cask Handling Area is exempt from WAC 173-303-692, as those units are used exclusively to manage mixed waste. The Permittees will comply with the requirements for air emissions from containers in Addendum C, Section C.3 for waste stored in the other portions of the 325 HWTUs. [WAC 173-303-692]

III.5.O.3 Container Storage Inspection Requirements

III.5.O.3.a The Permittee will inspect the 325 HWTUs according to Addendum I, Inspection Requirements. [WAC 173-303-630(6)]

III.5.O.3.b The Permittees will comply with the requirements of WAC 173-303-395(1)(d), incorporated by reference. [WAC 173-303-395(1)(d)]

III.5.P **TANK SYSTEMS**

III.5.P.1 The Permittees will develop, maintain, and follow a written schedule and requirements for conducting integrity assessments. The schedule will meet the requirements of Addendum C, Section C.2.1.1.2 and consideration of the following factors:

III.5.P.1.a Results of past integrity assessments;

III.5.P.1.b Age of the tank system(s);

III.5.P.1.c Materials of construction of each tank system, including any liners;

III.5.P.1.d Characteristics of the wastes managed by each tank system;

III.5.P.1.e Any other relevant factors. [WAC 173-303-640(2)(e)]

III.5.P.2 The Permittees will maintain a copy of the schedule required by Permit Condition III.5.P.1 in the Hanford Facility Operating Record, 325 HWTUs File, and conduct periodic integrity assessments according to the schedules and requirements of the schedule. If results of these assessments indicate a tank has structural deficiencies or lacks integrity such that it may collapse, rupture or fail, the Permittees must follow the requirements of WAC 173-303-640(7), incorporated by reference. [WAC 173-303-640(2)(e)]

III.5.P.3 If the findings of an integrity assessment conducted pursuant to Permit Condition III.5.P.1 indicate a tank has structural deficiencies or lacks integrity such that it may collapse, rupture or fail, the Permittees will evaluate the waste acceptance criteria in Addendum B, the applicable tank design and/or operating requirements in Addendum C, and any other Permit requirements which may reasonably influence the integrity of the tank in question. Based on this review, the Permittees will request the required Permit modifications in accordance with Permit Conditions I.C.3 to minimize any adverse effects of future waste management activities on the integrity of the tank. [WAC 173-303-640(2)(d), WAC 173-303-815(2)(b)]

III.5.P.4 Tank System Operating Requirements

III.5.P.4.a The Permittees will comply with the requirements of WAC 173-303-640(5)(a), incorporated by reference.

III.5.P.4.b The Permittees will comply with the requirements of Addendum C, Section C.2.1.2.4. [WAC 173-303-640(5)(b)]

III.5.P.4.c The Permittees will comply with the requirements of Addendum C, Section C.2.1.4. [WAC 173-303-640(5)(d)]

III.5.P.4.d The Permittees will comply with the requirements of WAC 173-303-640(7), incorporated by reference, in response to spills or leaks from tank systems at Operating Unit Group 5. [WAC 173-303-640(5)(c)]

III.5.P.4.e The Permittees will comply with the requirements of WAC 173-303-640(10), incorporated by reference.

III.5.P.5 Tank System Inspection Requirement

III.5.P.5.a The Permittees will inspect the Operating Unit Group 5 tank systems authorized by Permit Condition III.5.B.2 according to Addendum I, Inspection Requirements. [WAC 173-303-640(6)(a)-(c)]

III.5.P.5.b The Permittees will place documentation of inspections conducted pursuant to Permit Condition III.3.P.5.a in the Hanford Facility Operating Record, 325 HWTUs ~~File~~ file required by Permit Condition II.I.~~2~~1. These records will contain the following information: [WAC 173-303-640(6)(d)]

III.5.P.5.b.i Date and time of the inspection

III.5.P.5.b.ii Printed name and the handwritten signature of the inspector

III.5.P.5.b.iii Notation of the observations made

III.5.P.5.b.iv Date and description of any repairs or remedial actions taken, and/or the scheduled date for the repairs or remedial actions.

III.5.P.5.c The Permittees will remedy any problems revealed by the inspections required by Permit Condition III.3.P.9, on a schedule that prevents hazards to the public health and environment. Where a hazard is imminent or has already occurred, remedial action must be taken immediately. [WAC 173-303-640(6)(d)]

III.5.P.6 Approved Waste and Storage Limits

III.5.P.6.a Subject to conditions in Addendum C, the Permittees may store a maximum of 1,218 liters of dangerous and/or mixed waste in the tank system in the 325 HWTUs (S02). A maximum of 1,218 liters per day of dangerous and/or mixed waste may be treated in tanks in the 325 HWTUs (T01).

III.5.P.6.b The Permittees shall only store or treat in the SAL tank the following mixed waste listed in the Dangerous and Mixed Waste Tank System:

III.5.P.6.b.i Dangerous and/or mixed waste generated by Pacific Northwest National Laboratory; or

III.5.P.6.b.ii Mixed waste generated at other Hanford Facility locations and mixed waste generated from offsite facilities, which have been transferred and accepted by the 325 HWTUs pursuant to the provisions in Addendum B, Waste Analysis Plan, and this Permit.

III.5.P.7 Tank System Design and Construction

III.5.P.7.a Tank System Installation and Certification will be retained by the Permittees and made available upon request.

III.5.P.8 Integrity Assessments

III.5.P.8.a Results of the integrity assessments shall be included in the Hanford Facility Operating Record, 325 HWTUs File until final closure and corrective action are complete and certified.

III.5.P.8.b Any tank system, including its secondary containment system, found to be leaking, or otherwise unfit for service, immediately shall be removed from service and the Permittees shall comply with the requirements of WAC 173-303-640(7). Such a tank system, including its secondary containment system, shall not be returned to service until the Permittees have obtained the required certification.

III.5.P.8.c The Permittees shall maintain the integrity of all containment systems for tank systems.

III.5.P.9 Tank Management Practices

III.5.P.9.a The Permittees shall not place mixed wastes or treatment reagents in the tank system if these could cause the tank, its ancillary equipment, or a containment system to rupture, leak, corrode, or otherwise fail.

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Hanford Facility RCRA Permit Modification Notification Forms

Part III, Operating Unit 5

325 Hazardous Waste Treatment Units

Index

Page 2 of 4: Conditions Page
Page 3 of 4: Addendum J
Page 4 of 4: Revision Instructions

Submitted by Co-Operator:

Cameron M. Andersen 12/3/18

Cameron M. Andersen — Date

Reviewed by DOE Program Office:

Jeffery L. Bird 6 Dec 2018

Jeffery L. Bird — Date

Hanford Facility RCRA Permit Modification Form

Unit:	Permit Part
325 Hazardous Waste Treatment Units	***Part III, Operating Unit Group 5***

Description of Modification:

Conditions Page

Revise LIST OF ADDENDA SPECIFIC TO OPERATING UNIT GROUP 5 as follows:

Addendum J Contingency Plan, dated ~~June 2018~~ October 2018

WAC 173-303-830 Modification Class	Class 1	Class 1	Class 2	Class 3
Please mark the Modification Class:	X			

Enter relevant WAC 173-303-830, Appendix I Modification citation number: A.1.
Administrative and Informational changes

Modification Concurrence: ☑ Yes ☐ No (state reason for denial)

Reason for Non-concurrence:

Reviewed by Ecology:

S. L. Dahl-Crumpler

12-12-18
Date

Hanford Facility RCRA Permit Modification Form

Unit:	Permit Part
325 Hazardous Waste Treatment Units	***Part III, Operating Unit Group 5***

Description of Modification:
Addendum J, Contingency Plan

Replace 325 Building Emergency Procedure in Addendum J with Revision 19 dated October 15, 2018. See attached redline/strikeout for specific changes. No changes are made to Addendum J "Applicability Matrix."

WAC 173-303-830 Modification Class	Class 1	Class 1	Class 2	Class 3
Please mark the Modification Class:	X			

Enter relevant WAC 173-303-830, Appendix I Modification citation number: A.1
Administrative and Informational Changes

Modification Concurrence: ☑ Yes ☐ No (state reason for denial)
Reason for Non-concurrence:

Reviewed by Ecology:
S. L. Dahl-Crumpler 12/21/18
Date

Revision Instructions:

Revise Addendum the OUG-5 unit-specific permit conditions as shown herein.

Replace OUG-5 Contingency Plan (Rev 18) with Rev 19.

OPERATING UNIT GROUP 5 PERMIT CONDITIONS
325 HAZARDOUS WASTE TREATMENT UNITS

UNIT DESCRIPTION

The 325 Hazardous Waste Treatment Units (HWTUs) store and treat dangerous and/or mixed waste in containers and in a 1,218-liter tank. The 325 HWTUs consist of the Shielded Analytical Laboratory (SAL) that includes Rooms 32, 200, 201, 202, and 203; the Cask Handling Area that includes portions of Rooms 603 and 604A; the Truck Lock, Room 610; and the HWTU that includes Rooms 520, 524, and 528 of the 325 Building located in the south portion of the 300 Area. It also includes the nearby 3714 Pad area.

LIST OF ADDENDA SPECIFIC TO OPERATING UNIT GROUP 5

Addendum A Part A Form, dated August 2015
Addendum B Waste Analysis Plan, dated May 2014
Addendum C Process Information, dated May 2014
Addendum D Groundwater Monitoring, (Reserved)
Addendum E Procedures to Prevent Hazards, dated May 2014
Addendum F Preparedness and Prevention, dated May 2014
Addendum G Personnel Training, dated March 2017
Addendum H Closure Plan, dated March 2016
Addendum I Inspection Requirements, dated May 2014
Addendum J Contingency Plan, dated ~~June 2018~~October 2018
Attachment to Addendum J Building Emergency Procedure Applicability Matrix, dated June 2018

DEFINITIONS

Reserved

ACRONYMS

Reserved

III.5.A COMPLIANCE WITH UNIT-SPECIFIC PERMIT CONDITIONS

III.5.A.1 The Permittees will comply with all conditions in this Chapter and its addenda with respect to dangerous and/or mixed waste management and dangerous waste management units in 325 HWTUs, in addition to requirements in Permit Parts I and II.

III.5.B GENERAL WASTE MANAGEMENT

III.5.B.1 The Permittees are authorized to accept dangerous and/or mixed waste that satisfies the waste acceptance criteria in Addendum B according to the waste acceptance procedures in Addendum B for storage in the 325 HWTUs.

III.5.B.2 The Permittees are authorized to store and/or treat dangerous and/or mixed waste physically located in the 325 HWTUs as of the effective date of this Permit, and wastes accepted for storage or treatment pursuant to Permit Condition III.5.B.1.

III.5.B.3 The Permittees will maintain the physical structure of the 325 HWTUs as documented in Addendum C, Section C.1.4.1. [WAC 173-303-630(7)]

Pacific Northwest
NATIONAL LABORATORY

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Building Emergency Procedure

BEP-325RPL

Building Emergency Procedure for the Radiochemical Processing Laboratory (325RPL)

Revision No.	19
Effective Date	10/15/2018
Procedure Owner:	PT Saueressig
Author:	PT Saueressig
Approval:	325RPL Manager, EM Hanson
Concurrence:	Emergency Preparedness, JS Beck Emergency Preparedness, ML Hayden Environmental Protection and Regulatory Programs, MD Ellefson Materials and Waste Management Manager, TL VanArsdale Worker Safety and Health, EG Damberg
USQ Reviewer:	PT Saueressig
USQ Number:	RPL-2018-284S
Use Category:	Reference

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1.0 General Information

The 325 Building/Radiochemical Processing Laboratory (325RPL) Building Emergency Procedure (BEP) has been designed to provide information necessary to minimize risks to personnel, facilities, programs, and the environment in the event of an emergency. This procedure applies to all resident staff, visitors, vendors, and contractor/subcontractor personnel. If an event is of a security nature (bomb threat, hostage situation, or other act of violence), security procedures may supersede this procedure and will be assessed on a case-by-case basis.

This facility contains both radioactive and hazardous materials in operations, storage, and handling. The 325RPL Building poses a possible significant hazard to adjacent facilities, personnel, programs, and the environment.

This BEP includes the contingency plans and emergency procedures for hazardous waste management activities as referenced by the following Washington Administrative Codes (WAC):

- WAC-173-303-340, "Preparedness and Prevention"
- WAC-173-303-350, "Contingency Plan and Emergency Procedures"
- WAC-173-303-360, "Emergencies"

This plan must be implemented whenever an emergency threatens human health and the environment[1].

Emergencies may arise from, but are not limited to, the following:

- fire
- explosion
- loss of service systems
- medical emergency
- bomb threats
- criticality
- criminal activity
- incidents at other facilities
- natural hazards or natural forces
- spill/release to the environment requiring assistance
- hazardous materials release

Expected responses are those actions which are intended to minimize the effects of a situation while providing optimum protection to personnel. Expected responses include notification to the Pacific Northwest National Laboratory (PNNL) Security Operations Center (SOC), Building Manager (BM), Building Emergency Response Organization (BERO), and personnel in the facility. This procedure also provides plans for notifying personnel to take safe actions such as "take cover," "evacuate," or other planned actions dictated by the event. The procedure provides for formal notification and reporting.

Other emergency response agencies available to assist the Building Emergency Director (BED) and Incident Commander (IC) from offsite are described in U.S. Department of Energy Richland Operations Office (DOE/RL) 94-02, *Hanford Emergency Management Plan*, Section 3.0.

[WAC 173-303-350 (3)(d)]

[1] Section 1.0, Paragraph 4: Permit requirement, Class 1 Modification 03/31/16

The BED and Alternate BEDs will receive annual training from PNNL Emergency Preparedness (EP).

PNNL policy is to provide for the safety of its staff, contractor/subcontractor personnel, visitors, and members of the public in case of an emergency incident. PNNL line management has the responsibility to execute this policy and to see that all staff understands their own responsibilities and actions to be taken in an emergency. Every staff member is responsible for using the appropriate safety instructions and procedures and remaining alert to unsafe conditions or acts while performing his or her job. All personnel are responsible for responding to emergency conditions to minimize adverse impacts.

In the event of an emergency condition in the facility, members of the 325RPL BERO will perform their duties as described in this procedure. Specific emergency actions for response to events will be applicable as specified in this BEP. Those BERO members whose assistance is needed to mitigate a lesser event will be notified by telephone or personal contact by the BED or delegate. Occupants of the facility who are not members of the BERO shall follow the standard PNNL Emergency Preparedness requirements at How Do I...? (HDI) Work Control, *Basic Staff Practices*.

BERO members will utilize checklists during an incident. The 325RPL BERO Checklists are in compliance with DOE-0223 RLEP 1.1 and are updated by the Emergency Preparedness Program as necessary, once changes have been received from the Hanford Site Emergency Preparedness Program.

The building fire alarm or criticality alarms are the primary means of evacuation and notification for full activation of the BERO. Emergency telephone numbers are listed in Section 3.0.

This procedure will be reviewed at least annually and amended if necessary or whenever any of the following occurs. **[WAC-173-303-350(5)]**

- The applicable regulations or the Hazardous Waste Treatment Unit (HWTU) permit is revised.
- The procedure fails in an emergency.
- The facility changes in a manner that materially increases or decreases the potential for fire, explosion, or release of hazardous waste or hazardous waste constituents, or in any way that changes the response necessary in an emergency.
- The emergency coordinating personnel list changes.
- The emergency equipment list changes[2].

1.1 Facility Name

Name	325 Building/Radiochemical Processing Laboratory (325RPL)
Address	325 Cypress St., 300 Area, Richland, WA 99354
EPA Generator ID Number	WA 7890008967

1.2 Facility Location

The 325RPL is in the southern portion of the 300 Area, north of Cypress Street.

[2] Section 1.0, Paragraph 11: Permit Requirement, Class 1 Modification 09/30/15

1.3 Owner/Operator

The 325RPL Building is owned/operated by the U.S. Department of Energy (DOE) and co-operated by PNNL. The 325RPL Manager is the senior line manager in the 325RPL and has overall responsibility for all aspects of operations in the facility. The 325RPL Manager is part of the Nuclear Operations Division within the Facilities and Operations (F&O) Directorate. The 325RPL BM reports directly to the 325RPL Manager and supports operations and maintenance in the facility. The 325RPL BM is also the primary BED.

1.4 Facility Description

The 325RPL Complex, as referred to in this BEP, consists of the following.

- 325RPL (Building)
- 325RPL Filter Building
- East Storage Yard located east of the 325RPL
- North Storage Pad located north of the 325RPL

The 325RPL houses laboratories and specialized facilities including general-purpose chemical laboratories, the High Level Radiochemistry Facility (HLRF), the Shielded Analytical Laboratory, fissionable material storage areas, and 325RPL HWTU. The general-purpose laboratories characterize fuel, single- and double-shell tank waste, environmental samples, fusion/tritium samples, and other wastes. The radiochemistry facility includes areas for glove boxes, hot cells, cask handling, storage, and isolation of isotopes for unique applications like medical use. Analytical laboratory operations are conducted on small amounts of highly radioactive materials such as samples of single-shell tank waste. The HWTU treats hazardous, mixed, low-level radioactive and transuranic waste.

The 325RPL Filter Building is located on the northwest corner of the main 325RPL building and houses the final stage high-efficiency particulate air filters and the main exhaust fans.

The East Storage Yard is a fenced enclosure adjacent to the east side of the 325RPL and is designated as an outdoor Radioactive Material Area (RMA).

The North Storage Pad is the foundation pad of the former 328 Building and will be designated as an outdoor RMA.

NOTE: *Footnotes in this document note the provisions in the BEP that are subject to Resource Conservation and Recovery Act (RCRA) Permit# WA7890008967. These actions in the BEP implement RCRA permit requirements.*

1.5 Hanford Site Emergency Sirens/Alarms[3]

NOTE: *Some signals may not be applicable to the building; however, they may be heard in other parts of the Hanford Site. In the event of "take cover" alarm, the BERO will respond to the 325RPL lunchroom/lobby area for BED direction.*

Hanford Site Emergency Sirens/Alarms		
Signal	**Meaning**	**Actions**
Slow whoop followed by a voice message	Fire/Evacuation	Vacate building and proceed to staging area.
Steady tone on whistle, or siren	Area Evacuation	Vacate building and proceed to staging area. Personnel in vehicles shall proceed to the nearest occupied facility and report to the Staging Area Supervisor (SAS).
Wavering siren or short blasts on whistle or siren	Take Cover (Shelter)	Proceed to shelter or stay indoors. Close all exterior doors, turn off all intake ventilation (only if it can be done safely), and notify manager of whereabouts. Personnel in vehicles shall proceed to the nearest occupied facility and report to facility management. Staff should refrain from eating and drinking during a take cover event if physically able, until an appropriate evaluation of the event can be made.
AH-OO-GAH horn (howler) or flashing blue light (in high noise areas)	Nuclear Criticality	Leave the building immediately (walk with purpose) through the closest exit, do NOT stop for a survey and get at least 15 feet of separation from the facility. Maintain a minimum of 15 feet distance during relocation to the primary staging area.
Variable color (red, amber) light with ringing bell or whistle	Airborne Radioactivity or Area Radiation Monitor	Stop work activities; immediately exit the area; notify Radiological Control personnel.
Communicator Notification System (CNS), telephone call /text displayed from 375-2124	PNNL Emergency Communications	Lift receiver, say "**HELLO"**, listen to the message and follow the actions designated.
Telephone Notification System	Hanford Site Emergency Communications	Lift receiver, say "**HELLO**", listen to the message and follow the actions designated. **NOTE:** *This system is only applicable to facilities on the Hanford Site (i.e., 300/600 Areas).*

[3] Section 1.5: Permit Requirement, Class 1 Modification 03/31/16

1.6 Coordination Activities with Local Emergency Responders[4]

Interfaces and coordination with offsite agencies are in the planning, preparedness, response, and recovery elements of the Hanford Emergency Management Program. The DOE has developed and maintains agreements to formalize areas of understanding, cooperation, and support with offsite agencies. These agreements are applicable to all Hanford facilities, including the 325RPL. Summaries of these Memorandum of Agreements are given in DOE/RL 94-02, Table 3-1.

1.7 Deviations from Technical Safety Requirements

Emergency actions that depart from approved Technical Safety Requirements (TSR) may be taken when no actions consistent with the TSRs are immediately apparent, and when these actions are needed to protect workers, the public, or the environment from imminent and significant harm.

Such actions shall be approved, as a minimum, by the 325RPL BM, the 325RPL Manager, or the 325RPL BED. If emergency actions are taken, verbal notifications shall be made to the Pacific Northwest Site Office (PNSO) within two hours and by written reports to the DOE Headquarters within 24 hours. **[TSR AC 5.11**]

[4] Section 1.6: Permit Requirement, Class 1 Modification 03/31/16

2.0 Purpose of the Building Emergency Procedure

This procedure describes the processes and information necessary in the event of an emergency for the 325RPL BERO members to react to the emergency and to perform the following actions:

- Maximize safety, minimize risk to life, and provide prompt efficient treatment for injured persons.
- Provide all members of the BERO with an understanding of their roles and responsibilities in the event of an emergency.
- Minimize the effects on the health and safety of personnel, property, the environment, programs, and the public.
- Provide prompt internal and external notifications to the responsible authorities.

2.1 Distribution

At a minimum, controlled document copies of this BEP will be located as follows:

- BED emergency response bag
- BM file
- 325RPL HWTU's Operating Records[5]
- EP Program Office
- PNNL SOC
- Hanford Emergency Operations Center (EOC) (Hanford Site facilities only)
- Management Support Group (MSG) emergency response bags
- Alternate Incident Command Post (ICP)

2.2 Acronyms

PNNL Abbreviations & Acronyms

325RPL	325 Building/Radiochemical Processing Laboratory
EOC	Emergency Operations Center
EP	Emergency Preparedness
EPA	Environmental Protection Agency (EPA Generator Identification Number)
IC	Incident Commander
ICP	Incident Command Post
IM	Incident Manager
LA/LAI	Limited Area Island
N/A	non-applicable
PNNL	Pacific Northwest National Laboratory
RHA	Radiological Hazard Assessor
SAS	Staging Area Supervisor
SOC	Security Operations Center
TDP	Testing Designated Position

[5] Section 2.1, Bullet 4: Permit Requirement, Class 1 Modification 03/31/16

2.3 Making Changes to the Building Emergency Procedure

PNNL-MA-110, *PNNL Emergency Management Plan*, requires the BED to keep the Emergency Preparedness (EP) program manager advised of any changes to the BEDs. This may be accomplished by memo or email. The HWTU Permit Coordinator and the RCRA Subject Matter Expert are also required to be notified before any changes are made to the BEP.

To request revisions to this procedure, refer to ADM-001, *Document Production & Distribution*.

3.0 Building Emergency Response Organization

3.1 Emergency Telephone Numbers

In the event of an emergency, specific detailed facility information may be needed. Knowledge of the building, utilities, and radiation hazards can be obtained from the staff listed in the following table. Contact the PNNL SOC at 375-2400 if unable to contact any of these staff members using the numbers provided. **[WAC-173-303-350(3)(d)]**

Any Emergency – PNNL Security Operations Center (SOC): 375-2400				
NOTE: *With the appropriate approval, BED home addresses can be obtained at the PNNL SOC.*				
Responsibility	**Name**	**Office**	**Home**	**Cell**
***BED** [6]	Paul T. Saueressig	375-5352		619-3873
***BED1**	Chris S. Dreyer	375-5468	628-9995	420-0533
***BED2**	Dan G. Wandler	375-5179		438-1053
***BED3**	Eric M. Hanson	375-5351		713-0860
Additional F&O Management Contacts				
Utility Operations Work Team Lead	TJ Vanderlinden	375-2829		521-8024
Nuclear Operations Work Team Lead	Don Cravens	375-5398		948-1053
Fire Protection Engineer	Neal Hara	371-7655		
Safety and Health Representative	Richard Davis	371-7776		521-0505
F&O MSG	Reed Sharp	371-7042		
EOC RPL Tech Representatives	Karl Pool	375-5246		947-4777
	Franciska Steen	375-5546		
	Don Bachand	375-5255		
Unique Program Laboratory Expertise				
Waste Management – 90-Day	Zane Turner	375-5088		554-4359
Low Level TSD	Trevor VanArsdale	375-3814		531-6441
Environmental Compliance Representative	John Holland	375-5002		521-1211
Alternate ICP:	350 Building / Room 111	375-7565		
Environmental Support Contact *(regulatory notifications only)*		375-2400 375-2154		
Hanford Fire Department		375-2400 or 373-0911		
Medical and First Aid		375-2400		
Hazardous Materials Response Team (Benton-Franklin County Hazardous Material Response Team)		375-2400		
Ambulance Services		375-2400		
Police Department		375-2400		
Hanford Patrol		373-3800		
PNNL Duty Officer(s) and PNNL Information Line		375-2154		
Off Normal Event Reporting		375-2400		
Work-related injury/illness of a non-emergency nature: PNNL Occupational Health Clinic, LSB 1st Floor, Section E		371-7848		

** These are Testing Designated Positions (TDP) per HDI Exhibit, Perform Substance Abuse Testing. Any changes to these positions require coordination through the TDP Administrator.*

[6]Section 3.1, BED Information: Permit Requirement, Class 1 Modification 03/31/16. See Permit Condition II.A.4.

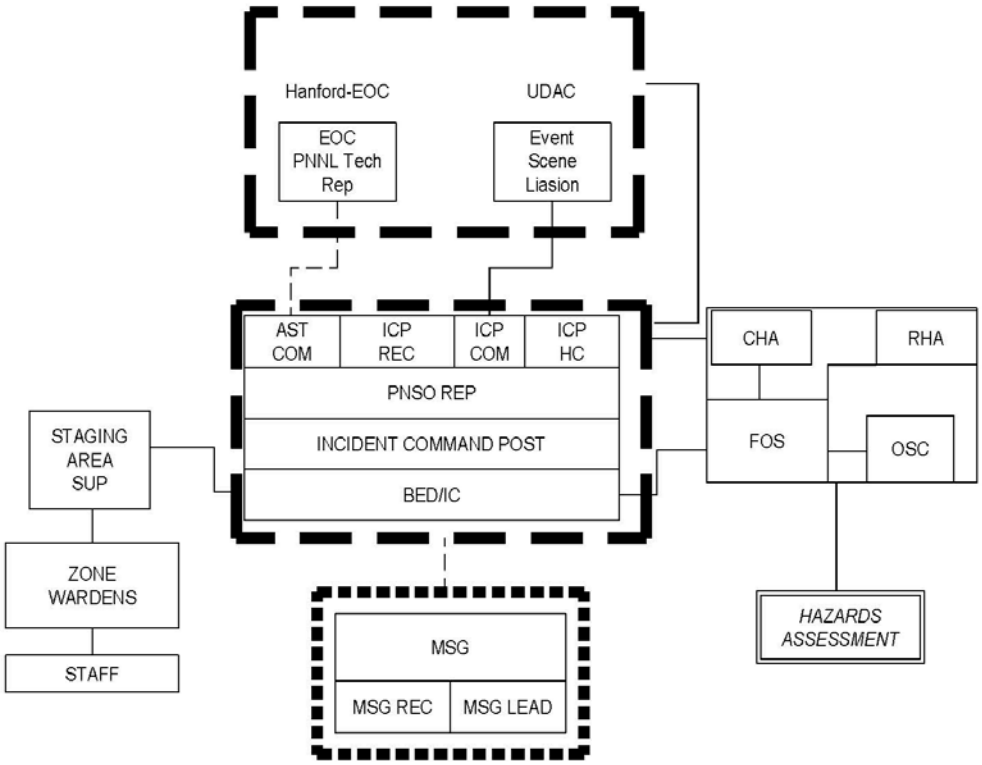
3.2 Building Emergency Response Organization

The 325RPL BERO is an emergency response organization with clearly defined responsibilities. The BERO consists of pre-designated and trained individuals assigned to emergency response activities associated with the 325RPL. In addition, other positions and/or personnel in the 325RPL have responsibilities associated with emergency responses, preparedness, and notifications.

BERO Position	Primary Responder	1st Alternate	2nd Alternate
***Incident Command Post Communicator**	**Christopher Dreyer** Work: 375-5468 Cell: 420-0533 Home: 628-9995	**Danny Schoepflin** Work: 375-7216 Cell: 303-9613	**Rick Hermann** Work: 372-6903 Cell: 430-3288
Assisting Communicator	**Wayne Moore** Work: 371-6689 Cell: 521-2263	**Matt Kosmos** Work: 375-2970 Cell: 492-1332	**Troy Nietschmann** Work: 372-4986 Cell: 919-270-3461
Chemical Hazards Assessor	**Richard Davis** Work: 371-7776 Cell: 521-0505	**Jason Sweesy** Work: 372-4122 Cell: 438-4974	**Doug Falk** Work: 371-7097 Cell: 308-9101
Incident Command Post Hazards Communicator	**Bob Free** Work: 375-5597 Cell: 521-5961	**Marilyn Wirth** Work: 372-4046 Cell: 724-413-1951	**Terry Milham** Work: 375-5007 Cell: 539-3910 Home: 627-0200
Radiological Hazards Assessor	**Tim Snider** Work: 375-5355 Cell: 308-9799	**Jenny Martin** Work: 375-5006 Cell: 374-7581 Home: 628-0561	**Holly Black-Kania** Work: 371-6930 Cell: 539-7283
Incident Command Post Recorder	**Kathy Hall** Work: 375-5346 Cell: 948-1213	**Lawanda Grow** Work: 375-2077	**Crystal Rosales** Work: 375-5078
***Facility Operations Specialist**	**Dan Wandler** Work: 375-5179 Cell: 438-1053	**Matt Kosmos** Work: 375-2970 Cell: 492-1332	**Jake Bohlke** Work: 375-5553 Cell: 303-9613
Staging Area Supervisor	**Victor Sauceda** Work: 375-5547 Cell: 396-8889	**Katrina Walker** Work: 375-2487	**Kate Moran** Work: 375-6554 Cell: 636-443-5583
PNSO Facility Representative	**Derek Wright** Work: 372-4100 Cell: 392-9872 Home: 803-640-3605	**Jeff Carlson** Work: 372-4750 Cell: 539-2044 Home: 582-9769	**Rob Yasek** Work: 372-4023 Cell: 554-4471 Home: 371-8105

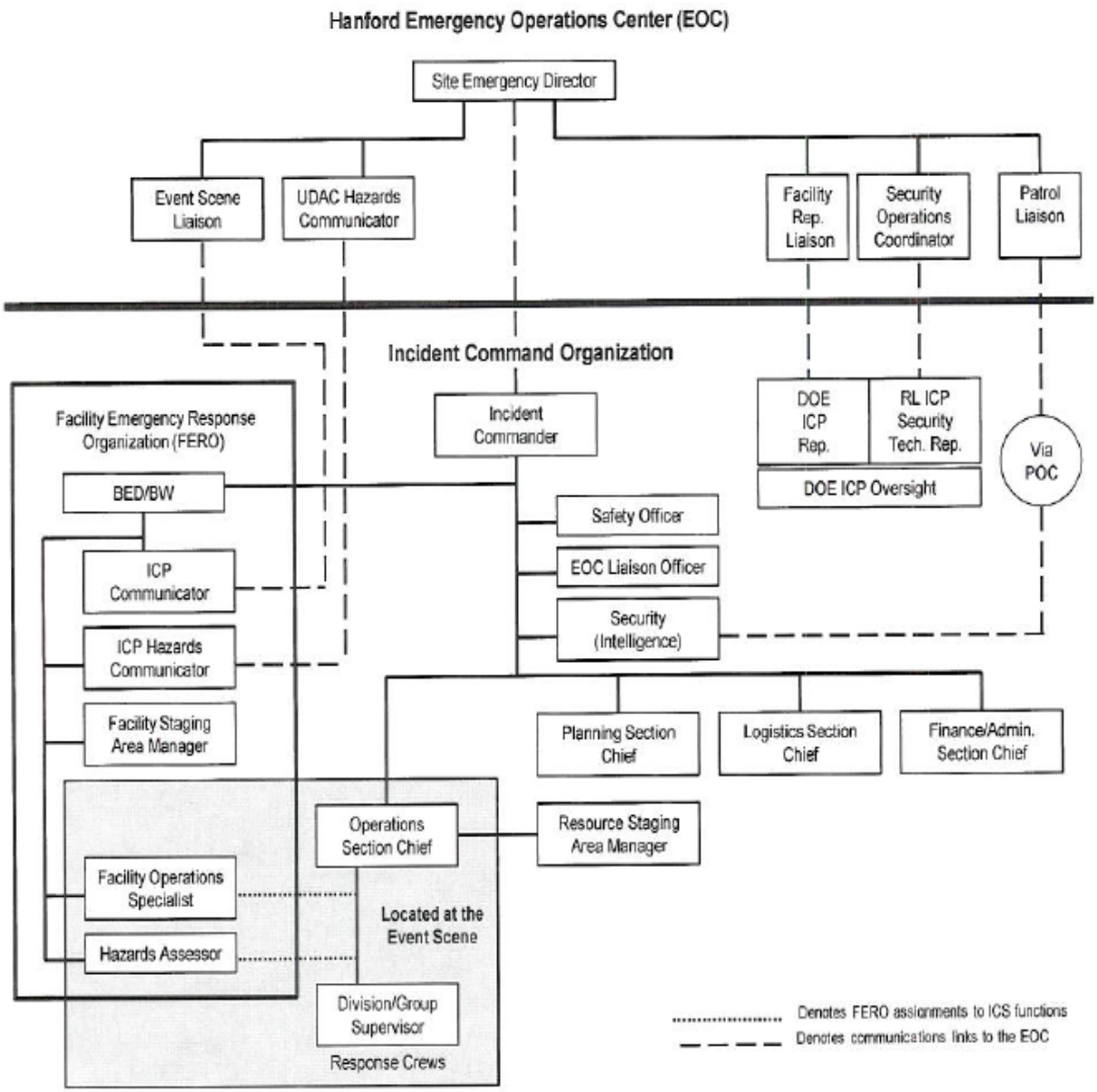
** These are Testing Designated Positions (TDP) per HDI subject area Workplace Substance Abuse. Any changes to these positions require coordination through the TDP Administrator.*

3.3 Building Emergency Response Organization - Emergency Operations Center Interface



Legend

AST	Assisting	IH	Industrial Hygenist
BED	Building Emergency Director	MSG	Management Support Group
CHA	Chemical Hazards Assessor	OSC	Operations Section Chief
COM	Communicator	REC	Recorder
CONT	Contractor	REP	Representative
EOC	Emergency Operations Center	RHA	Radiological Hazards Assessor
FOS	Facility Operations Specialist	SUP	Supervisor
HC	Hazards Communicator	UDAC	Unified Does Assessment Center
IC	Incident Commander		
ICP	Incident Command Post		



3.4 Building Emergency Directors and Alternates

The BED has the responsibility for the welfare and safety of the building personnel and for directing efforts to control, evaluate, and terminate the event if the building is the site of an event. The BED performs duties of the Emergency Coordinator as prescribed under WAC 173-303-360 until relieved by the IC, and has the authority to commit the resources needed to carry out the BEP.

The BED manages facility operations and personnel during an emergency and is responsible for implementation of appropriate emergency procedures and their follow-up, 24 hours a day.

The BED has the authority to commit the resources necessary to carry out emergency plan activities[7]. Activities include:

- Directing configuration control over facility systems and components at the event scene
- Activating the BERO
- Assessing the event scene[8]
- Allocating personnel to conduct facility-specific emergency response actions within the affected facility boundary (including acting as or delegating duty as the Facility Operations Specialist (FOS) and taking appropriate protective actions in response to events occurring in other onsite geographic areas or adjacent facilities)
- Categorizing the incident and notifying the PNNL Environmental Support Contact and/or the EOC Shift Office[9]
- Communicating with the Environmental Protection and Regulatory Programs
- Initiating activation of the MSG
- Reviewing the Emergency Action Level (EAL) criteria (PNNL-EAL-325RPL, *Emergency Action Level Tables for the RPL*) and providing an initial EAL classification to the EOC Shift Office[10]
- Directing implementation of initial preplanned area/site protective actions
- Identifying an alternate staging area in the event of an extended building evacuation during adverse weather
- Determining personnel accountability status
- Performing the necessary steps in *EP-BED-325RPL, Building Emergency Director Checklist*
- Verifying other BERO positions use checklists as appropriate
- Verifying that preservation of evidence at the event scene is taken into consideration during the event
- Developing and transmitting event reports to maintain accurate and complete records of events, decisions, and actions during an event
- Verifying the appropriate alarms are sounded when necessary[11]
- Providing information and assistance to the responding agencies as requested to mitigate the event, including:
  - Identifying the character, exact source, amount, and extent of any released materials.

[7] Section 3.4, Paragraphs 1 and 2: Permit Requirement, Class 1 Modification 09/30/15
[8] Section 3.4, Paragraph 2, Bullet 3: Permit Requirement, Class 1 Modification 09/30/15
[9] Section 3.4, Paragraph 2, Bullet 5: Permit Requirement, Class 1 Modification 09/30/15
[10] Section 3.4, Paragraph 2, Bullet 8: Permit Requirement, Class 1 Modification 03/31/16
[11] Section 3.4, Paragraph 2, Bullet 16: Permit Requirement, Class 1 Modification 09/30/15

  - Taking reasonable measures (e.g., stopping processes/operations, collecting/ containing released waste, removing/isolating containers) necessary to make sure that fires, explosions, and releases do not occur, recur, or spread to other dangerous waste.
  - Monitoring for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment as appropriate[12].
- Approving re-entry and/or rescue operations
- Arranging care for any injured persons and contacting their line management
- Notifying the HWTU permit personnel of any planned changes to the BEP
- Verifying hazardous spill/release events are logged in the HWTU operating records
- Taking appropriate actions during adverse chemical conditions; see HDI Exhibit, *Respond to Spill or Adverse Chemical Condition*
- Providing a thorough briefing to the Hanford Site emergency responder (e.g., Hanford Fire Department (HFD), Hanford Patrol)
- Maintaining emergency equipment[13]
- Verifying that the Environmental Support Contact will provide any necessary notifications to regulatory agencies, such as the Washington State Department of Ecology, and verifying that required written reports to regulatory agencies are completed within 15 days of event termination[14]
- Performing an annual review and update of the 325RPL BEP
- Planning, conducting, and documenting results of building emergency drills
- Informing the EP program manager of any changes in 325RPL BEDs
- Being thoroughly familiar with the following:
  - the 325RPL BEP
  - all operations and activities
  - locations and characteristics of waste handling
  - locations of all records
  - physical layout of the building and area of responsibility[15].

3.5 Incident Command Post Communicator

The individual responsible for conveying the event emergency classification to the EOC Shift Office, phoning the Patrol Operations Center at 911, or 373-0911 (cell) to initiate a conference telephone bridge between the Patrol Operations Center, EOC Shift Office, and

[12] Section 3.4, Paragraph 2, Bullet 17: Permit Requirement, Class 1 Modification 09/30/15
[13] Section 3.4, Paragraph 2, Bullet 24: Permit Requirement, Class 1 Modification 09/30/15
[14] Section 3.4, Paragraph 2, Bullet 25: Permit Requirement, Class 1 Modification 03/31/16
[15] Section 3.4, Paragraph 2, Bullet 29: Permit Requirement, Class 1 Modification 03/31/16

ICP Communicator. Initiates and maintains a communication line between the Event Scene Liaison at the Hanford EOC and the ICP. As a precautionary measure, the BED makes sure that this position is staffed for all events. The ICP Communicator is responsible for completing *EP-ICPC, Incident Command Post Communicator Checklist for Hazardous Facilities*.

3.6 Assisting Communicator

Provides assistance to the ICP Communicator as directed by:

- Keeping the IC and BED aware of all transmitted and received information.
- Maintaining a log of communications sent and received.
- Establishing and maintaining a communication line with the Technical Support Representative (376-1235) in the Hanford EOC and the ICP throughout the incident.

3.7 Incident Command Post Recorder

Records in a timeline format, event-related notifications and activities associated with the direction administered and information received at the ICP.

3.8 Management Support Group Lead

The MSG Lead will provide assistance to the BED as requested.

> **NOTE:** *The MSG Lead function and alternates is a Testing Designated Position (TDP) in accordance with HDI Exhibit, PNNL Workplace Substance Abuse Requirements and Protocol*.

The MSG Lead will convene the appropriate staff to fill positions in the MSG as the incident requires. The MSG Lead is also responsible for notifying the PNNL Laboratory Director, other PNNL senior management as appropriate, and PNSO. The MSG's purpose is to support the BED by being a resource for technical information, event mitigation strategies, event termination and Recovery Plans, and other support as directed/requested by the BED/IC. The coordination of support activities to the IC/ICP for a declared emergency on the Hanford Site is managed by the Hanford EOC.

A representative from PNSO has been established to coordinate with the MSG during large events. In smaller events, a PNSO Facility Representative coordinating with the BED will provide information and support to PNSO management regarding actions occurring at the event scene.

3.9 Management Support Group Liaison

The MSG Liaison reports to the ICP to facilitate communications between the BED/IC and the MSG. The MSG Liaison is responsible for the following:

- Establish phone communications with the MSG, as needed, to communicate with the MSG.
- Convey BED/IC requests for MSG support to the MSG.
- Communicate information from the MSG to the BED, IC, or other appropriate BERO members.

3.10 Staging Area Supervisor

The SAS will direct all activities at the building staging area and is responsible for:

- Assisting in personnel accountability by receiving the status of building occupancy from the Zone Wardens and then informing the BED of facility status with regard to personnel, or if help is needed to locate or account for missing personnel.
- Assisting in area evacuation and take cover.
- Assisting with communications.
- Supporting the BED as requested.
- Maintaining a log of their activities or assigning a recorder (also referred to as a "scribe") to do so.
- Completing *EP-SAS-325RPL, RPL Staging Area Supervisor Checklist*.

3.11 Zone Wardens

Zone Wardens provide the results of their accountability sweeps information to the BED via the SAS and assist in additional duties as determined by the BED. To accomplish this function, the Zone Wardens:

- Confirm that assigned zones have been vacated by staff and determine if aid and/or rescue is required.
- Aid those who need help in evacuating the building if it can be done safely.
- Report the occupancy status of the assigned zone and any additional observations to the SAS.
- Assist the SAS as requested.
- Maintain a familiarity with the BEP.
- Become knowledgeable of any staff in assigned zones that may require assistance in an emergency event.

NOTE: *The function of the Zone Warden is to assist staff in evacuating the facility and reporting the occupancy status to the SAS. The function of Zone Wardens does not include search and rescue.*

Zone Wardens should not enter any location in the facility where there are indications that a hazard may exist. The indications include such things as visible smoke, fire, unusual odors, local alarms, criticality alarms, spilled chemicals, incapacitated personnel, etc.

If a Zone Warden is not in the facility when the evacuation or take cover alarm is initiated, is a significant distance from their assigned zones, or has been isolated from their zone, they should report to the SAS at the staging area that their zone was not swept.

3.12 Facility Operations Specialist

The FOS is responsible for meeting emergency responders at the event scene and providing information on event status and initial actions that are underway. This position will serve under the direction of the BED and coordinate with the HFD or Hanford Patrol Operations Section Chiefs, upon their arrival, and will provide facility expertise to support Operations Section activities. The FOS is responsible for implementing *EP-FOS, Facility Operations Specialist (FOS) Checklist*, and also maintains a log of activities, conversations, and directives given and received.

3.13 Hazard Communicator

The Hazard Communicator is a facility or process knowledgeable individual responsible for communicating data received from the Hazards Assessors to the Uniform Dose Assessment Center for further consequence assessment during DOE-declared emergencies. This position is staffed only during DOE-declared emergencies at the request of the BED/IC. The Hazard Communicator:

- Establishes and maintains an emergency response organization communication line with the Uniform Dose Assessment Center Hazards Communicator to provide incident scene radiological or chemical data as reported by the Hazard Assessors.
- Keeps the IC and BED aware of all transmitted and received information.
- Maintains a log, or assigns a scribe to record all activities, including the date and time information was received or the time when action was taken.
- Responds to requests for information from the Uniform Dose Assessment Center and assures that requests for information are relayed to the Hazards Assessor(s) for response.
- Implements the *EP-HazCom, Hazards Communicator Checklist.*

3.14 Radiological Hazard Assessors

The Radiological Hazards Assessors (RHA) are responsible for coordinating and verifying accomplishment of radiological control functions throughout the event. This position coordinates with the Operations Section Chief at any location and supervises Radiological Protection Technologist (RPT) activities.

The RHA is responsible for implementing the checklist duties for non-declared RCRA emergencies and DOE-declared emergencies, as appropriate. See EP-RHA, *Radiological Hazard Assessors Checklist*. In conjunction with the Chemical Hazard Assessors (CHA), this individual will make recommendations for personnel protective equipment (PPE) to the HFD.

3.15 Chemical Hazard Assessors

This position may be staffed by an Industrial Hygienist assigned to support the HFD. The CHA will provide technical expertise in chemical and toxicological hazard identification, evaluation, reactivity, and dispersion modeling to the HFD. The CHA may also serve as a chemical/ decontamination safety officer, if designated by the IC.

The 325RPL CHA initially reports to the ICP for an event briefing and then coordinates with the HFD Operations Section Chief; he/she provides technical support for non-radiological

hazardous material response. Typically, the 325RPL Industrial Hygienist and the Industrial Hygienist assigned to the HFD, staff this position. In conjunction with the RHA, this individual will recommend PPE to the HFD.

When the CHA is activated to respond to an emergency, *EP-CHA, Chemical Hazard Assessors Checklist* must be completed.

3.16 Individual Staff Member Responsibilities

- Announces or activates the appropriate alarm, calls the PNNL SOC (375-2400), and notifies management upon observing an emergency[16].
- Avoids exposure to harmful and life-threatening conditions.
- During emergencies, if it can be done safely, secure classified documents and electronic storage media (ESM) before leaving Limited Areas (LA). If this cannot be done without endangering yourself: 1) take the classified documents and ESM with you, if time permits; 2) report to the staging area, and; 3) inform the BED and then call 375-2400 to report an incident of security concern.
- If evacuating due to a fire alarm and you are wearing special PPE or anti-contamination clothing, segregate yourself from others at the staging area until surveyed by a RPT.
- Provide the BED with any information to assist in evaluating the emergency condition.
- Remain at the staging area and follow the instructions of the BED and SAS[17].
- Read and understand the Emergency Information Posting (EIP) and BEP.
- Become familiar with the location of the BEP on the 325RPL webpage and HDI Work Control, *Basic Staff Practices*.
- Wear your Emergency Preparedness information card.
- Know where the nearest fire alarm pull box is located.
- Sign into accountability log.

> **NOTE:** *When evacuating the 325RPL Building due to a fire or a criticality alarm, all personnel are required to exit the Radiological Control Area(s) without performing radiological exit surveys. Those personnel shall segregate themselves from others at the staging area until surveyed by RPTs.*

3.17 PNNL Incident Manager

The PNNL Incident Manager (IM) is used during complex events, such as those affecting multiple PNNL-managed facilities and/or extending over multiple days. The PNNL IM will assume responsibility for incident management. This includes managing the overall event on behalf of PNNL, overseeing BEDs, and coordinating with the PNNL MSG. The PNNL IM

[16] Section 3.15, Bullet 1: Permit Requirement, Class 1 Modification 09/30/15
[17] Section 3.15, Bullet 6: Permit Requirement, Class 1 Modification 09/30/15

will most likely be activated by the MSG Lead. When activated to respond to an emergency, EP_IM, *Incident Manager Checklist* must be completed. Primary BEDs will continue to manage operations at their facilities, but the overall incident management and distribution of resources will be the responsibility of the PNNL IM.

3.18 Facility Visitor Responsibilities

The safety of building visitors is the responsibility of the facility host who shall assure that visitors are provided a safe and orderly evacuation. The facility host will report the visitor status to the SAS as soon as is practical after an evacuation. Visitors will sign into the accountability log.

3.19 Supervisors/Manager Responsibilities

Account for all staff members. Report missing or injured staff members to the SAS and if requested, assist the SAS.

3.20 Unique Program Laboratory Expertise

The technical knowledge of specific programs/laboratory activities are usually known by the laboratory occupant or program manager. When applicable, Cognizant Space Managers (CSM), alternate CSMs, and team leads may be contacted in regards to emergencies or off-normal events in assigned laboratories. Hazard Awareness Summaries containing this information are posted throughout the 325RPL Complex.

Rooms 201, 202 and 529 are less than 90-day Radioactive Hazardous Waste Accumulation Areas.

The Treatment, Storage, and Disposal (TSD) areas consist of Rooms 32, 200, 201, 202, 203, 520, 524, 528, 610, 3714 Pad, and portions of Rooms 603 and 604A.

These rooms may contain significant quantities of hazardous waste for short periods of time. This waste can be radioactive, toxic, corrosive, ignitable, reactive, carcinogenic, or environmentally persistent according to the WAC. **[WAC 173-303]**

No one will enter these rooms without permission from one of the individuals whose names are posted on the door.

Wastes stored in these rooms could have significant environmental or health hazards. Incidents involving any of these locations will require hazardous materials expertise by the responders.

3.21 Environment, Safety, and Health Advisor Responsibilities

The Worker Safety and Health Representative will provide guidance for establishing safety requirements for mitigation and recovery actions. This includes coordinating any support needed from other disciplines of the PNNL Environment, Health, Safety, and Security Directorate (i.e., Environmental Compliance Representatives (ECR), Radiological Control, Hygiene, and Field Services Representatives). The ECRs and Field Services Representatives conduct activities within specific hazardous waste management activity areas and provide support to the BED in case of an emergency.

The Environmental Support Contact will provide any necessary notifications to regulatory agencies such as the Washington State Department of Ecology and will transmit required written reports to regulatory agencies within 15 days of event termination[18].

3.22 Line Management

The responsibilities of line management include the following activities:

- accounting for staff members
- reporting missing or injured staff members to the SAS
- assisting the SAS if requested
- performing the necessary actions addressed in HDI
- acting as a health advocate for injured/ill staff members
- keeping the BED informed of changes in programmatic activities that could affect an emergency event
- providing or verifying training for staff members
- providing training for unescorted visitors for whom he/she is responsible
- keeping the BED and Zone Wardens informed of staff members who may require assistance in an emergency event
- providing staff, who are residents in the 325RPL or are qualified Fissionable Material Handlers, with a Personal Nuclear Accident Dosimeter.

3.23 New Staff Assigned to 325RPL

325RPL personnel needing unescorted prox access need to have the required training assigned through IOPS. Personnel that do not have the required training need to be escorted. The required training course is 1280, RPL General Employee Training.

[18] Section 3.21, Paragraph 2: Permit Requirement, Class 1 Modification 03/31/16

4.0 Implementation of the Building Emergency Procedure (BEP)[19]

The decision to implement the BEP should be made whenever unusual or emergency conditions exist that require the response of facility and/or emergency personnel and the establishment of an ICP.

For events involving dangerous waste, the BED must use the following criteria to determine if an event is subject to the contingency plan implementation and notifications requirements of WAC 173-303-350 and WAC 173-303-360:

1. The event involves an unplanned spill, release, fire, or explosion,

   AND

2. a. The unplanned spill or release involves a dangerous waste, or the material involved becomes dangerous waste as a result of the event (e.g., product that is not recoverable),

   OR

   2. b. The unplanned fire or explosion occurred at a facility or transportation activity subject to RCRA contingency planning requirements;

   AND

3. The event could pose a threat to human health or the environment.

Based on evaluation of the event, the BED or alternate BED will implement the BEP to the extent necessary to protect human health and/or the environment. The BED has the authority to commit the resources necessary to carry out the actions required by the BEP.

The BED will direct that additional checklists that are identified in the BEP be initiated and completed. When the materials and quantities involved in the incident have been identified, it should be possible to evaluate the magnitude of the hazard.

During an emergency event, the BED will take all reasonable measures to assure that fires, explosions, and releases do not occur, recur, or spread to other dangerous waste in the facility. Measures include stopping processes and operations, collecting and containing released waste, and removing or isolating containers as appropriate.

In any emergency, priority is given to protection of the health and safety of persons in the immediate area. Containment and cleanup are secondary choices. When responding to minor spill events, onsite personnel will generally perform immediate cleanup of minor spill or releases using facility equipment. Remediation of such spills and releases would not normally constitute activation of the BEP. A spill or release of dangerous waste is considered 'minor' if **ALL** of the following are true:

- The spill is either contained, or if outside a secondary containment, is minor in quantity (generally less than 10 gallons of liquid or 100 pounds of solids).
- The composition of the material or waste is known and can be immediately determined from the label, manifest, Safety Data Sheet, or other records.
- The spill does not threaten the health and safety of building occupants such that an area evacuation is necessary.

[19] Section 4.0, Permit Requirement, Class 1 Modification 03/31/16

- Response personnel have appropriate training and equipment to expeditiously remediate the spill or release.

5.0 Facility Hazards

The 325RPL contains both radioactive and hazardous chemicals that pose a potential hazard to the public, adjacent facilities, personnel, programs, and the environment during an emergency. Because the location of hazardous materials and equipment within the facility can change on a frequent basis due to specific research needs, a variety of informational tools have been created and integrated into daily operations. Some of the tools available within the facility are the:

- *Map Information Tool*
- Chemical Management System
- 325RPL Operating Envelope webpage
- Integrated Operations System (also known commonly as IOPS) which includes the Hazard Awareness Summaries for each hazardous space in the 325RPL Complex.

5.1 Hazardous Materials

The 325RPL Building contains hazardous materials including:

- chemicals exhibiting one or more hazards such as corrosives, oxidizers, flammable solids and liquids, poisons, etc.
- radioactive materials
- hazardous wastes, including listed wastes and waste exhibiting one or more characteristics such as corrosivity, reactivity, ignitability, toxicity, and/or environmental persistence
- mixed wastes (wastes containing both radioactive and hazardous components).

Hazards associated with these materials vary depending on type, quantity, and concentration of the material(s) involved in the incident as well as the type of incident.

During an emergency, the PNNL Chemical Management System may be consulted to determine the identity and quantity of hazardous chemicals located in affected areas of the facility. The listing of satellite and 90-day accumulation areas are available on the Integrated Waste Management System (IWMS) which is maintained by the Materials and Waste Operations Organization and IWMS may also be consulted to identify the location and types of wastes (hazardous and mixed) located in the facility. The inventory of waste stored in the 325RPL RCRA permitted unit may be determined by consulting with the Materials and Waste Operations Organization IWMS database.

Arrangements for local response agencies (fire, police, and medical and emergency response teams) are required to assist in pre-emergency planning. These arrangements include familiarization with the properties of dangerous waste handled at the facility and associated hazards. Emergency Preparedness provides these coordination efforts with input from individual BEDs and others, as appropriate.

5.2 Physical (Industrial) Hazards

The 325RPL Building contains industrial hazards such as high-voltage equipment, high-temperature equipment, elevated work areas, and overhead hazards. Refer to the

Integrated Operations System Hazard Awareness Summaries that are posted at the entrance to each space for specific details.

5.3 Dangerous Mixed Waste

See Section 5.1. Refer to the *Map Information Tool* to identify the location of any dangerous mixed waste location in a specific room.

5.4 Radioactive Materials

See Section 5.1. Refer to the *Map Information Tool* to identify the location of any dangerous mixed waste location in a specific room.

5.5 Criticality

The 325RPL Building is a Hazard Category 2 non-reactor nuclear facility designed as a multi-purpose research facility. Fissionable materials are stored and used in various lab spaces (Criticality Safety Controlled Areas). Limits and controls for mitigating the criticality hazards are described in the posted Criticality Safety Specifications. A fissionable material line manager and fissionable material handler supervisor are assigned responsibility for each controlled area.

PNNL-DSA-325, *Radiochemical Processing Laboratory Documented Safety Analysis* (325RPL's Documented Safety Analysis [DSA]), analyzes various scenarios regarding potential criticality incidents and establishes a Nuclear Criticality Safety Program as a safety management program. The Nuclear Criticality Safety Program evaluates fissionable material handling and storage at the 325RPL and provides engineered features, limits, and administrative controls necessary to assure the possibility of a criticality event remains extremely unlikely.

The criticality safety risk of firefighting within each controlled area is evaluated and areas are posted with appropriate symbols when a limitation on the use of water or other extinguishing agents is warranted. These limitations are also identified within the HFD Pre-incident Plan.

A criticality accident at the 325RPL is a credible event. A Criticality Alarm System is maintained to mitigate the impact of an accidental criticality on facility staff and visitors through rapid notification and an immediate evacuation. The system is tested on a semi-annual basis.

6.0 Potential Emergency Conditions and Appropriate Response

6.1 Explosion/Fire/Fire Alarm[20]

> **NOTE:** *During these events, it is likely that facility integrity may be compromised and that the facility will also experience a concurrent loss of electrical power and/or control of the building ventilation systems. If this is the case, refer to Section 6.2, Hazardous Material/Dangerous or Mixed Waste Spill and Section 6.6, Loss of Electrical Power/Reduced Ventilation for concurrent actions as appropriate.*

If you are involved with, or are in close proximity to an explosion, a fire, or discovery of a fire, or have indication that the fire alarm is sounding, perform the following:

6.1.1 Fire/Explosion

6.1.1.1 Sound the alarm by pulling the fire alarm pull box. See the guidance for the exception to this step below.

Exception to pulling the fire alarm: If a simple and safe action can be taken that will immediately and positively extinguish a small fire (e.g., pulling the plug on a malfunctioning lab instrument, isolating a fuel source such as quickly closing a valve that is immediately at hand, smothering the flame), then pulling the fire alarm pull box is not necessary, and the fire may be extinguished prior to calling the PNNL SOC at 375-2400.

> **NOTE:** *If appropriate, the BED will classify the event using the 325RPL EALs.*

6.1.1.2 Evacuate the building through the nearest exit that can be safely used.

6.1.1.3 Once in a safe location, notify the PNNL SOC at 375-2400 and provide the following information (if known):

- nature and location of the event
- conditions of the event appear to be degrading, (i.e., the fire appears to be escalating or building structures are being compromised)
- your name and callback telephone number
- time event began or was discovered
- number and condition of any injured personnel
- name(s) and amount(s) of any chemical(s) that are involved or may be burning as a result of a fire

[20] Section 6.1, Permit Requirement, Class 1 Modification 03/31/16

> **NOTE:** *The fire department can be notified directly by calling 911 or 373-0911 (cell). If the fire department was contacted using the cell option, also call the PNNL SOC at 375-2400 as soon as possible to initiate PNNL management notifications and emergency response.*

6.1.1.4 If time permits, and without putting yourself in jeopardy, you may fight the fire under the following conditions:

- You have directed someone to pull the fire alarm pull box.
- You have verified that someone has called the PNNL SOC at 375-2400, 911, or 373-0911 (cell).
- You are willing, able, and knowledgeable about the selection of fire extinguisher and its use.

> **NOTE:** *Fire extinguishers equipped with the glove piercing tips are for HFD use only.*

- If the fire is in a hot cell, attempt to smother the fire, if smothering does not work then use the fire extinguishing system, if you are trained to do so.
- If the fire is in a glove box, do not attempt to fight the fire using the gloves. Isolate supply air to the glove box if safe to do so.
- If the fire is small and you know what material is burning, the fire does not involve significant quantities of hazardous materials, and does not present a personnel exposure hazard to smoke or significant heat.

6.1.1.5 If you have chosen to fight the fire, and after the fire is believed to be out, call the PNNL SOC at 375-2400 and inform them of your actions.

- Unless there are significant amounts of smoke or fumes, remain in the proximity of the fire to verify that the fire does not re-flash.
- In the event the fire re-flashes, perform these actions starting with Step 6.1.1, and do not attempt to fight the fire on your own.

6.1.2 Fire Alarm

> **NOTE:** *If appropriate, the BED will classify the event using the 325RPL EALs.*

6.1.2.1 If time permits, and without placing yourself in jeopardy, perform the following:

- Verify equipment is shutdown or is in a safe configuration.
- Verify nuclear and classified materials are secured.

6.1.2.2 Zone Wardens perform an accountability sweep of their assigned areas.

6.1.2.3 Evacuate the building through the nearest exit that can safely be used.

6.1.2.4 Assemble at staging area located at the lower south parking lot, south end of Lane #9.

- Zone Wardens report the status of accountability sweeps to the SAS.

- If classified materials (documents, ESM, test materials, etc.) are removed from the LA or left unsecured within the LA:
- Inform the SAS that classified material has been left in an unsecured condition or has been removed from the LA.
- Call the PNNL SOC at 375-2400 and report the details surrounding the classified materials security event.
- The SAS shall provide information to the BED concerning the classified material.
  - Personnel who are wearing PPE clothing or are suspected of being contaminated shall be segregated from other building occupants and shall be surveyed by radiological control personnel. PPE will be discarded as directed by the RPT.
  - Zone Wardens and all staff are to remain at the staging area and follow the instructions of the BED.

6.2 Hazardous Material/Dangerous or Mixed Waste Spill[21]

NOTE: *If appropriate, the BED will classify the event using the 325RPL EALs.*

6.2.1 Minor Spills

For minor spills/releases that are relatively small in size, perform the following.

NOTE: *A spill or release of dangerous waste is considered "minor" if ALL of the following are true. If not, refer to Section 6.2.2.*

- The spill/release either is contained or, if outside of a secondary containment, is minor in quantity (generally less than 10 gallons of liquid or 100 pounds of solids).
- The composition of the material or waste is known and can be immediately determined from the label, manifest, Safety Data Sheet, or other records.
- The spill/release does not threaten the health and safety of building occupants such that a building evacuation is necessary.
- Response personnel have appropriate training and equipment to expeditiously remediate the spill or release.

6.2.1.1 Move personnel away from the substance.

6.2.1.2 Notify nearby personnel of the emergency.

6.2.1.3 Prevent personnel exposure by restricting access to the spill area by setting up barricades, closing doors, etc.

6.2.1.4 Notify the PNNL SOC at 375-2400 and provide the following:

- nature and location of the event

[21] Section 6.2, Permit Requirement, Class 1 Modification 03/31/16

- name(s) of chemicals involved, amounts, sources, and known hazards about the chemicals
- if the spill has been contained
- if any material has been released to the environment
- any corrective actions in progress
- name(s) of anyone contaminated or injured in connection with the incident
- other hazards that may or may not be related to the spill
- time incident began or was discovered
- current status of the event (e.g., spill contained or not contained)
- name, location, and callback telephone number of person reporting the incident.

6.2.1.5 Notify the BED, CSM, and the Safety and Health Representative.

6.2.1.6 Take steps to contain the spill/release **IF**, *and only* **IF**:

- The identity of the substance *is known*.
- Hazards of the substance are known (flammable, toxic, radioactive, corrosive material) and can either be controlled or they do not present an immediate threat.
- Appropriate PPE and control/cleanup supplies are readily available.
- The individual(s) performing the task have had training related to spill/leak control and can safely perform the action(s) without assistance, or assistance is readily available from other trained personnel.

6.2.1.7 Steps to contain the spill/release may include, as appropriate:

- Build a containment of absorbent materials and restrict access to the affected area.
- Tighten closures, tip the container to stop the leak, use plugging, or patching materials or over packing.
- Perform initial cleanup of the spill area by transferring contents to appropriate non-leaking containers using the appropriate procedures and tools.

6.2.2 For a Major Spill/Release, or Tank Spills, Perform the Following Actions.

NOTE: *If appropriate, the BED will classify the event using the 325RPL EALs.*

6.2.2.1 If the spill/release threatens the health and safety of building occupants such that a building evacuation is necessary, initiate a building evacuation by pulling the fire alarm. If a building evacuation is not necessary, continue at Section 6.2.2.2.

- Assemble at the staging area located at the lower south parking lot, south end of Lane #9.
- Zone Wardens report to the SAS.

- If classified materials (e.g., documents, ESM, test materials) are removed from the LA or left unsecured within the LA:
  - Inform the SAS that classified material has been left in an unsecured condition or has been removed from a LA.
  - Call the PNNL SOC at 375-2400 and report the details surrounding the classified materials security event.
  - SAS shall provide information to the BED concerning the classified material.
- Personnel who are wearing PPE clothing or are suspected of being contaminated shall be segregated from other building occupants and shall be surveyed by radiological control personnel. PPE will be discarded as directed by the RPT.
- Zone Wardens and all staff are to remain at the staging area and follow the instructions of the BED.

6.2.2.2 Move personnel away from the substance.

6.2.2.3 Notify nearby personnel of the emergency.

6.2.2.4 Notify the PNNL SOC at 375-2400 and provide the following.

- name, location, and callback telephone number of person reporting the incident
- name(s) of chemical(s) involved and amount(s) involved in the incident
- location of incident (identify as closely as possible and include information about multiple building numbers)
- time incident began or was discovered
- where the materials involved are going or might go, such as into secondary containment, under doors, through air ducts, etc.
- source and cause, if known
- name(s) of anyone contaminated or injured in connection with the incident
- any corrective actions in progress
- anyone else who the discoverer has contacted
- any known hazards
- location and time the chemical condition or spill occurred
- if any material was released to the environment (e.g., to a stack or a sewer system)
- the status of the situation.

6.2.2.5 Prevent personnel exposure (e.g., set up barricades).

6.2.2.6 Contact the CSM.

6.2.2.7 Notify the Safety and Health Representative.

6.2.2.8 Take steps to contain the spill **ONLY** if **ALL** the following exist.

- identity of the substance is known
- hazards of the substance are known (flammable, toxic, radioactive, corrosive material) and can either be controlled or they do not present an immediate threat
- appropriate protective equipment and control/cleanup supplies are readily available
- individual(s) performing the task have had training related to spill/leak control and can safely perform the action(s) without assistance, or assistance is readily available from other trained personnel.

6.2.2.9 Initiate actions to mitigate a tank spill/leak using trained personnel:

- Stop the source of the leak if possible (shutting valves, turning off pumps, etc.).
- Prevent further additions of liquid to the tank.
- Visually inspect the tank system to determine the source of the leak.
- Remove as much of the liquid from the tank as is necessary to prevent further leakage within 24 hours or the earliest practicable time.
- Remove any leakage contained in a secondary containment within 24 hours, or as soon as possible.
- Prevent any further leakage or migration of the leak to soils or surface waters.

6.2.2.10 Notify the BED, the CSM, and the Safety and Health Representative of any pertinent information that you may have.

- Discoverer of the spill will provide a synopsis of the event and the actions taken to the BED, CSM, and the Safety and Health Representative.
- BED will direct spill event mitigation activities upon completion of the event briefing.

6.2.3 For Events that Involve Transportation and/or Damaged Packaging of Hazardous Material or Dangerous Waste that Arrives at the 325RPL:

6.2.3.1 **DO NOT** move the shipment.

6.2.3.2 Notify the BED, CSM, and the Safety and Health Representative.

- The receiver of the shipment or discoverer of the damaged package will provide a synopsis of the situation and the actions taken, if any, to the BED, CSM, and the Safety and Health Representative.

6.2.3.3 The BED will evaluate the event and initiate appropriate actions for minor events/spills per Section 6.2.1 or Section 6.2.2 as appropriate.

- Treat any release from the package as a hazardous material spill and perform response actions as appropriate.

6.3 Unusual, Irritating or Strong Odors[22]

6.3.1 If an unusual odor is detected and the source is unknown, the type and location of the odor should be reported to the BED and the BED will determine the appropriate actions.

6.3.1.1 If the odor is determined to be potentially dangerous, then:

- Initiate a building evacuation by pulling the fire alarm.
- Assemble at the staging area located at the lower south parking lot, south end of Lane #9.
- Zone Wardens report to the SAS.
- If classified materials (e.g., documents, ESM, test materials) are removed from the LA or left unsecured within the LA:
  - Inform the SAS that classified material has been left in an unsecured condition or has been removed from the LA.
  - Call the PNNL SOC at 375-2400 and report the details surrounding the classified materials security event.
  - SAS shall provide information to the BED concerning the classified material.
- Personnel who are wearing PPE clothing or are suspected of being contaminated shall be segregated from other building occupants and shall be surveyed by radiological control personnel. PPE will be discarded as directed by the RPT.
- Zone Wardens and all staff are to remain at the staging area and must follow the instructions of the BED.

6.4 Potential Radiological Material Release

NOTE 1: *If appropriate, the BED will classify the event using the 325RPL EALs.*

NOTE 2: *The RPT may provide radiological survey data in Becquerel's. A Becquerel is a SI unit of radioactivity equal to one disintegration per second. Conversion to disintegration per minute: Multiply total Becquerel's by 60.*

6.4.1 Area Radiation Monitor

- Stop work.
- Alert personnel in the area.

[22] Section 6.3, Permit Requirement, Class 1 Modification 03/31/16

- Exit the Radiologically Controlled Area (RCA) that is being monitored by the Area Radiation Monitor.
- Notify the RPT and the BED.
- Notify the PNNL SOC at 375-2400.

6.4.2 Continuous Air Monitor or ALPHA Sentry Continuous Air Monitor

- Stop work.
- Alert personnel in the area.
- Exit the area being monitored by the Continuous Air Monitor and move into a separate air space.
- Notify the RPT and the BED.
- Notify the PNNL SOC at 375-2400.

6.4.3 Glove Box Differential Pressure Alarm

- Stop work.
- Alert personnel in the area.
- Exit the immediate area.
- Notify the RPT and the BED.
- Notify the PNNL SOC at 375-2400.

6.4.4 Hot Cell Differential Pressure Alarm

- Stop work.
- Alert personnel in the area.
- Exit the immediate area.
- Notify the RPT and the BED.
- Notify the PNNL SOC at 375-2400.

6.4.5 Stack Monitor Alarm

- Alert RPT (stack qualified) and BM.
- Stop work associated with release.
- Notify Effluent Management.
- Notify PNNL SOC at 375-2400.
- Notify BED, if not the BM.

6.5 Criticality and Criticality Safety Limit Violations

6.5.1 In the Event of a Potential Criticality Safety Limit Violation, Perform the Following.

The staff member discovering an actual or potential criticality safety limit violation shall follow the steps below (also described in the operating documents).

- Stop work immediately in the area without making any changes to present conditions.
- Verify that any fissionable materials or other equipment and materials close enough to interact with fissionable materials are not moved or disturbed.
- Immediately notify the BM. If not available, call the PNNL SOC at 375-2400 and state the problem.

6.5.1.1 Upon notification, the BM shall:

- Call the PNNL SOC at 375-2400 and state the problem.
- Notify the Fissionable Material Line Manager and supervisor for the controlled area.
- Contact the Nuclear Criticality Safety Program Manager 509-539-9366 or Nuclear Safety and Facility Authorization Manager 509-947-2344 to obtain nuclear criticality safety program staff support.

6.5.1.2 Upon notification, the Fissionable Material Line Manager shall:

- Verify that all work activities in the affected area are stopped.
- Post warning signs at appropriate locations requiring permission from the Fissionable Material Line Manager to enter the area.

6.5.1.3 Upon notification, the Nuclear Criticality Safety Program Manager shall:

- Confirm whether a limit violation exists.
- Determine if a second contingency still provides for prevention of criticality or other danger if limit has been violated.

6.5.1.4 Nuclear criticality safety violations are identified as a loss of documented controls in the *Event Classifiers Procedure*. The BM shall initiate the associated reporting, critique, and corrective action process defined in the HDI Workflow, *Report an Event or Occurrence.*

6.5.1.5 The Nuclear Criticality Safety Program Manager will assist the BM in developing a Recovery Plan based on a thorough review of the situation and potential hazards associated with the violation.

6.5.2 In the Event of a Criticality Alarm, Perform the Following

> **NOTE 1:** *If appropriate, the BED will classify the event using the 325RPL EALs.*
>
> **NOTE 2:** *Administrative Controls are in place to restrict movement of additional fissionable material in the HLRF hot cells. The controls prevent a criticality event in the HLRF hot cells. The controls address the concern that a criticality within the HLRF hot cells would not be detected with the Criticality Detection System.*

6.5.2.1 Leave the building immediately (walk with purpose) through the closest exit, DO NOT stop for a survey and get at least 15 feet of separation from the facility. Maintain a minimum of 15 feet distance during relocation to the primary staging area.

6.5.2.2 Zone Wardens are also directed to leave the building immediately without performing accountability sweeps of their zones.

> **NOTE:** *Choose a path around barriers that will maximize your distance from the building but maintain at least 15 feet of separation from the facility. When past the obstacle, maintain the distance from the building and continue to the primary staging area. See Attachments 7 and 8, Staging Area Map and Alternate Staging Areas for suggested routes.*

6.5.2.3 Proceed to the staging area along a path that does not take you closer to the building.

6.5.2.4 Assemble at the staging area located at the lower south parking lot, south end of Lane #9. Consider moving to the alternate staging area (350 Building).

- Initiate RCP-8.1.02, Quick Sort Survey of Personnel.
- Any positive quick sort must immediately be reported to the BED.
- Zone Wardens report to the SAS.
- If classified materials (e.g., documents, ESM, test materials) are removed from the LA or left unsecured within the LA.
- Inform the SAS that classified material has been left in an unsecured condition or has been removed from the LA.
- Call the PNNL SOC at 375-2400 and report the details surrounding the classified materials security event.
- SAS shall provide information to the BED concerning the classified material.
- Personnel who are wearing PPE clothing or are suspected of being contaminated shall be segregated from other building occupants and shall be surveyed by radiological control personnel. PPE will be discarded as directed by the RPT.
- Determine the radiation dose levels at the staging area and in the evacuated area following a criticality accident.
- Dose rates and report findings shall be reported to the BED.

- Zone Wardens and all staff are to remain at the staging area and follow the instructions of the BED.
- Notify PNNL first responders, supporting the Hanford Fire Department, to set their Electronic Personal Dosimeters to 3 rem/hour rate in order to keep them far enough away from the criticality event location and to limit dose from a pulse.

6.5.2.5 Consider the following to support recovery plan and/or actions.

- Responders wear full respirators or supplied air system to limit inhalation dose.
- Electronic Personal Dosimeters should be set at the normal level of 100 mrem/hr total.
- Provide shortest route for retrieval of Fixed Nuclear Accident Dosimeters.
- Retrieve Fixed Nuclear Accident Dosimeters in order to reconstruct the dose of the accident.
- If Fixed Nuclear Accident Dosimeters are not retrievable, chemical reagents can be used.

6.6 Loss of Electrical Power/Reduced Ventilation

6.6.1 In the Event of a Loss of or a Significant Interruption to Building Electrical Power <u>AND/OR</u> a Reduction in Ventilation Flow, Perform the Following

6.6.1.1 Place laboratory or room in safe condition per the following:

- Verify fume hoods and sashes are closed.
- Verify equipment is shutdown.
- Verify nuclear material(s) are secure.
- Verify that classified materials are secure.
- Verify all hazardous materials are secure.
- Verify that all equipment and heat generating devices inside of laboratory gloveboxes and inside of hot cells are shut down.

6.6.1.2 If the building electrical power returns and/or standby power is still available:

- assemble in the lunchroom.
- if classified materials (e.g., documents, ESM, test materials) are removed from the LA or left unsecured within the LA:
  - Inform the SAS that classified material has been left in an unsecured condition or has been removed from the LA.
  - Call the PNNL SOC at 375-2400 and report the details surrounding the classified materials security event.
  - SAS *shall* provide information to the BED concerning the classified material.

a. Personnel exiting the Radiological Buffer Areas are expected to do so without surveying through the personnel contamination monitor (PCM).

b. Personnel who are wearing PPE clothing or are suspected of being contaminated shall be segregated from other building occupants and shall be surveyed by radiological control personnel. PPE will be discarded as directed by the RPT.

c. Zone Wardens for Zones 2 and 8 are requested to activate the flashing red warning lights.

d. Zone Wardens and all staff are to remain at the lunchroom and follow the instructions of the BED.

e. Radiological surveys of the facility shall be performed prior to re-entry.

6.7 Natural Phenomena Events

NOTE: *If appropriate, the BED will classify the event using the RPL EALs.*

The natural phenomena events that are considered as having a probability of occurring and are addressed in this procedure are seismic event/earthquake, volcanic eruption/ash fall, high wind/tornado, flood, and range fire.

If these events were to occur, Hanford Telephone Notification System messages will most likely be sent before, during, or immediately following the event. Regardless of the receipt of a phone message, the BED will direct activities within the facility in accordance with this procedure and provided by phone messages as appropriate.

Should it become necessary to evacuate the facility, the BED will report the evacuation to the PNNL SOC at 375-2400 and the EOC Shift Office at 376-2900.

6.8 Bomb Threats/Suspicious Objects

NOTE: *If appropriate, the BED will classify the event using the RPL EALs.*

6.8.1 If a Suspicious Object is Discovered, or the Placement of Such an Object is Observed, Perform the Following Actions

6.8.1.1 Do not move, open, or otherwise disturb any suspicious objects.

6.8.1.2 Notify the PNNL SOC at 375-2400 and the RPL BED using office telephones only.

6.8.1.3 Evacuate the facility. DO NOT USE THE FIRE ALARM PULL BOX TO INITIATE THE EVACUATION as frequencies can detonate devices.

- Warn others in the immediate vicinity.
- Leave the building immediately via the closest exit.
- Zone Wardens are also directed to LEAVE the building immediately without performing accountability sweeps of their zones.

6.8.1.4 Use of cellular phones, radios, or other radio frequency generating equipment within 100 feet of the 325RPL is prohibited.

6.8.1.5 Assemble at the staging area located at the lower south parking lot, south end of Lane #9.

- Zone Wardens report to the SAS.
- If classified materials (e.g., documents, ESM, test materials) are removed from the LA or left unsecured within the LA:
  - Inform the SAS that classified material has been left in an unsecured condition or has been removed from a LA.
  - Call the PNNL SOC at 375-2400 and report the details surrounding the classified materials security event.
  - SAS shall provide information to the BED concerning the classified material.
- Personnel who are wearing PPE clothing or are suspected of being contaminated shall be segregated from other building occupants and shall be surveyed by radiological control personnel. PPE will be discarded as directed by the RPT.
- Zone Wardens and all staff are to remain at the staging area and follow the instructions of the BED.
- The staging area will be relocated a minimum of 300 feet away from the facility.

6.8.2 If a Telephone Bomb Threat is Received

6.8.2.1 Use the *PNNL Bomb Threat Card* to record the message exactly as dictated and attempt to obtain the following information:

- When will it go off?
- Where is it is located?
- What does it looks like?
- What kind is it?
- Why was it was placed?
- Who placed it?
- How you know so much about it?
- Where are you calling from?
- What's your name and address?

6.8.2.2 Notify the PNNL SOC at 375-2400 and provide the information given by the caller.

6.8.2.3 Upon completion of the notifications to the PNNL SOC, also notify the BED and provide the information obtained from the caller.

6.8.3 If a Written Bomb Threat is Received

6.8.3.1 Notify the PNNL SOC at 375-2400.

6.8.3.2 Provide the written bomb threat to the 325RPL BED who will forward it to the PNNL Subject Matter Expert Safeguards and Security Management Official.

6.9 Active Shooter in the Building

6.9.1 When Condition is Observed

6.9.1.1 RUN – Immediately try to get out of the facility to a safe location out of immediate sight of the building and call 375-2400.

6.9.1.2 HIDE – If evacuation is not possible or safe, take cover in an office with the door closed and lights off. Lock the door if possible and call 375-2400.

6.9.1.3 FIGHT – If the active shooter has confronted you and evacuation or taking cover is not possible, staff should take whatever actions are necessary to get to safety which may include fighting the intruder or other. This is a last resort step.

6.9.1.4 BED Response:

6.9.1.4.1 Public Announcement (PA) made, if possible, depending on the situation.

6.9.1.5 Do not move any suspicious objects.

6.9.1.6 Provide emergency responders with appropriate information upon arrival.

6.9.1.7 Keep staff from entering the affected area.

6.9.1.8 Classify the event using the 325RPL EALs, if appropriate.

6.9.1.9 Activate the MSG by calling 375-2400 and requesting activation.

6.9.1.10 Request medical assistance, if necessary.

6.10 Notice of a PNNL Lockdown

6.10.1 When Condition is Observed

6.10.1.1 Staff will be notified of a PNNL lockdown over the telephone through the CNS.

6.10.1.2 Immediately get behind a closed door if possible or hidden out of sight.

6.10.1.3 Place projects into safe shutdown mode.

6.10.1.4 Do not allow anyone into the facility.

6.10.1.5 Await further instructions via the CNS.

6.11 Declared Emergency in the 300 Area

6.11.1 Personnel will evacuate the facility or take cover as directed by the BED.

6.11.2 If the declared emergency originates in the 325RPL facility, the BED shall take actions that are in accordance with the BEP and inform and direct other 300 Area contractors and facility owners of the emergency declaration in accordance with their emergency procedures.

7.0 Facility Take Cover — Shutdown of Heating, Ventilation, and Air-Conditioning System

7.1.1 If Outside of the 325RPL, PERFORM the Following.

7.1.1.1 Take cover inside the nearest building.

7.1.1.2 If the building you take cover in is not the 325RPL, attempt to contact your line manager or team lead and have them report your whereabouts to the 325RPL SAS.

7.1.1.3 If unable to contact your management, report to the BERO for the building where you are located so your personal accountability may be made.

7.1.1.4 Follow directions provided by that building's emergency organization or BED.

7.1.2 If You Take Cover Inside the 325RPL, REMAIN INSIDE the 325RPL.

7.1.2.1 Assemble in the lunchroom.

7.1.2.2 Staff should refrain from eating and drinking during a take cover event, if physically able, until an appropriate evaluation of the event can be made.

7.1.2.3 The BED will direct the shutdown of the 325RPL H&V as needed per SOP-325-003, *325 Building Heating, Ventilation and Air Conditioning Emergency Shutdown*.

7.1.2.4 If classified materials (e.g., documents, ESM, test materials) are removed from the LA, or left unsecured within the LA:

- Inform the SAS that classified material has been left in an unsecured condition, has been removed from the LA, and the status/location of the classified material.
- Call the PNNL SOC at 375-2400 and report the details surrounding the classified materials as a security event and provide details as necessary.
- SAS shall provide information to the BED concerning the classified material.

7.1.2.5 Personnel who are wearing PPE clothing or are suspected of being contaminated shall be segregated from other building occupants and shall be surveyed by radiological control personnel. PPE will be discarded as directed by the RPT.

7.1.2.6 Zone Wardens for zones two and eight are requested to activate the flashing red warning lights.

7.1.2.7 Zone Wardens and all staff are to remain in the lunchroom and follow the instructions of the BED.

8.0 Utility Disconnects

Utility disconnects may be necessary under extreme emergency conditions. The 325RPL BED will determine if utility disconnects need to be disconnected/shut. Locations of the utility disconnects or valves are identified below:

8.1 Electrical

The 325RPL Building main electrical control center switchgear is located on the second floor (northwest corner) in Room 904. Extreme caution shall be used if disconnecting this power.

8.2 Potable/Process Water

The internal valves are located in the southwest corner of Room 22 in the basement. The external ground valve, SCW-1-VLV (blue cover, operating handle located in 325RPL Shop) is located outside at the southwest corner of the 325RPL Building.

8.3 Gas Supplies

The P-10 gas distribution system is located at the northeast end of the north gas cylinder dock. Turn cylinders off as directed by the 325RPL BED.

8.4 Steam

The high-pressure steam supply valves are located above the power operator's workstation entry door on the second floor east equipment room. Steam to the 325RPL may also be isolated using valves inside the Johnson Controls-operated 325B boiler house, if access to the 325RPL Building is not possible.

8.5 Air

The main air compressor may be isolated in one of two ways: OPEN the electrical disconnect (S-DIS-074) for the main air compressor or by CLOSING valve CA-186-VLV; both of the components are located adjacent to the main air compressor in the second floor mechanical room. If time permits, the preferred method of shutting down the main air compressor is to press the STOP pushbutton located on the front of the compressor.

8.6 Compressed Air

To remove all sources of compressed air, the standby compressor (located in the northwest corner of the basement) must also be isolated or shutdown in addition to isolating the main air compressor. Isolation of the standby compressor is accomplished by OPENING the electrical S-DIS-073 or CLOSING valve CA-96-VLV; both components are located adjacent to the standby air compressor. If time permits, the preferred method of shutting down the standby air compressor is to place the control switch to the OFF position; the switch is located on the top of the compressor controller.

8.7 Ventilation

Ventilation Facility Exhaust and supply fan controls are located:

- at the power operator workstation (Room 900)

- Power Operators METASYS work stations in any PNNL facility may be used to secure the 325RPL main supply and exhaust fans as well as a majority of the building heating and ventilation (H&V).
- in the north part of the basement, west of the elevator
- Additional exhaust fan controls are on the starter enclosure for each exhaust fan inside the 325RPL Filter Building.

External shutdown of the main exhaust and supply fans may be accomplished under extreme circumstances by removing both normal and standby electrical power from the building. A more controlled external shutdown of the main exhaust and supply fans is a complicated evolution involving multiple operating locations that must be accomplished in a specific sequence under supervision of 325RPL knowledgeable staff to prevent the risk of loss of building containment due to creation of a positive pressure inside the building.

8.8 Fire Protection Supply Water

Fire Suppression Supply Water Post Indicator Valves (red) for Risers 1 through 5 are located outside the 325RPL Building in the following locations:

- Riser 1 PIV is located at the northwest corner of the 325RPL building
- Riser 2 PIV is located north of the 325RPL
- Riser 3 PIV is located at the southwest corner of the 325RPL building
- Riser 4 PIV is located southeast of the 325RPL-A annex
- Riser 5 PIV is located southeast of the 325RPL-A annex.

8.9 Dry Pipe Butterfly Valve (Riser 6)

The butterfly valve for the dry pipe fire suppression system on the north gas cylinder dock is located on the second floor in the east equipment room at the north wall. Suppression water for this system is supplied from Riser 2 and may be isolated external to the 325RPL by shutting the PIV for Riser 2.

8.10 325RPL Ramp Sump Pump

Water runoff down the 325RPL basement truck ramp at the southwest corner of the building is collected in a sump at the bottom of the ramp. The associated sump pump empties the sump as needed to prevent it from overflowing into the 325RPL basement through the roll-up door. The sump pump discharges to the street in front of the 325RPL.

Potentially contaminated fire suppression water runoff from inside the 325RPL basement could also enter this sump and be pumped to the street in front of the building resulting in an unacceptable spread of contamination.

The local disconnect for the sump pump is located inside the south roll-up door on the east side of the door.

8.11 325RPL Decontamination Shower/Sink

A decontamination shower and sink is located in Room 426 with a tempered water supply for use as an emergency decontamination system. The contaminated water is routed to two 250-gallon storage tanks.

The system is designed with the drains directed to one of the two tanks. A high-level alarm activates locally when the selected tank reaches 66 percent volume. The high-level alarm is used to prevent overfilling of the tank. The water supply is manually isolated to allow valve alignment to the second tank for water receipt. The high-high alarm at 75 percent of the tank volume will automatically isolate water to the shower or sink. The tanks have a common overflow for upset conditions (i.e., automatic water isolation fails, improper valve alignment).

9.0 Termination, Incident Recovery, and Restart

9.1 Termination

The IC, in consultation with the BED, will recommend termination of the event when conditions indicate that it is safe to do so. EP_ECF, *Event Closeout Form*, should be completed before any recommendation is made to terminate a declared emergency.

9.2 Recovery

Depending on the circumstances of the event, a recovery team consisting of the IC, 325RPL BED, and appropriate Subject Matter Experts, will develop and recommend a Recovery Plan for restoring the facility to operable status. Emphasis will be placed on the careful cleanup of released material and contaminated debris to minimize further risk to personnel, the public, or the environment while preserving evidence at the event scene. All waste materials generated by the cleanup will be containerized in drums or other appropriate containers and stored in an approved storage area pending characterization and determination of the final treatment/disposal requirements. The Recovery Plan will be reviewed and approved and must meet the requirements of PNNL-MA-110, the *PNNL Emergency Management Plan*, Termination and Recovery.

The BED is responsible for assuring that emergency equipment is clean and fit for its intended use prior to resumption of operations. Equipment used during an incident will be decontaminated (if practicable) or disposed of as spill debris. Decontaminated equipment will be checked for proper operation prior to storage for subsequent use. Consumables and disposed materials will be restocked. Fire extinguishers will be recharged or replaced.

For emergency events involving the TSD or a 90-day accumulation area, the Recovery Plan will include the appropriate notification of the Washington State Department of Ecology and appropriate local authorities of recovery actions taken prior to restart. The operator of the TSD will also provide a written report to the Department of Ecology within 15 days after the incident or within 30 days after the incident for a release from a tank system to the environment that does not result in an activation of the contingency plan[23].

NOTE: *For classified events recovery planning and activities will be the responsibility of the recovery director assigned at the Hanford EOC.*

9.2.1 Emergency Decontamination Facilities

The 325RPL facility has decontamination capability as discussed in Section 8.11. Radiological control personnel are the only staff that may perform personnel decontamination.

If an evacuation of the 325RPL Building occurs and re-entry is not possible to decontaminate affected personnel, radiological control supervision may use the 3410 Building personnel decontamination facility located in Room 1601. In the event that the affected personnel are injured, they should be transported

[23] Section 9.2, Paragraphs 1, 2, and 3: Permit requirement, Class 1 Modification 03/31/16

directly to a hospital. If large group decontamination facilities are requested, request assistance from the HFD Mobile Decontamination Facility.

9.2.2 Emergency Radiological Exposure Guidelines

In extremely rare cases, emergency exposure to radiation may be required to rescue personnel or protect major property. Emergency exposure may be authorized in accordance with the provisions contained in 10 CFR 835, "Occupational Radiation Protection". The dose limits for personnel performing these operations are listed in Table 9.1.

NOTE: *Only RadWorker 2-trained staff is allowed to volunteer for receiving emergency radiological exposures.*

The lens of the eye dose limit should be three times the listed values. The shallow dose limit to the skin of the whole body and the extremities is ten times the listed values.

Table 9.1 - Emergency Dose Limits

Dose Limit (Total Effective Dose Equivalent) in rem	Activity Performed	Conditions
5	All	N/A
10	Protecting major property	Only on a voluntary basis where lower dose limit not practicable
25	Lifesaving or protection of large populations	Only on a voluntary basis where lower dose limit not practicable
> 25	Lifesaving or protection of large populations	Only on a voluntary basis to personnel fully aware of the risk involved

9.3 Restart

In most cases, EP_ECF, *Event Closeout Form*, will be sufficient for supporting recovery from an event and actions needed for resumption of normal operations. For complex events with significant facility damage or a need for incident staffing for more than 48 hours, a Recovery Plan and process will be required. Restart of the facility following complex emergencies will be conducted with a Recovery Plan developed using EPIP-3.0, *Recovery Plan* and led by a Recovery Director identified by the MSG. The Recovery Plan will be developed with support from both the 325RPL Manager and 325RPL BM.

The following documents should be consulted, used as reference, and implemented if needed.

- EPIP-3.0, *Recovery Plan*
- PNNL Guides for Post-Natural Phenomena Hazard Building Inspection
- RPL-PLN-701, *RPL Business Continuity Plan*

For severe damage to the facility due to natural phenomena (e.g., extreme weather conditions, seismic events, wildfires, external flooding) or other causes (e.g., severe fire, physical attack, explosions, events in neighboring facilities), the Recovery Plan shall describe the process for a systems engineering assessment and evaluation of the facility including environmental protection, mission critical and other essential systems (safety significant and equipment important to safety). The purpose of these assessments is to define actions needed to place the facility into a safe configuration within the Safety Basis requirements pending any resumption of operations.

Recovery for events that involve a container storage area within the HWTU, require the container storage and containment system to be evaluated before restart.

If the event involved a tank system leak, repairs must be certified by an independent, qualified, registered, professional engineer.

Before operations are resumed in the facility, all emergency equipment used during the emergency shall be cleaned and restored to usable, operable condition[24].

[24] Section 9.3, Last three paragraphs: Permit Requirement, Class 1 Modification 09/30/15

10.0 Emergency Equipment[25]

Support equipment available to assist in responding to an emergency can be found by referring to DOE/RL 94-02, Section 11.2, and the HFD emergency equipment listing in DOE/RL 94-02, Appendix C.

10.1 Portable Emergency Equipment

None

10.2 Fire Control Equipment

- Portable Class ABC fire extinguishers are located throughout the facility. Each Class ABC extinguisher is capable of suppressing fires involving ordinary combustible materials, flammable liquids, oils, paints, flammable gases, and fires involving electrical equipment. Class D extinguishers will be located in areas vulnerable to Class D fires if reactive metals are stored there (e.g., dangerous waste storage room). Manual dry chemical fire extinguishers are installed in the Shielded Analytical Laboratory hot cells and are available outside the HLRF A and B hot cells. The fire extinguisher locations are identified on the floor plans (Attachments 1 through 3).
- Portable Class ABC fire extinguishers with piercing tips are located in each lab that contains a glovebox. These extinguishers are for the HFD use only. 325RPL staff have not been trained in their use. The piercing tipped fire extinguisher locations are identified on the floor plans (Attachments 1 through 3).
- 325RPL is equipped with an automatic fire detection, alarm, and suppression system. Five wet pipe and one dry pipe sprinkler system provide automatic fire suppression.
- A Mobile Command Post Vehicle can be obtained from the HFD at 373-2230. The HFD Battalion Commander will approve and dispatch the vehicle.

10.3 Communications Equipment/Warning Systems

- **Fire Alarm Pull Boxes** are located throughout the facility. The primary locations are at all exits of the facility. All locations are shown on the floor plans (Attachments 1 through 3).
- **Hanford Site Telephone Notification System** is a component of the Hanford Emergency Notification System and designed to use the existing telephone system to notify individual employees. When the phone is answered, a recorded message will provide event information and inform staff of protective actions they are expected to take.
- **PNNL Communicator Notification System (CNS)** is a system that will allow emergency messages to be communicated quickly to all staff via the PNNL phone system, other subscribed phones (e.g., text or voice call to personal cell phones), and the PNNL email system. Phones at PNNL in offices, conference rooms, labs, and common areas such as lobbies, conference rooms, and lunchrooms are notified by the

[25] Section 10, Permit Requirement, Class 1 Modification 03/31/16

system. When the phone is answered, a recorded message will provide event information and inform staff of protective actions they are expected to take. This can be activated by having the BM, IM, or MSG Lead call 375-2400.

- A **Criticality Alarm System** is present in the building. The system is equipped with neutron-sensitive criticality detectors. The Criticality Alarm System alarms in locations where the expected dose from an accidental criticality may exceed 12-rads in free air. The system is tested and maintained in accordance with preventive maintenance procedures.

> **NOTE:** *These systems are not considered emergency equipment and may not be available during all types of emergencies.*

- Other non-emergency communications equipment installed in 325RPL include:
  - public address system (375-3700 on the VOIP phones)
  - public address system in the fire alarm control panel
  - commercial telephone system that may also be used to summon assistance during an emergency
  - hand-held radios provided by the BED.

10.4 Personal Protective Equipment

Safety showers and eyewash units are installed at several locations throughout the facility including waste storage areas. All locations are shown on the floor plans (Attachments 1 through 3).

Personnel protective clothing and respiratory equipment is available in the facility for use during both routine and emergency operations. This equipment includes:

- chemically-resistant suits, aprons, boots, and gloves
- protective glasses
- chemical goggles
- face shields
- full-face respirators with extra cartridges
- radiological clothing

Kits containing a variety of radiation monitoring instruments, forms, and equipment are available for use in an emergency. PNNL maintains these kits, which contain protective apparel, instruments, and equipment for personnel decontamination and other immediate emergency needs. These supplies and equipment are only adequate to fulfill immediate needs during the initial stages of an emergency.

10.5 Spill Control and Containment Supplies

Spill kits are located throughout the facility and are maintained by the CSMs. Additional spill kit materials can be obtained in Room 527. The following emergency equipment is maintained in (or adjacent to) each of the 90-day hazardous waste accumulation areas. The

amount of material maintained varies depending on the amount of waste being accumulated at the individual 90-day area.

- commercially available granular absorbent (e.g. diatomaceous earth)
- absorbent pads
- commercially available acid neutralizer[1] (e.g. granular sodium bicarbonate)
- commercially available caustic neutralizer[2] (e.g. dilute boric acid solution)
- Personal Protective Equipment
  - safety glasses with side shields
  - lab coat
  - leather gloves
  - chemical-resistant gloves (e.g., nitrile)

[1] Required in accumulation areas containing liquid acidic wastes.
[2] Required in accumulation areas containing liquid caustic wastes.

11.0 Evacuation of Persons and Visitors

- 325RPL occupants shall be aware of visitors that may require evacuation. Alternate housing for any staff that is sensitive to excessive hot or cold conditions (temperately disabled) may be required due to emergency response actions.

> **NOTE:** *Alternate staging area – in the event of an extended building evacuation during adverse weather, the 350 Building, or other indoor locations deemed safe, may be used for housing staff at the discretion of the BED*[26].

- Facility and research management provide safety and emergency preparedness briefings for large visitor groups or tours. Individual visitors are briefed by their host.
- In all cases, the safety of building visitors is the responsibility of the host, who shall assure that visitors are provided a safe and orderly evacuation. The host shall verify that the visitor has signed in and report the visitor status to the appropriate Zone Warden as soon as practical, after the evacuation.

[26] Section 11, Note: Permit Requirement, Class 1 Modification 03/31/16

12.0 Emergency Action Levels

12.1 300 Area Protective Actions

300 Area Onsite Protective Actions		
Classification	**Action**	**Implemented By**
Alert	Evacuate or shelter affected facility personnel.	Facility
	Shelter[1] 300 Area and adjacent 600 Area. Initially restrict access at: • Route 4S at Milepost 19 • George Washington Way extension (to 300 Area) intersection with George Washington Way • George Washington Way intersection with Stevens Drive. **NOTE:** *Roadblocks can be relocated based upon consequence assessment upon approval by the IC/SED.*	Patrol Operations Center (Quick Reaction Checklist)/ EOC Shift Office
Site Area/ General Emergency	Evacuate or shelter affected facility personnel.	Facility
	Shelter[1] 300 Area, HAMMER, Patrol Training Academy, Cold Test Facility, and adjacent 600 Areas. Restrict access at: • Route 4S at Milepost 19 • George Washington Way Extension (to 300 Area) intersection with George Washington Way • Horn Rapids intersection with Stevens Drive.	Patrol Operations Center (Quick Reaction Checklist)/ EOC Shift Office
	Plan for subsequent 300 Area evacuation as required.	Hanford EOC
[1]*Automatic sheltering for entire areas will not be implemented during a seismic event. If a seismic event occurs, facility management will implement protective actions appropriate for their facility conditions. After a seismic event, site protective actions based upon incident assessment will be identified, planned, and communicated from Incident/Area Command and/or the Hanford EOC.*		
300 Area Offsite Protective Actions and Recommendations		
Classification	**Action**	**Implemented By**
Alert	None	N/A
Site Area Emergency	Implement evacuation of Columbia River from White Bluffs Ferry Landing to Leslie Groves Park.	Counties (RLEP 3.3)
General Emergency	Implement evacuation of Columbia River from White Bluffs Ferry Landing to Leslie Groves Park.	Counties (RLEP 3.3)
	Evacuate 2.2-mile radius.	Benton/Franklin Counties

12.2 325RPL Emergency Action Levels

The EAL Tables are published in RLEP 1.0 – Appendix 1-PNNL.325, and can be obtained from the 325RPL BM.

13.0 Attachments

Attachment 1 — Emergency Equipment and Evacuation Routes - 1st Floor

Attachment 2 — Emergency Equipment and Evacuation Routes - 2nd and 3rd Floors

Attachment 3 — Emergency Equipment and Evacuation Routes - Mezzanine and Basement

Attachment 4 — Zone Warden Areas - 1st Floor

Attachment 5 — Zone Warden Areas - 2nd and 3rd Floors

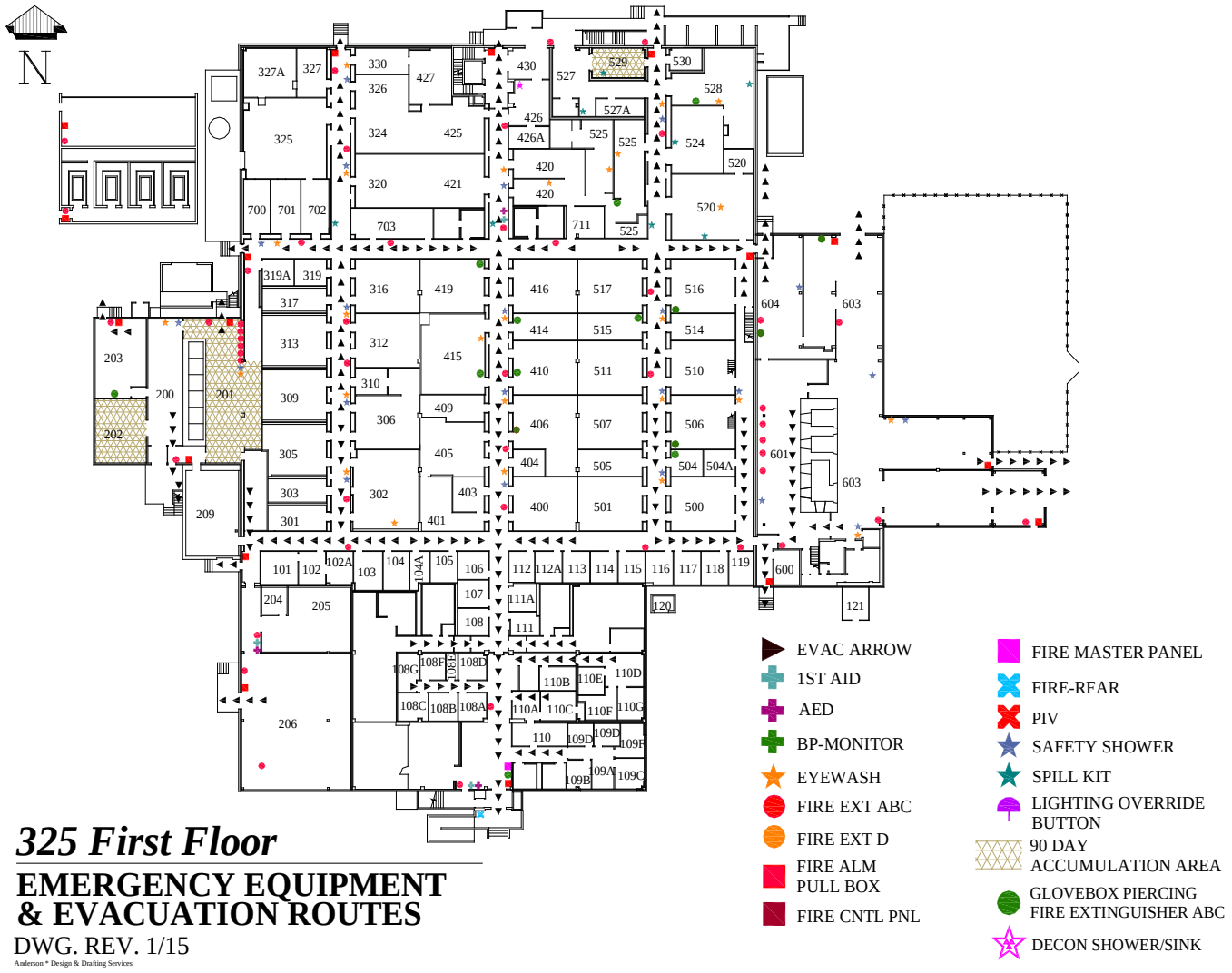
Attachment 6 — Zone Warden Areas - Mezzanine and Basement

Attachment 7 — 325RPL Staging Area Map

Attachment 8 — 325RPL Alternate Staging Area Map

Attachment 9 — Location of 325RPL in the 300 Area

Attachment 1 — Emergency Equipment and Evacuation Routes
1st Floor [27]



325 First Floor

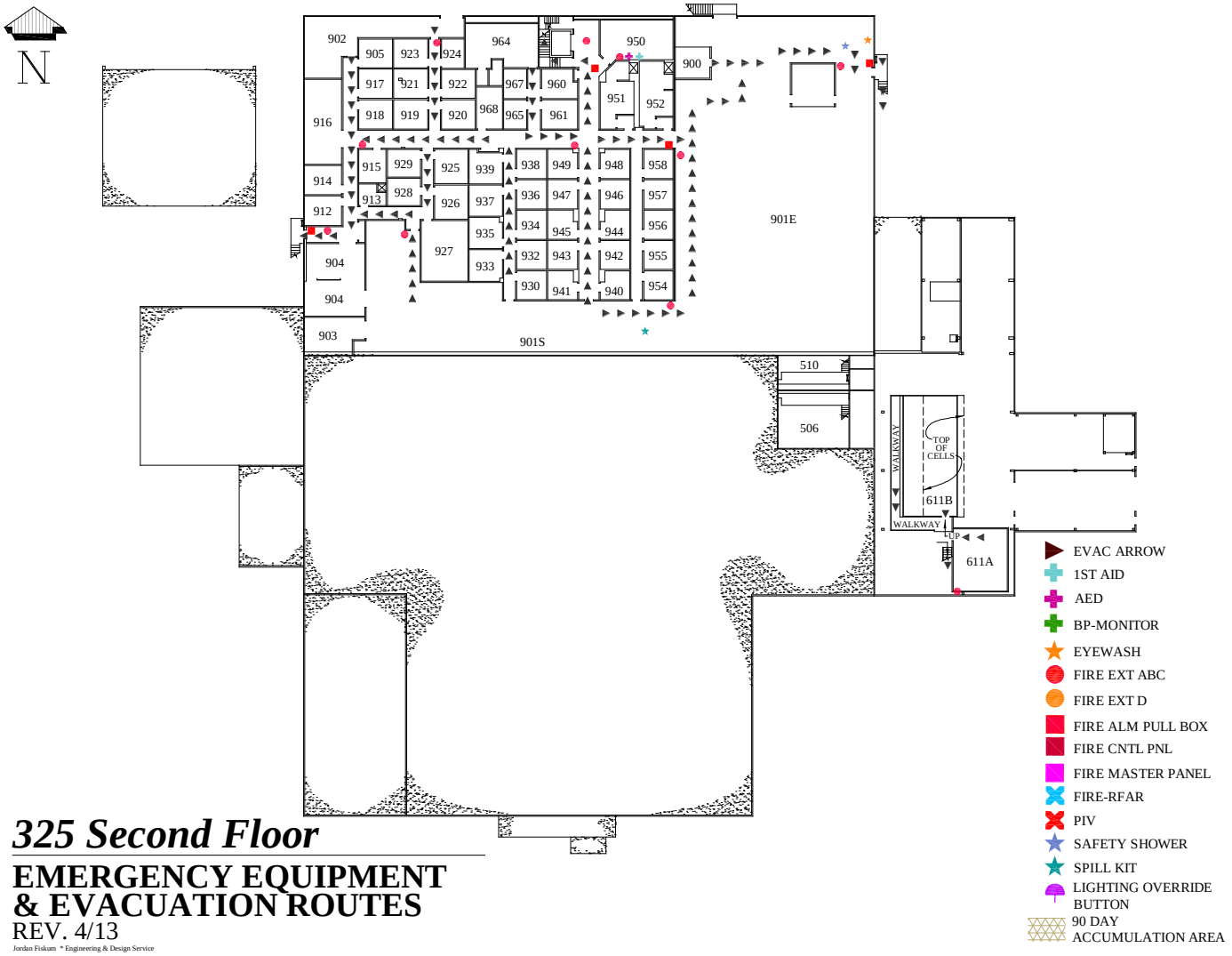
EMERGENCY EQUIPMENT & EVACUATION ROUTES

DWG. REV. 1/15

Anderson * Design & Drafting Services

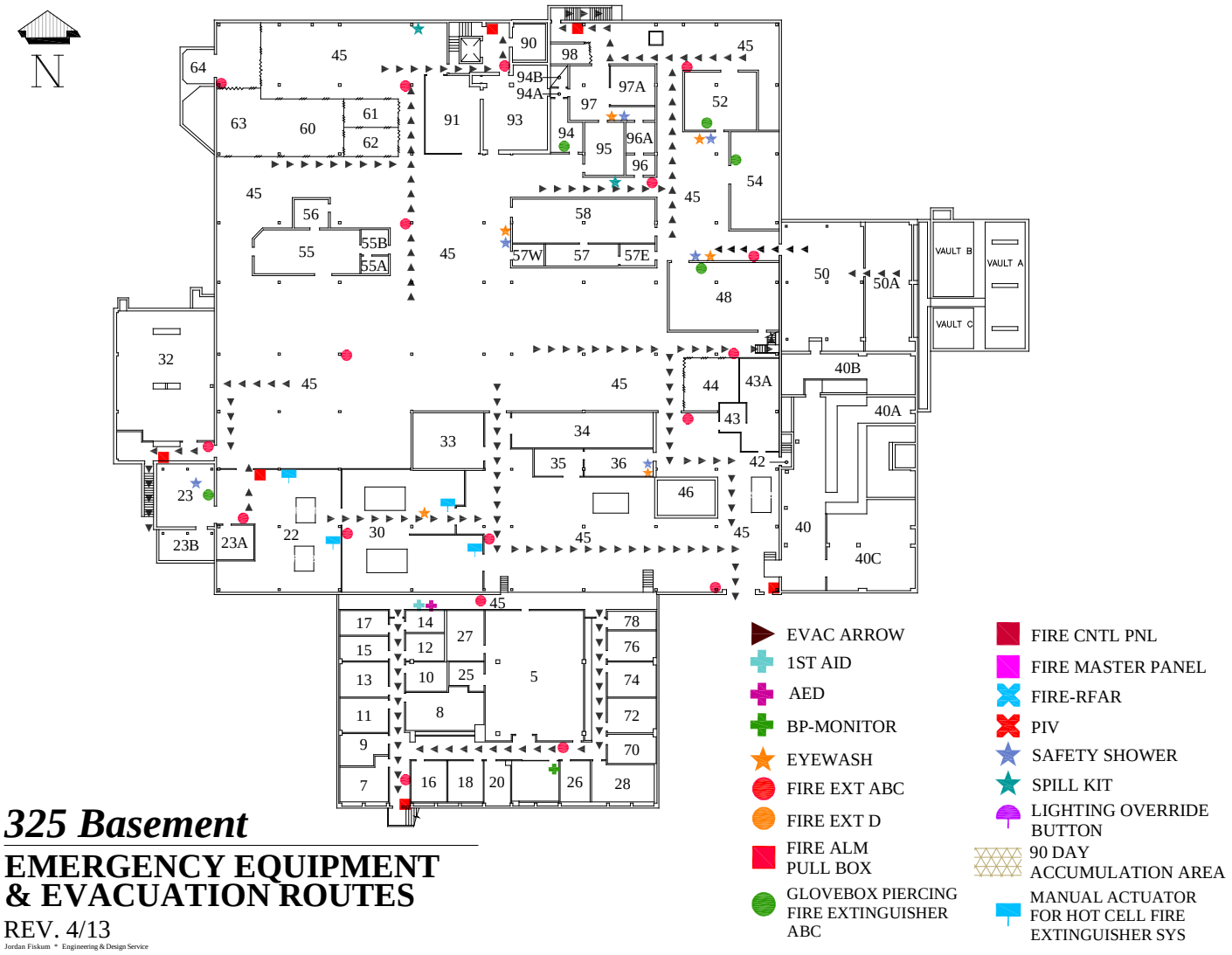
[27] Section 13.0, Attachment 1: Permit Requirement, Class 1 Modification 09/30/15

Attachment 2 — Emergency Equipment and Evacuation Routes
2nd and 3rd Floors[28]



[28] Section 13.0, Attachment 2: Permit Requirement, Class 1 Modification 09/30/15.

Attachment 3 — Emergency Equipment and Evacuation Routes Mezzanine and Basement[29]



325 Basement

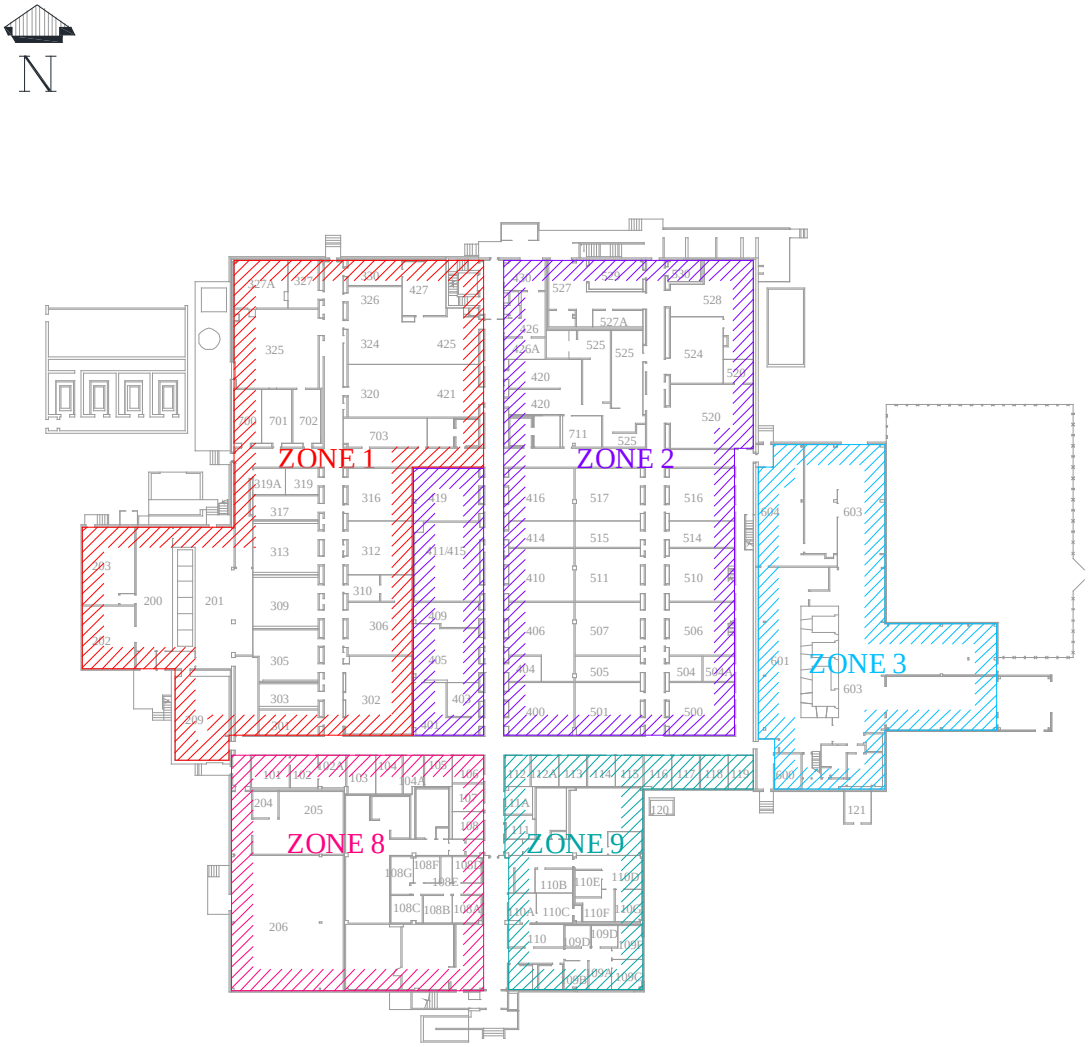
EMERGENCY EQUIPMENT & EVACUATION ROUTES

REV. 4/13

Jordan Fiskum * Engineering & Design Service

[29] Section 13.0, Attachment 3: Permit Requirement, Class 1 Modification 09/30/15.

Attachment 4 — Zone Warden Areas
1st Floor



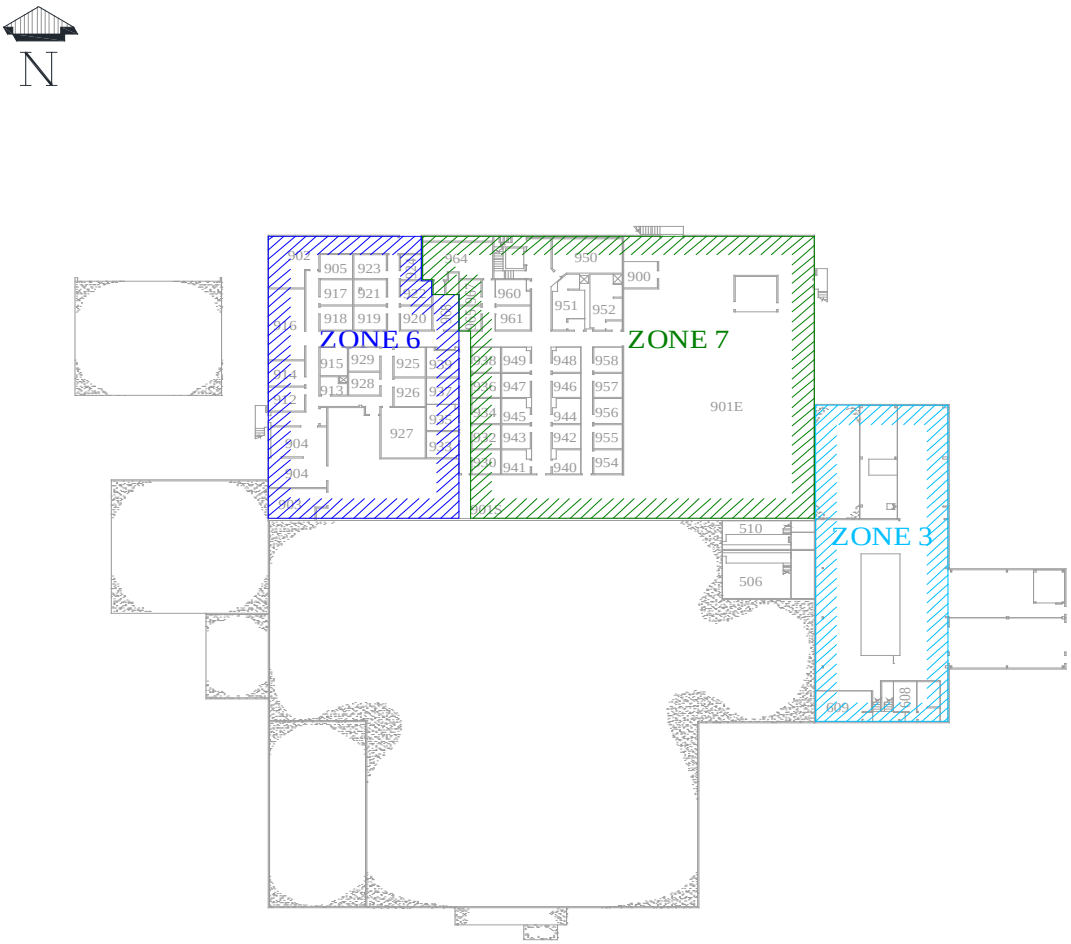
325 First Floor

ZONE WARDEN MAP

REV. 3/14

Jordan Fiskum * Engineering & Design Service

Attachment 5 — Zone Warden Areas
2nd and 3rd Floors



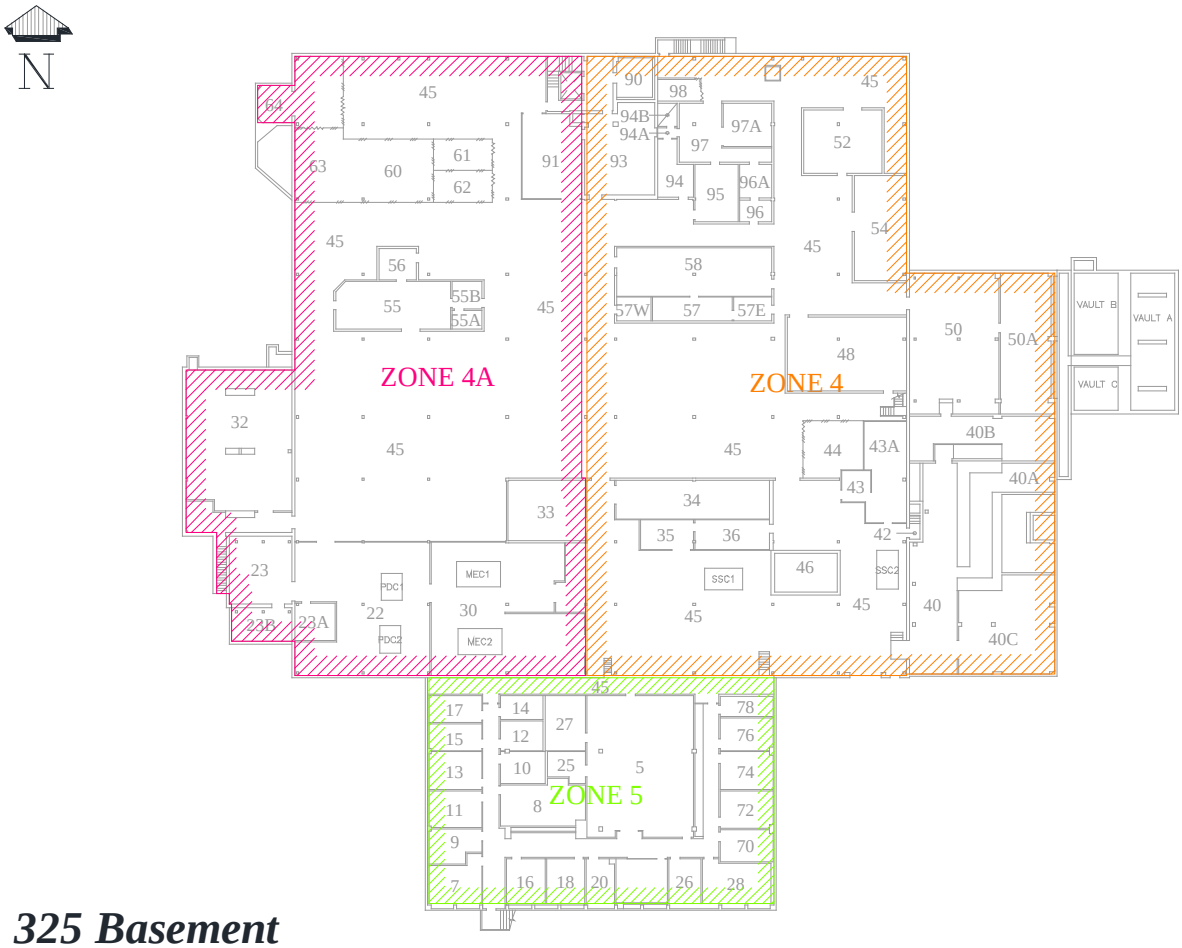
325 Second Floor

ZONE WARDEN MAP

REV. 3/14

Jordan Fiskum * Engineering & Design Service

Attachment 6 — Zone Warden Areas
Mezzanine and Basement



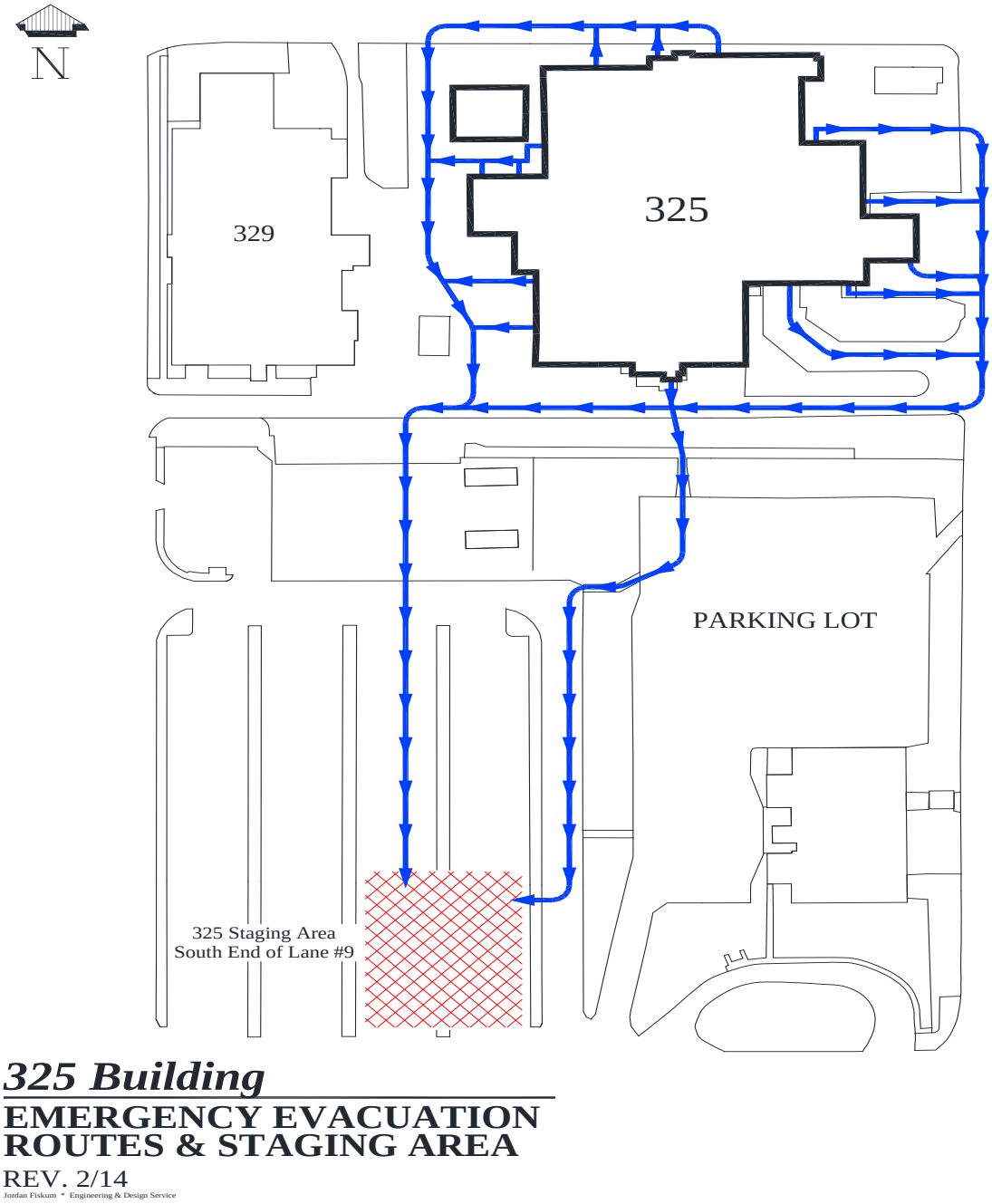
325 Basement

ZONE WARDEN MAP

REV. 3/14

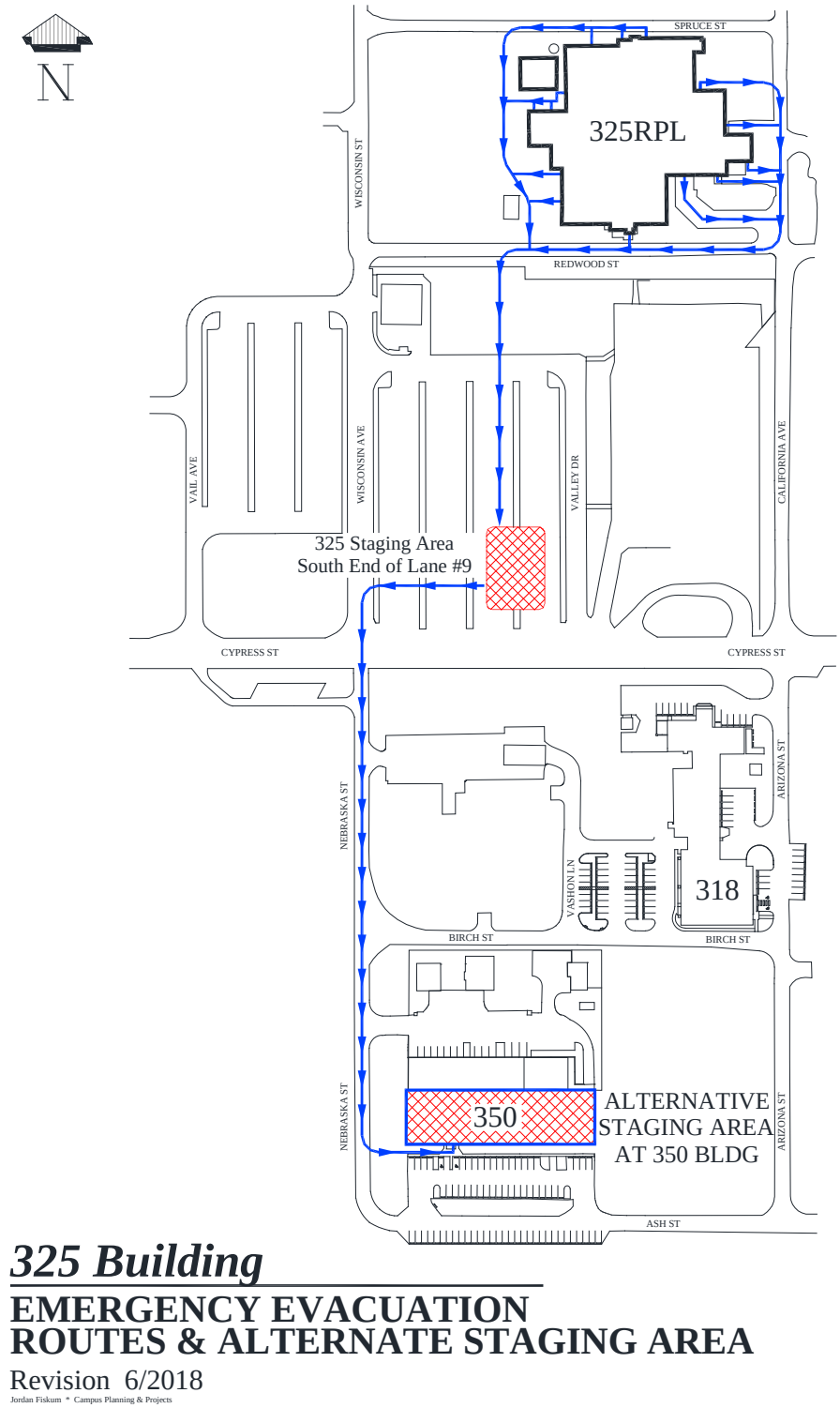
Jordan Fiskum * Engineering & Design Service

Attachment 7 — 325RPL Staging Area Map[30]



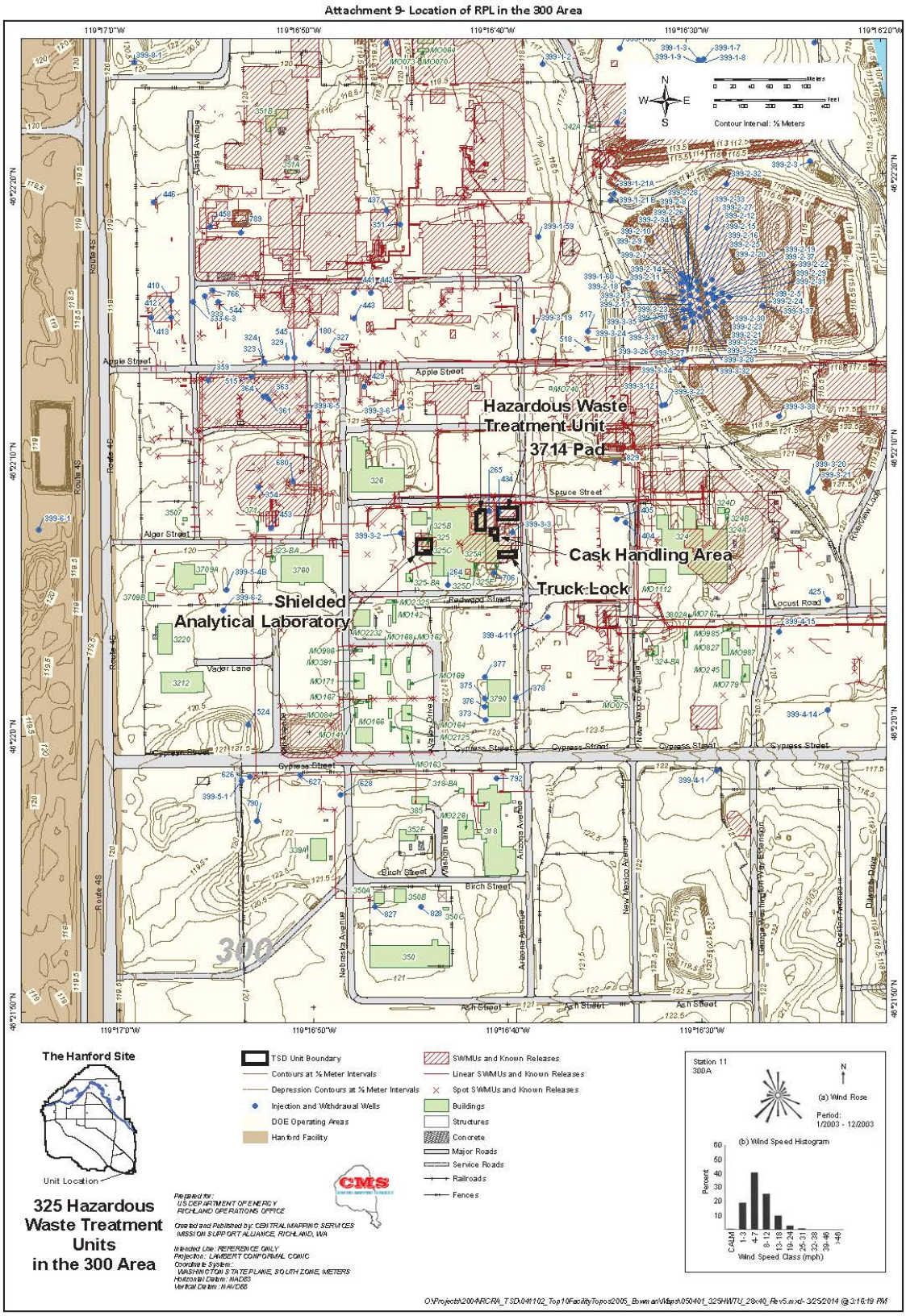
[30] Section 13.0, Attachment 7: Permit Requirement, Class 1 Modification 03/31/16.

Attachment 8 — 325RPL Alternate Staging Area[31]



[31] Section 13.0, Attachment 8: Permit Requirement, Class 1 Modification 03/31/16.

Attachment 9 — Location of 325RPL in the 300 Area



14.0 References and Source Requirements

14.1 References *(as revised)*

ADM-001, *Document Management*

EPIP-2.0, *Management Support Group Procedure*

EPIP-3.0, *PNNL Recovery Plan*

EPIP-7.0, *PNNL Active Shooter Response Procedure*

HDI Exhibit, *PNNL Workplace Substance Abuse Requirements and Protocol*

HDI Exhibit, *Respond to Spill or Adverse Chemical Condition*

HDI Work Control, *Basic Staff Practices*

HDI Workflow, *Report an Event or Occurrence*

PNNL Guides for Post-Natural Phenomena Hazard Building Inspection

PNNL-DSA-325, *Radiochemical Processing Laboratory Documented Safety Analysis*

PNNL-MA-110, *PNNL Emergency Management Plan*

RCP-8.1.02, *Quick Sort Survey of Personnel*

RPL-PLN-701, *RPL Business Continuity Plan*

SOP-325-003, *325 Building Heating, Ventilation and Air Conditioning Emergency Shutdown*

14.2 Source Requirements *(as amended)*

10 CFR 835, "Occupational Radiation Protection," *Code of Federal Regulations*.

DOE/RL-94-02, *Hanford Emergency Management Plan*, U.S. Department of Energy Richland Operations Office.

DOE-0223, RL Emergency Implementing Procedures – Applicable to PNNL-Managed Facilities on the Hanford Site, U.S. Department of Energy Richland Office.

RCRA Site-Wide Permit WA7890008967, *Hanford Facility Dangerous Waste Permit*, Resource Conservation and Recovery Act of 1976.

ROD 12 *WAC 173-303 Dangerous Waste Regulations*

ROD 878 *DOE CRD O 420.1C, Chg. 1 Facility Safety*

ROD 906 *29 CFR 1926 Safety and Health Regulations for Constructions*

ROD 1264 *Hanford Facility RCRA Permit Hanford Facility Resource Conservation and Recovery Act (RCRA) Permit, Dangerous Waste Portion*

RLEP 1.0 – Appendix 1-PNNL.325.

WAC-173-303-340, "Preparedness and Prevention," *Washington Administrative Code*, Olympia, Washington. http://apps.leg.wa.gov/WAC/default.aspx?cite=173-303-340.

WAC-173-303-350, "Contingency Plan and Emergency Procedures," *Washington Administrative Code*, Olympia, Washington. http://apps.leg.wa.gov/WAC/default.aspx?cite=173-303-350.

WAC-173-303-360, "Emergencies," *Washington Administrative Code*, Olympia, Washington. http://apps.leg.wa.gov/WAC/default.aspx?cite=173-303-360.

14.3 Emergency Preparedness Checklists (as revised)

EP-BED-325RPL, *Building Emergency Director Checklist*

EP-CHA, *Chemical Hazard Assessors Checklist*

EP_ECF, *Event Closeout Form*

EP-FOS, *Facility Operations Specialist (FOS) Checklist*

EP-HazCom, *Hazards Communicator Checklist*

EP-ICPC, *Incident Command Post Communicator Checklist for Hazardous Facilities*

EP_IM, *Incident Manager Checklist*

EP_EmerEvacReport, *PNNL Emergency Evacuation Report Form*

EP-RHA, *Radiological Hazard Assessors Checklist*

EP-SAS-325RPL, *325RPL Staging Area Supervisor Checklist*

Procedure Revision History

Date	Rev. No.	Description
10/15/2018	19	• Updated approvals on coversheet to remove JE Kinzer and add ML Hayden • Updated Section 1.0 for grammatical correction and to include criticality alarm as primary means of evacuation. • Removed Randy Thornhill and added Don Bachand as EOC tech rep in Section 3.1 • Updated Table in Section 3.2 with new BERO members. • Updated Figure (Emergency Operations Center Interface) in Section 3.3. • Updated phone number is Section 3.6 for Tech Rep in EOC. • Deleted last paragraph from Section 3.22. • Updated Section 3.23. • Corrected Section 5.5 to better describe that fissionable material is stored in Criticality Safety Control Areas. • Corrected phone numbers in Section 6.5.1.1. • Updated Attachment 8 to remove demolished 300 Area buildings. • Corrected references in Section 14.1. • Added ROD to Section 14.2.
12/19/17	18	• Updated Table in Section 3.1 for new MSG point of contact. • Updated Table in Section 3.2 with new BERO members. • Updated Section 8.9 to change valve type. • Section 2.1 deleted information webpage link. • Updated Concurrences
5/8/17	17	• Removed AD Haller from concurrence and added HT Tilden. • Changed title to Materials and Waste Management Manager. • Changed hazards on coversheet to “See Section 5.0, Facility Hazards” • Updated Nuclear Criticality Actions in the table contained in Section 1.5 to read, “Leave the building immediately (walk with purpose) through the closest exit, do NOT stop for a survey and get at least 15 feet of separation from the facility. Maintain a minimum of 15 feet distance during relocation to the primary staging area.” • Deleted Power Operator Office from Section 2.1 for distribution of BEP. • Updated information on personnel and phone numbers in the table in Section 3.1. • Updated information on personnel and phone numbers in the table in Section 3.2. • Deleted (paper or electronic) when signing into the accountability log in Section 3.16. • Revised terminology in Step 6.5.1.4, “Nuclear criticality safety violations are identified as a loss of documented controls…” • Revised Step 6.5.2.1 to reflect walk with purpose and get at least 15 feet of separation from the building. • Revised Note after Step 6.5.2.2 to reflect walk with purpose and get at least 15 feet of separation from the building. Also, changed the reference to Attachments 7 and 8. • Added new Section 8.7, *Ventilation* which was previously part of Section 8.6, *Compressed Air*. • Deleted last part of sentence of first paragraph “located in Room 94B” in Section 8.11, *325RPL Decontamination Shower/Sink*. • Changed the public address system phone number from” #1234 on BM phone” to “375-3700 on the VOIP phone”. • Added footnote Section 1.0, Paragraph 4 which had inadvertently dropped off since Revision 15. • Updated Footnote 18 to reference its new location in Section 3.21 which had inadvertently been overlooked since Revision 15.

Date	Rev. No.	Description
05/23/16	16	Updated the following: • Section 1.0 added that BERO members will use checklist and checklists are updated to changes received from the Hanford Site Emergency Preparedness Program. • Section 3.2 tables either added new personnel or switched order of primary and alternates. • Section 3.22 was changed so that PNNL staff member performing work in or having unescorted access approval into the 325RPL reviews the EIP annually. • Added new section 6.4.5, Stack Monitor Alarm with actions to be taken. • Added new section 6.5.2.5, for Criticality Actions to support recovery plan actions.

Approval History for: BEP-325RPL, R19 - Building Emergency Procedure Building Emergency Procedure for the Radiochemical Processing Laboratory (325RPL)

Final Process State: APPROVED

Name		Activity Name	Date
☒ ACCEPTED	Hayden, Melanie L	Review Concurrence 3	10/3/2018 2:04:47 PM
☒ ACCEPTED	Ellefson, Mark D	Review Concurrence 4	10/3/2018 3:24:46 PM
☒ ACCEPTED	Beck, Jeremy S	Review Concurrence 2	10/4/2018 8:24:18 AM
☒ ACCEPTED	Saueressig, Paul T	Review Concurrence 1	10/9/2018 5:26:27 AM
☒ ACCEPTED	Damberg, Eric G	Review Concurrence 6	10/12/2018 10:00:54 AM
☒ ACCEPTED	VanArsdale, Trevor L	Review Concurrence 5	10/15/2018 6:22:22 AM
☒ ACCEPTED	Hanson, Eric M	Review Approval 1	10/15/2018 6:44:16 AM
☒ ACCEPTED	Saueressig, Paul T	Unreviewed Safety Question/Issue Review	10/15/2018 1:46:47 PM

*** All actions are stored digitally and viewable at https://approvals.pnl.gov/ProcessView.aspx?pid=3231179**

Quarter Ending Sept 30, 2018 24590-LAW-PCN-ENV-18-002

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

Index

Page 2 of 5: Hanford Facility RCRA Permit, Part III, Operating Unit 10, Waste Treatment and Immobilization Plant

Replace the Mechanical Data Sheets for the following Low-Activity Waste (LAW) Concentrate Receipt Process system (LCP) equipment in Appendix 9.6 of the Dangerous Waste Permit (DWP)

- LAW Concentrate Receipt Process System LCP-VSL-00001
- LAW Concentrate Receipt Process System LCP-VSL-00002
- LAW Melter Feed Process System LFP-VSL-00002
- LAW Melter Feed Process System LFP-VSL-00004

Submitted by Co-Operator:

Roger J. Landon 7/31/18

Roger J. Landon Date

Reviewed by ORP Program Office:

8/28/18

Thomas W. Fletcher Date

Quarter Ending Sept 30, 2018 24590-LAW-PCN-ENV-18-002

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

Description of Modification:

The purpose of this Class 1 prime modification is to replace the following Mechanical Data Sheets in Appendix 9.6 of the DWP:

Appendix 9.6			
Replace:	24590-LAW-MVD-LCP-P0004, Rev 1	With:	24590-LAW-MVD-LCP-00004, Rev 3
Replace:	24590-LAW-MVD-LCP-P0005, Rev 1	With:	24590-LAW-MVD-LCP-00005, Rev 3
Replace:	24590-LAW-MVD-LFP-P0007, Rev 1	With:	24590-LAW-MVD-LFP-00007, Rev 4
Replace:	24590-LAW-MVD-LFP-P0008, Rev 1	With:	24590-LAW-MVD-LFP-00008, Rev 4

This modification requests Ecology approval and incorporation into the permit the specific changes to the Mechanical Data Sheets.

Changes to the Mechanical Data Sheet (24590-LAW-MVD-LCP-00004, Rev 3) for the LAW Concentrate Receipt Vessel are summarized below:

- Revised P&IDs referenced, to the following:
  - 24590-LAW-M6-LCP-00001002; 24590-LAW-M6-LCP-00001003.
- Added process data documentation:
  - 24590-WTP-DB-PET-17-001, Process Inputs Basis of Design (PIBOD) for LAW and EMF
  - 24590-LAW-M4C-V11T-00001, Calculation of Process Stream Priorities for the LAW Facility
- Added LAW concentrate receipt process pulsejet mixer/agitators tag numbers (LCP-AGT-00001)
- Added LAW concentrate receipt process reference data for RFD/Pump tag numbers to LCP-PMP-00001A, LCP-PMP-00001B and Spray nozzle tag numbers to LCP-NOZ-00001, LCP-NOZ-00002
- Revised design data quality level and seismic category from CM to Q (Reference CCN 302153) for P&ID 24590-LAW-M6-LCP-00001002.
- Revised design specific gravity, maximum operating volume and total volume to reflect current values
- Added vendor provided specifications for actual vessel design weights for Empty, Operating, and Testing. Referenced in General Arrangement drawings
- Revised internal and external pressures for vessel operations per 24590-WTP-MVC-50-00009, LAW, BOF, LAB Cyclic Datasheet Inputs.
- Added temperature references for Vessel Operating and Vessel Design per:
  - 24590-LAW-MVC-LCP-00002, LAW Concentrate Receipt Process System (LCP) Data
  - 24590-CM-POA-MVA0-00002-03-86, Drawing – General Notes and Nameplate Details
- Added seismic base moment vendor provided calculations (24590-CM-POA-MVA0-00002-02-02 and 24590-LAW-MVC-LCP-00009)
- Added corrosion allowances (24590-CM-POA-MVA0-00002-03-53) and hydrostatic test pressure data (24590-CM-POA-MVA0-00002-03-86)
- Values updated on Equipment Cyclic Data Sheets per reference 24590-WTP-DB-PET-17-001, Process Inputs Basis of Design (PIBOD) For LAW and EMF.
- Added notes

Changes to the Mechanical Data Sheet (24590-LAW-MVD-LCP-00005, Rev 3) for the LAW Concentrate Receipt Vessel are summarized below:

- Revised the P&IDs referenced, to 24590-LAW-M6-LCP-00002003; 24590-LAW-M6-LCP-00002004
- Added process data documentation
  - 24590-WTP-DB-PET-17-001, Process Inputs Basis of Design (PIBOD) for LAW and EMF
  - 24590-LAW-M4C-V11T-00001, Calculation of Process Stream Properties for the LAW Facility
- Added LAW concentrate receipt process pulsejet mixer/agitators tag numbers (LCP-AGT-00002)

- Added LAW concentrate receipt process reference data for RFD/Pump tag numbers to LCP-PMP-00002A, LCP-PMP-00002B and Spray nozzle tag numbers to LCP-NOZ-00003, LCP-NOZ-00004
- Revised design data quality level and seismic category from CM to Q (Reference CCN 302153) for P&ID 24590-LAW-M6-LCP-00002003
- Revised design specific gravity, Maximum operating volume and total volume to reflect current values
- Added vendor provided specifications for vessel design data capacities for Empty, Operating, and Testing. Referenced General Arrangement drawings:
  - 24590-CM-POA-MVA0-00002-03-64
  - 25490-CM-POA-MVA0-00002-03-87
- Revised internal and external pressures for vessel operations
- Revised temperatures for vessel operation and design per 24590-LAW-MVC-LCP-00002 and 24590-CM-POA-MVA0-00002-03-87
- Revised the minimum design metal temperature with included data sheet 24590-LAW-U0D-W16T-00001, LAW Room Environment Datasheet
- Added seismic base moment vendor provided calculations per references:
  - 24590-CM-POA-MVA0-00002-02-02
  - 24590-LAW-MVC-LCP-00009
- Added corrosion allowance (24590-CM-POA-MVA0-00002-03-64) and hydrostatic pressure data (24590-CM-POA-MVA0-00002-03-87)
- Values updated on Equipment Cyclic Data Sheets per reference 24590-WTP-DB-PET-17-001, Process Inputs Basis of Design (PIBOD) For LAW and EMF.
- Added notes

Changes to the Mechanical Data Sheet (24590-LAW-MVD-LFP-00007, Rev 4) for the LAW Melter Feed Process System are summarized below:

- Revised the P&IDs referenced, to the following:
  - 24590-LAW-M6-LFP-00001003, 24590-LAW-M6-LFP-00001004
  - 24590-LAW-M6-LFP-00002002, 24590-LAW-M6-LFP-00002003
  - 24590-LAW-M6-LFP-00002004, 24590-LAW-M6-LFP-00002005
  - 24590-LAW-M6-LFP-00002006, 24590-LAW-M6-LFP-00002007
- Added process data reference documentation:
  - 24590-WTP-DB-PET-17-001
  - 24590-LAW-M4C-V11T-00001
- Revised design data quality level and seismic category from CM to Q (Reference CCN 302153) for P&ID 24590-LAW-M6-LFP-00001003
- Revised design specific gravity, maximum operating volume and total volume to reflect current values per reference:
  - 24590-CM-POA-MVA0-00002-03-04, General Arrangement Drawing – Melter 1 Vessel Feed
- Added vendor provided specifications for vessel design data capacities for Empty, Operating, and Testing. Referenced General Arrangement drawings.
- Revised the inside diameter and length/height to include the reference document:
  - 24590-CM-POA-MVA0-00002-03-04, General Arrangement Drawing – Melter 1 Vessel Feed
- Revised internal and external pressures for vessel operations
- Revised temperatures for vessel operation and design per reference:
  - 24590-LAW-MVC-LFP-00001, LAW Melter Feed Process System (LFP) Data
  - 24590-CM-POA-MVA0-00002-03-04, General Arrangement Drawing – Melter 1 Vessel Feed
- Revised the Minimum design metal temperature with included data sheet per reference:
  - 24590-LAW-U0D-W16T-00001, LAW Room Environment Datasheet
- Added seismic base moment vendor provided calculations per references:
  - 24590-CM-POA-MVA0-00002-02-01
  - 24590-LAW-MVC-LFP-00012
- Added corrosion allowance reference documentation (24590-CM-POA-MVA0-00002-03-04) and Hydrostatic Test Pressure reference documentation (24590-CM-POA-MVA0-00002-03-84)
- Added equipment cyclic data sheet. Included reference document 24590-WTP-MVC-50-00009, LAW, BOF, and LAB Vessel Cyclic Datasheet Inputs.

- Added notes

Changes to the Mechanical Data Sheet (24590-LAW-MVD-LFP-00008, Rev 4) for the LAW Melter Feed Process System are summarized below:

- Revised the P&IDs referenced, to the following:
  - 24590-LAW-M6-LFP-00003003, 24590-LAW-M6-LFP-00003004
  - 24590-LAW-M6-LFP-00004002, 24590-LAW-M6-LFP-00004003
  - 24590-LAW-M6-LFP-00004004, 24590-LAW-M6-LFP-00004005
  - 24590-LAW-M6-LFP-00004006, 24590-LAW-M6-LFP-00004007
- Added process data reference documentation:
  - 24590-WTP-DB-PET-17-001
  - 24590-LAW-M4C-V11T-00001
- Revised design data quality level and seismic category from CM to Q (Reference CCN 302153) for P&ID 24590-LAW-M6-LFP-00003003.
- Revised design specific gravity, Maximum operating volume and total volume to reflect current values per reference:
  - 24590-CM-POA-MVA0-00002-03-42, General Arrangement Drawing – Melter 2 Feed Vessel
- Added vendor provided specifications for vessel design data capacities for Empty, Operating, and Testing. Referenced General Arrangement drawings.
- Revised the inside diameter and length/height to include the reference document:
  - 24590-CM-POA-MVA0-00002-03-42, General Arrangement Drawing – Melter 2 Feed Vessel
- Revised internal and external pressures for vessel operations
- Revised temperature data for vessel operation and design to include the references:
  - 24590-LAW-MVC-LFP-00001, Law Melter Feed Process System (LFP) Data
  - 24590-CM-POA-MVA0-00002-03-85, Drawing – General Notes and Nameplate Details
- Revised the Minimum design metal temperature with included data sheet per reference:
  - 24590-LAW-U0D-W16T-00001, Engineering Specification for Structural Design Loads for Seismic Qualification Criteria for Pressure Vessels
- Added seismic base moment vendor provided calculations per references:
  - 24590-CM-POA-MVA0-00002-02-01, Calculations – Compress Pressure Vessel Design Calculations
  - 245960-LAW-MVC-LFP-00012, Supplemental Calculation for LAW-MV-LFP-VSL-00002 & 00004 Vessels
- Added corrosion allowance reference documentation (24590-CM-POA-MVA0-00002-03-42) and Hydrostatic Test Pressure reference documentation (24590-CM-POA-MVA0-00002-03-85)
- Added equipment cyclic data sheet. Included reference document 24590-WTP-MVC-50-00009, LAW, BOF, and LAB Vessel Cyclic Datasheet Inputs
- Added notes

This PCN updates information in Appendix 9.6 to reflect current design. These DWP components may be re-evaluated to confirm design adequacy. If the re-evaluation results in future design changes, the changes will be reviewed by Ecology in subsequent permit modifications.

The following outstanding change documents have been submitted to Ecology pursuant to Permit Condition III.10.C.9.h and are maintained in the WTP Operating Record: None

In accordance with Permit Condition III.10.C.2.e, this permit modification sent to Ecology may include page changes to the Permit, attachments, and permit application supporting documentation.

In accordance with WAC-173-303-830(4)(d)(i), this modification notification is requested to be reviewed and approved as a Class [1]1 modification. WAC 173-303-830(4)(d)(i)(A) states, "Class 1 modifications apply to minor changes that keep the permit current with routine changes to the facility or its operation. These changes do not substantially alter the permit conditions or reduce the capacity of the facility to protect human health or the environment. In the case of Class 1 modifications, the director may require prior approval."

Quarter Ending Sept 30, 2018

24590-LAW-PCN-ENV-18-002

WAC 173-303-830 Modification Class:	Class 1	Class [1]1	Class 2	Class 3
Please mark the Modification Class:		X		

Enter relevant WAC 173-303-830, Appendix I Modification citation number:
Enter wording of WAC 173-303-830, Appendix I Modification citation:

Modification Approved/Concur: [X] Yes [ ] Denied (state reason below)

Reason for denial:

Reviewed by Ecology:

S. Dahl 10/15/18 Date

Issued by
RPP-WTP PDC

BECHTEL	**MECHANICAL DATA SHEET: VESSEL**	**PLANT ITEM No.** *24590-LAW-MV-LCP-VSL-00001*

Project:	*RPP-WTP*	P&ID:	*24590-LAW-M6-LCP-00001002, 24590-LAW-M6-LCP-00001003* 3
Project No:	*24590*	Process Data:	*Ref. 3, Ref. 4*
Project Site:	*Hanford*	Vessel Drawing	*24590-LAW-MV-LCP-00001*
Description:	*LAW Concentrate Receipt Vessel*		

Reference Data

Charge Vessels (Tag Numbers)	*Not Applicable*
Pulsejet Mixers / Agitators (Tag Numbers)	*LCP-AGT-00001*
RFDs/Pumps (Tag Numbers)	*LCP-PMP-00001A, LCP-PMP-00001B* 3
Spray Nozzles (Tag Numbers)	*LCP-NOZ-00001, LCP-NOZ-00002*

Design Data

Quality Level		*Q (Ref. 6)* 3	Fabrication Specs	*24590-WTP-3PS-MV00-T0001 (PVDF)*		
Seismic Category		*SC-III (Ref. 6)*	Design Code	*ASME VIII Div 1*		
Service/Contents		*LAW Concentrate Feed*	Code Stamp	*Yes*		
Design Specific Gravity		*1.46 (Ref. 7)*	NB Registration	*Yes*		
Maximum Operating Volume	gal	*15,284 (Ref. 8)* 3	Weights (lbs)	Empty	Operating	Test
Total Volume	gal	*18,130 (Ref. 9)*	Estimated	*49,200*	*235,700*	*199,900*
			Actual *	3 *37,458 (Ref. 11)*	3 *227,624 (Ref. 9)*	3 *190,411 (Ref. 9)*

Inside Diameter	inch	*168 (Ref. 9)*			Wind Design	*Not Required*	
Length/Height (TL-TL)	inch	*153 (Ref. 9)*			Snow Design	*Not Required*	
		Vessel Operating	Vessel Design	Coil/Jacket Design	Seismic Design	*24590-WTP-3PS-MV00-T0002* *24590-WTP-3PS-FB01-T0001*	
Internal Pressure (Ref. 12)	psig	3 *0.0*	*15*	*None*	Seismic Base Moment *	ft*lb	*Ref. 15 & 16* 3
External Pressure (Ref. 12)	psig	3 *5.6*	*FV*	*None*	Postweld Heat Treat	*Not Required*	
Temperature	°F	3 *123 (Ref. 7)*	*150 (Ref.11)*	*None*	Corrosion Allowance	Inch	*Top HD & Nozzles 0.04 BTM HD, Shell, & Shell Nozzles 0.125 (Ref. 9)* 3
Min. Design Metal Temp.	°F	*40 (Ref. 17)*			Hydrostatic Test Pressure *	psig	*19.5 (Ref. 11)* 3

Materials of Construction (Ref. 18)

Component	Material	Minimum Thickness / Size	Containment
Top Head	*SA-240 316 (Note 1)*	*See Drawing*	*Auxiliary*
Shell	*SA-240 316 (Note 1)*	*See Drawing*	*Primary*
Bottom Head	*SA-240 316 (Note 1)*	*See Drawing*	*Primary*
Support	*SA-240 304 (Note 1)*	*See Drawing*	*N/A*
Jacket/Coils/Half-Pipe Jacket	*NA*	*N/A*	*N/A*
Internals	*SA-240 316/SA-312 TP316 (Note 1)*	*See Drawing*	*Thermowells Primary*
Pipe	*SA-312 TP316 Seamless (Note 1)*	*See Drawing*	*Note 2*
Forgings/ Bar stock	*SA-182 F316 (Note 1)*	*See Drawing*	*N/A*
Gaskets (O Ring)	*EPDM*	*N/A*	*N/A*
Bolting	*SA-193 Gr. B8M / SA-194 Gr. 8M*	*N/A*	*N/A*

Miscellaneous Data

Orientation	*Vertical*	Support Type	*Skirt*
Insulation Function	*Not Applicable*	Insulation Material	*Not Applicable*
Insulation Thickness (inch)	*Not Applicable*	Internal Finish	*Welds descaled as laid*
		External Finish	*Welds descaled as laid*

Remarks

** To be determined by the vendor.*

Note 1: Material shall have Carbon Content of 0.030% Max. Non-welded specialty items are excluded from this requirement.

Note 2: Nozzle necks below normal operating level are Primary, others Auxiliary. See PVDF and vessel drawing for NDE.

Note 3: Additional NDE requirements should be as per 6.4 of the PVDF.

Note 4: Contents of this document are dangerous waste permit affecting.

3 *Note 5: This data sheet is a lead document that contains input information for Design Basis Event calculations. Modification to the geometry of the vessel (i.e., diameter or length/height) requires an AB review by the E&NS discipline. Changes to the text of this note require AB review by the E&NS discipline as well. If the changes being made do not alter the geometry of the vessel or the text of this note, AB review is not required.*

3 *Note 6: Beta/gamma dose exposure rate is 1.2E+01 Rad/hr (Ref. 19).*

3 *Note 7: NDE requirements per note 3 are associated with a CM pressure vessel design in accordance with the quality classification at the time of procurement. LCP-VSL-00001 has been reclassified as Safety Significant per CCN 302153 (Ref. 6).*

BECHTEL	**MECHANICAL DATA SHEET: VESSEL**	**PLANT ITEM No.** ***24590-LAW-MV-LCP-VSL-00001***

Equipment Cyclic Data Sheet

Component Plant Item Number:	***24590-LAW-MV-LCP-VSL-00001***
Component Description	***Parent Vessel***

The information below is provisional and envelopes operational duty for fatigue assessment. It is not to be used as operational data.

Materials of Construction	***SA-240 316***
Design Life	***40 years***
Component Function and Life Cycle Description	***Equipment Shut Down for maintenance occurs annually.***

Cyclic Data (Ref. 12)

Load Type		Min	Max	Number of Cycles	Comment
Design Pressure	psig	***FV***	***15***	***10*** (3)	
Operating Pressure	psig	***-5.6*** (3)	***0.0*** (3)	***100***	***Maximum of 100 start/stop cycles per 40 years of design life***
Operating Temperature	°F	***59***	***150*** (3)	***100***	
Contents Specific Gravity		***1.0***	***1.46*** (3)	***5500*** (3)	
Contents Level	inch	***34.00*** (3)	***171.00*** (3)	***5500*** (3)	
Localized Features					
Nozzles		***Within 50° F of vessel temperature.***		***As above.***	
Supports		***Same as vessel***		***Number of cycles same as vessel***	

Notes

- ***Cycle increase: The Seller must increase the numbers of operational cycles given above by 10% to account for commissioning duty unless otherwise noted.***

Approval

Rev	Description	System Engr	Vessel Engr	Checked	Reviewed	Approved	Date
0	**Issue for Purchase**	**P. Holgado**	**S.L.Lee**	**M.Sanvictores/ E.Isern/C.Slater**	**N/A**	**M. Hoffmann**	**3/20/03**
1	**Revise the External Pressure**	**P. Holgado**	**S.L.Lee**	**M.Sanvictores/ C.Slater**	**E.Isern**	**M. Hoffmann**	**12/15/03**
2	**Revise as Noted & Re-Issued for Purchase**	**P. Holgado**	**S.L.Lee**	**M.Sanvictores/ C.Slater**	**E.Isern**	**M. Hoffmann**	**12/15/04**
3	**- Revised Quality Level from CM to Q - Updated Values and References - Added Attachment 1 - Incorporated 24590-LAW-M6N-M80T-00008 & 24590-LAW-MVN-LCP-00006. - Incorporated 24590-WTP-EIE-ENG-17-0018 - Changes do not reduce margin for Q SSC; margin is addressed in associated calculations in Attachment 1**	**A.Wand**	**N/A**	**C.Stredwick**	**W.Donigan**	**J.Shoemaker** C.R.R. 2/16/18	2/16/18

BECHTEL	**MECHANICAL DATA SHEET ATTACHMENT 1:** **24590-LAW-MVD-LCP-00004, Rev. 3 References** **(for internal use only)**	**PLANT ITEM No.** *24590-LAW-MV-LCP-VSL-00001*

Ref.	Document Number	Rev.	Document Title; Additional Information
1	24590-LAW-M6-LCP-00001002	0	P&ID - LAW LAW CONCENTRATE RECEIPT PROCESS SYSTEM CONCENTRATE RECEIPT VESSEL LCP-VSL-00001
2	24590-LAW-M6-LCP-00001003	0	P&ID - LAW LAW CONCENTRATE RECEIPT PROCESS SYSTEM CONCENTRATE RECEIPT VESSEL LCP-VSL-00001
3	24590-WTP-DB-PET-17-001	0	PROCESS INPUTS BASIS OF DESIGN (PIBOD) FOR LAW AND EMF; p. A-2, Table A-1, Stream LCP01
4	24590-LAW-M4C-V11T-00001	1	CALCULATION OF PROCESS STEAM PROPERTIES FOR THE LAW FACILITY
5	24590-LAW-MV-LCP-00001	2	EQUIPMENT ASSEMBLY CONCENTRATE RECEIPT VESSEL LCP-VSL-00001
6	CCN 302153	N/A	BECHTEL NATIONAL, INC. EARLY LIMITED PROCUREMENT AND UPGRADING OF EXISTING STRUCTURES, SYSTEMS, AND COMPONENTS IN SUPPORT OF DIRECT FEED LOW-ACTIVITY WASTE
7	24590-LAW-MVC-LCP-00002	2	LAW CONCENTRATE RECEIPT PROCESS SYSTEM (LCP) DATA
8	24590-LAW-M6C-LCP-00001	2	LAW CONCENTRATE RECEIPT VESSELS LCP-VSL-00001/00002 SIZING
9	24590-CM-POA-MVA0-00002-03-53	D	DRAWING - GENERAL ARRANGEMENT - CONCENTRATE RECEIPT VESSEL
10	24590-WTP-3PS-MV00-T0001	5	ENGINEERING SPECIFICATION FOR PRESSURE VESSEL DESIGN AND FABRICATION
11	24590-CM-POA-MVA0-00002-03-86	B	DRAWING - GENERAL NOTES AND NAMEPLATE DETAILS
12	24590-WTP-MVC-50-00009	0	LAW, BOF, AND LAB VESSEL CYCLIC DATASHEET INPUTS
13	24590-WTP-3PS-MV00-T0002	3	ENGINEERING SPECIFICATION FOR SEISMIC QUALIFICATION CRITERIA FOR PRESSURE VESSELS
14	24590-WTP-3PS-FB01-T0001	6	ENGINEERING SPECIFICATION FOR STRUCTURAL DESIGN LOADS FOR SEISMIC CATEGORY III & IV EQUIPMENT AND TANKS
15	24590-CM-POA-MVA0-00002-02-02	E	CALCULATIONS - COMPRESS PRESSURE VESSEL DESIGN CALCULATIONS

Ref.	Document Number	Rev.	Document Title; Additional Information
16	24590-LAW-MVC-LCP-00009	0	SUPPLEMENTAL CALCULATION FOR LAW-MV-LCP-VSL-00001 & 00002 VESSELS
17	24590-LAW-U0D-W16T-00001	4	LAW ROOM ENVIRONMENT DATASHEET; p. vii, Section 1.4C
18	24590-LAW-N1D-LCP-00001	4	LCP-VSL-00001 & LCP-VSL-00002 - CONCENTRATE RECEIPT VESSEL - CORROSION EVALUATION
19	24590-WTP-Z0C-W13T-00010	H	CONTACT DOSE RATES TO EQUIPMENT FROM BETA AND GAMMA EMITTERS; Table 8-1

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BECHTEL	**MECHANICAL DATA SHEET: VESSEL**	**PLANT ITEM No.** *24590-LAW-MV-LCP-VSL-00002*

Project:	*RPP-WTP*	P&ID:	*24590-LAW-M6-LCP-00002003; 24590-LAW-M6-LCP-00002004* 3
Project No:	*24590*	Process Data:	*Ref. 3, Ref. 4*
Project Site:	*Hanford*	Vessel Drawing	*24590-LAW-MV-LCP-00002*
Description:	*LAW Concentrate Receipt Vessel*		

Reference Data

Charge Vessels (Tag Numbers)	*Not Applicable*
Pulsejet Mixers / Agitators (Tag Numbers)	*LCP-AGT-00002*
RFDs/Pumps (Tag Numbers)	*LCP-PMP-00002A, LCP-PMP-00002B* 3
Spray Nozzles (Tag Numbers)	*LCP-NOZ-00003, LCP-NOZ-00004*

Design Data

Quality Level		*Q (Ref. 6)* 3	Fabrication Specs	*24590-WTP-3PS-MV00-T0001 (PVDF)*		
Seismic Category		*SC-III (Ref. 6)*	Design Code	*ASME VIII Div 1*		
Service/Contents		*LAW Concentrate Feed*	Code Stamp	*Yes*		
Design Specific Gravity		*1.46 (Ref. 7)*	NB Registration	*Yes*		
Maximum Operating Volume	gal	*15,284 (Ref. 8)* 3	Weights (lbs)	Empty	Operating	Test
Total Volume	gal	*18,130 (Ref. 9)*	Estimated	*49,200*	*235,700*	*199,900*
			Actual *	3 *37,458 (Ref. 11)*	3 *227,624 (Ref. 9)*	3 *190,411 (Ref. 9)*

Inside Diameter	inch	*168 (Ref. 9)*			Wind Design	*Not Required*	
Length/Height (TL-TL)	inch	*153 (Ref. 9)*			Snow Design	*Not Required*	
		Vessel Operating	Vessel Design	Coil/Jacket Design	Seismic Design	*24590-WTP-3PS-MV00-T0002* *24590-WTP-3PS-FB01-T0001*	
Internal Pressure (Ref. 12)	psig	3 *0.0*	*15*	*None*	Seismic Base Moment *	ft*lb	*Ref. 15 & 16* 3
External Pressure (Ref. 12)	psig	3 *5.6*	*FV*	*None*	Postweld Heat Treat	*Not Required*	
Temperature	°F	3 *123 (Ref. 7)*	*150 (Ref.11)*	*None*	Corrosion Allowance	Inch	*Top HD & Nozzles 0.04 BTM HD, Shell, & Shell Nozzles 0.125 (Ref. 9)* 3
Min. Design Metal Temp.	°F	*40 (Ref. 17)*			Hydrostatic Test Pressure *	psig	*19.5 (Ref. 11)* 3

Materials of Construction (Ref. 18)

Component	Material	Minimum Thickness / Size	Containment
Top Head	*SA-240 316 (Note 1)*	*See Drawing*	*Auxiliary*
Shell	*SA-240 316 (Note 1)*	*See Drawing*	*Primary*
Bottom Head	*SA-240 316 (Note 1)*	*See Drawing*	*Primary*
Support	*SA-240 304 (Note 1)*	*See Drawing*	*N/A*
Jacket/Coils/Half-Pipe Jacket	*NA*	*N/A*	*N/A*
Internals	*SA-240 316/SA-312 TP316 (Note 1)*	*See Drawing*	*Thermowells Primary*
Pipe	*SA-312 TP316 Seamless (Note 1)*	*See Drawing*	*Note 2*
Forgings/ Bar stock	*SA-182 F316 (Note 1)*	*See Drawing*	*N/A*
Gaskets (O Ring)	*EPDM*	*N/A*	*N/A*
Bolting	*SA-193 Gr. B8M / SA-194 Gr. 8M*	*N/A*	*N/A*

Miscellaneous Data

Orientation	*Vertical*	Support Type	*Skirt*
Insulation Function	*Not Applicable*	Insulation Material	*Not Applicable*
Insulation Thickness (inch)	*Not Applicable*	Internal Finish	*Welds descaled as laid*
		External Finish	*Welds descaled as laid*

Remarks

** To be determined by the vendor.*

Note 1: Material shall have Carbon Content of 0.030% Max. Non-welded specialty items are excluded from this requirement.

Note 2: Nozzle necks below normal operating level are Primary, others Auxiliary. See PVDF and vessel drawing for NDE.

Note 3: Additional NDE requirements should be as per 6.4 of the PVDF.

Note 4: Contents of this document are dangerous waste permit affecting.

3 *Note 5: Beta/gamma dose exposure rate is 1.2E+01 Rad/hr (Ref. 19).*

3 *Note 6: NDE requirements per note 3 were associated with a CM pressure vessel design in accordance with the quality classification at the time of procurement. LCP-VSL-00002 has been reclassified as Safety Significant per CCN 302153 (Ref. 6).*

BECHTEL	**MECHANICAL DATA SHEET: VESSEL**	**PLANT ITEM No.** ***24590-LAW-MV-LCP-VSL-00002***

Equipment Cyclic Data Sheet

Component Plant Item Number:	***24590-LAW-MV-LCP-VSL-00002***
Component Description	***Parent Vessel***

The information below is provisional and envelopes operational duty for fatigue assessment. It is not to be used as operational data.

Materials of Construction	***SA-240 316***
Design Life	***40 years***
Component Function and Life Cycle Description	***Equipment Shut Down for maintenance occurs annually.***

Cyclic Data (Ref. 12)

Load Type		Min	Max	Number of Cycles	Comment
Design Pressure	psig	***FV***	***15***	***10*** (3)	
Operating Pressure	psig	***-5.6*** (3)	***0.0*** (3)	***100***	***Maximum of 100 start/stop cycles per 40 years of design life***
Operating Temperature	°F	***59***	***150*** (3)	***100***	
Contents Specific Gravity		***1.0***	***1.46*** (3)	***5500*** (3)	
Contents Level	inch	***34.00*** (3)	***171.00*** (3)	***5500*** (3)	
Localized Features					
Nozzles		***Within 50° F of vessel temperature.***		***As above.***	
Supports		***Same as vessel***		***Number of cycles same as vessel***	

Notes

- ***Cycle increase: The Seller must increase the numbers of operational cycles given above by 10% to account for commissioning duty unless otherwise noted.***

Approval

Rev	Description	System Engr	Vessel Engr	Checked	Reviewed	Approved	Date
0	**Issue for Purchase**	**P. Holgado**	**S.L.Lee**	**M.Sanvictores/ E.Isern/C.Slater**	**N/A**	**M. Hoffmann**	**3/20/03**
1	**Revise the External Pressure**	**P. Holgado**	**S.L.Lee**	**M.Sanvictores/ C.Slater**	**E.Isern**	**M. Hoffmann**	**12/15/03**
2	**Revise as Noted & Re-Issued for Purchase**	**P. Holgado**	**S.L.Lee**	**M.Sanvictores/ C.Slater**	**E.Isern**	**M. Hoffmann**	**4/30/04**
3	**- Revised Quality Level from CM to Q - Updated Values and References - Added Attachment 1 - Incorporated 24590-LAW-M6N-M80T-00008 - Incorporated 24590-WTP-EIE-ENG-17-0018 - Changes do not reduce margin for Q SSC; margin is addressed in associated calculations in Attachment 1**	**A.Wand**	**N/A**	Chad Stredwick **C.Stredwick**	**W.Donigan**	~~J.Shoemaker~~ C. Roberts CER 2/16/18	2/16/18

BECHTEL	**MECHANICAL DATA SHEET ATTACHMENT 1:** **24590-LAW-MVD-LCP-00005, Rev. 3 References** **(for internal use only)**	**PLANT ITEM No.** *24590-LAW-MV-LCP-VSL-00002*

Ref.	Document Number	Rev.	Document Title; Additional Information
1	24590-LAW-M6-LCP-00002003	0	P&ID - LAW LAW CONCENTRATE RECEIPT PROCESS SYSTEM CONCENTRATE RECEIPT VESSEL LCP-VSL-00002
2	24590-LAW-M6-LCP-00002004	0	P&ID - LAW LAW CONCENTRATE RECEIPT PROCESS SYSTEM CONCENTRATE RECEIPT VESSEL LCP-VSL-00002
3	24590-WTP-DB-PET-17-001	0	PROCESS INPUTS BASIS OF DESIGN (PIBOD) FOR LAW AND EMF; p. A-2, Table A-1, Stream LCP01
4	24590-LAW-M4C-V11T-00001	1	CALCULATION OF PROCESS STEAM PROPERTIES FOR THE LAW FACILITY
5	24590-LAW-MV-LCP-00002	2	EQUIPMENT ASSEMBLY CONCENTRATE RECEIPT VESSEL LCP-VSL-00002
6	CCN 302153	N/A	BECHTEL NATIONAL, INC. EARLY LIMITED PROCUREMENT AND UPGRADING OF EXISTING STRUCTURES, SYSTEMS, AND COMPONENTS IN SUPPORT OF DIRECT FEED LOW-ACTIVITY WASTE
7	24590-LAW-MVC-LCP-00002	2	LAW CONCENTRATE RECEIPT PROCESS SYSTEM (LCP) DATA
8	24590-LAW-M6C-LCP-00001	2	LAW CONCENTRATE RECEIPT VESSELS LCP-VSL-00001/00002 SIZING
9	24590-CM-POA-MVA0-00002-03-64	D	DRAWING - GENERAL ARRANGEMENT - CONCENTRATE RECEIPT VESSEL
10	24590-WTP-3PS-MV00-T0001	5	ENGINEERING SPECIFICATION FOR PRESSURE VESSEL DESIGN AND FABRICATION
11	24590-CM-POA-MVA0-00002-03-87	B	DRAWING - GENERAL NOTES AND NAMEPLATE DETAILS
12	24590-WTP-MVC-50-00009	0	LAW, BOF, AND LAB VESSEL CYCLIC DATASHEET INPUTS
13	24590-WTP-3PS-MV00-T0002	3	ENGINEERING SPECIFICATION FOR SEISMIC QUALIFICATION CRITERIA FOR PRESSURE VESSELS
14	24590-WTP-3PS-FB01-T0001	6	ENGINEERING SPECIFICATION FOR STRUCTURAL DESIGN LOADS FOR SEISMIC CATEGORY III & IV EQUIPMENT AND TANKS
15	24590-CM-POA-MVA0-00002-02-02	E	CALCULATIONS - COMPRESS PRESSURE VESSEL DESIGN CALCULATIONS

Ref.	Document Number	Rev.	Document Title; Additional Information
16	24590-LAW-MVC-LCP-00009	0	SUPPLEMENTAL CALCULATION FOR LAW-MV-LCP-VSL-00001 & 00002 VESSELS
17	24590-LAW-U0D-W16T-00001	4	LAW ROOM ENVIRONMENT DATASHEET; p. vii, Section 1.4C
18	24590-LAW-N1D-LCP-00001	4	LCP-VSL-00001 & LCP-VSL-00002 - CONCENTRATE RECEIPT VESSEL - CORROSION EVALUATION
19	24590-WTP-Z0C-W13T-00010	H	CONTACT DOSE RATES TO EQUIPMENT FROM BETA AND GAMMA EMITTERS; Table 8-1

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MECHANICAL DATA SHEET: VESSEL

PLANT ITEM No. 4
24590-LAW-MV-LFP-VSL-00002

Project:	*RPP-WTP*	P&ID:	*24590-LAW-M6-LFP-00001003, 24590-LAW-M6-LFP-00001004 24590-LAW-M6-LFP-00002002, 24590-LAW-M6-LFP-00002003 24590-LAW-M6-LFP-00002004, 24590-LAW-M6-LFP-00002005 24590-LAW-M6-LFP-00002006, 24590-LAW-M6-LFP-00002007* 4
Project No:	*24590*	Process Data:	*Ref. 9, Ref. 10*
Project Site:	*Hanford*	Vessel Drawing	*24590-LAW-MV-LFP-00001*
Description:	*Melter 1 Feed Vessel*		

Reference Data

Charge Vessels (Tag Numbers)	*Not Applicable*
Pulsejet Mixers / Agitators (Tag Numbers)	*LFP-AGT-00002*
RFDs/Pumps (Tag Numbers)	*LFP-PMP-00007, LFP-PMP-00008, LFP-PMP-00009, LFP-PMP-00010, LFP-PMP-00011, LFP-PMP-00012, LFP-PMP-00002*
Spray Nozzles	*LFP-NOZ-00003, LFP-NOZ-00004, LFP-NOZ-00005*

Design Data

Quality Level		*Q (Ref. 12)* 4	Fabrication Specs	*24590-WTP-3PS-MV00-T0001*		
Seismic Category		*SC-III (Ref. 12)*	Design Code	*ASME VIII Div 1*		
Service/Contents		*LAW Melter Feed*	Code Stamp	*Yes*		
Design Specific Gravity		*1.90 (Ref. 15)*	NB Registration	*Yes*		
Maximum Operating Volume	gal	*7,545 (Ref. 15) Note 9* 4	Weights (lbs)	Empty	Operating	Test
Total Volume	gal	*9,123 (Ref. 15)*	Estimated	*44,500*	*164,600*	*120,800*
			Actual *	4 *27,521 (Ref. 17 & 18)*	4 *147,114 (Ref. 15)*	4 *103,766 (Ref. 15)*

Inside Diameter	inch	*132 (Ref. 15)*			Wind Design	*Not Required*	
Length/Height (TL-TL)	inch	*126 (Ref. 15)*			Snow Design	*Not Required*	
		Vessel Operating	Vessel Design	Coil/Jacket Design	Seismic Design	*24590-WTP-3PS-MV00-T0002 24590-WTP-3PS-FB01-T0001*	
Internal Pressure (Ref. 19)	psig	*0.0* 4	*15*	*None*	Seismic Base Moment *	ft*lb	*Ref. 22, Ref. 23* 4
External Pressure (Ref. 19)	psig	*5.6* 4	*FV*	*None*	Postweld Heat Treat	*Not Required*	
Temperature	°F	*98 (Ref. 13)*	*150 (Ref.17)*	*None*	Corrosion Allowance	Inch	*0.04 Top Head & Nozzles 0.125 Shell, Shell Nozzles, & Btm Head (Ref. 15)* 4
Min. Design Metal Temp.	°F	*40 (Ref. 24)*			Hydrostatic Test Pressure *	psig	*19.5 (Ref. 17)* 4

Materials of Construction (Ref. 25)

Component	Material	Minimum Thickness / Size	Containment
Top Head	*SA-240 316 (Note 2)*	*See Drawing*	*Auxiliary*
Shell	*SA-240 316 (Note 2)*	*See Drawing*	*Primary*
Bottom Head	*SA-240 316 (Note 2)*	*See Drawing*	*Primary*
Support	*SA-240 304 (Note 2)*	*See Drawing*	*N/A*
Jacket/Coils/Half-Pipe Jacket	*N/A*	*N/A*	*N/A*
Internals	*SA-240 316 (Note 2)*	*See Drawing*	*Thermowells Primary*
Pipe (Seamless)	*SA-312 TP316 Seamless (Note 2)*	*See Drawing*	*Note 3*
Forgings/ Bar stock	*SA-182 F316 (Note 2)*	*See Drawing*	*N/A*
Gaskets (O Ring)	*EPDM O-Ring*	*N/A*	*N/A*
Bolting	*SA-193 B8M / SA-194 8M*	*N/A*	*N/A*

Miscellaneous Data

Orientation	*Vertical*	Support Type	*Skirt*
Insulation Function	*Not Applicable*	Insulation Material	*Not Applicable*
Insulation Thickness (inch)	*Not Applicable*	Internal Finish	*Welds descaled as laid*
		External Finish	*Welds descaled as laid*

Remarks

** To be determined by the vendor.*

Note 1: Deleted.

Note 2: Material shall have Carbon Content of 0.030% Max. Non-welded items are excluded from this requirement.

Note 3: Nozzle necks below normal operating level are Primary, others Auxiliary. See 24590-WTP-3PS-MV00-T0001 for NDE.

Note 4: Additional NDE requirements should be as per 6.4 of 24590-WTP-3PS-MV00-T0001.

Note 5: Contents of this document are dangerous waste permit affecting.

4 *Note 6: This data sheet is a lead document that contains input information for Design Basis Event calculations. Modification to the geometry of the vessel (i.e., diameter or length/height) requires an AB review by the E&NS discipline. Changes to the text of this note require AB review by the E&NS discipline as well. If the changes being made do not alter the geometry of the vessel or the text of this note, AB review is not required.*

4 *Note 7: Beta/gamma dose exposure rate is 1.2E+01 Rad/hr (Ref. 26).*

4 *Note 8: NDE requirements per note 4 were associated with a CM pressure vessel design in accordance with the quality classification at the time of procurement. LFP-VSL-00002 has been reclassified as Safety Significant per CCN 302153 (Ref. 12).*

4 *Note 9: Vendor submittal (Ref. 15) states a shipping weight of 27,521lbs and an operating weight of 147,114lbs at a specific gravity of 1.90. Subtracting the shipping weight from the operating weight and dividing by the density results in an operating volume of ~7545 gallons. The calculated value for the maximum operating volume in the current vessel sizing calculation (Ref. 14) of 6,278 gallons is not representative of the as built vessel since the calculated height of the overflow nozzle of 9.56 feet used to calculate the volume is ~2 feet lower than the as built overflow nozzle of 11.54 feet. Additionally, Rev. 0 of the vessel sizing calculation (Ref. 14), which was used by the vendor to fabricate the vessel, reports a maximum operating height of 11.41 feet resulting in a volume of 7689 gallons that are representative of the as built vessel. For these reasons and to be representative of the as built vessel, the derived value from the vendor submittal (Ref. 15) of 7545 gallons is used for the maximum operating volume.*

BECHTEL	**MECHANICAL DATA SHEET: VESSEL**	**PLANT ITEM No.** 4 ***24590-LAW-MV-LFP-VSL-00002***

Equipment Cyclic Data Sheet

Component Plant Item Number:	***24590-LAW-MV-LFP-VSL-00002***
Component Description	***Parent Vessel***

The information below is provisional and envelopes operational duty for fatigue assessment. It is not to be used as operational data.

Materials of Construction	***SA-240 316***
Design Life	***40 years***
Component Function and Life Cycle Description	***Equipment Shut Down for maintenance occurs annually.***

Cyclic Data (Ref. 19)

Load Type		Min	Max	Number of Cycles	Comment
Design Pressure	psig	***FV***	***15***	***10***	
Operating Pressure	psig	***-5.6***	***0.0***	***100***	***Maximum of 100 start/stop cycles per 40 years of design life***
Operating Temperature	°F	***59***	***150***	***100***	
Contents Specific Gravity		***1.0***	***1.80***	***21900***	
Contents Level	inch	***23.00***	***106.00***	***21900***	
Localized Features					
Nozzles		***Within 50° F of vessel temperature.***		***As above.***	
Supports		***Same as vessel***		***Number of cycles same as vessel***	

4

Notes

- ***Cycle increase: The Seller must increase the numbers of operational cycles given above by 10% to account for commissioning duty unless otherwise noted.***

Approval

Rev	Description	System Engr	Vessel Engr	Checked	Reviewed	Approved	Date
0	**Issue for Purchase**	**P. Holgado**	**S.L.Lee**	**M.Sanvictores/ E.Isern/C.Slater**	**N/A**	**M. Hoffmann**	**3/20/03**
1	**Revise the External Pressure**	**P. Holgado**	**S.L.Lee**	**M.Sanvictores/ C.Slater**	**E.Isern**	**M. Hoffmann**	**12/15/03**
2	**Revise as noted**	**P. Holgado**	**S.L.Lee**	**M.Sanvictores/ C.Slater**	**E.Isern**	**M. Hoffmann**	**3/07/04**
3	**Revise as Noted & Re-Issued for Purchase**	**P. Holgado**	**S.L.Lee**	**M.Sanvictores/ C.Slater**	**E.Isern**	**M. Hoffmann**	**4/30/04**
4	**- Revise Quality Level from CM to Q - Update Values and References - Added Cyclic Data & Attachment 1 - Incorporate 24590-LAW-M6N-M80T-00008 & 24590-LAW-M6N-LFP-0010 - Incorporated 24590-WTP-EIE-ENG-17-0018 - Changes do not reduce margin for Q SSC; margin is addressed in associated calculations in Attachment 1**	**A.Wand**	**N/A**	Chad Stredwick **C.Stredwick**	Mike **W.Donigan**	Carrie Roberts C.Roberts ~~J.Shoemaker~~ CER 2/16/18	2/16/18

BECHTEL	**MECHANICAL DATA SHEET ATTACHMENT 1:** **24590-LAW-MVD-LFP-00007, Rev. 4 References** **(for internal use only)**	**PLANT ITEM No.** *24590-LAW-MV-LFP-VSL-00002*

Ref.	Document Number	Rev.	Document Title; Additional Information
1	24590-LAW-M6-LFP-00001003	0	P&ID - LAW - LAW MELTER FEED PROCESS SYSTEM MELTER 1 FEED VESSEL LFP-VSL-00002
2	24590-LAW-M6-LFP-00001004	1	P&ID - LAW - LAW MELTER FEED PROCESS SYSTEM MELTER 1 FEED VESSEL LFP-VSL-00002
3	24590-LAW-M6-LFP-00002002	0	P&ID - LAW - LAW MELTER FEED PROCESS SYSTEM ADS PUMP CONTROLS LFP-PMP-00010
4	24590-LAW-M6-LFP-00002003	0	P&ID - LAW - LAW MELTER FEED PROCESS SYSTEM ADS PUMP CONTROLS LFP-PMP-00009
5	24590-LAW-M6-LFP-00002004	0	P&ID - LAW - LAW MELTER FEED PROCESS SYSTEM ADS PUMP CONTROLS LFP-PMP-00007
6	24590-LAW-M6-LFP-00002005	0	P&ID - LAW - LAW MELTER FEED PROCESS SYSTEM ADS PUMP CONTROLS LFP-PMP-00008
7	24590-LAW-M6-LFP-00002006	0	P&ID - LAW - LAW MELTER FEED PROCESS SYSTEM ADS PUMP CONTROLS LFP-PMP-00011
8	24590-LAW-M6-LFP-00002007	0	P&ID - LAW - LAW MELTER FEED PROCESS SYSTEM ADS PUMP CONTROLS LFP-PMP-00012
9	24590-WTP-DB-PET-17-001	0	PROCESS INPUTS BASIS OF DESIGN (PIBOD) FOR LAW AND EMF; p. A-4, Table A-3, Stream LFP04
10	24590-LAW-M4C-V11T-00001	1	CALCULATION OF PROCESS STEAM PROPERTIES FOR THE LAW FACILITY
11	24590-LAW-MV-LFP-00001	1	EQUIPMENT ASSEMBLY MELTER 1 FEED VESSEL LFP-VSL-00002
12	CCN 302153	N/A	BECHTEL NATIONAL, INC. EARLY LIMITED PROCUREMENT AND UPGRADING OF EXISTING STRUCTURES, SYSTEMS, AND COMPONENTS IN SUPPORT OF DIRECT FEED LOW-ACTIVITY WASTE
13	24590-LAW-MVC-LFP-00001	1	LAW MELTER FEED PROCESS SYSTEM (LFP) DATA
14	24590-LAW-M6C-LFP-00002	2	LAW MELTER FEED VESSELS LFP-VSL-00002 AND LFP-VSL-00004 SIZING

Ref.	Document Number	Rev.	Document Title; Additional Information
15	24590-CM-POA-MVA0-00002-03-04	F	DRAWING - GENERAL ARRANGEMENT - MELTER 1 FEED VESSEL
16	24590-WTP-3PS-MV00-T0001	5	ENGINEERING SPECIFICATION FOR PRESSURE VESSEL DESIGN AND FABRICATION
17	24590-CM-POA-MVA0-00002-03-84	B	DRAWING - GENERAL NOTES AND NAMEPLATE DETAILS
18	24590-LAW-VDCN-M-11-00004	N/A	CORRECTION TO ERECTED WEIGHT OF VESSELS LFP-VSL-00002 AND LFP-VSL-00004
19	24590-WTP-MVC-50-00009	0	LAW, BOF, AND LAB VESSEL CYCLIC DATASHEET INPUTS
20	24590-WTP-3PS-MV00-T0002	3	ENGINEERING SPECIFICATION FOR SEISMIC QUALIFICATION CRITERIA FOR PRESSURE VESSELS
21	24590-WTP-3PS-FB01-T0001	6	ENGINEERING SPECIFICATION FOR STRUCTURAL DESIGN LOADS FOR SEISMIC CATEGORY III & IV EQUIPMENT AND TANKS
22	24590-CM-POA-MVA0-00002-02-01	E	CALCULATIONS - COMPRESS PRESSURE VESSEL DESIGN CALCULATIONS
23	24590-LAW-MVC-LFP-00012	0	SUPPLEMENTAL CALCULATION FOR LAW-MV-LFP-VSL-00002 & 00004 VESSELS
24	24590-LAW-U0D-W16T-00001	4	LAW ROOM ENVIRONMENT DATASHEET; p. vii, Section 1.4C
25	24590-LAW-N1D-LFP-00006	1	LFP-VSL-00002 & LFP-VSL-00004 MELTER 1 & 2 FEED VESSELS CORROSION EVALUATION
26	24590-WTP-Z0C-W13T-00010	H	CONTACT DOSE RATES TO EQUIPMENT FROM BETA AND GAMMA EMITTERS; Table 8-1

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BECHTEL	**MECHANICAL DATA SHEET: VESSEL**	**PLANT ITEM No.** 4 *24590-LAW-MV-LFP-VSL-00004*

Project:	*RPP-WTP*	P&ID:	*24590-LAW-M6-LFP-00003003, 24590-LAW-M6-LFP-00003004* *24590-LAW-M6-LFP-00004002, 24590-LAW-M6-LFP-00004003* *24590-LAW-M6-LFP-00004004, 24590-LAW-M6-LFP-00004005* *24590-LAW-M6-LFP-00004006, 24590-LAW-M6-LFP-00004007* 4
Project No:	*24590*	Process Data:	*Ref. 9, Ref. 10*
Project Site:	*Hanford*	Vessel Drawing	*24590-LAW-MV-LFP-00002*
Description:	*Melter 2 Feed Vessel*		

Reference Data

Charge Vessels (Tag Numbers)	*Not Applicable*
Pulsejet Mixers / Agitators (Tag Numbers)	*LFP-AGT-00004*
RFDs/Pumps (Tag Numbers)	*LFP-PMP-00013, LFP-PMP-00014, LFP-PMP-00015, LFP-PMP-00016, LFP-PMP-00017, LFP-PMP-00018, LFP-PMP-00004*
Spray Nozzles	*LFP-NOZ-00008, LFP-NOZ-00009, LFP-NOZ-00010*

Design Data

Quality Level		*Q (Ref. 12)* 4	Fabrication Specs	*24590-WTP-3PS-MV00-T0001*		
Seismic Category		*SC-III (Ref. 12)*	Design Code	*ASME VIII Div 1*		
Service/Contents		*LAW Melter Feed*	Code Stamp	*Yes*		
Design Specific Gravity		*1.90 (Ref. 15)*	NB Registration	*Yes*		
Maximum Operating Volume	gal	*7,545 (Ref. 15) Note 8* 4	Weights (lbs)	Empty	Operating	Test
Total Volume	gal	*9,123 (Ref. 15)*	Estimated	*44,500*	*164,600*	*120,800*
			Actual *	4 *27,521 (Ref. 17 & 18)*	4 *147,114 (Ref. 15)*	4 *103,766 (Ref. 15)*

Inside Diameter	inch	*132 (Ref. 15)*			Wind Design	*Not Required*	
Length/Height (TL-TL)	inch	*126 (Ref. 15)*			Snow Design	*Not Required*	
		Vessel Operating	Vessel Design	Coil/Jacket-Design	Seismic Design	*24590-WTP-3PS-MV00-T0002* *24590-WTP-3PS-FB01-T0001*	
Internal Pressure (Ref. 19)	psig	*0.0* 4	*15*	*None*	Seismic Base Moment *	ft*lb	*Ref. 22, Ref. 23*
External Pressure (Ref. 19)	psig	*5.6* 4	*FV*	*None*	Postweld Heat Treat	*Not Required*	
Temperature	°F	*98 (Ref. 13)*	*150 (Ref.17)*	*None*	Corrosion Allowance	Inch	*0.04 Top Head & Nozzles* *0.125 Shell, Shell Nozzles & Btm Head (Ref. 15)* 4
Min. Design Metal Temp.	°F	*40 (Ref. 24)*			Hydrostatic Test Pressure *	psig	*19.5 (Ref. 17)* 4

Materials of Construction (Ref. 25)

Component	Material	Minimum Thickness / Size	Containment
Top Head	*SA-240 316 (Note 2)*	*See Drawing*	*Auxiliary*
Shell	*SA-240 316 (Note 2)*	*See Drawing*	*Primary*
Bottom Head	*SA-240 316 (Note 2)*	*See Drawing*	*Primary*
Support	*SA-240 304 (Note 2)*	*See Drawing*	*N/A*
Jacket/Coils/Half-Pipe Jacket	*N/A*	*N/A*	*N/A*
Internals	*SA-240 316 (Note 2)*	*See Drawing*	*Thermowells Primary*
Pipe (Seamless)	*SA-312 TP316 Seamless (Note 2)*	*See Drawing*	*Note 3*
Forgings/ Bar stock	*SA-182 F316 (Note 2)*	*See Drawing*	*N/A*
Gaskets (O Ring)	*EPDM O-Ring*	*N/A*	*N/A*
Bolting	*SA-193 B8M / SA-194 8M*	*N/A*	*N/A*

Miscellaneous Data

Orientation	*Vertical*	Support Type	*Skirt*
Insulation Function	*Not Applicable*	Insulation Material	*Not Applicable*
Insulation Thickness (inch)	*Not Applicable*	Internal Finish	*Welds descaled as laid*
		External Finish	*Welds descaled as laid*

Remarks

** To be determined by the vendor.*

Note 1: Deleted.

Note 2: Material shall have Carbon Content of 0.030% Max. Non-welded items are excluded from this requirement.

Note 3: Nozzle necks below normal operating level are Primary, others Auxiliary. See 24590-WTP-3PS-MV00-T0001 for NDE.

Note 4: Additional NDE requirements should be as per 6.4 of 24590-WTP-3PS-MV00-T0001.

Note 5: Contents of this document are dangerous waste permit affecting.

4 *Note 6: Beta/gamma dose exposure rate is 1.2E+01 Rad/hr (Ref. 26).*

4 *Note 7: NDE requirements per note 4 are associated with a CM pressure vessel design in accordance with the quality classification at the time of procurement. LFP-VSL-00004 has been reclassified as Safety Significant per CCN 302153 (Ref. 12).*

4 *Note 8: Vendor submittal (Ref. 15) states a shipping weight of 27,521lbs and an operating weight of 147,114lbs at a specific gravity of 1.90. Subtracting the shipping weight from the operating weight and dividing by the density results in an operating volume of ~7545 gallons. The calculated value for the maximum operating volume in the current vessel sizing calculation (Ref. 14) of 6,278 gallons is not representative of the as built vessel since the calculated height of the overflow nozzle of 9.56 feet used to calculate the volume is ~2 feet lower than the as built overflow nozzle of 11.54 feet. Additionally, Rev. 0 of the vessel sizing calculation (Ref. 14), which was used by the vendor to fabricate the vessel, reports a maximum operating height of 11.41 feet resulting in a volume of 7689 gallons that are representative of the as built vessel. For these reasons and to be representative of the as built vessel, the derived value from the vendor submittal (Ref. 15) of 7545 gallons is used for the maximum operating volume.*

BECHTEL	**MECHANICAL DATA SHEET: VESSEL**	**PLANT ITEM No.** ***24590-LAW-MV-LFP-VSL-00004***

Equipment Cyclic Data Sheet

Component Plant Item Number:	***24590-LAW-MV-LFP-VSL-00004***
Component Description	***Parent Vessel***

The information below is provisional and envelopes operational duty for fatigue assessment. It is not to be used as operational data.

Materials of Construction	***SA-240 316***
Design Life	***40 years***
Component Function and Life Cycle Description	***Equipment Shut Down for maintenance occurs annually.***

Cyclic Data (Ref. 19)

Load Type		Min	Max	Number of Cycles	Comment
Design Pressure	psig	***FV***	***15***	***10***	
Operating Pressure	psig	***-5.6***	***0.0***	***100***	***Maximum of 100 start/stop cycles per 40 years of design life***
Operating Temperature	°F	***59***	***150***	***100***	
Contents Specific Gravity		***1.0***	***1.80***	***21900***	
Contents Level	inch	***23.00***	***106.00***	***21900***	
Localized Features					
Nozzles		***Within 50° F of vessel temperature.***		***As above.***	
Supports		***Same as vessel***		***Number of cycles same as vessel***	

4

Notes

- ***Cycle increase: The Seller must increase the numbers of operational cycles given above by 10% to account for commissioning duty unless otherwise noted.***

Approval

Rev	Description	System Engr	Vessel Engr	Checked	Reviewed	Approved	Date
0	**Issue for Purchase**	**P. Holgado**	**S.L.Lee**	**M.Sanvictores/ E.Isern/C.Slater**	**N/A**	**M. Hoffmann**	**3/20/03**
1	**Revise the External Pressure**	**P. Holgado**	**S.L.Lee**	**M.Sanvictores/ C.Slater**	**E.Isern**	**M. Hoffmann**	**12/15/03**
2	**Revise as noted**	**P. Holgado**	**S.L.Lee**	**M.Sanvictores/ C.Slater**	**E.Isern**	**M. Hoffmann**	**3/07/04**
3	**Revise as Noted & Re-Issued for Purchase**	**P. Holgado**	**S.L.Lee**	**M.Sanvictores/ C.Slater**	**E.Isern**	**M. Hoffmann**	**4/30/04**
4	**- Revised Quality Level from CM to Q - Updated Values and References - Added Cyclic Data & Attachment 1 - Incorporated 24590-LAW-M6N-M80T-00008 - Incorporated 24590-WTP-EIE-ENG-17-0018 - Changes do not reduce margin for Q SSC; margin is addressed in associated calculations in Attachment 1**	**A.Wand**	**N/A**	Chad Stredwick **C.Stredwick**	**W.Donigan**	C.Roberts ~~**J.Shoemaker**~~ CER 2/16/18	2/16/18

BECHTEL	**MECHANICAL DATA SHEET ATTACHMENT 1:** **24590-LAW-MVD-LFP-00008, Rev. 4 References** **(for internal use only)**	**PLANT ITEM No.** *24590-LAW-MV-LFP-VSL-00004*

Ref.	Document Number	Rev.	Document Title; Additional Information
1	24590-LAW-M6-LFP-00003003	0	P&ID - LAW - LAW MELTER FEED PROCESS SYSTEM MELTER 2 FEED VESSEL LFP-VSL-00004
2	24590-LAW-M6-LFP-00003004	1	P&ID - LAW LAW MELTER FEED PROCESS SYSTEM MELTER 2 FEED VESSEL LFP-VSL-00004
3	24590-LAW-M6-LFP-00004002	0	P&ID - LAW - LAW MELTER FEED PROCESS SYSTEM ADS PUMP CONTROLS LFP-PMP-00016
4	24590-LAW-M6-LFP-00004003	0	P&ID - LAW - LAW MELTER FEED PROCESS SYSTEM ADS PUMP CONTROLS LFP-PMP-00015
5	24590-LAW-M6-LFP-00004004	0	P&ID - LAW - LAW MELTER FEED PROCESS SYSTEM ADS PUMP CONTROLS LFP-PMP-00013
6	24590-LAW-M6-LFP-00004005	0	P&ID - LAW - LAW MELTER FEED PROCESS SYSTEM ADS PUMP CONTROLS LFP-PMP-00014
7	24590-LAW-M6-LFP-00004006	0	P&ID - LAW - LAW MELTER FEED PROCESS SYSTEM ADS PUMP CONTROLS LFP-PMP-00017
8	24590-LAW-M6-LFP-00002007	0	P&ID - LAW - LAW MELTER FEED PROCESS SYSTEM ADS PUMP CONTROLS LFP-PMP-00012
9	24590-WTP-DB-PET-17-001	0	PROCESS INPUTS BASIS OF DESIGN (PIBOD) FOR LAW AND EMF; p. A-4, Table A-3, Stream LFP04
10	24590-LAW-M4C-V11T-00001	1	CALCULATION OF PROCESS STEAM PROPERTIES FOR THE LAW FACILITY
11	24590-LAW-MV-LFP-00002	1	EQUIPMENT ASSEMBLY MELTER 2 FEED VESSEL LFP-VSL-00004
12	CCN 302153	N/A	BECHTEL NATIONAL, INC. EARLY LIMITED PROCUREMENT AND UPGRADING OF EXISTING STRUCTURES, SYSTEMS, AND COMPONENTS IN SUPPORT OF DIRECT FEED LOW-ACTIVITY WASTE
13	24590-LAW-MVC-LFP-00001	1	LAW MELTER FEED PROCESS SYSTEM (LFP) DATA
14	24590-LAW-M6C-LFP-00002	2	LAW MELTER FEED VESSELS LFP-VSL-00002 AND LFP-VSL-00004 SIZING

Ref.	Document Number	Rev.	Document Title; Additional Information
15	24590-CM-POA-MVA0-00002-03-42	E	DRAWING - GENERAL ARRANGEMENT - MELTER 2 FEED VESSEL
16	24590-WTP-3PS-MV00-T0001	5	ENGINEERING SPECIFICATION FOR PRESSURE VESSEL DESIGN AND FABRICATION
17	24590-CM-POA-MVA0-00002-03-85	B	DRAWING - GENERAL NOTES AND NAMEPLATE DETAILS
18	24590-LAW-VDCN-M-11-00004	N/A	CORRECTION TO ERECTED WEIGHT OF VESSELS LFP-VSL-00002 AND LFP-VSL-00004
19	24590-WTP-MVC-50-00009	0	LAW, BOF, AND LAB VESSEL CYCLIC DATASHEET INPUTS
20	24590-WTP-3PS-MV00-T0002	3	ENGINEERING SPECIFICATION FOR SEISMIC QUALIFICATION CRITERIA FOR PRESSURE VESSELS
21	24590-WTP-3PS-FB01-T0001	6	ENGINEERING SPECIFICATION FOR STRUCTURAL DESIGN LOADS FOR SEISMIC CATEGORY III & IV EQUIPMENT AND TANKS
22	24590-CM-POA-MVA0-00002-02-01	E	CALCULATIONS - COMPRESS PRESSURE VESSEL DESIGN CALCULATIONS
23	24590-LAW-MVC-LFP-00012	0	SUPPLEMENTAL CALCULATION FOR LAW-MV-LFP-VSL-00002 & 00004 VESSELS
24	24590-LAW-U0D-W16T-00001	4	LAW ROOM ENVIRONMENT DATASHEET; p. vii, Section 1.4C
25	24590-LAW-N1D-LFP-00006	1	LFP-VSL-00002 & LFP-VSL-00004 MELTER 1 & 2 FEED VESSELS CORROSION EVALUATION
26	24590-WTP-Z0C-W13T-00010	H	CONTACT DOSE RATES TO EQUIPMENT FROM BETA AND GAMMA EMITTERS; Table 8-1

Quarter Ending Dec. 31 2018 24590-LAW-PCN-ENV-18-005

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

Replace the Mechanical Data Sheets for the Low-Activity Waste (LAW) Radioactive Liquid Waste Disposal System C3/C5 Drains/Sump Collection Vessel RLD-VSL-00004, SBS Condensate Collection Vessel RLD-VSL-00005 and Plant Wash Vessel RLD-VSL-00003 in Appendix 9.6 of the Dangerous Waste Permit (DWP).

Submitted by Co-Operator:

Roger J. Landon 8/28/18
Roger J. Landon Date

Reviewed by ORP Program Office:

for Thomas W. Fletcher 9/13/18
Thomas W. Fletcher Date

Quarter Ending September 2018 24590-LAW-PCN-ENV-18-005

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

Description of Modification:

The purpose of this Class 1 prime modification is to replace the following documents in Appendix 9.6 of the DWP:

Appendix 9.6			
Replace:	24590-LAW-MVD-RLD-P0001, Rev. 1	With:	24590-LAW-MVD-RLD-00001, Rev. 4
Replace:	24590-LAW-MVD-RLD-P0006, Rev. 2	With:	24590-LAW-MVD-RLD-00006, Rev. 4
Replace:	24590-LAW-MVD-RLD-P0007, Rev. 2	With:	24590-LAW-MVD-RLD-00007, Rev. 2

This modification requests Ecology approval and incorporation into the permit the specific changes to the mechanical data sheets. These documents include changes provided in applicable document change forms (e.g., DCN, SCN, SDDR, FCN, FCR, etc.). In addition, the mechanical data sheets include changes associated with the resolution to comments on change documents since the issuance of the last revision of the permitted documents.

Significant changes to the mechanical data sheet (24590-LAW-MVD-RLD-00001, Rev. 4) for the C3/C5 Drains/Sump Collection Vessel RLD-VSL-00004 are summarized below:

- Revised the reference piping and instrumentation diagram (P&ID), process data sheet and vessel drawing.
- Added tag numbers for spray nozzles and mixing eductors in the Reference Data section.
- Updated the Design Data section, such as data for seismic category, service/contents, design specific gravity, maximum operating volume, total volume, fabrication specs and seismic design.
- Updated the contents specific gravity and contents level with a new comment in the Cyclic Data section.
- Added or revised notes in the Remarks section.
- Added a new list of reference documents.

Significant changes to the mechanical data sheet (24590-LAW-MVD-RLD-00006, Rev. 4) for the SBS Condensate Collection Vessel RLD-VSL-00005 are summarized below:

- Revised the reference P&ID, process data sheet and vessel drawing.
- Added tag numbers for agitators and spray nozzles in the Reference Data section.
- Updated the Design Data section, such as data for seismic category, service/contents, maximum operating volume, total volume, fabrication specs, actual weights, vessel length, external pressure, temperature, seismic design and hydrostatic test pressure.
- Added new notes and revised the information on bolts and nuts in the Materials of Construction section.
- Added or revised notes in the Remarks section.
- Added a new list of reference documents.

Significant changes to the mechanical data sheet (24590-LAW-MVD-RLD-00007, Rev. 2) for the Plant Wash Vessel RLD-VSL-00003 are summarized below:

- Revised the reference P&ID, process data sheet and vessel drawing.
- Added tag numbers for agitators and spray nozzles in the Reference Data section.
- Updated the Design Data section, such as data for seismic category, maximum operating volume, total volume, contact dose, fabrication specs, actual weights, vessel length, seismic design and hydrostatic test pressure.
- Added new notes and revised the information on top head nozzles, bolts and nuts in the Materials of Construction section.
- Added or revised notes in the Remarks section.
- Added a new list of reference documents.

Quarter Ending September 2018 24590-LAW-PCN-ENV-18-005

This PCN updates information in Appendix 9.6 to reflect current design. These DWP components may be re-evaluated to confirm design adequacy. If the re-evaluation results in future design changes, the changes will be reviewed by Ecology in subsequent permit modifications.

The following outstanding change documents have been submitted to Ecology pursuant to Permit Condition III.10.C.9.h and are maintained in the WTP Operating Record:
None

In accordance with Permit Condition III.10.C.2.e, this permit modification sent to Ecology may include page changes to the Permit, attachments, and permit application supporting documentation. Redline changes to Permit Tables III.10.E.B and III.10.4E-1 are attached.

WAC 173-303-830 Modification Class:	Class 1	Class [1]1	Class 2	Class 3
Please mark the Modification Class:		X		

Enter relevant WAC 173-303-830, Appendix I Modification citation number: N/A
Enter wording of WAC 173-303-830, Appendix I Modification citation:

In accordance with WAC 173-303-830(4)(d)(i), this modification notification is requested to be reviewed and approved as a Class [1]1 modification. WAC 173-303-830(4)(d)(ii)(A) states, "Class 1 modifications apply to minor changes that keep the permit current with routine changes to the facility or its operation. These changes do not substantially alter the permit conditions or reduce the capacity of the facility to protect human health or the environment. In the case of Class 1 modifications, the director may require prior approval."

Modification Approved/Concur: [X] Yes [ ] Denied (state reason below)

Reason for denial:

Reviewed by Ecology:

S. Dahl 10/16/18 Date

Issued by
RPP-WTP PDC

MECHANICAL DATA SHEET: VESSEL

PLANT ITEM No.
24590-LAW-MV-RLD-VSL-00004

Project:	*RPP-WTP*	P&ID:	*24590-LAW-M6-RLD-00002001/-00002002* 4
Project No:	*24590*	Process Data:	*24590-LAW-MVC-RLD-00009* 4
Project Site:	*Hanford*	Vessel Drawing	*24590-LAW-MV-RLD-00001*
Description:	*C3/C5 Drains/Sump Collection Vessel*		

Reference Data

Charge Vessels (Tag Numbers)	*N/A*
Pulsejet Mixers / Agitators (Tag Numbers)	*N/A*
RFDs/Pumps (Tag Numbers)	*N/A*
Spray Nozzles (Tag Numbers)	*RLD-NOZ-00006, -00007 (Ref 1)* 4
Mixing Eductors (Tag Numbers)	*RLD-EDUC-00001A, -00001B. -00001C (Ref 1)* 4

Design Data

Quality Level		*CM (Ref 1)*	Fabrication Specs	*24590-WTP-3PS-MV00-T0001 (PVDF)*			
Seismic Category		*SC-IV (Ref 1)* 4	Design Code	*ASME VIII Div 1*			
Service/Contents		*C3/C5 Drain/Sump Effluent* 4	Code Stamp	*Yes*			
Design Specific Gravity		*1.41 (Ref 2, Note 9)* 4	NB Registration	*Yes*			
Maximum Operating Volume	gal	*6456 (Ref 4, Sh. 16)* 4	Weights (lbs)	Empty	Operating	Test	
Total Volume	gal	*7675 (Ref 4, Sh. 17)* 4	Estimated	*17,000*	*86,500*	*82,300*	
Contact Dose Rad (Rad/hr)			Actual *	*20,650 (Ref 5)*	*102,000 (Ref 5)*	*86,150 (Ref 5)*	

Inside Diameter	inch	120 (Ref 3, 6)			Wind Design	Not Required	
Length/Height (TL-TL)	inch	132 (Ref 3, 6)			Snow Design	Not Required	
		Vessel Operating	Vessel Design	Coil/Jacket Design	Seismic Design	24590-WTP-3PS-MV00-T0002 24590-WTP-3PS-FB01-T0001	
Internal Pressure	psig	Atm (Ref 2)	15 (Ref 5)	None	Seismic Base Moment *	ft*lb	Ref 8
External Pressure	psig	0.6 (Ref. 2, Note 9)	FV (Ref 5)	None	Postweld Heat Treat	Not Required	
Temperature	°F	158 (Ref 2, Note 9)	183 (Ref 5)	None	Corrosion Allowance	Inch	0.04 (Ref 5, 7)
Min. Design Metal Temp.	°F	-20 (Ref 5)			Hydrostatic Test Pressure *	psig	20 (Ref 5)

Materials of Construction (Ref. 5, 7)

Component	Material	Minimum Thickness / Size	Containment
Top Head	SA-240 316 (Note 5)	See Drawing	Auxiliary
Shell	SA-240 316 (Note 5)	See Drawing	Primary
Bottom Head	SA-240 316 (Note 5, 6)	See Drawing	Primary
Support	SA-240 304 (Note 5)	See Drawing	N/A
Jacket/Coils/Half-Pipe Jacket	NA	N/A	N/A
Internals	SA-240 316 (Note 5)	See Drawing	Thermowells Primary
Pipe	SA-312 TP316 Seamless (Note 5)	See Drawing	Note 1
Forgings/ Bar stock	SA-182 F316 (Note 5)	See Drawing	N/A
Gaskets (O Ring)	Note 7	N/A	N/A
Bolting	SA-194 B8 / SA-193 8	See Drawing	N/A

Miscellaneous Data

Orientation	Vertical	Support Type	Skirt
Insulation Function	N/A	Insulation Material	N/A
Insulation Thickness (inch)	N/A	Internal Finish	Note 3
		External Finish	Note 4

Remarks

* To be determined by the vendor.
Note 1: Nozzle necks below normal operating level are Primary, others Auxiliary. See PVDF and vessel drawing for NDE.
Note 2: Not used
Note 3: Descale all internal welds as laid, grind smooth and blend all starts/stops, high spots, and crevices, finish welds as required for NDE purposes.
Note 4: Welds descaled as laid.
Note 5: Maximum carbon content of 0.030%.
Note 6: 0.125 inch thick SB443 625 explosion bonded cladding on concave surface.
Note 7: Spiral wound, 316SS, flexible graphite fill, 1/8" thick.
4 Note 8: The total average beta/gamma contact dose rate for the components in contact with the process fluid is 0.60 Rad/hr based on the 21+ yr value for the RLD35 and LOP07 process streams given in Table 8-1 of 24590-WTP-Z0C-W13T-00010 Rev H (Ref 9). Soft goods that are part of the vessel assembly are graphite gaskets located on the nozzles (Ref 5). The 40-yr TID is 0.60 Rad/hr x 8760 hr/yr x 40 yr = 2.1e+5 Rad.

BECHTEL	**MECHANICAL DATA SHEET: VESSEL**	**PLANT ITEM No.** ***24590-LAW-MV-RLD-VSL-00004***

This is less than the 1e+8 Rad typical minimum threshold for inorganic materials (Ref 10, Sec 4.4.2(a)). Therefore, the equipment is acceptable for the contact dose rate.

4 Note 9: The maximum value of 0.999 for the SG given by Ref 2 is bounded by the value of 1.41 which was used in the vessel design (Ref 8, 11). The more bounding value is retained as the upper limit to maintain consistency with the procured design.

4 Note 10: Contents of this document are Dangerous Waste Permit affecting.

4 DOE Radioactive Materials Disclaimer:
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.

Equipment Cyclic Data Sheet

Component Plant Item Number:	RLD-VSL-00004
Component Description	Parent Vessel

The information below is provisional and envelopes operational duty for fatigue assessment. It is not to be used as operational data.

Materials of Construction	SA-240 316
Design Life	40 years
Component Function and Life Cycle Description	This tank collects drains liquid from the plant. Approximately twice a week the contents are pumped out. The pressure over the liquid is the Vessel Vent extraction depression.

Cyclic Data

Load Type		Min	Max	Number of Cycles	Comment
Design Pressure	psig	FV	15	10	Nominal assumption of 10 cycles to the design pressure over the vessel lifetime.
Operating Pressure	psig	-0.1	0.07	4160	2 cycles per week for forty years
Operating Temperature	°F	59	158	4160	Coincident with pressure cycles. Adjacent locations <50°F range.
Contents Specific Gravity		1.41 4			
Contents Level	inch	0 4	140 4	4160	2 cycles per week for forty years, assume cycle is from MOL (Ref 4) to empty vessel. 4
Localized Features					
Nozzles/Supports					

Notes

- Cycle increase: The Seller must increase the numbers of operational cycles given above by 10% to account for commissioning duty unless otherwise noted.

Approval

Rev	Description	System Engr	Vessel Engr	Checked	Reviewed	Approved	Date
0	Issue for Purchase	F. Holgado	R. Simmons	C. Slater	N/A	CEC / S. Kirk	5/7/02
1	Revised as Noted	F. Holgado	R. Simmons	C. Slater	N/A	S. Kirk	8/19/02
2	Revised as Noted	F. Holgado	R. Simmons	C. Slater / E. Isern	N/A	M. Hoffmann	1/24/03
3	Revised Volumes as Built	F. Holgado	R. Simmons	C. Slater	N/A	M. Hoffmann	3/24/03
4	Revised to add contact dose rate; updated data to current design references; added reference list; incorporated EIE 24590-WTP-EIE-ENG-17-0018, and DCNs 24590-LAW-M6N-M80T-00008, 24590-WTP-M6N-M80T-00001, 24590-WTP-M6N-M80T-00002, and 24590-LAW-MVN-RLD-00011 as described in the revision notes	R. Merrill	N/A	J. Eckel AB 6/24/18	W. Donigan	J. Shoemaker	5/30/18

Revision Notes:
This revision incorporates the following DCNs and EIE:
24590-WTP-EIE-ENG-17-0018 - Added contact dose rate in Note 8
24590-LAW-M6N-M80T-00008 - Incorporated with further revision per WTP-EIE-ENG-17-0018
24590-WTP-M6N-M80T-00001 – Incorporated by Note 10 and added disclaimer statement
24590-WTP-M6N-M80T-00002 and 24590-LAW-MVN-RLD-00011 - Incorporated and further revised. Per NSE the statement added by the change notices reflects a process that is no longer in effect, so the note was not added to this revision.

REFERENCE LIST 4
(For WTP Internal Use only)

Ref.	Document #	Rev	Document Title
1	24590-LAW-M6-RLD-00002001	1	*P&ID - LAW Radioactive Liquid Waste Disposal System C3/C5 Drains/Sump Collection RLD-VSL-00004*
2	24590-LAW-MVC-RLD-00009	0	*Process Data Input for LAW C3/C5 Drains/Sump Collection Vessel (RLD-VSL-00004) and Transfer Pumps (RLD-PMP-00002A/B)*
3	24590-LAW-MV-RLD-00001	1	*Equipment Assembly C3/C5 Drains/Sump Collection Vessel RLD-VSL-00004*
4	24590-LAW-M6C-RLD-00001	2	*LAW C3/C5 Drains/Sump Collection Vessel RLD-VSL-00004 Sizing*
5	24590-CM-POA-MVA0-00004-02-04	C	*C3/C5 Drains/Sump Collection Vessel General Arrangement*
6	24590-CM-POA-MVA0-00004-02-08	D	*Drawing - C3/C5 Drains/Sump Collection Vessel General Arrangement*
7	24590-LAW-N1D-RLD-00001	6	*RLD-VSL-00004 - C3/C5 Drains/Sump Collection Vessel - Corrosion Evaluation*
8	24590-CM-POA-MVA0-00004-02-11	B	*Calculation - C3/C5 Drains/Sump Collection Tank - Compress Pressure Vessel Design Calculations - RLD-VSL-00004*
9	24590-WTP-Z0C-W13T-00010	H	*Contact Dose Rates to Equipment from Beta and Gamma Emitters*
10	24590-WTP-RPT-ENG-16-021	0	*Radiation Damage Thresholds for Non-Metallic Materials*
11	24590-CM-POA-MVA0-00004-08-01	N/A	*Fatigue Assessment Report RLD-VSL-00004 (8.2)*
12	24590-LAW-M6-RLD-00002002	0	*P&ID - LAW Radioactive Liquid Waste Disposal System C3/C5 Drains/Sump Collection RLD-VSL-00004*

MECHANICAL DATA SHEET: VESSEL

PLANT ITEM No.
24590-LAW-MV-RLD-VSL-00005

Project:	*RPP-WTP*	P&ID:	*24590-LAW-M6-RLD-00001003/-00001004* 4
Project No:	*24590*	Process Data:	*24590-LAW-MVC-RLD-00007* 4
Project Site:	*Hanford*	Vessel Drawing	*24590-LAW-MV-RLD-00003*
Description:	*SBS Condensate Collection Vessel*		

Reference Data

Charge Vessels (Tag Numbers)	*N/A*
Pulsejet Mixers / Agitators (Tag Numbers)	*RLD-AGT-00002 (Ref 1)* 4
RFDs/Pumps (Tag Numbers)	*N/A*
Spray Nozzles (Tag Numbers)	*RLD-NOZ-00004, -00005 (Ref 1)* 4

Design Data

Quality Level		*CM (Ref 1)*		Fabrication Specs	*24590-WTP-3PS-MV00-T0001*		
Seismic Category		*SC-IV (Ref 1)* 4		Design Code	*ASME VIII Div 1*		
Service/Contents		*SBS Condensate Effluent* 4		Code Stamp	*Yes*		
Design Specific Gravity		*1 to 1.38 (Ref 2, Note 8)*		NB Registration	*Yes*		
Maximum Operating Volume	gal	*23,307 (Ref 4)* 4		Weights (lbs)	Empty	Operating	Test
Total Volume	gal	*25,670 (Ref 4, Note 9)* 4		Estimated	*67,700*	*348,800*	*283,000*
Contact Dose Rad (Rad/hr)				Actual * (Ref 11)	*71,900* 4		*281,000* 4

Inside Diameter	inch	192 (Ref 3, 5)			Wind Design	Not Required	
Length/Height (TL-TL)	inch	182 (Ref 5) 4			Snow Design	Not Required	
		Vessel Operating	Vessel Design	Coil/Jacket Design	Seismic Design	24590-WTP-3PS-MV00-T0002 24590-WTP-3PS-FB01-T0001	
Internal Pressure	psig	0 (Ref 2)	15 (Ref 5)	N/A	Seismic Base Moment *	ft*lb	Ref 6
External Pressure	psig	0.072 (Ref 2) 4	15 (FV) (Ref 5)	N/A	Postweld Heat Treat	Not Required	
Temperature	°F	166 (Ref 2) 4	200 (Ref 5)	N/A	Corrosion Allowance	Inch	0.04 (Ref 5, 7)
Min. Design Metal Temp.	°F	40 (Ref 5)			Hydrostatic Test Pressure *	psig	19.5 (Ref 5)

Materials of Construction (Ref 5, 7)

Component	Material	Minimum Thickness / Size	Containment
Top Head	SA-240 316 / SA182 F316 (Note 6)	See Drawing	Auxiliary
Top Head Nozzles N01, N02, N02A, N03, N03A, N04, N05, N09, N11, N15, N16, N16A, N18, N19, N20, and N20A	SB688 UNS N08367 or SB622 N10276 Seamless	See Drawing	Auxiliary (Note 1)
Top Head Nozzles N06, N07, N08, N10, and N17	SA240 316 / SA182 F316 (Note 6)	See Drawing	Auxiliary (Note 1)
Top Head Nozzles N12, N13, and N14	SB622 N10276 Seamless	See Drawing	Auxiliary (Note 1)
Shell	SB688 UNS N08367	See Drawing	Primary (Note 1)
Bottom Head	SB688 UNS N08367	See Drawing	Primary
Support	SA-240 304 (Note 6)	See Drawing	N/A
Internals	UNS N08367 (Note 10) 4	See Drawing	Primary
O-Ring Flanges	UNS N08367	See Drawing	See Note 1
O-Ring Gaskets	Parker E0540-80	See Drawing	See Note 1
Flat Gaskets	EPDM		
Bolting (For Flanges)	SA193 Gr B8 Cl 1 (bolts) 4 SA-194-8 (nuts)	See Drawing	N/A

Miscellaneous Data

Orientation	Vertical	Support Type	Skirt
Insulation Function	N/A	Insulation Material	N/A
Insulation Thickness (inch)	N/A	Welds Surface Finish	De-scaled as Laid

Remarks

* To be determined by the vendor.
Note 1: Nozzle necks below the high operating liquid level are Primary, others Auxiliary.
Note 2: NDE for this vessel must meet requirements per paragraph 6.4.2 of 24590-WTP-3PS-MV00-T0001.
Note 3: This vessel is not subjected to thermal cycling or pressure cycling.
Note 4: Vessel volumes are approximate and do not account for manufacturing tolerances, nozzles, and displacement of internals.
Note 5: Contents of this document are Dangerous Waste Permit affecting.
Note 6: Maximum carbon content of 0.030%.

BECHTEL	**MECHANICAL DATA SHEET: VESSEL**	**PLANT ITEM No.** ***24590-LAW-MV-RLD-VSL-00005***

Note 7: The total average beta/gamma contact dose rate for the components in contact with the process fluid is 0.60 Rad/hr based on the 21+ yr value for the RLD35 process stream given in Table 8-1 of 24590-WTP-Z0C-W13T-00010 Rev H (Ref 9). Soft goods that are part of the vessel assembly are EPDM gaskets/O-rings located on the nozzles (Ref 5). The 40-yr TID is 0.60 Rad/hr x 8760 hr/yr x 40 yr = 2.1e+5 Rad. This is less than the 5e+7 Rad threshold for EPDM (Ref 10). Therefore, the equipment is acceptable for the contact dose rate.

Note 8: The value specified in the current revision of the process data input calculation (Ref 2) is bounded by the design value used in vessel design (Ref 6, 11). The more bounding value is retained to maintain consistency with the procured design.

Note 9: Total volume is the Vendor MOV plus the vapor space volume as calculated on Sh 27 of Ref 4, but actual dimensions from vendor drawings are substituted. From Ref 4, Section 7.3.1 show the lower TL to bottom of overflow is 14.08 – (0.4688/2) = 13.85 ft (MOV). The upper shell detail (Ref 8) shows the height from upper TL to inside of top head is 3", so lower TL to inside of top head is (182 + 3)/12 = 15.42 ft. Per the calculation method in Section B.18 on Sh 27, the vapor space volume is pi/4 x 16^2 ft^2 x (15.42 – 13.85) ft x 7.48 gal/ft^3 = 2,362 gal, and the total volume is MOV plus vapor space volume, or 23,307 + 2,362 = 25,669 gal, which is rounded to 25,670 gal.

Note 10: Materials of construction for the associated agitator (RLD-AGT-00002) are identified on the agitator datasheet 24590-LAW-MFD-RLD-00002.

Design Changes Incorporated by Reference
24590-WTP-FC-M-15-0118

Approval

Rev	Description	System Engr	Vessel Engr	Checked	Reviewed	Approved	Date
0	Issue for Purchase	FH / MS	SS	DA / CS	N/A	SK	10/17/02
1	Revise Design Specific Gravity, Incorporate SDDR No. 24590-WTP-SDDR-PROC-03-0038, Add Notes 4 and 5	PSH / MS	SS	CS	N/A	PBK for MH	5/21/03
2	Revised nozzle materials to incorporate 24590-WTP-SDDR-PROC-03-0321, Deleted Handrail/Ladder Material	P. Holgado	R. Simmons	C. Slater	N/A	M. Hoffmann	10/30/03
3	Revised Gasket Material	PSH	Illegible	Illegible	N/A	M. Hoffmann	8/18/04
4	Revised to add contact dose rate; updated data to current design references; added reference list; incorporated EIEs 24590-WTP-EIE-MS-16-0010 and 24590-WTP-EIE-ENG-17-0018, and DCNs 24590-LAW-M6N-M80T-00008, 24590-WTP-M6N-M80T-00002, and 24590-LAW-MVN-RLD-00011 as described in the revision notes. See remarks section for design changes incorporated by reference.	R. Merrill	N/A	J. Eckel 053018	W. Donigan	J. Shoemaker	6/6/18

Revision Notes:
This revision incorporates the following DCNs and EIE:
- 24590-WTP-EIE-ENG-17-0018 - Added contact dose rate in Note 7
- 24590-WTP-EIE-MS-16-0010 – Minor decrease in MOV to match sizing calculation
- 24590-LAW-M6N-M80T-00008 - Incorporated with further revision per WTP-EIE-ENG-17-0018
- 24590-WTP-M6N-M80T-00002 and 24590-LAW-MVN-RLD-00011 - Incorporated and further revised. Per NSE, the statement added by the change notices reflects a process that is no longer in effect, so the note was not added to this revision.

Please note that source, special nuclear, and byproduct materials, as defined in the Atomic Energy Act of 1954 (AEA) are regulated at the U. S. Department of Energy (DOE) facilities exclusively by DOE acting pursuant to its AEA authority. DOE asserts that pursuant to 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.

REFERENCE LIST 4
(For WTP Internal Use only)

Ref.	Document #	Rev	Document Title
1	24590-LAW-M6-RLD-00001003	0	*P&ID - LAW Radioactive Liquid Waste Disposal System SBS Condensate Collection RLD-VSL-00005*
2	24590-LAW-MVC-RLD-00007	0	*Process Data Input for LAW SBS Condensate Collection Vessel, RLD-VSL-00005 and Discharge Pumps (RLD-PMP-00003 A/B)*
3	24590-LAW-MV-RLD-00003	0	*Equipment Assembly SBS Condensate Collection Vessel RLD-VSL-00005*
4	24590-LAW-M6C-RLD-00006	3	*SBS Condensate Collection Vessel Sizing (RLD-VSL-00005)*
5	24590-QL-POC-MVA0-00001-12-11	B00	*Drawing – 193 1/2 Inch OD SBS Condensate Collection Vessel*
6	24590-QL-POC-MVA0-00001-03-00023	A	*Calculation – Design Calculations*
7	24590-LAW-N1D-RLD-00002	4	*RLD-VSL-00005 SBS Condensate Collection Vessel - Corrosion Vessel*
8	24590-QL-POC-MVA0-00001-12-08	B00	*Drawing – RLD-VSL-00005 Fabrication Details*
9	24590-WTP-Z0C-W13T-00010	H	*Contact Dose Rates to Equipment from Beta and Gamma Emitters*
10	24590-WTP-RPT-ENG-16-021	0	*Radiation Damage Thresholds for Non-Metallic Materials*
11	24590-QL-POC-MVA0-00001-03-16	D	*Calculations – Design Calculations*
12	24590-LAW-MFD-RLD-00002	2	*24590-LAW-MF-RLD-AGT-00002 – Radioactive Liquid Waste Disposal*
13	24590-LAW-M6-RLD-00001004	0	*P&ID - LAW Radioactive Liquid Waste Disposal System SBS Condensate Collection RLD-VSL-00005*

Issued by
RPP-WTP PDC

MECHANICAL DATA SHEET: VESSEL

PLANT ITEM No.
24590-LAW-MV-RLD-VSL-00003

Project:	*RPP-WTP*	P&ID:	*24590-LAW-M6-RLD-00001001/-00001002* 2
Project No:	*24590*	Process Data:	*24590-LAW-MVC-RLD-00008* 2
Project Site:	*Hanford*	Vessel Drawing	*24590-LAW-MV-RLD-00002*
Description:	*Plant Wash Vessel*		

Reference Data

Charge Vessels (Tag Numbers)	*N/A*
Pulsejet Mixers / Agitators (Tag Numbers)	*RLD-AGT-00001 (Ref 1)* 2
RFDs/Pumps (Tag Numbers)	*N/A*
Spray Nozzles (Tag Numbers)	*RLD-NOZ-00002, -00003 (Ref 1)* 2

Design Data

Quality Level		*CM (Ref 1)*	Fabrication Specs	*24590-WTP-3PS-MV00-T0001*		
Seismic Category		*SC-IV (Ref 1)* 2	Design Code	*ASME VIII Div 1*		
Service/Contents		*Wash/Drain Effluent*	Code Stamp	*Yes*		
Design Specific Gravity		*1 to 1.38 (Ref 5, Note 8)*	NB Registration	*Yes*		
Maximum Operating Volume	gal	*23,303 (Ref 4, Note 10)* 2	Weights (lbs)	Empty	Operating	Test
Total Volume	gal	*25,680 (Ref 4, Note 9, 10)* 2	Estimated	*70,100*	*351,200*	*285,500*
Contact Dose Rad (Rad/hr)		0.60 (Note 7) 2	Actual * (Ref 5)	*75,397* 2	*344,885* 2	*305,269* 2

Inside Diameter	inch	192 (Ref 5)			Wind Design	Not Required	
Length/Height (TL-TL)	inch	178 (Ref 4) 2			Snow Design	Not Required	
		Vessel Operating	Vessel Design	Coil/Jacket Design	Seismic Design	24590-WTP-3PS-MV00-T0002 24590-WTP-3PS-FB01-T0001	
Internal Pressure	psig	0 (Ref 5)	15 (Ref 5)	N/A	Seismic Base Moment *	ft*lb	Ref 6 2
External Pressure	psig	3.61 (Ref 5, Note 8)	15 (FV) (Ref 5)	N/A	Postweld Heat Treat	Not Required	
Temperature	°F	167 (Ref 5, Note 8)	200 (Ref 5)	N/A	Corrosion Allowance	Inch	0.04 (Ref 5)
Min. Design Metal Temp.	°F	-23 (Ref 5)			Hydrostatic Test Pressure *	psig	19.5 (Ref 5) 2

Materials of Construction (Ref 5, 7, 8)

Component	Material	Minimum Thickness / Size	Containment
Top Head	SA-240 316 with max carbon of 0.030%	See Drawing	Auxiliary
Top Head Nozzles with Dip Pipe (Nozzles N20, N22A and N24 only)	SB688 UNS N08367 or SB622 N10276	See Drawing	Auxiliary (Note 1)
Top Head Nozzles without Dip Pipe	SA312 TP316 / SA240 316 / SA182 F316 with max carbon of 0.030% 2	See Drawing	Auxiliary (Note 1)
Shell & Shell Nozzles N01 and N26	SB688 UNS N08367 or SB622 N10276	See Drawing	Primary (Note 1)
Bottom Head	SB688 UNS N08367	See Drawing	Primary
Support	SA-240 304 with max carbon of 0.030%	See Drawing	N/A
Internals excl. Sprayers	UNS N08367 (Note 11) 2	See Drawing	N/A
Sprayers	316 SS	See Drawing	N/A
O-Ring Flanges for Top Head Nozzles	SA182 F316 with max carbon of 0.030%	See Drawing	N/A
O-Ring and Flat Gaskets	EPDM	See Drawing	N/A
Bolting (For Flanges)	SA193 Gr B8 Cl 1 (bolts) 2 SA-194-8 (nuts)	See Drawing	N/A

Miscellaneous Data

Orientation	Vertical	Support Type	Skirt
Insulation Function	N/A	Insulation Material	N/A
Insulation Thickness (inch)	N/A	Welds Surface Finish	De-scaled as Laid

Remarks

* To be determined by the vendor.
Note 1: Nozzle necks below the high operating liquid level are Primary, others Auxiliary.
Note 2: NDE for this vessel must meet requirements per paragraph 6.4.2 of specification no. 24590-WTP-3PS-MV00-T0001.
Note 3: This vessel is not subjected to thermal cycling or pressure cycling.
Note 4: Vessel volumes are approximate and do not account for manufacturing tolerances, nozzles, and displacement of internals.
Note 5: Contents of this document are Dangerous Waste Permit affecting.
Note 6: Incorporated 24590-WTP-SDDR-PROC-03-0322 by design. Revised vessel external operating pressure. Other revisions for consistency.

BECHTEL	**MECHANICAL DATA SHEET: VESSEL**	**PLANT ITEM No.** ***24590-LAW-MV-RLD-VSL-00003***

Note 7: The total average beta/gamma contact dose rate for the components in contact with the process fluid is 0.60 Rad/hr based on the 21+ yr value for the RLD35 process stream given in Table 8-1 of 24590-WTP-Z0C-W13T-00010 Rev H (Ref 9). Soft goods that are part of the vessel assembly are EPDM gaskets/O-rings located on the nozzles (Ref 5). The 40-yr TID is 0.60 Rad/hr x 8760 hr x 40 yr = 2.1e+5 Rad. This is less than the 5e+7 Rad threshold for EPDM (Ref 10). Therefore, the equipment is acceptable for the contact dose rate.

Note 8: The value specified in the current revision of the process data input calculation (Ref 2) is bounded by the design value used in vessel design (Ref 5). The more bounding value is retained to maintain consistency with the procured design.

Note 9: Total volume is the Vendor MOV plus the vapor space volume as calculated on Sh B-3 of Ref 4, but actual dimensions from vendor drawings are substituted. From Ref 4, Section 7.2.2 shows the lower TL to bottom of overflow is 14.08 – (0.48/2) = 13.84 ft (MOV) and Input 2.3 shows lower TL to inside of top head is 15'-5" (15.42 ft). Per the calculation method in Section B.18 on Sh B-3, the vapor space volume is pi/4 x 16^2 ft^2 x (15.42 – 13.84) ft x 7.481 gal/ft^3 = 2,377 gal, and the total volume is MOV plus vapor space volume, or 23,303 + 2,377 = 25,680 gal.

Note 10: The volumes calculated from the vendor drawings (Ref 4 and Note 9) are slightly less than the volumes identified in the design data section of Ref 5. Since volumes calculated from the vendor drawings represent the as built vessel, they are included rather than the design values.

Note 11: Materials of construction for the associated agitator (RLD-AGT-00001) are identified on the agitator datasheet 24590-LAW-MFD-RLD-00001.

Design Changes Incorporated by Reference

24590-WTP-FC-M-15-0118

Approval

Rev	Description	System Engr	Vessel Engr	Checked	Reviewed	Approved	Date
0	Issue for Purchase	P. Holgado / M. Sanvictores	S. Suharto	C. Slater / E. Isern	N/A	PBK for M. Hoffmann	5/21/03
1	Revised as indicated by Note 6	RSH / Illegible	Illegible	CS	E. Isern	C. Morley for M. Hoffmann	11/25/03
2	Revised to add contact dose rate; updated data to current design references; added reference list; incorporated EIEs 24590-WTP-EIE-MS-16-0017 and 24590-WTP-EIE-ENG-17-0018, and DCNs 24590-LAW-M6N-M80T-00008 and 24590-LAW-MVN-RLD-00010 as described in the revision notes. See remarks section for design changes incorporated by reference.	R. Merrill	N/A	J. Eckel 053018	W. Donigan	J. Shoemaker	6/6/18

Revision Notes:

This revision incorporates the following DCNs and EIE:

24590-WTP-EIE-ENG-17-0018 - Added contact dose rate in Note 7

24590-WTP-EIE-MS-16-0017 – Minor decrease in MOV to match sizing calculation

24590-LAW-M6N-M80T-00008 - Incorporated with further revision per WTP-EIE-ENG-17-0018

24590-LAW-MVN-RLD-00010 - Incorporated and further revised. Per NSE, the statement was not incorporated as such reviews are now part of the normal engineering document review process.

Please note that source, special nuclear, and byproduct materials, as defined in the Atomic Energy Act of 1954 (AEA) are regulated at the U. S. Department of Energy (DOE) facilities exclusively by DOE acting pursuant to its AEA authority. DOE asserts that pursuant to 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.

REFERENCE LIST 2
(For WTP Internal Use only)

Ref.	Document #	Rev	Document Title
1	24590-LAW-M6-RLD-00001001	0	*P&ID - LAW Radioactive Liquid Waste Disposal System Plant Wash Vessel RLD-VSL-00003*
2	24590-LAW-MVC-RLD-00008	0	*Process Data Input for LAW Plant Wash Vessel, RLD-VSL-00003 and Discharge Pumps (RLD-PMP-00001A/B)*
3	24590-LAW-MV-RLD-00002	1	*Equipment Assembly Plant Wash Vessel RLD-VSL-00003*
4	24590-LAW-M6C-RLD-00005	3	*Vessel Sizing Calculation for Plant Wash Vessel RLD-VSL-00003*
5	24590-CM-POA-MVA0-00007-02-04	F	*Drawing – General Arrangement Drawing for Plant Wash Vessel*
6	24590-CM-POA-MVA0-00007-01-03	E	*Calculation – Plant Wash Vessel RLD-VSL-00003*
7	24590-LAW-N1D-RLD-00005	5	*RLD-VSL-00003 – Plant Wash Vessel – Corrosion Evaluation*
8	24590-CM-POA-MVA0-00007-02-05	D	*Drawing – Assembly & Detail Drawing for Plant Wash Vessel*
9	24590-WTP-Z0C-W13T-00010	H	*Contact Dose Rates to Equipment from Beta and Gamma Emitters*
10	24590-WTP-RPT-ENG-16-021	0	*Radiation Damage Thresholds for Non-Metallic Materials*
11	24590-LAW-MFD-RLD-00001	2	*24590-LAW-MF-RLD-AGT-00001 – Radioactive Liquid Waste Disposal*
12	24590-LAW-M6-RLD-00001002	0	*P&ID - LAW Radioactive Liquid Waste Disposal System Plant Wash Vessel RLD-VSL-00003*

Table 4E-1 LAW Vitrification Facility Tank Systems

No.	System	Vessel Number/Location	Description	Material	Total Volume (US Gallons)	Approximate Dimensions (Inside Diameter) × Height or Length in feet and inches (tangent line/tangent line)
1.	LCP	LCP-VSL-00001 L-0123	LAW Melter 1 Concentrate Receipt Vessel	Stainless Steel	18,130	14’-0” 12’-9”
2.	LCP	LCP-VSL-00002 L-0124	LAW Melter 2 Concentrate Receipt Vessel	Stainless Steel	18,130	14’-0” 12’-9”
3.	LFP	LFP-VSL-00001 L-0123	Melter 1 Feed Preparation Vessel	Stainless Steel	9,123	11’-0” 10’-6”
4.	LFP	LFP-VSL-00002 L-0123	Melter 1 Feed Vessel	Stainless Steel	9,123	11’-0” 10’-6”
5.	LFP	LFP-VSL-00003 L-0124	Melter 2 Feed Preparation Vessel	Stainless Steel	9,123	11’-0” 10’-6”
6.	LFP	LFP-VSL-00004 L-0124	Melter 2 Feed Vessel	Stainless Steel	9,123	11’-0” 10’-6”
7.	LVP	LVP-TK-00001 L-0218	LAW Caustic Collection Tank	Stainless Steel	14,232	13’-0’ (od) 14’-4”
8.	LOP	LOP-VSL-00001 L-0123	LAW Melter 1 SBS Condensate Vessel	Hastelloy	9,056	12’-0” 8’-2”
9.	LOP	LOP-VSL-00002 L-0124	LAW Melter 2 SBS Condensate Vessel	Hastelloy	9,056	12’-0” 8’-2”
10.	RLD	RLD-VSL-00003 L-0126	Plant Wash Vessel	6% Mo/Stainless Steel	~~25,780~~25,680	16’-0” ~~15’-5”~~ 14’-10”

Table 4E-1 LAW Vitrification Facility Tank Systems

No.	System	Vessel Number/Location	Description	Material	Total Volume (US Gallons)	Approximate Dimensions (Inside Diameter) × Height or Length in feet and inches (tangent line/tangent line)
11.	RLD	RLD-VSL-00004 L-B001B	LAW C3/C5 Drains/Sump Collection Vessel	Stainless Steel/Inconel 625	~~7,696~~7,675	10’-0” 11’-0”
12.	RLD	RLD-VSL-00005 L-0126	SBS Condensate Collection Vessel	6% Mo/Stainless Steel	~~25,780~~25,670	16’-0” ~~15’-5”~~ 15’-2”

Table III.10.E.B – LAW Vitrification Plant Tank Systems Description

Dangerous and/or Mixed Waste Tank Systems Name	Unit Designation	Engineering Description (Drawing Nos, Specification Nos, etc.)	Narrative Description, Tables & Figures	Maximum Capacity (gallons)
LOP-VSL-00001 (LAW Melter 1 SBS Condensate Vessel) LOP-VSL-00002 (LAW Melter 2 SBS Condensate Vessel)		-M6-LOP-00001002 -M6-LOP-00002002 -MV-LOP-P0001 -MV-LOP-P0002 -MVD-LOP-00004 -MVD-LOP-00005 -N1D-LOP-P0002 -P1-P01T-00002		
LAW Vitrification Plant Radioactive Liquid Waste Disposal System RLD-VSL-00003 (Plant Wash Vessel) RLD-VSL-00004 (C3/C5 Drains/Sump Collection Vessel) RLD-VSL-00005 (SBS Condensate Collection Vessel)	RLD	**24590-LAW** -M5-V17T-00014 -M6-RLD-00001001 -M6-RLD-00001002 -M6-RLD-00001003 -M6-RLD-00001004 -M6-RLD-00001005 -M6-RLD-00001006 -M6-RLD-00002001 -M6-RLD-00002002 -M6-RLD-00002003 -M6-RLD-00002004 -M6-RLD-00002005 -M6-RLD-00003001 -M6-RLD-00003002 -M6-RLD-00003003	Section 4E.2.3; Tables 4E-1 and 4E-3; and Figures 4A-1 and 4A-3 of Operating Unit Group 10, Chapter 4 of this Permit.	RLD-VSL-00003 = ~~25,780~~25,680 RLD-VSL-00004 = ~~7696~~ 7,675 RLD-VSL-00005 = ~~25,780~~25,670

Table III.10.E.B – LAW Vitrification Plant Tank Systems Description

Dangerous and/or Mixed Waste Tank Systems Name	Unit Designation	Engineering Description (Drawing Nos, Specification Nos, etc.)	Narrative Description, Tables & Figures	Maximum Capacity (gallons)
		-MVD-RLD-~~P0001~~00001 -MVD-RLD-~~P0006~~00006 -MVD-RLD-~~P0007~~00007 -MV-RLD-P0001 -MV-RLD-P0002 -MV-RLD-P0003 -P1-P01T-00001 -P1-P01T-00002 -N1D-RLD-00001 -N1D-RLD-00002 -N1D-RLD-00005		

Quarter Ending Sept. 30, 2018 24590-LAW-PCN-ENV-18-006

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

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Page 2 of 3: Hanford Facility RCRA Permit, Part III, Operating Unit 10, Waste Treatment and Immobilization Plant

This Integrity Assessment addresses Radioactive Liquid Waste Disposal System (RLD) ancillary equipment associated with the Low Activity Waste (LAW) RLD Vessels (RLD-VSL-00003, RLD-VSL-00004, and RLD-VSL-00005) in Appendix 9.11 of the Dangerous Waste Permit (DWP).

Vessels RLD-VSL-00003 and RLD-VSL-00005 are located at Elev. 2'-0" in R5/C5 Cell, Room L-0126, and RLD VSL-00004 is located at Elev. (-) 21'-0" in R3/C5 Drain Collection Cell, Room L-B001B.

Submitted by Co-Operator:

for RJL 7/25/18

Roger J. Landon Date

Reviewed by ORP Program Office:

for 9/13/18

Thomas W. Fletcher Date

Quarter Ending September 2018

24590-LAW-PCN-ENV-18-006

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

Description of Modification:

This Class 1[1] modification requests Ecology approval and incorporation into the permit the below referenced structural integrity assessment report. The report has been updated by the Independent Qualified Registered Professional Engineer (IQRPE).

Appendix 9.11			
Replace	CCN 200242 / IA-3001885-000 IQRPE Structural Integrity Assessment Report for LAW RLD Ancillary Equipment	With	24590-CM-HC4-HXYG-00240-02-00028, Rev. 00B (IA-3001885-002), *IQRPE Structural Integrity Assessment Report for LAW RLD Ancillary Equipment*

This Integrity Assessment addresses ancillary equipment associated with the Low Activity Waste (LAW) Radioactive Liquid Waste Disposal System (RLD) vessels (RLD-VSL-00003, RLD-VSL-00004, and RLD-VSL-00005) located in the LAW facility.

The RLD vessels (RLD-VSL-00003 and RLD-VSL-00005) are located at Elev. 2'-0" in R5/C5 Cell, Room L-0126 and RLD-VSL-00004 is located at Elev. (-) 21 '-0" in R3/C5 Drain Collection Cell, Room L-B001B of the LAW Facility as shown on the General Arrangement Plan drawings 24590-LAW-P1-P01T-00002 and -00001, respectively.

For each item of "Information Assessed" in the integrity assessment report, the items listed under the "Source of Information" column were reviewed and found to furnish adequate design controls and requirements to ensure the design fully satisfies the requirements of Washington Administrative Code, WAC-173-303-640, Dangerous Waste Regulations.

This PCN updates information in Appendix 9.11 to reflect current design. This DWP component may be re-evaluated to confirm design adequacy. If the re-evaluation results in future design changes, the changes will be reviewed by Ecology in subsequent permit modifications.

In accordance with Permit Condition III.10.C.2.e, this permit modification sent to Ecology may include page changes to the Permit, attachments, and permit application supporting documentation.

WAC 173-303-830 Modification Class:	Class 1	Class [1]1	Class 2	Class 3
Please mark the Modification Class:		X		

Enter relevant WAC 173-303-830, Appendix I Modification citation number:

Enter wording of WAC 173-303-830, Appendix I Modification citation:

In accordance with WAC 173-303-830(4)(d)(i), this modification notification is requested to be reviewed and approved as a Class '1 modification. WAC 173-303-830(4)(d)(ii)(A) states. "Class 1 modifications apply to minor changes that keep the permit current with routine changes to the facility or its operation. These changes do not substantially alter the permit conditions or reduce the capacity of the facility to protect human health or the environment. In the case of Class 1 modifications, the director may require prior approval."

Quarter Ending September 2018

24590-LAW-PCN-ENV-18-006

Modification Approved/Concur: [X] Yes [ ] Denied (state reason below) Reason for denial:	Reviewed by Ecology: S. Dahl 10/17/18 Date

24590-CM-HC4-HXYG-00240-02-00028
Rev. 00B

R11897757

ISSUED BY
RPP-WTP PDC

orano

Orano Federal
Services LLC

2101 Horn Rapids Rd
Richland, WA 99354

Tel: +1 509 371 1893

FS-18-0129

May 31, 2018

Ms. Andrea Dorsey
Subcontractor Administrator
Bechtel National, Inc.
2435 Stevens Center Place
Richland, WA 99354

Dear Ms. Dorsey,

BECHTEL NATIONAL, INC. CONTRACT NO. 24590-CM-HC4-HXYG-00240 IQRPE STRUCTURAL INTEGRITY ASSESSMENT REPORT FOR LAW RLD ANCILLARY EQUIPMENT (IA-3001885-002)

The integrity assessment of the subject LAW RLD Ancillary Equipment has been completed per the contract requirements and is enclosed for your use. The assessment found that the design is sufficient to ensure that the LAW RLD Ancillary Equipment are adequately designed and has sufficient structural strength, compatibility with the waste(s) to be processed / stored /treated, and corrosion protection to ensure that it will not collapse, rupture, or fail.

If you have any questions, please contact Tarlok Hundal at (509) 371-1975, or via email at tarlok.hundal@orano.group.

Sincerely,

WILKERSON
N Walter

Digitally signed by WILKERSON Walter
DN: o=AREVA GROUP, 2.5.4.45=6AC3953C15F2508E66C7F8E, cn=WILKERSON Walter
Date: 2018.05.31 16:58:57 -04'00'

for
Tess Klatt
Contract Administrator
Orano Federal Services LLC
Richland Office

lap
cc: J.S. Evans, w/Enclosure (1)

orano

IA-3001885-002

IQRPE STRUCTURAL INTEGRITY ASSESSMENT REPORT FOR LAW RLD ANCILLARY EQUIPMENT

Please note that source, special nuclear and byproduct materials, as defined in the Atomic Energy Act of 1954 (AEA), are regulated at the U.S. 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.

orano

IA-3001885-002

IQRPE STRUCTURAL INTEGRITY ASSESSMENT REPORT
FOR
LAW RLD ANCILLARY EQUIPMENT

"I, Tarlok Singh Hundal, have reviewed and certified a portion of the design of a new tank system component located at the Hanford Waste Treatment Plant, owned/operated by Department of Energy, Office of River Protection, Richland, Washington. My duties were independent review of the current design for the LAW RLD Ancillary Equipment as required by the Washington Administrative Code, *Dangerous Waste Regulations*, Section WAC-173-303-640(3) (a) through (g) applicable components."

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

The documentation reviewed indicates that the design fully satisfies the requirements of the WAC.

The attached review is twelve (12) pages numbered one (1) through twelve (12).

TARLOK SINGH HUNDAL
STATE OF WASHINGTON
20213
REGISTERED
PROFESSIONAL ENGINEER

Signature

5/31/18
Date

Scope	Scope of this Integrity Assessment	This Integrity Assessment addresses ancillary equipment associated with the Low Activity Waste (LAW) Radioactive Liquid Waste Disposal System (RLD) vessels (RLD-VSL-00003, RLD-VSL-00004, and RLD-VSL-00005) located in the LAW facility. The ancillary equipment such as pipelines, valves, and other items associated with these vessels are conspicuously delineated on the P&ID drawings listed below under References. The RLD vessels (RLD-VSL-00003 and RLD-VSL-00005) are located at Elev. 2'-0" in R5/C5 Cell, Room L-0126 and RLD-VSL-00004 is located at Elev. (-) 21'-0" in R3/C5 Drain Collection Cell, Room L-B001B of the LAW facility as shown on the General Arrangement Plan drawings 24590-LAW-P1-P01T-00002 and -00001, respectively. **Note:** **This report (IA-3001885-002) is a revision of the previous report (IA-3001885-001, BNI # 24590-CM-HC4-HXYG-00240-02-00028, Rev. 00A).**
Summary of Assessment		For each item of "Information Assessed" (i.e., Criteria) on the following pages, the items listed under "Source of Information" were reviewed and found to furnish adequate design requirements and controls to ensure that the design fully satisfies the requirements of Washington Administrative Code (WAC), Chapter 173-303 WAC, *Dangerous Waste Regulations,* WAC-173-303-640, *Tank Systems.*

References	Drawings	Drawings: 24590-LAW-P1-P01T-00001, Rev. 4, LAW Vitrification Building General Arrangement Plan at El. (-) 21'- 0"; 24590-LAW-P1-P01T-00002, Rev. 7, LAW Vitrification Building General Arrangement Plan at El. 3'- 0"; 24590-LAW-M6-RLD-00001001, Rev. 0, P&ID –LAW Radioactive Liquid Waste Disposal System Plant Wash Vessel RLD-VSL-00003; 24590-LAW-M6-RLD-00001002, Rev. 0, P&ID –LAW Radioactive Liquid Waste Disposal System Plant Wash Vessel RLD-VSL-00003; 24590-LAW-M6-RLD-00001003, Rev. 0, P&ID –LAW Radioactive Liquid Waste Disposal System SBS Condensate Collection RLD-VSL-00005; 24590-LAW-M6-RLD-00001004, Rev. 0, P&ID –LAW Radioactive Liquid Waste Disposal System SBS Condensate Collection RLD-VSL-00005; 24590-LAW-M6-RLD-00001005, Rev. 0, P&ID –LAW Radioactive Liquid Waste Disposal System Plant Wash & SBS Condensate Collection RLD-BULGE-00004; 24590-LAW-M6-RLD-00001006, Rev. 0, P&ID –LAW Radioactive Liquid Waste Disposal System Plant Wash & SBS Condensate Collection RLD-BULGE-00004; 24590-LAW-M6-RLD-00002001, Rev. 1, P&ID –LAW Radioactive Liquid Waste Disposal System C3/C5 Drains/Sump Collection RLD-VSL-00004; 24590-LAW-M6-RLD-00002002, Rev. 0, P&ID –LAW Radioactive Liquid Waste Disposal System C3/C5 Drains/Sump Collection RLD-VSL-00004; 24590-LAW-M6-RLD-00002003, Rev. 0, P&ID –LAW Radioactive Liquid Waste Disposal System C3/C5 Drains/Sump Collection RLD-BULGE-00001; 24590-LAW-M6-RLD-00002004, Rev. 0, P&ID –LAW Radioactive Liquid Waste Disposal System C3/C5 Drains/Sump Collection RLD-BULGE-00001; 24590-LAW-M6-RLD-00002005, Rev. 1, P&ID –LAW Radioactive Liquid Waste Disposal System C3/C5 Sumps RLD-SUMP-00010/11/28; 24590-LAW-M6-RLD-00003001, Rev. 0, P&ID –LAW Radioactive Liquid Waste Disposal System C3/C5 Floor Drains Collection; 24590-LAW-M6-RLD-00003002, Rev. 2, P&ID –LAW Radioactive Liquid Waste Disposal System Process Cell Sumps at El. 2 ft.; 24590-LAW-M6-RLD-00003003, Rev. 2, P&ID –LAW Radioactive Liquid Waste Disposal System Process and Effluent Cell Sumps at El. 2 ft.;

References (cont'd)	Drawings and System Design Description	Drawings (cont'd): 24590-LAW-M6-RLD-00004001, Rev. 0, P&ID –LAW Radioactive Liquid Waste Disposal System NLD HVAC Condensate Pumps; 24590-LAW-M6-RLD-00004002, Rev. 0, P&ID –LAW Radioactive Liquid Waste Disposal System RLD HVAC Condensate Pumps; 24590-LAW-M6-RLD-00004003, Rev. 0, P&ID –LAW Radioactive Liquid Waste Disposal System RLD HVAC Condensate Pumps; 24590-LAW-M6-RLD-00005001, Rev. 0, P&ID –LAW Radioactive Liquid Waste Disposal System C3/C5 HVAC Pump & Drains; 24590-LAW-M5-V17T-00014, Rev. 6, Process Flow Diagram LAW Liquid Effluent (System RLD); 24590-LAW-P3-RLD-ZF33829001, Rev. 1, LAW Vitrification Isometric (Line No. RLD-ZF-33829-N11F-3); 24590-LAW-P3-RLD-GR00024001, Rev. 4, LAW Vitrification Isometric (Line No. RLD-GR-00024-S11P-1.5); 24590-LAW-P3-RLD-WS20033002, Rev. 0, LAW Vitrification Isometric (Line No. RLD-WS-20033-S11B-1); 24590-LAW-P3-RLD-WU02184001, Rev. 1, LAW Vitrification Isometric (Line No. RLD-WU-02184-S11B-4); 24590-LAW-P3-RLD-ZR04244001, Rev. 0, LAW Vitrification Isometric (Line No. RLD-ZR-04244-C14A-2); 24590-LAW-P3-RLD-ZF03440001, Rev. 3, LAW Vitrification Isometric (Line No. RLD-ZF-03440-N11F-2); 24590-LAW-P3-RLD-ZF00095001, Rev. 2, LAW Vitrification Isometric (Line No. RLD-ZF-00095-S11B-4); 24590-LAW-P3-RLD-ZF64617001, Rev. 0, LAW Vitrification Isometric (Line No. RLD-ZF-64617-S11E-1.5); 24590-WTP-PH-50-00003001, Rev. 4, Standard Pipe Support Details Cantilever-Cantilever CC; 24590-WTP-PH-50-00004001, Rev. 4, Standard Pipe Support Details Frame - L Shape FL; 24590-WTP-PH-50-00012001, Rev. 7, Standard Pipe Support Details Guide - U Bolts GU; 24590-WTP-PH-50-00012002, Rev. 6, Standard Pipe Support Details Guide - U Strap GU; 24590-WTP-PH-50-00012003, Rev. 4, Standard Pipe Support Details Guide - U Strap GU; 24590-WTP-PH-50-00014001, Rev. 1, Standard Pipe Support Details Rod - Hangers RH; 24590-WTP-PH-50-00014002, Rev. 1, Standard Pipe Support Details Rod - Hangers RH; 24590-WTP-PH-50-00014003, Rev. 1, Standard Pipe Support Details Rod - Hangers RH; 24590-LAW-RLD-H10472, Rev. 0, Pipe Support Drawing; 24590-LAW-RLD-H20244, Rev. 0, Pipe Support Drawing. System Design Description: 24590-LAW-3ZD-RLD-00001, Rev. 2, LAW Facility Radioactive Liquid Waste Disposal (RLD) System Design Description.

	Information Assessed	Source of Information	Assessment
Design	Ancillary equipment design standards are appropriate and adequate for the equipment's intended use.	Drawings and System Design Description listed above under References; 24590-WTP-DC-PS-01-001, Rev. 9, Pipe Stress Design Criteria including "Pipe Stress Criteria" and "Span Method Criteria;" ASME B31.3 Code, Process Piping, 1996 Edition, American Society of Mechanical Engineers; 24590-WTP-3DP-G04T-00905, Rev. 14, Determination of Quality Levels.	The Pipe Stress Design Criteria identifies ASME B31.3 as the design code for piping systems of the WTP. The System Design Description document states that the RLD system does not have any important to safety function. Drawings show that the ancillary equipment is of commercial quality level (CM) grade and is Seismic Category SC-III/IV. Determination of Quality Levels document and Pipe Stress Design Criteria document provide detailed discussion of quality grades and seismic categories, respectively. The codes and standards used are acceptable and adequate for the design of the ancillary piping for the intended service.

	Information Assessed	Source of Information	Assessment
Design (cont'd)	If the ancillary equipment to be used is not built to a design standard, the design calculations demonstrate sound engineering principles of construction.	Drawings listed above under References; 24590-WTP-DC-PS-01-001, Rev. 9, Pipe Stress Design Criteria including "Pipe Stress Criteria" and "Span Method Criteria"; ASME B31.3 Code, Process Piping, 1996 Edition, American Society of Mechanical Engineers; 24590-LAW-P6C-RLD-00020, Rev. 0, Pipe Stress Analysis LAW RLD System; 24590-LAW-PHC-RLD-10095, Rev. 0, RPP-WTP Engineered Support Calculation for LAW-RLD-H10470, H10472, H10474, and H10476; 24590-LAW-PHC-RLD-10097, Rev. 0, RPP-WTP Engineered Support Calculation for LAW-RLD-H20244 & LAW-RLD-H20246; 24590-WTP-3PS-MX00-T0001, Rev. 6, Engineering Specification for Process Bulge Design and Fabrication; 24590-LAW-MXD-RLD-00002, Rev. 7, Mechanical Data Sheet for Process Bulge (RLD-BULGE-00004); 24590-CM-POA-PY33-00001-10-06, Rev. 00B, Containment Layout Drawing (RLD-BULBE-00001): Vendor Submittal; 24590-CM-POA-PY33-00001-09-01, Rev. 00B, Design Worksheet for Bulge (RLD-BULGE-00001): Vendor Submittal; 24590-CM-POA-MPH0-00001-05-01, Instructions for Pump Casing Hydrostatic Test: Vendor Submittal; 24590-WTP-3DP-G04T-00906, Rev. 10, Isometric Drawings and Associated Calculations; 24590-WTP-3DP-G04B-00037, Rev. 31, Engineering Calculations; 24590-WTP-3PS-PH01-T0002, Rev. 7, Installation of Pipe Supports.	The ancillary equipment is built to design standards. The Pipe Stress Design Criteria specifies that piping is to be designed in accordance with ASME B31.3 Code. The review of the sample isometric and pipe support drawings listed in the References, Pipe Stress Analysis, Pipe Support Calculations, Mechanical Data Sheet, Engineering Specification, Vendor Submittals approved by Bechtel National Inc. (BNI), and of the design process and controls described in Isometric Drawings and Associated Calculations, Engineering Calculations, and Installation of Pipe Supports documents provides adequate assurance that RLD ancillary equipment are properly designed, installed, and verified to meet the requirements of the applicable design criteria established for the project. The review of the aforementioned documents also demonstrates that sound design engineering principles are used for the design and construction of the ancillary equipment.

	Information Assessed	Source of Information	Assessment
Design (cont'd)	Ancillary equipment has adequate strength at the end of its design life to withstand the operating pressure, operating temperature, thermal expansion, and seismic loads. Equipment is protected against physical damage and excessive stress due to settlement, vibration, expansion, or contraction.	24590-WTP-DC-PS-01-001, Rev. 9, Pipe Stress Design Criteria including "Pipe Stress Criteria" and "Span Method Criteria;" ASME B31.3 Code, Process Piping, 1996 Edition, American Society of Mechanical Engineers; ASME Boiler and Pressure Vessel Code, Section III, Division 1, Rules for Construction of Nuclear Power Plant Components, American Society of Mechanical Engineers, 1995; UBC 1997, Uniform Building Code; 24590-WTP-PER-M-02-002, Rev. 4, Materials for Ancillary Equipment; 24590-WTP-GPG-ENG-004, Rev. 3, Design Guide Pipe Stress, Pipe Layout and Support Spacing; 24590-WTP-SE-ENS-03-704, Rev. 0, Seismic Evaluation for Design (Seismic Design of Piping and Pipe Supports).	The Pipe Stress Design Criteria requires the use of the ASME B31.3 Code for process piping design. ASME B31.3 requires explicit consideration of operating pressure, operating temperature, thermal expansion/contraction, settlement, vibration, and corrosion allowance in the design of piping. For the seismic design of Seismic Category (SC-III/IV) ancillary equipment, applicable sections of ASME Section III, Division 1, Appendix F, and sections of UBC 1997 are used to supplement the requirements of ASME B31.3. Details of the seismic design methods are discussed in the Pipe Stress Design Criteria and Seismic Evaluation documents. These are appropriate and adequate codes and standards including the Design Guide document, to ensure that the ancillary equipment has adequate strength at the end of its design life of 40 years, to withstand all anticipated loads.

	Information Assessed	Source of Information	Assessment
Supports	Ancillary equipment supports are adequately designed.	Drawings listed above under References; 24590-WTP-DC-PS-01-001, Rev. 9, Pipe Stress Design Criteria including "Pipe Stress Criteria" and "Span Method Criteria;" 24590-WTP-DC-PS-01-002, Rev. 8, Pipe Support Design Criteria; ASME B31.3 Code, Process Piping, 1996 Edition, American Society of Mechanical Engineers; MSS-SP-58, Pipe Hangers and Supports-Materials, Design, and Manufacture, Manufacturers Standardization Society of the Valve and Fittings Industry, Inc.; AISC Manual of Steel Construction, ASD, 9th Edition, American Institute of Steel Construction; ASME Boiler and Pressure Vessel Code, Section III, Division 1, Rules for Construction of Nuclear Power Plant Components, American Society of Mechanical Engineers, 1995; UBC 1997, Uniform Building Code; 24590-WTP-PER-PS-02-001, Rev. 6, Ancillary Equipment Pipe Support Design; 24590-WTP-PL-PS-01-001, Rev. 2, Verification and Validation Test Plan for Bechtel's ME150 Pipe Support Family of Programs (PCFAPPS); 24590-WTP-GPG-ENG-005, Rev. 8, Engineering Design Guide for Pipe Supports; 24590-LAW-PHC-RLD-10095, Rev. 0, RPP-WTP Engineered Support Calculation for LAW-RLD-H10470, H10472, H10474, and H10476; 24590-LAW-PHC-RLD-10097, Rev. 0, RPP-WTP Engineered Support Calculation for LAW-RLD-H20244 & LAW-RLD-H20246; 24590-WTP-PHC-P50T-00002, Rev. 1, Justification for the use of Standard Supports for RPP-WTP-Project; 24590-WTP-PHC-P50T-00001, Rev. 1, U-Bolt Load Capacity Calculation; 24590-WTP-3DP-G04T-00906, Rev. 10, Isometric Drawings and Associated Calculations; 24590-WTP-3DP-G04B-00037, Rev. 31, Engineering Calculations; 24590-WTP-PHC-P50-00001, Rev. 1, RPP/WTP Support Standards; 24590-WTP-PHC-P50T-00004, Rev. 0, Qualification of Pipe Straps; 24590-WTP-SE-ENS-03-704, Rev. 0, Seismic Evaluation for Design (Seismic Design of Piping and Pipe Supports). 24590-LAW-RPT-ENG-17-006, Rev. 0, Piping Confirmation Report for the LAW RLD System.	The Pipe Support Design Criteria document considers all loadings identified in ASME B31.3 including MSS-SP-58 and AISC Manual and also utilizes ASME B&PV Code, Section III, Division 1, Appendix F, to supplement the requirements of ASME B31.3 for seismic design of Seismic Category (SC-III/IV) pipe supports. The Piping Confirmation Report for the LAW RLD System identifies critical and non-critical piping. Pipe supports for non-critical piping are designated as standard design using the Span Method Criteria. For critical piping support design, bounding load cases are passed on to pipe support designers from results of the ancillary equipment piping stress analysis. Details of the seismic design methodology are discussed in the Pipe Support Design Criteria document. Examples of typical ancillary equipment supports are shown in the Ancillary Equipment Pipe Support Design document. Analysis is by manual calculation or approved computer programs that have been verified and validated. Ancillary equipment supports are to be designed to allow a minimum of heat to be transferred to the building structures such that the temperature of the building structures does not exceed 150°F for the concrete structure and 200°F for the steel structure. The review of the sample isometric drawings, pipe support drawings, Pipe Support Calculations, and that of the design process and controls described in Isometric Drawings and Associated Calculations, Engineering Calculation, and other supports associated documents, provides sufficient assurance that RLD ancillary equipment supports are adequately designed, installed, and verified to meet the requirements of the applicable design criteria established for the project.

	Information Assessed	Source of Information	Assessment
Foundations	The system will withstand the effects of frost heave.	Drawings listed above under References; 24590-WTP-DC-ST-01-001, Rev. 14, Structural Design Criteria.	The Structural Design Criteria requires that all outdoor equipment structural foundations shall extend into the surrounding soil below the 30" frost line to preclude frost heave. The RLD ancillary equipment system considered in this assessment is located inside the LAW facility. The LAW facility structural foundations are well below the grade elevation, therefore, the RLD system is not subjected to any frost heave effects.
Connections	Seams and connections are adequately designed.	24590-WTP-DC-PS-01-001, Rev. 9, Pipe Stress Design Criteria including "Pipe Stress Criteria" and "Span Method Criteria;" ASME B31.3 Code, Process Piping, 1996 Edition, American Society of Mechanical Engineers; ASME B16.5, Piping Flanges and Flanged Fittings, American Society of Mechanical Engineers; ASME Boiler and Pressure Vessel Code (B&PV), Section IX, Welding and Brazing Qualifications, American Society of Mechanical Engineers.	The Pipe Stress Design Criteria specifies the ASME B31.3 Process Piping design code for the piping systems. Welding is to be performed in accordance with the requirements of ASME B31.3 and the ASME B&PV Code, Section IX. ASME B16.5 is specified for flange designs. These are appropriate codes and standards for design and fabrication of the RLD System ancillary equipment.
Waste Characteristics	Characteristics of the waste to be stored or treated have been identified (ignitable, reactive, toxic, specific gravity, vapor pressure, flash point, temperature).	System Design Description listed above under References; 24590-WTP-PER-PR-03-001, Rev. 2, Prevention of Hydrogen Accumulation in WTP Tank Systems and Miscellaneous Treatment Unit Systems; 24590-WTP-PER-PR-03-002, Rev. 4, Control of Toxic Vapors and Emissions from WTP Tank and Miscellaneous Unit Systems.	The Prevention of Hydrogen Accumulation in WTP Tank Systems and Miscellaneous Treatment Unit System and System Design Description documents indicate that flammable or explosive concentrations of hydrogen are not expected in the LAW facility systems ancillary equipment. Similarly, the Control of Toxic Vapors and Emissions from WTP Tank Systems and Miscellaneous Unit Systems document provides a summary of the LAW facility ancillary equipment design features that provide for confinement and treatment of chronically toxic vapors and emissions during normal operations, abnormal operations, and during and after a Design Basis seismic event. The above mentioned documents appropriately identify the characteristic of the waste to be handled by the RLD system.

	Information Assessed	Source of Information	Assessment
Waste Characteristics (cont'd)	Ancillary equipment is designed to handle the wastes with the characteristics defined above and any treatment reagents.	24590-WTP-PER-M-02-002, Rev. 4, Materials for Ancillary Equipment.	The Materials for Ancillary Equipment document specifies that ancillary equipment materials that contact the waste are to be equal to or better than those of the upstream source vessels. Selection of proper material for the RLD piping and equipment ensures that the ancillary equipment is appropriately designed to handle the waste.
Compatibility	The pH range of the waste, waste temperature and the corrosion behavior of the structural materials are adequately addressed. Ancillary equipment material and protective coatings ensure the ancillary equipment structure is adequately protected from the corrosive effects of the waste stream and external environments. The protection is sufficient to ensure the equipment will not leak or fail for the design life of the system.	24590-WTP-DB-ENG-01-001, Rev. 6, Basis of Design; 24590-WTP-PER-M-02-002, Rev. 4, Materials for Ancillary Equipment.	The Basis of Design document identifies a service design life of 40 years for the ancillary equipment. Detailed materials selection (corrosion) evaluations are conducted for each vessel in the LAW facility during process design to assure a 40-year service life. The Materials for Ancillary Equipment document requires that the material selection and corrosion/erosion allowances for ancillary equipment in contact with the waste will be equal to or better than the material and corrosion allowance of the waste source vessel. Therefore, the ancillary equipment like the source vessel; will provide the expected design service for the life of the system, without any leak or failure.

Information Assessed		Source of Information	Assessment
Corrosion Allowance	Corrosion allowance is adequate for the intended service life of the ancillary equipment.	System Design Description listed above under References; ASME B31.3 Code, Process Piping, 1996 Edition, American Society of Mechanical Engineers; 24590-WTP-DC-PS-01-001, Rev. 9, Pipe Stress Design Criteria including "Pipe Stress Criteria" and "Span Method Criteria;" 24590-WTP-DB-ENG-01-001, Rev. 6, Basis of Design; 24590-WTP-PER-M-02-002, Rev. 4, Materials for Ancillary Equipment; 24590-WTP-PER-PL-02-001, Rev. 8, Piping Material Class Description.	ASME B31.3 is the design code for the WTP piping. Consideration of corrosion, including corrosion allowance, is a mandatory requirement of ASME B31.3 and is appropriately supplemented in the Pipe Stress Design Criteria document. A required service life of 40 years is identified in the Basis of Design document for the ancillary equipment. Detailed materials selection (corrosion) evaluations are conducted for each vessel in the LAW facility during process design to ensure a 40-year service life. The Materials for Ancillary Equipment document requires that downstream ancillary equipment is to be constructed of equal or better materials, and with the same corrosion allowance as the source vessel. Corrosion/Erosion allowances are listed for the ancillary equipment (each piping class and associated valves, fittings, etc.) in the Piping Material Class Description document.
Pressure Controls	Pressure controls (vents and relief valves) are adequately designed to ensure pressure relief if normal operating pressures in the vessels are exceeded.	24590-WTP-DC-PS-01-001, Rev. 9, Pipe Stress Design Criteria including "Pipe Stress Criteria" and "Span Method Criteria;" ASME B31.3 Code, Process Piping, 1996 Edition, American Society of Mechanical Engineers.	The Pipe Stress Design Criteria document specifies ASME B31.3 as the design code for the WTP piping. ASME B31.3 requires provision be made to safely contain or relieve any pressure to which the piping may be subjected. ASME B31.3 piping not protected by a pressure relieving device, or that can be isolated from a pressure reliving device must be designed for at least the highest pressure that can be developed.

	Information Assessed	Source of Information	Assessment
Pressure Controls (cont'd)	Maximum flows and any unusual operating stresses are identified.	Drawings listed above under References; 24590-WTP-DC-PS-01-001, Rev. 9, Pipe Stress Design Criteria including "Pipe Stress Criteria" and "Span Method Criteria;" ASME B31.3 Code, Process Piping, 1996 Edition, American Society of Mechanical Engineers; 24590-WTP-3PS-P000-T0001, Rev. 6, Engineering Specification for Piping Material Classes General Description and Summary; 24590-WTP-PER-PL-02-001, Rev. 8, Piping Material Class Description; 24590-WTP-3DP-G04T-00906, Rev. 10, Isometric Drawings and Associated Calculations; 24590-WTP-3DP-G04B-00037, Rev. 31, Engineering Calculations.	The expected flow paths for the ancillary equipment are identified on the P&ID drawings. The Pipe Stress Design Criteria specifies the ASME B31.3 code for piping design. This code requires piping to be designed to the highest pressure that can be developed in a piping system assuring that maximum operating stresses remain within code allowables. Piping material classes are shown on the P&ID drawings, embedded in the item numbers for each ancillary equipment component. Each ancillary equipment is designed for the highest anticipated temperature and pressure values which are also within the bounding maximum design temperature and pressure values listed for each piping material class in the Piping Material Class General Description document. ASME B31.3 and the associated standards are appropriate and adequate for the design of the ancillary equipment. Furthermore, the fabrication or isometric drawings released for construction by Bechtel National, Inc. (BNI), and the design process and controls described in the Isometric Drawings and Associated Calculations, and Engineering Calculations documents provides adequate assurance that subject ancillary equipment are properly designed, installed, and verified to meet the requirements identified in the applicable design criteria established for the project.

	Information Assessed	Source of Information	Assessment
Secondary Containment	Ancillary equipment is designed with secondary containment that is constructed of materials compatible with the waste and of sufficient strength to prevent failure (pressure gradients, waste, climatic conditions, daily operations), provided with a leak-detection system, and designed to drain and remove liquids.	Drawings listed above under References; 24590-LAW-PER-M-02-001, Rev. 5, LAW Facility Sump Data; WAC 173-303, Washington Administrative Code, Chapter 173-303, *Dangerous Waste Regulations*.	The ancillary equipment considered in this assessment is located in and between areas R3/C5 (Room L-B001B) and R5/C5 (Room L-0126), within the LAW building. These LAW rooms are secondary containment concrete structures provided with stainless steel liner plates and sumps (RLD-SUMP-00028, RLD-SUMP-00035, and RLD-SUMP-00036), as shown on the general arrangement drawings and in Sump Data document. The structural integrity assessment of the above mentioned secondary containment structures is outside the scope of this assessment, however, it is conducted in a separate document. It should also be noted that the drawings show that various welded piping spools of the RLD ancillary system route through numerous C2/C3 corridors and rooms before entering the above listed rooms where the RLD vessels are located. These corridors and rooms are not equipped with secondary containment features. Therefore, ancillary equipment located in these rooms and corridors will require daily visual inspections for leaks, as delineated in WAC-173-303-640(4)(f)(ii).

Master Distribution Schedule for WTP Project Subcontract Management Group

SUBMITTAL TRANSMITTAL: ☒ **First Submittal** ☐ **Re-Submittal** ☐ **QVRP Package** ☐ **RFI**
☒ **No Review Required** ☐ **No Review Required Re-Submittal** ☐ **Submittal Supplement**

CORRESPONDENCE: ☐ **With Attachment** ☐ **W/O Attachment (letter only)** ☐ **RFI**
☐ **Fax as Original (Letter Only)** ☐ **Fax as Original (With Attachment)**

☐ **Pre-Award/Award Package** ☐ **Executed Change Order Package**
☐ **Executed Amendment Package** ☐ **Back Charge** ☐ **Closeout Package**

Subcontract Number:	24590-CM-HC4-HXYG-00240
Subcontract Title:	Tank Integrity Design Assessments
Subcontractor Name:	Orano Federal Services, LLC
Subcontract Administrator:	Andrea Dorsey

PDC Document Number	Rev	Document Title	Rev
24590-CM-HC4-HXYG-00240-02-00028	00B	IQRPE Structural Integrity Assessment Report for LAW RLD Ancillary Equipment (IA-3001885-002)	N/A
Associated VQP# ____N/A_____			
Associated GRCN # ____N/A_____			

DUE BACK TO SUBCONTRACT ADMINISTRATOR NO LATER THAN: N/A

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Bret Peck	E-mail		X				
Dan Robertson	E-mail		X				

Master Distribution Schedule for WTP Project Subcontract Management Group

Subcontract Number:	24590-CM-HC4-HXYG-00240
Subcontract Title:	Tank Integrity Design Assessments
Subcontractor Name:	Orano Federal Services, LLC
Subcontract Administrator:	Andrea Dorsey

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Quarter Ending Dec. 31, 2018 24590-LAW-PCN-ENV-18-007

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

Index

Page 2 of 2: Hanford Facility RCRA Permit, Part III, Operating Unit 10, Waste Treatment and Immobilization Plant

This IQRPE Structural Integrity Assessment Report 24590-CM-HC4-HXYG-00240-02-00007, Rev. 00B (IA-3008268-001) is a revision of the previous report 24590-CM-HC4-HXYG-00240-02-00007, Rev. 00A, (IA-3008268-00A)

Submitted by Co-Operator:

Roger J. Landon 9/27/18

Roger J. Landon Date

Reviewed by ORP Program Office:

11/2/15

Thomas W. Fletcher Date

Quarter Ending Dec. 31, 2018 24590-LAW-PCN-ENV-18-007

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

Description of Modification:

This Class [1]1 modification requests Ecology approval and incorporation into the permit the below referenced structural integrity assessment report. The report has been updated by the Independent Qualified Registered Professional Engineer (IQRPE).

Appendix 9.11			
Replace	24590-CM-HC4-HXYG-00240-02-00007, Rev. 00A, IQRPE Structural Integrity Assessment Report for LAW for LFP System Ancillary Equipment (IA-3008268-000)	With	24590-CM-HC4-HXYG-00240-02-00007, Rev. 00B, IQRPE Structural Integrity Assessment Report for LAW LFP System Ancillary Equipment (IA-3008268-001)

This Structural Integrity Assessment includes the evaluation of the ancillary equipment associated with the LAW Melter Feed Process System (LFP) vessels (LFP-VSL-00001/2/3/4) and bulges (LFP-BULGE-00001/2). The ancillary equipment located inside the LFP system vessels and bulges is addressed separately in the Integrity Assessments for these plant items.

For each item of "Information Assessed" (i.e., Criteria), the documents listed under "Source of Information" were reviewed and found to furnish adequate design requirements and controls to ensure that the design fully satisfies the requirements of Washington Administrative Code (WAC), Chapter 173-303 WAC, Dangerous Waste Regulations, WAC-173-303-640, Tank Systems.

This PCN updates information in Appendix 9.11 to reflect current design. This DWP component may be re-evaluated to confirm design adequacy. If the re-evaluation results in future design changes, the changes will be reviewed by Ecology in subsequent permit modifications.

In accordance with Permit Condition III.10.C.2.e, this permit modification includes an updated IQRPE Structural Integrity Assessment Report for inclusion in Appendix 9.11.

WAC 173-303-830 Modification Class:	Class 1	Class [1]1	Class 2	Class 3
Please mark the Modification Class:		X		

Enter relevant WAC 173-303-830, Appendix I Modification citation number:
Enter wording of WAC 173-303-830, Appendix I Modification citation:

In accordance with WAC 173-303-830(4)(d)(i), this modification notification is requested to be reviewed and approved as a Class '1 modification. WAC 173-303-830(4)(d)(ii)(A) states. "Class 1 modifications apply to minor changes that keep the permit current with routine changes to the facility or its operation. These changes do not substantially alter the permit conditions or reduce the capacity of the facility to protect human health or the environment. In the case of Class 1 modifications, the director may require prior approval."

Modification Approved/Concur: ☑ Yes ☐ Denied (state reason below)

Reason for denial:

Reviewed by Ecology:

S. Dahl 12/4/18

S. Dahl Date

Attachment
18-ECD-0068
(18 Pages Excluding Cover Sheet)

Hanford Facility RCRA Permit Modification Notification
Form 24590-LAW-PCN-ENV-18-007,
Independent Qualified Registered Professional Engineer

R11916621

ISSUED BY
RPP-WTP PDC

orano

FS-18-0229

September 10, 2018

Ms. Andrea Dorsey
Subcontractor Administrator
Bechtel National, Inc.
2435 Stevens Center Place
Richland, WA 99354

Orano Federal
Services LLC

9530 Bedford St
Pasco, WA 99301

Tel: +1 509 862 4747

Dear Ms. Dorsey,

BECHTEL NATIONAL, INC. CONTRACT NO. 24590-CM-HC4-HXYG-00240 IQRPE STRUCTURAL INTEGRITY ASSESSMENT REPORT FOR LAW LFP ANCILLARY EQUIPMENT (IA-3008268-001)

The integrity assessment of the subject LAW LFP Ancillary Equipment has been completed per the contract requirements and is enclosed for your use. The assessment found that the design is sufficient to ensure that the LAW LFP Ancillary Equipment is adequately designed and has sufficient structural strength, compatibility with the waste(s) to be processed/stored/treated, and corrosion protection to ensure that it will not collapse, rupture, or fail.

If you have any questions, please contact Tarlok Hundal at (509) 862-4765, or via email at tarlok.hundal@orano.group.

Sincerely,

Tess Klatt
Contract Administrator
Orano Federal Services LLC
Richland Office

lap
cc: J.S. Evans, w/Enclosure (1)

24590-CM-HC4-HXYG-00240-02-00007
Rev. 00B

orano

IA-3008268-001

IQRPE STRUCTURAL INTEGRITY ASSESSMENT REPORT FOR LAW LFP ANCILLARY EQUIPMENT

Please note that source, special nuclear and byproduct materials, as defined in the Atomic Energy Act of 1954 (AEA), are regulated at the U.S. 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.

orano

IA-3008268-001

IQRPE STRUCTURAL INTEGRITY ASSESSMENT REPORT FOR LAW LFP ANCILLARY EQUIPMENT

"I, Tarlok Singh Hundal, have reviewed and certified a portion of the design of a new tank system component located at the Hanford Waste Treatment Plant, owned/operated by Department of Energy, Office of River Protection, Richland, Washington. My duties were independent review of the current design for the LAW LFP Ancillary Equipment as required by the Washington Administrative Code, *Dangerous Waste Regulations*, Section WAC-173-303-640(3) (a) through (g) applicable components."

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

The documentation reviewed indicates that the design fully satisfies the requirements of the WAC.

The attached review is thirteen (13) pages numbered one (1) through thirteen (13).

TARLOK SINGH HUNDAL
STATE OF WASHINGTON
20873
REGISTERED
PROFESSIONAL ENGINEER

T S Hundal

Signature

9/10/18

Date

Scope	Scope of this Integrity Assessment	This Integrity Assessment addresses ancillary equipment associated with the LAW Melter Feed Process System (LFP) vessels (LFP-VSL-00001/2/3/4) and bulges (LFP-BULGE-00001/2), located in the LAW facility. The ancillary equipment such as pipelines, valves, and other items associated with these vessels and bulges are conspicuously delineated on the P&ID drawings 24590-LAW-M6-LFP-00001001, thru -00001006, and 24590-LAW-M6-LFP-00003001 thru -00003006. The LFP vessels (LFP-VSL-00001/2) are located in Room L-0123, vessels (LFP-VSL-00003/4) are located in Room L-0124 at El.3'-0" and Bulges (LFP-BULGES-00001/2) are located in Room L-0202 at El. 28'-0" of the LAW facility. Ancillary equipment located inside the LFP system vessels and bulges is addressed separately in the Integrity Assessments for these plant items. **Note:** **This report (IA-3008268-001) is a revision of the previous report (IA-3008268-000; BNI # 24590-CM-HC4-HXYG-00240-02-00007, Rev. 00A).**
Summary of Assessment		For each item of "Information Assessed" (i.e., Criteria) on the following pages, the documents listed under "Source of Information" were reviewed and found to furnish adequate design requirements and controls to ensure that the design fully satisfies the requirements of Washington Administrative Code (WAC), Chapter 173-303 WAC, *Dangerous Waste Regulations,* WAC-173-303-640, *Tank Systems.* Note: Numerous change documents were issued against various documents listed in the "References" section and "Source of Information" column below. The change documents were reviewed and those which had any impact on the "Assessment" results were appropriately included, however, those which did not have any impact on the "Assessment" results were not included herein.

References	Drawings	Drawings: 24590-LAW-P1-P01T-00002, Rev. 7, LAW Vitrification Building General Arrangement Plan at El. 3'- 0"; 24590-LAW-P1-P01T-00004, Rev. 6, LAW Vitrification Building General Arrangement Plan at El. 28'- 0"; 24590-LAW-M6-LFP-00001001, Rev. 0, P&ID-LAW Melter Feed Process System, Melter 1 Feed Preparation LFP-VSL-00001; 24590-LAW-M6-LFP-00001002, Rev. 0, P&ID-LAW Melter Feed Process System, Melter 1 Feed Preparation LFP-VSL-00001; 24590-LAW-M6-LFP-00001003, Rev. 0, P&ID-LAW Melter Feed Process System, Melter 1 Feed Preparation LFP-VSL-00002; 24590-LAW-M6-LFP-00001004, Rev. 0, P&ID-LAW Melter Feed Process System, Melter 1 Feed Preparation LFP-VSL-00002; 24590-LAW-M6-LFP-00001005, Rev. 0, P&ID-LAW Melter Feed Process System, Melter 1 Feed Preparation and Feed LFP-BULGE-00001; 24590-LAW-M6-LFP-00001006, Rev. 1, P&ID-LAW Melter Feed Process System, Melter 1 Feed Preparation and Feed LFP-BULGE-00001; 24590-LAW-M6-LFP-00003001, Rev. 0, P&ID-LAW Melter Feed Process System, Melter 2 Feed Preparation LFP-VSL-00003; 24590-LAW-M6-LFP-00003002, Rev. 0, P&ID-LAW Melter Feed Process System, Melter 2 Feed Preparation LFP-VSL-00003; 24590-LAW-M6-LFP-00003003, Rev. 0, P&ID-LAW Melter Feed Process System, Melter 2 Feed Preparation LFP-VSL-00004; 24590-LAW-M6-LFP-00003004, Rev. 1, P&ID-LAW Melter Feed Process System, Melter 2 Feed Preparation LFP-VSL-00004; 24590-LAW-M6-LFP-00003005, Rev. 0, P&ID-LAW Melter Feed Process System, Melter 2 Feed Preparation and Feed LFP-BULGE-00002; 24590-LAW-M6-LFP-00003006, Rev. 1, P&ID-LAW Melter Feed Process System, Melter 2 Feed Preparation and Feed LFP-BULGE-00002; 24590-LAW-M5-V17T-00001, Rev. 6, Process Flow Diagram LAW Concentrate Receipt & Melter 1 Feed (System LCP, GFR, and LFP); 24590-LAW-M5-V17T-00002, Rev. 6, Process Flow Diagram LAW Concentrate Receipt & Melter 2 Feed (System LCP, GFR, and LFP); 24590-LAW-P3-LFP-PB00026001, Rev. 1, LAW Vitrification Building Isometric (Line No. LFP-PB-00026-S12A-2); 24590-LAW-P3-LFP-PB00031001, Rev. 0, LAW Vitrification Building Isometric (Line No. LFP-PB-00031-S12A-2); 24590-LAW-P3-LFP-PB00031002, Rev. 0 (w/FC-P-09-0226), LAW Vitrification Building Isometric (Line No. LFP-PB-00031-S12A-2); 24590-LAW-P3-LFP-PB00032001, Rev. 1, LAW Vitrification Building Isometric (Line No. LFP-PB-00032-S12A-2); 24590-LAW-P3-LFP-PB00032002, Rev. 1, LAW Vitrification Building Isometric (Line No. LFP-PB-00032-S12A-2); 24590-LAW-P3-LFP-PB00032003, Rev. 1, LAW Vitrification Building Isometric (Line No. LFP-PB-00032-S12A-2); 24590-LAW-P3-LFP-PB00051001, Rev. 1, LAW Vitrification Building Isometric (Line No. LFP-PB-00051-S12A-4); 24590-LAW-P3-LFP-PB03195001, Rev. 1, LAW Vitrification Building Isometric (Line No. LFP-PB-03195-S12A-4); 24590-LAW-P3-LFP-PB02082001, Rev. 0, LAW Vitrification Building Isometric (Line No. LFP-PB-02082-S12A-2); 24590-LAW-P3-LFP-PB02082002, Rev. 0 (w/FC-P-08-0363), LAW Vitrification Building Isometric (Line No. LFP-PB-02082-S12A-2); 24590-LAW-P3-LFP-PB02116001, Rev. 1, LAW Vitrification Building Isometric (Line No. LFP-PB-02116-S12A-2); 24590-LAW-P3-LFP-PB02116002, Rev. 1, LAW Vitrification Building Isometric (Line No. LFP-PB-02116-S12A-2); 24590-LAW-P3-LFP-PB03227001, Rev. 0, LAW Vitrification Building Isometric (Line No. LFP-PB-03227-S12A-2); 24590-LAW-P3-LFP-PB03227002, Rev. 0, LAW Vitrification Building Isometric (Line No. LFP-PB-03227-S12A-2); 24590-LAW-P3-LMP-PB00025001, Rev. 1, LAW Vitrification Building Isometric (Line No. LMP-PB-00025-S12A-0.75); 24590-LAW-P3-LVP-GV00012001, Rev. 1, LAW Vitrification Building Isometric (Line No. LVP-GV-00012-S11B-4); 24590-LAW-P3-LVP-GV00012002, Rev. 1, LAW Vitrification Building Isometric (Line No. LVP-GV-00012-S11B-4);

References (cont'd)	Drawings and System Design Description	Drawings (cont'd): 24590-LAW-P3-LVP-GV00013001, Rev. 1, LAW Vitrification Building Isometric (Line No. LVP-GV-00013-S11B-4); 24590-LAW-P3-LVP-GV00015001, Rev. 1, LAW Vitrification Building Isometric (Line No. LVP-GV-00015-S11B-4); 24590-LAW-P3-LVP-GV00015002, Rev. 1, LAW Vitrification Building Isometric (Line No. LVP-GV-00015-S11B-4); 24590-LAW-P3-LVP-GV00018001, Rev. 2, LAW Vitrification Building Isometric (Line No. LVP-GV-00018-S11B-4); 24590-LAW-P3-LVP-GV00018002, Rev. 4, (w/FC-0014 & 0745) LAW Vitrification Building Isometric (Line No. LVP-GV-00018-S11B-4); 24590-LAW-P3-LVP-GV00018003, Rev. 0, (w/FC-0078, 0745 & 0755) LAW Vitrification Building Isometric (Line No. LVP-GV-00018-S11B-4); 24590-LAW-P3-RLD-PB01317001, Rev. 0, LAW Vitrification Building Isometric (Line No. RLD-PB-01317-S12A-2); 24590-WTP-PH-50-00003001, Rev. 4, Standard Pipe Support Details Cantilever-Cantilever CC; 24590-WTP-PH-50-00012001, Rev. 7, Standard Pipe Support Details Guide – U Bolts GU; 24590-WTP-PH-50-00012003, Rev. 4, Standard Pipe Support Details Guide – U Strap GU; 24590-WTP-PH-50-00015001, Rev. 2, Standard Pipe Support Details Rods – Trapeze RT; 24590-WTP-PH-50-00015002, Rev. 2, Standard Pipe Support Details Rods – Trapeze RT; 24590-WTP-PH-50-00024001, Rev. 2, Standard Pipe Support Details Struts-Sway WS; 24590-LAW-LFP-H10105, Rev. 0, Pipe Support Drawing; 24590-LAW-LFP-H10073, Rev. 0, Pipe Support Drawing; 24590-LAW-LFP-H10131, Rev. 0, Pipe Support Drawing; 24590-LAW-LFP-H10157, Rev. 0, Pipe Support Drawing; 24590-LAW-LFP-H10227, Rev. 0, Pipe Support Drawing; 24590-LAW-LFP-H10229, Rev. 0, Pipe Support Drawing; 24590-LAW-LFP-H10233, Rev. 0, Pipe Support Drawing. System Design Description: 24590-LAW-3ZD-LFP-00001, Rev. 1, LAW Melter Feed Process (LFP) and Concentrate Receipt Process (LCP) System Design Description.

	Information Assessed	Source of Information	Assessment
Design	Ancillary equipment design standards are appropriate and adequate for the equipment's intended use.	Drawings listed above under References; 24590-WTP-DC-PS-01-001, Rev. 9, Pipe Stress Design Criteria Including "Pipe Stress Criteria" and "Span Method Criteria;" ASME B31.3 Code, Process Piping, 1996 Edition, American Society of Mechanical Engineers; 24590-WTP-RPT-ST-01-001, Rev. 2, RPP-WTP Compliance With Uniform Building Code Seismic Design Requirements.	The Pipe Stress Design Criteria identifies ASME B31.3 as the design code for piping systems of the WTP. Drawings reviewed show that the ancillary equipment is of commercial quality level (CM) grade and is Seismic Category SC-IV. The Pipe Stress Design Criteria and RPP-WTP Compliant documents provide detailed requirements for the SC-IV ancillary equipment design per applicable codes and standards. The codes and standards used are acceptable and adequate for the design of the ancillary equipment for their intended service.

	Information Assessed	Source of Information	Assessment
Design (cont'd)	If the ancillary equipment to be used is not built to a design standard, the design calculations demonstrate sound engineering principles of construction.	Drawings listed above under References; 24590-WTP-DC-PS-01-001, Rev. 9, Pipe Stress Design Criteria including "Pipe Stress Criteria" and "Span Method Criteria"; ASME B31.3 Code, Process Piping, 1996 Edition, American Society of Mechanical Engineers; 24590-LAW-P6C-LFP-10038, Rev. B, Richland RPP-WTP LAW Plant LFP System (Stress Analysis for Pipeline No. LFP-PB-00026-S12A-2); 24590-LAW-P6C-LFP-10004, Rev. C, Richland RPP-WTP/ LAW LFP System (Stress Analysis for Pipeline No. LFP-PB-00031-S12A-2); 24590-LAW-P6C-LFP-10003, Rev. B, Richland RPP-WTP LAW Plant LFP System (Stress Analysis for Pipeline No. LFP-PB-00032-S12A-2); 24590-LAW-P6C-LFP-10005, Rev. B, Richland RPP-WTP LAW LFP System (Stress Analysis for Pipeline No. LFP-PB-00036-S12A-2); 24590-LAW-P6C-LFP-10042, Rev. B, Richland RPP-WTP LAW Plant LFP System (Stress Analysis for Pipeline No. LFP-PB-00282-S12A-2); 24590-LAW-P6C-LFP-10018, Rev. B, Richland RPP-WTP LAW LFP System (Stress Analysis for Pipeline No. LFP-PB-02216-S12A-2); 24590-LAW-P6C-LFP-10025, Rev. C, Richland RPP-WTP/ LAW LFP System (Stress Analysis for Pipeline No. LFP-PB-02138-S12A-2); 24590-LAW-P6C-LFP-10037, Rev. A, Richland RPP-WTP LAW Plant LFP System (Stress Analysis for Pipeline No. LFP-PB-02143-S12A-2); 24590-LAW-P6C-LFP-10007, Rev. B, (Deviation 1) Richland RPP-WTP LAW LFP System (Stress Analysis for Pipeline No. LFP-PB-03224-S12A-2); 24590-LAW-P6C-LFP-10034, Rev. B, Richland RPP-WTP LFP System (Stress Analysis for Pipeline No. LFP-PB-03227-S12A-2); 24590-LAW-PHC-LFP-10004, Rev. A, Pipe Support Calculation (for Support Nos. LAW-LFP-H10073 and –H10131); 24590-LAW-PHC-LFP-10006, Rev. A, Pipe Support Calculation (for Support No. LAW-LFP-H10105); 24590-LAW-PHC-LFP-10012, Rev. A, Pipe Support Calculation (for Support No. LAW-LFP-H10157); 24590-LAW-PHC-LFP-10022, Rev. A, Pipe Support Calculation (for Support No. LAW-LFP-H10227); 24590-LAW-PHC-LFP-10028, Rev. A, Pipe Support Calculation (for Support No. LAW-LFP-H10043); 24590-LAW-PHC-LFP-10029, Rev. A, Pipe Support Calculation (for Support No. LAW-LFP-H10229); 24590-LAW-PHC-LFP-10030, Rev. A, Pipe Support Calculation (for Support No. LAW-LFP-H10233); 24590-WTP-3DP-G04T-00906, Rev. 10, Isometric Drawings and Associated Calculations; 24590-WTP-3DP-G04B-00037, Rev. 31, Engineering Calculations; 24590-WTP-3PS-PH01-T0002, Rev. 7, Installation of Pipe Supports.	The ancillary equipment is built to design standards. The Pipe Stress Design Criteria specifies that piping is to be designed in accordance with ASME B31.3 Code. The review of the sample isometric and pipe support drawings listed in the References, Pipe Stress Analyses for Pipelines, Pipe Support Calculations, the design process and controls described in Isometric Drawings and Associated Calculations, Engineering Calculations, and Installation of Pipe Supports documents provide adequate assurance that LFP ancillary equipment are properly designed, installed, and verified to meet the requirements of the applicable design criteria established for the project. The review of the aforementioned documents also demonstrates that sound design engineering principles are used for the design and construction of the ancillary equipment.

	Information Assessed	Source of Information	Assessment
Design (cont'd)	Ancillary equipment has adequate strength at the end of its design life to withstand the operating pressure, operating temperature, thermal expansion, and seismic loads. Equipment is protected against physical damage and excessive stress due to settlement, vibration, expansion, or contraction.	24590-WTP-DC-PS-01-001, Rev. 9, Pipe Stress Design Criteria including "Pipe Stress Criteria" and "Span Method Criteria;" ASME B31.3 Code, Process Piping, 1996 Edition, American Society of Mechanical Engineers; ASME Boiler and Pressure Vessel Code, Section III, Division 1, Rules for Construction of Nuclear Power Plant Components, American Society of Mechanical Engineers, 1995; UBC 1997, Uniform Building Code; 24590-WTP-PER-M-02-002, Rev. 4, Materials for Ancillary Equipment; 24590-WTP-GPG-ENG-004, Rev. 3, Design Guide Pipe Stress, Pipe Layout and Support Spacing; 24590-WTP-SE-ENS-03-704, Rev. 0, Seismic Evaluation for Design (Seismic Design of Piping and Pipe Supports).	The Pipe Stress Design Criteria requires the use of the ASME B31.3 Code for process piping design. ASME B31.3 requires explicit consideration of operating pressure, operating temperature, thermal expansion/contraction, settlement, vibration, and corrosion allowance in the design of piping. For the seismic design of Seismic Category (SC-IV) ancillary equipment, applicable sections of ASME Section III, Division 1, Appendix F, and sections of UBC 1997 are used to supplement the requirements of ASME B31.3. Details of the seismic design methods are discussed in the Pipe Stress Design Criteria and Seismic Evaluation documents. The aforementioned documents, including the Design Guide document provide assurance that the ancillary equipment has adequate strength at the end of its design life to withstand all anticipated loads.

	Information Assessed	Source of Information	Assessment
Supports	Ancillary equipment supports are adequately designed.	Drawings listed above under References; 24590-WTP-DC-PS-01-002, Rev. 8, Pipe Support Design Criteria; ASME B31.3 Code. Process Piping. 1996 Edition. American Society of Mechanical Engineers; MSS-SP-58. Pipe Hangers and Supports-Materials, Design, and Manufacture. Manufacturers Standardization Society of the Valve and Fittings Industry, Inc.; AISC Manual of Steel Construction, ASD, 9th Edition, American Institute of Steel Construction; ASME Boiler and Pressure Vessel (B&PV) Code, Section III, Division 1, Rules for Construction of Nuclear Power Plant Components, American Society of Mechanical Engineers, 1995; 24590-WTP-PER-PS-02-001, Rev. 6. Ancillary Equipment Pipe Support Design; 24590-WTP-PL-PS-01-001, Rev. 2, Verification and Validation Test Plan for Bechtel's ME150 Pipe Support Family of Programs (PCFAPPS); 24590-LAW-PHC-LFP-10004, Rev. A, Pipe Support Calculation (for Support Nos. LAW-LFP-H10073 and –H10131); 24590-LAW-PHC-LFP-10006, Rev. A, Pipe Support Calculation (for Support No. LAW-LFP-H10105); 24590-LAW-PHC-LFP-10012, Rev. A, Pipe Support Calculation (for Support No. LAW-LFP-H10157); 24590-LAW-PHC-LFP-10022, Rev. A, Pipe Support Calculation (for Support No. LAW-LFP-H10227); 24590-WTP-GPG-ENG-005, Rev. 8, Engineering Design Guide for Pipe Supports; 24590-WTP-PHC-P50T-00002, Rev. 1, Justification for the use of Standard Supports for RPP-WTP-Project; 24590-WTP-PHC-P50T-00001, Rev. 1, U-Bolt Load Capacity Calculation; 24590-WTP-3DP-G04T-00906, Rev. 10, Isometric Drawings and Associated Calculations; 24590-WTP-3DP-G04B-00037, Rev. 31, Engineering Calculations; 24590-WTP-PHC-P50-00001, Rev. 1, RPP/WTP Support Standards; 24590-WTP-PHC-P50T-00004, Rev. 0, Qualification of Pipe Straps (including ECCN # 00001 and 00004); 24590-WTP-SE-ENS-03-704, Rev. 0, Seismic Evaluation for Design (Seismic Design of Piping and Pipe Supports).	The Pipe Support Design Criteria document considers all loadings identified in ASME B31.3 including MSS-SP-58 and AISC Manual and also utilizes ASME B&PV Code, Section III, Division 1, and Appendix F, to supplement the requirements of ASME B31.3 for design of Seismic Category (SC-IV) pipe supports. Bounding load cases are passed on to the pipe support designers from the results of the ancillary equipment piping stress analyses. Details of the seismic design methodology are discussed in the Pipe Support Design Criteria document. Examples of typical ancillary equipment supports are shown in the Ancillary Equipment Pipe Support Design document. Analysis is by manual calculation or approved computer programs that have been verified and validated. Ancillary equipment supports are to be designed to allow a minimum of heat to be transferred to the building structures such that the temperature of the building structures does not exceed 150°F for concrete and steel, except for sleeve penetrations where the temperature may rise up to 200°F. The review of the sample isometric drawings, pipe support drawings, Pipe Support Calculations, and that of the design process and controls described in Isometric Drawings and Associated Calculations, Engineering Calculation and other supports associated documents, provides sufficient assurance that LFP ancillary equipment supports are adequately designed, installed, and verified to meet the requirements of the applicable design criteria established for the project.

	Information Assessed	Source of Information	Assessment
Foundations	The system will withstand the effects of frost heave.	Drawings listed above under References; 24590-WTP-DC-ST-01-001, Rev. 14, Structural Design Criteria.	The Structural Design Criteria requires that all outdoor equipment structural foundations shall extend into the surrounding soil below the 30" frost line to preclude frost heave. The LFP ancillary equipment system considered in this assessment is located inside the LAW facility. The LAW facility structural foundations are well below the grade elevation as shown on the general arrangement drawings, therefore, the LFP ancillary equipment is not subjected to any frost heave effects.
Connections	Seams and connections are adequately designed.	24590-WTP-DC-PS-01-001, Rev. 9, Pipe Stress Design Criteria including "Pipe Stress Criteria" and "Span Method Criteria;" ASME B31.3 Code, Process Piping, 1996 Edition, American Society of Mechanical Engineers; ASME B16.5, Piping Flanges and Flanged Fittings, American Society of Mechanical Engineers; ASME Boiler and Pressure Vessel Code (B&PV), Section IX, Welding and Brazing Qualifications, American Society of Mechanical Engineers.	The Pipe Stress Design Criteria specifies the ASME B31.3 Process Piping design code for the piping systems. Welding is to be performed in accordance with the requirements of ASME B31.3 and the ASME B&PV Code, Section IX. ASME B16.5 is specified for flange designs. These are appropriate codes and standards for design and fabrication of the LFP System ancillary equipment.

	Information Assessed	Source of Information	Assessment
Waste Characteristics	Characteristics of the waste to be stored or treated have been identified (ignitable, reactive, toxic, specific gravity, vapor pressure, flash point, temperature).	System Description listed above under References; 24590-WTP-PER-PR-03-001, Rev. 2, Prevention of Hydrogen Accumulation in WTP Tank Systems and Miscellaneous Treatment Unit Systems; 24590-WTP-PER-PR-03-002, Rev. 4, Control of Toxic Vapors and Emissions from WTP Tank and Miscellaneous Unit Systems; 24590-WTP-DB-ENG-01-001, Rev. 6, Basis of Design.	The Prevention of Hydrogen Accumulation in WTP Tank Systems and Miscellaneous Treatment Unit System and System Description documents indicate that flammable or explosive concentrations of hydrogen are not expected in the LAW facility systems ancillary equipment. Similarly, the Control of Toxic Vapors and Emissions from WTP Tank and Miscellaneous Unit Systems document provides a summary of the LAW facility ancillary equipment design features that provide for confinement and treatment of chronically toxic vapors and emissions during normal operations, abnormal operations, and during and after a Design Basis seismic event. The above mentioned documents appropriately identify the characteristic of the waste to be handled by the LFP system.
	Ancillary equipment is designed to handle the wastes with the characteristics defined above.	24590-WTP-PER-M-02-002, Rev. 4, Materials for Ancillary Equipment.	The Materials for Ancillary Equipment document specifies that ancillary equipment materials that contact the waste are to be equal to or better than those of the upstream source vessels. Selection of proper material for the LFP piping and equipment ensures that the ancillary equipment is appropriately designed to handle the waste.

	Information Assessed	Source of Information	Assessment
Compatibility	The pH range of the waste, waste temperature and the corrosion behavior of the structural materials are adequately addressed. Ancillary equipment material and protective coatings ensure the ancillary equipment structure is adequately protected from the corrosive effects of the waste stream and external environments. The protection is sufficient to ensure the equipment will not leak or fail for the design life of the system.	24590-WTP-DB-ENG-01-001, Rev. 6, Basis of Design; 24590-WTP-PER-M-02-002, Rev. 4, Materials for Ancillary Equipment; 24590-WTP-3PS-NN00-T0001, Rev. 3, Engineering Specification for Thermal Insulation for Mechanical Systems; ASTM Annual Book of ASTM Standards, American Society of Testing and Materials.	The Basis of Design document identifies a service design life of 40 years for the ancillary equipment. Detailed materials selection (corrosion) evaluations are conducted for each vessel in the LAW facility during process design to assure a 40-year service life. The Materials for Ancillary Equipment document requires that the material selection and corrosion/erosion allowances for ancillary equipment in contact with the waste will be equal to or better than the material and corrosion allowance of the waste source vessel. The Thermal Insulation specification requires that all insulating materials used on the outside of ancillary equipment be pre-approved for use on austenitic stainless steel in accordance with applicable ASTM standards and tests to preclude external corrosion of ancillary equipment. Therefore, the ancillary equipment will provide the expected design service life.

	Information Assessed	Source of Information	Assessment
Corrosion Allowance	Corrosion allowance is adequate for the intended service life of the ancillary equipment.	ASME B31.3 Code, Process Piping, 1996 Edition, American Society of Mechanical Engineers; 24590-WTP-DC-PS-01-001, Rev. 9, Pipe Stress Design Criteria including "Pipe Stress Criteria" and "Span Method Criteria;" 24590-WTP-DB-ENG-01-001, Rev. 6, Basis of Design; 24590-WTP-PER-M-02-002, Rev. 4, Materials for Ancillary Equipment; 24950-WTP-PER-PL-02-001, Rev. 8, Piping Material Class Description.	ASME B31.3 is the design code for the WTP piping. Consideration of corrosion, including corrosion allowance, is a mandatory requirement of ASME B31.3 and is appropriately supplemented in the Pipe Stress Design Criteria document. A required service life of 40 years is identified in the Basis of Design for ancillary equipment. Detailed materials selection (corrosion) evaluations are conducted for each vessel in the LAW facility during process design to ensure a 40-year service life. The Materials for Ancillary Equipment document requires that downstream ancillary equipment is to be constructed of equal or better materials, and with the same corrosion allowance as the source vessel. Corrosion/Erosion allowances are listed for the ancillary equipment (each piping class and associated valves, fittings, etc.) in the Piping Material Class Description document.
Pressure Controls	Pressure controls (vents and relief valves) are adequately designed to ensure pressure relief if normal operating pressures in the vessels are exceeded.	24590-WTP-DC-PS-01-001, Rev. 9, Pipe Stress Design Criteria including "Pipe Stress Criteria" and "Span Method Criteria;" ASME B31.3 Code, Process Piping, 1996 Edition, American Society of Mechanical Engineers.	The Pipe Stress Design Criteria document specifies ASME B31.3 as the design code for the WTP piping. ASME B31.3 requires provision be made to safely contain or relieve any pressure to which the piping may be subjected. ASME B31.3 piping not protected by a pressure relieving device, or that can be isolated from a pressure relieving device must be designed for at least the highest pressure that can be developed.

	Information Assessed	Source of Information	Assessment
Pressure Controls (cont'd)	Maximum flows and any unusual operating stresses are identified.	Drawings listed above under References; 24590-WTP-DC-PS-01-001, Rev. 9, Pipe Stress Design Criteria including "Pipe Stress Criteria" and "Span Method Criteria;" ASME B31.3 Code, Process Piping, 1996 Edition, American Society of Mechanical Engineers; 24590-WTP-3PS-P000-T0001, Rev. 6, Engineering Specification for Piping Material Classes General Description and Summary ; 24590-WTP-PER-PL-02-001, Rev. 8, Piping Material Class Description; 24590-WTP-3DP-G04T-00906, Rev. 10, Isometric Drawings and Associated Calculations; 24590-WTP-3DP-G04B-00037, Rev. 31, Engineering Calculations.	The expected flow paths for the ancillary equipment are identified on the P&ID drawings. The Pipe Stress Design Criteria specifies the ASME B31.3 code for piping design. This code requires piping to be designed to the highest pressure that can be developed in a piping system assuring that maximum operating stresses remain within code allowables. Piping material classes are shown on the P&ID drawings, embedded in the item numbers for each ancillary equipment component. The ancillary equipment is designed for the highest anticipated temperature and pressure values which are also within the bounding maximum design temperature and pressure values listed for each piping material class in the Specification for Piping Material Classes and Piping Material Class Description documents. ASME B31.3 and the associated standards are appropriate and adequate for the design of the ancillary equipment. Furthermore, the fabrication of isometric drawings released for construction by Bechtel National, Inc. (BNI), and the design process and controls described in the Isometric Drawings and Associated Calculations, and Engineering Calculations documents provide adequate assurance that subject ancillary equipment are properly designed, installed, and verified to meet the requirements identified in the applicable design criteria established for the project.

	Information Assessed	Source of Information	Assessment
Secondary Containment	Ancillary equipment is designed with secondary containment that is constructed of materials compatible with the waste and of sufficient strength to prevent failure (pressure gradients, waste, climatic conditions, daily operations), provided with a leak-detection system, and designed to drain and remove liquids.	Drawings listed above under References; 24590-LAW-PER-M-05-002, Rev. 3, Leak Detection Capability in the Low Activity Waste Facility.	The ancillary equipment considered in this assessment runs from LFP Bulges in Room L-0202 at El. 28'-0" to LFP vessels located in Rooms L-0123 & L-0124 at El. 3'-0" which are directly below Room L-0202 within the LAW building. Rooms L-0123 and L-0124 are secondary containment concrete structures provided with stainless steel liner plates and have sumps (RLD-SUMP-00029/00030) and (RLD-SUMP-00031/00032) respectively, as shown on the general arrangement drawings and in the Leak Detection document. The structural integrity assessment of the above mentioned secondary containment structures is outside the scope of this assessment, however, it is conducted in a separate document.

U.S. Department of Energy
Office of River Protection
Mr. Brian T. Vance
Manager
P.O. Box 450, MSIN H6-60
Richland, Washington 99352

CCN: 308754

OCT 4 2018

Dear Mr. Vance:

CONTRACT NO. DE-AC27-01RV14136 – SUBMITTAL OF HANFORD FACILITY RESOURCE CONSERVATION AND RECOVERY ACT PERMIT MODIFICATION NOTIFICATION FORM 24590-LAW-PCN-ENV-18-007

Reference: WA7890008967, Hanford Facility Resource Conservation and Recovery Act (RCRA) Permit, Dangerous Waste Portion, for the Treatment, Storage, and Disposal of Dangerous Waste, Part III, Operating Unit Group 10 (Waste Treatment and Immobilization Plant)

BNI submits for transmittal by ORP to the Washington State Department of Ecology (Ecology) Hanford Facility Resource Conservation and Recovery Act Permit Modification Notification Form 24590-LAW-PCN-ENV-18-007 (Attachment). This form is required under the terms of the permit (Reference), requiring approval by Ecology.

Appendix 9.11 of the Reference currently includes independent qualified registered professional engineer (IQRPE) report 24590-CM-HC4-HXYG-00240-02-00007, Rev 00A, *IQRPE Structural Integrity Assessment Report for LAW LFP System Ancillary Equipment (IA-3008268-000)*. This Class 1 prime permit modification submits IQRPE report 24590-CM-HC4-HXYG-00240-02-00007, Rev. 00B, *IQRPE Structural Integrity Assessment Report for LAW LFP System Ancillary Equipment (IA-3008268-001)*, to replace the revision currently contained in the Reference.

Comments resulting from informal review of this modification notification form and the associated information have been resolved. Ms. Mary E. Burandt, ORP-ECD, coordinated the review of the attached permit modification. BNI requests that ORP sign and transmit this permit modification to Ecology at the earliest opportunity.

I certify this document was prepared in accordance with requirements in WTP Contract [DE-AC27-01RV14136], Contract Clause Section H.26, Environmental Permits, paragraph (g).

Contact Donna Yasek at (509) 371-2278 or Roger Landon at (509) 371-2154 for further information related to this matter.

Sincerely,

B. P. Reilly
Project Director

BDP/dec

Attachment: 24590-LAW-PCN-ENV-18-007, *Hanford Facility RCRA Permit Modification Notification Form, Part III, Operating Unit 10, Waste Treatment and Immobilization Plant*

cc:

Binns, C. K.	BNI	
Burandt, M. E.	ORP-ECD	H6-60
Cone, R. E.	ORP	
Dawson, R. L.	ORP	
Dobson, A. J.	BNI	
Dunkirk, J. H.	BNI	
Fletcher, T. W.	ORP-WTP	
Fritz, L. L.	BNI	
Irwin, K. D.	BNI	
Jackson, P. W.	BNI	
Kemp, C. J. w/a	ORP-ECD	H6-60
Landon, R. J.	BNI	
Mair, K. A.	ORP	
Monson, S. K.	BNI	
Neath, G. M.	ORP-ECD	H6-60
Peck, B. D.	BNI	
Ponte, B. D.	BNI	
Presti, F.	BNI	
Reagan, T. K.	BNI	
Reilly, B. P. w/a (hard copy)	BNI	
Robertson, D. C.	BNI	MS14-3C
Yasek, D. M.	BNI	
DOE Correspondence Control	ORP	
PADC w/a	BNI	

Quarter Ending Dec. 31, 2018 24590-WTP-PCN-ENV-18-001

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

Index

Page 2 of 2: Hanford Facility RCRA Permit, Part III, Operating Unit 10, Waste Treatment and Immobilization Plant
Remove LAW and Lab Sump and Drain Data Tables from the Dangerous Waste Permit Conditions and Update Chapter 4E and 4H. The sump data documents will also be removed in Operating Unit Group 10 Appendices 9.5 and 11.5 for the LAW and Lab facilities.

Submitted by Co-Operator:

Roger J Landon 9/4/18

Roger J. Landon Date

Reviewed by ORP Program Office:

9/10/18

Thomas W. Fletcher Date

Quarter Ending Dec. 31, 2018

24590-WTP-PCN-ENV-18-001

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

Description of Modification:

The purpose of this Class [1]1 modification is to revise the Tank Systems Secondary Containment Systems for the Analytical Laboratory (Lab) and the Low Activity Waste Facility (LAW), Chapters 4H (Table 4H-3) and 4E (Table 4E-4), respectively. These tables were updated to reflect the information in the Permit Conditions. The Sump and Drain Data tables in the Permit Conditions (Tables III.10.E.L and III.10.E.P) have been removed to reduce redundancies between the documents.

Text in Chapter 4E section 2.3, Radioactive and Nonradioactive Liquid Waste Disposal (RLD and NLD) Systems, has also been updated to include more detailed descriptions of the secondary containment sumps. Similar text providing descriptions of the Lab sumps has already been incorporated into the Lab Operating Permit Modification Number 8C.2018.1F Section 4H.2.3.4 dated 04/05/2018 and more detail was not added to the Lab section, as discussed with Department of Ecology prior to this submittal.

Please note that due to changes to Chapter 4H that occurred after the start of this PCN, the Table number has changed in the current Permit. It is Table 4H-3 in this document, but has since been updated to Table 4H-5 in the most current version.

The following table lists the documents in the appendices that are planned to be removed following the approval of this proposed permit modification:

Appendix Number	Action	Document Number	Document Description
9.5	Remove:	24590-LAW-PER-M-02-001, Rev 5	LAW Facility Sump Data
11.5	Remove:	24590-LAB-PER-M-02-002, Rev 2	Sump Data for Lab Facility

In accordance with Permit Condition III.10.C.2.e, this permit modification sent to Ecology includes page changes to the Permit and attachments.

WAC 173-303-830 Modification Class:	Class 1	Class [1]1	Class 2	Class 3
Please mark the Modification Class:		X		

Enter relevant WAC 173-303-830, Appendix I Modification citation number: N/A

Enter wording of WAC 173-303-830, Appendix I Modification citation:

In accordance with WAC 173-303-830(4)(d)(i), this modification notification is requested to be reviewed and approved as a Class [1]1 modification. WAC 173-303-830(4)(d)(ii)(A) states, "Class 1 modifications apply to minor changes that keep the permit current with routine changes to the facility or its operation. These changes do not substantially alter the permit conditions or reduce the capacity of the facility to protect human health or the environment. In the case of Class 1 modifications, the director may require prior approval."

Modification Approved/Concur: ☑ Yes ☐ Denied (state reason below)

Reason for denial:

with changes

Reviewed by Ecology:

S. Dahl 12-7-18

Date

1

Table 4H-3 Analytical Laboratory Sumps, Leak Detection Boxes, and Floor Drains/Lines				
Sump/Leak Detection Box or Floor Drain/Line I.D.#, Room, and Elevation	**Maximum Sump/Leak Detection Box Capacity (US Gallons)**	**Sump/Leak Detection Box Level Detection Type**	**Sump/Leak Detection Box or Floor Drain/Line Dimensions (approximate) and Materials of Construction**	**Piping and Instrumentation Diagram Number and General Arrangement Diagram Number**
Analytical Laboratory				
Sumps				
RLD-SUMP-00041 A-B003 (C3 Effluent Vessel Cell, El. -18’7”)	30	Radar	30” Dia. x 13” Deep Stainless Steel (6% Mo)	**24590-LAB** -M6-RLD-00002001 -P1-60-00007
RLD-SUMP-00042 A-B004 (C5 Effluent Vessel Cell, El. -19’2”)	30	Radar	30” Dia. x 13” Deep Stainless Steel (6% Mo)	**24590-LAB** -M6-RLD-00001001 -P1-60-00007
RLD-SUMP-00045 A-B002 (C3 Pump Pit Sump, EL -6’-81/2”LP)	1.60	Radar	2’-0” x 2’-6” x 1/2” Stainless Steel (6% Mo)	**24590-LAB** -M6-RLD-00002003 -P1-60-00007
RLD-SUMP-00043A A-B007 (C5 Pump Pit Sump, EL -6’-7”LP)	1.60	Radar	1’-6” x 3’-0” x 1/2” Stainless Steel (6% Mo)	**24590-LAB** -M6-RLD-00001002 -P1-60-00007
RLD-SUMP-00043B A-B005 (C5 Pump Pit Sump, EL -6’-7” LP)	1.60	Radar	1’-6” x 3’-0” x 1/2” Stainless Steel (6% Mo)	**24590-LAB** -M6-RLD-00001003 -P1-60-00007
RLD-SUMP-00044 A-B006 (C5 Piping Pit Sump, EL -6’-7” LP)	1.60	Radar	2’-0” x 2’-6” x 1/2” Stainless Steel (6% Mo)	**24590-LAB** -M6-RLD-00001004 -P1-60-00007

Table 4H-3 Analytical Laboratory Sumps, Leak Detection Boxes, and Floor Drains/Lines				
Sump/Leak Detection Box or Floor Drain/Line I.D.#, Room, and Elevation	**Maximum Sump/Leak Detection Box Capacity (US Gallons)**	**Sump/Leak Detection Box Level Detection Type**	**Sump/Leak Detection Box or Floor Drain/Line Dimensions (approximate) and Materials of Construction**	**Piping and Instrumentation Diagram Number and General Arrangement Diagram Number**
Leak Detection Boxes				
RLD-LDB-00002 A-B004 (C5 Effluent Vessel Cell, El. -10')	6	Thermal Dispersion	8" Dia. x 24" Length/ Stainless Steel 316L	**24590-LAB** -M6-RLD-00008001 -P1-60-00007
RLD-LDB-00004 A-B004 (C5 Effluent Vessel Cell, El. -10')	6	Thermal Dispersion	8" Dia. x 24" Length/ Stainless Steel 316L	**24590-LAB** -M6-RLD-00008001 -P1-60-00007
RLD-LDB-00005 A-B003 (C3 Effluent Vessel Cell, El. -10')	6	Thermal Dispersion	8" Dia. x 24" Length/ Stainless Steel 316L	**24590-LAB** -M6-RLD-00007001 -P1-60-00007
RLD-LDB-00006 A-B003 (C3 Effluent Vessel Cell, El. -10')	6	Thermal Dispersion	8" Dia. x 24" Length/ Stainless Steel 316L	**24590-LAB** -M6-RLD-00007001 -P1-60-00007
RLD-LDB-00007 A-B003 (C3 Effluent Vessel Cell, El. -10')	6	Thermal Dispersion	8" Dia. x 24" Length/ Stainless Steel 316L	**24590-LAB** -M6-RLD-00007001 -P1-60-00007
RLD-LDB-00008 A-B003 (C3 Effluent Vessel Cell, El. -10')	6	Thermal Dispersion	8" Dia. x 24" Length/ Stainless Steel 316L	**24590-LAB** -M6-RLD-00007001 -P1-60-00007
RLD-LDB-00009 A-B004 (C5 Effluent Vessel Cell, El. -10')	6	Thermal Dispersion	8" Dia. x 24" Length/ Stainless Steel	**24590-LAB** -M6-RLD-00008001

Table 4H-3 Analytical Laboratory Sumps, Leak Detection Boxes, and Floor Drains/Lines				
Sump/Leak Detection Box or Floor Drain/Line I.D.#, Room, and Elevation	**Maximum Sump/Leak Detection Box Capacity (US Gallons)**	**Sump/Leak Detection Box Level Detection Type**	**Sump/Leak Detection Box or Floor Drain/Line Dimensions (approximate) and Materials of Construction**	**Piping and Instrumentation Diagram Number and General Arrangement Diagram Number**
			316L	-P1-60-00007
RLD-LDB-00011 A-B003 (C3 Effluent Vessel Cell, El. -10')	6	Thermal Dispersion	8" Dia. x 24" Length/ Stainless Steel 316L	**24590-LAB** -M6-RLD-00007001 -P1-60-00007
Drain Lines				
RLD-WU-02207-S11E-04 Drain Line A-B003, (C3 Effluent Vessel Cell, El. -18'7")	N/A	N/A	4" Dia. 316L	**24590-LAB** -M6-RLD-00002001 -P1-60-00007
RLD-ZN-02203-S11E-04 Drain Line A-B004, (C5 Effluent Vessel Cell, El. -19'2")	N/A	N/A	4" Dia. 316L	**24590-LAB** -M6-RLD-00001001 -P1-60-00007
RLD-ZN-03393-S11E-04 Drain Line A-B004, (C5 Effluent Vessel Cell, El. -19'2")	N/A	N/A	4" Dia. 316L	**24590-LAB** -M6-RLD-00001001 -P1-60-00007
RLD-ZN-03394-S11E-04 Drain Line A-B004, (C5 Effluent Vessel Cell, El. -19'2")	N/A	N/A	4" Dia. 316L	**24590-LAB** -M6-RLD-00001001 -P1-60-00007

The C3/C5 Drains/Sump Collection Vessel is located in an enclosed C3/C5 cell area. The C3/C5 Drains/ Sump Collection Vessel overflows to a sump in the same cell. During normal operation, the effluent characterized in the C3/C5 Drains/Sump Collection Vessel is expected to be transferred to the Treated LAW Evaporation System (TLP) system via the SBS Condensate Collection Vessel (RLD-VSL-00005).

SBS Condensate Collection Vessel (RLD-VSL-00005)

DWP Operating Unit Group 10, Appendix 9.1 contains a process flow diagram of the SBS Condensate Collection Vessel (RLD-VSL-00005).

SBS Condensate Collection Vessel (RLD-VSL-00005), its internal components, and the associated ancillary equipment include the following:

- Two transfer pumps per vessel (RLD-PMP-00003A/B)
- One mechanical agitator (RLD-AGT-00002)
- Vessel overflow line to the Plant Wash Vessel (RLD-VSL-00003)
- Vent line to a common header
- Instruments, including liquid level measurement
- Valve and Pump Bulge (RLD-BULGE-00004)

The SBS Condensate Collection Vessel (RLD-VSL-00005) receives effluent from the following sources:

- SBS Scrubbers (LOP-SCB-00001/2)
- SBS Condensate Vessels (LOP-VSL-00001/2)
- C3/C5 Drains/Sump Collection Vessel (RLD-VSL-00004).

The SBS Condensate Collection Vessel is fitted with level instrumentation and is vented into a common vessel ventilation header that drains into the C3/C5 Drains/Sump Collection Vessel (RLD-VSL-00004). The SBS Condensate Collection Vessel (RLD-VSL-00005) is equipped with two vertical cantilever pumps (RLD-PMP-00003A/B) for recirculation, transfer, and sampling, and one mechanical agitator (RLD-AGT-00002) for mixing. Sampling capability is provided to an auto sampler (ASX-SMPLR-00012). The SBS Condensate Collection Vessel (RLD-VSL-00005) has two internal spray nozzles for flushing the tank interior, if needed.

The contents of the SBS Condensate Collection Vessel (RLD-VSL-00005) are normally transferred to the LAW SBS Condensate Receipt Vessels (TLP-VSL-00009A/B) in the PTF or to the EMF. Transfers can be routed to the PTF Plant Wash Vessel (PWD-VSL-00044), LAW Plant Wash Vessel (RLD-VSL-00003), or to the EMF. Content of the SBS Condensate Collection (Vessel RLD-VSL-00005) can be analyzed via auto sampler (ASX-SMPLR-00012).

The SBS Condensate Collection Vessel overflows to the Plant Wash Vessel (RLD-VSL-00003).

LAW Secondary Containment Sumps

The LAW sumps described below are part of the secondary containment and leak detection for the LAW permitted tank and MU systems. Location and design information for each LAW permitted sump (RLD-SUMP-00028 through -00032, -00035, and -00036) is provided in Table 4E-4, LAW Vitrification Facility Sumps, Leak Detection Boxes, and Floor Drains/Lines.

Leak detection capabilities are described in *Leak Detection Capability in the Low-Activity Waste Facility* 24590-LAW-PER-M-05-002, located in Appendix 9.18. The LAW waste removal capabilities are described *in Waste Removal Capability for LAW Vitrification Facility* 24590- LAW-PER-M-05-001, located in Appendix 9.18.

The LAW sumps are located in sloped areas where floors and partial walls lined with stainless steel liner are an integral part of the secondary containment for permitted tank and MU systems. The design and functions of the LAW sumps are summarized below.

- RLD-SUMP-00028. This dry sump, located in C3/C5 Drains/Sump Collection Vessel Cell (L-B001B), is part of the secondary containment system for C3/C5 Drains/Sump Collection Vessel RLD-VSL-00004. This sump is equipped with liquid level detection and alarm. In addition, RLD-SUMP-00028 is designed to collect overflow/leaks from RLD-BULGE-00001 drain. This sump is equipped with one pump (RLD-PMP-00004) to transfer the sump contents to Plant Wash Vessel RLD-VSL-00003. Sump waste from RLD-VSL-00003 is transferred to either the EMF evaporator feed vessel in the DFLAW configuration or the PT Facility plant wash vessel PWD-VSL-00044 in the baseline configuration.
- RLD-SUMP-00029/-00030. The Melter 1 Process Cell (L-0123) includes two sumps, RLD- SUMP-00029/-00030, as part of the secondary containment system for tanks and MUs located in this cell. The Melter 1 Process Cell (L-0123) houses the following tanks and MUs:
    - o Concentrate Receipt Vessel LCP-VSL-00001
    - o Melter 1 Feed Preparation Vessel LFP-VSL-00001
    - o Melter 1 Feed Vessel LFP-VSL-00002
    - o Melter 1 SBS LOP-SCB-00001
    - o Melter 1 WESP LOP-WESP-00001
    - o Melter 1 SBS Condensate Vessel LOP-VSL-00001

The LAW sumps located in the Melter 1 Process Cell (L-0123) are dry sumps, designed to also provide leak detection from the following sources:

- o RLD-SUMP-00029 from LCP-BULGE-00001/2 and LOP-BULGE-00001 drain
- o RLD-SUMP-00030 from LFP-BULGE-00001 drain

The floor of the cell is sloped to drain potential spillage to a sump at the base of the east or west wall.

Each sump is equipped with one permanently installed submersible pump (RLD-PMP-00025/-00026). The sumps have liquid level detection and alarms. The contents of RLD-SUMP-00029/-00030 are transferred to Plant Wash Vessel RLD-VSL-00003 at the same elevation within 24 hrs.

- RLD-SUMP-00031/-00032. The Melter 2 Process Cell (L-0124) includes two dry sumps, RLD-SUMP-00031/-00032, as part of the secondary containment system for tanks and MUs located in this cell. The sumps have permanently installed submersible sump pumps and have liquid level detection with alarms. The Melter 2 Process Cell (L-0124) houses the following tanks and MUs:
    - o Concentrate Receipt Vessel LCP-VSL-00002
    - o Melter 2 Feed Preparation Vessel LFP-VSL-00003
    - o Melter 2 Feed Vessel LFP-VSL-00004
    - o Melter 2 SBS LOP-SCB-00002
    - o Melter 2 WESP LOP-WESP-00002
    - o Melter 2 SBS Condensate Vessel LOP-VSL-00002

The LAW sumps located in the Melter 2 Process Cell (L-0124) are designed to also provide leak detection from the following sources:

- o RLD-SUMP-00031 from LCP-BULGE-00003 and LOP-BULGE-00002 drain
- o RLD-SUMP-00032 from LFP-BULGE-00002 drain

The floor of the cell is sloped to drain potential spillage to a sump at the base of the east or west wall.

Each sump is equipped with one pump (RLD-PMP-00027/-00028). The contents of RLD-SUMP-00031/-00032 are transferred to Plant Wash Vessel RLD-VSL-00004 at the same elevation within 24 hrs.

RLD-SUMP-00035/-00036. Two sumps RLD-SUMP-00035/-00036, located in Effluent Cell (L-0126), are part of the secondary containment system for Plant Wash Vessel RLD-VSL-00003 and SBS Condensate Collection Vessel RLD-VSL-00005. Each sump RLD-SUMP-00035/-00036 is equipped with one permanently installed submersible sump pump (RLD-PMP-00031/-00032) with liquid level detection and alarms. The sump RLD-SUMP-00036 is designed to also detect leaks from RLD-BULGE-00004. The contents of RLD-SUMP-00035/-00036 are normally transferred to C3/C5 Drain/Sump Collection Vessel RLD-VSL-00004 within 24 hrs. In off-normal events, the valves located in C3/C5/Drains/Sump Collection Pump Bulge RLD-BULGE-00001 allow transfers from C3/C5 Drain/Sump Collection Vessel RLD-VSL-00004 to Plant Wash Vessel RLD-VSL-00003 or SBS Condensate Collection Vessel RLD-VSL-00005, using transfer pumps RLD-PMP-00002A/B.

4E.2.4 LAW Radioactive Solid Waste Handling (RWH) System

The LAW RWH system does not include permitted tanks or MUs. The purpose of the RWH system is to provide equipment to facilitate change out and packaging of secondary radioactive solid waste (RSW) in the LAW facility. The typical RSW in the LAW facility include the melter consumables, such as melter bubblers, spent HEPA filters, and failed process cell equipment. The LAW Radioactive Solid Waste Handling (RHW) system provides crane coverage to support these activities.

The vessels are designed for 40 years of service. However, in the event of a failure, the process vessel will be prepared for export by rinsing, disconnection of the process lines, and decontamination. The vessel will be lifted out of the process cell and covered to prevent a spread of contamination. The vessel will be placed in an approved package staged for vessel receipt. Once closed and secured, the package, containing the vessel, will be delivered to an appropriate TSD facility. A similar process in reverse will be used for the introduction and installation of new LAW process vessels.

It is anticipated that LAW Melters will require periodic replacement. When the end of a melter's operational life is reached, as much residual molten glass as is practical will be removed as immobilized glass product. The LAW Melter will be allowed to cool and then will be disconnected. Openings in the melter shell will be seal welded, and the melter shell will be decontaminated if required, and transported to an appropriate TSD facility.

Disposal of miscellaneous mixed waste streams created during operation will be done by packaging at the point of generation. Localized collection points and disposal routes will be established at logical and optimal locations to accommodate maintenance and operations. Waste containers will be transferred to a staging area where packages will be weighed, labeled, and decontaminated for nonfixed contamination, if needed, prior to export. The packaged waste will then be stored at the WTP, and as needed transported to a Hanford site or off-site commercial treatment facility prior to final disposal at the Hanford site.

4E.2.5 ILAW Glass Container Handling

The ILAW glass container handling systems are support systems that do not include permitted tanks or MUs. The ILAW glass container handling systems provide equipment to import the ILAW containers, transfer within the LAW facility, and export for treatment and disposal. The ILAW glass container handling activities will consist of the following systems:

- LAW container receipt handling (LRH) system
- LAW container pour handling (LPH) system
- LAW container finishing handling (LFH) system
- LAW container export handling (LEH) system

The individual systems and their primary functions are described below:

Table 4E-4 LAW Vitrification Facility Sumps, Leak Detection Boxes, and Floor Drains/Lines				
Sump/Leak Detection Box or Floor Drain/Line I.D.#, Room, and Elevation	**Maximum Sump/Leak Detection Box Capacity (US Gallons)**	**Sump/Leak Detection Box Level Detection Type**	**Sump/Leak Detection Box or Floor Drain/Line Dimensions (approximate) and Materials of Construction**	**Piping and Instrumentation Diagram Number and General Arrangement Diagram Number**
LAW Vitrification Facility				
Sumps				
RLD-SUMP-00028 L-B001B (C3/C5 Drains/Sump Collection Vessel Cell, El. –21’)	59	Radar	24” Dia. x 30” Deep Stainless Steel (6% Mo)	**24590-LAW** -M6-RLD-00002005 -P1-P01T-00001
RLD-SUMP-00029 L-0123 (Process Cell, El. 3’)	37	Radar	30” Dia. x 12” Deep Stainless Steel (6% Mo)	**24590-LAW** -M6-RLD-00003002 -P1-P01T-00002
RLD-SUMP-00030 L-0123 (Process Cell, El. 3’)	37	Radar	30” Dia. x 12” Deep Stainless Steel (6% Mo)	**24590-LAW** -M6-RLD-00003002 -P1-P01T-00002
RLD-SUMP-00031 L-0124 (Process Cell Sump, El. 3’)	37	Radar	30” Dia. x 12” Deep Stainless Steel (6% Mo)	**24590-LAW** -M6-RLD-00003002 -P1-P01T-00002
RLD-SUMP-00032 L-0124 (Process Cell, El. 3’)	37	Radar	30” Dia. x 12” Deep Stainless Steel (6% Mo)	**24590-LAW** -M6-RLD-00003002 -P1-P01T-00002
RLD-SUMP-00035 L-0126 (Effluent Cell, El. 3’)	37	Radar	30” Dia. x 12” Deep Stainless Steel (6% Mo)	**24590-LAW** -M6-RLD-00003003 -P1-P01T-00002

Table 4E-4 LAW Vitrification Facility Sumps, Leak Detection Boxes, and Floor Drains/Lines				
Sump/Leak Detection Box or Floor Drain/Line I.D.#, Room, and Elevation	**Maximum Sump/Leak Detection Box Capacity (US Gallons)**	**Sump/Leak Detection Box Level Detection Type**	**Sump/Leak Detection Box or Floor Drain/Line Dimensions (approximate) and Materials of Construction**	**Piping and Instrumentation Diagram Number and General Arrangement Diagram Number**
RLD-SUMP-00036 L-0126 (Effluent Cell, El. 3')	37	Radar	30" Dia. x 12" Deep Stainless Steel (6% Mo)	**24590-LAW** -M6-RLD-00003003 -P1-P01T-00002
Bulges/Floor Drains				
RLD-FD-00001 Floor Drain L-B001B (RLD-BULGE-00001 Drain, El. -21')	N/A	N/A	2" Dia. 316L	**24590-LAW** -M6-RLD-00002003 -P1-P01T-00001
RLD-FD-00035 Floor Drain L-0126 (RLD-BULGE-0000-4 Drain, El. 3')	N/A	N/A	2" Dia. 6% Mo	**24590-LAW** -M6-RLD-00001005 -P1-P01T-00002
LOP~~F~~-FD-00001 Floor Drain L-0123 (LOP-BULGE-00001 Drain, El. 3)	N/A	N/A	2" Dia. 6% Mo	**24590-LAW** -M6-LOP-00001003 -P1-P01T-00002
LCP-FD-00001 Floor Drain L-0123 (LCP-BULGE-00001 Drain, El. 3')	N/A	N/A	2" Dia. 316L	**24590-LAW** -M6-LCP-00001001 -P1-P01T-00002
LCP-FD-00002 Floor Drain L-0123 (LCP-BULGE-00002 Drain, El. 3')	N/A	N/A	2" Dia. 316L	**24590-LAW** -M6-LCP-00001004 -P1-P01T-00002
LFP-FD-00001 Floor Drain L-0123 (LFP-BULGE-00001 Drain, El. 3)	N/A	N/A	2" Dia. 316L	**24590-LAW** -M6-LFP-00001005

Table 4E-4 LAW Vitrification Facility Sumps, Leak Detection Boxes, and Floor Drains/Lines				
Sump/Leak Detection Box or Floor Drain/Line I.D.#, Room, and Elevation	**Maximum Sump/Leak Detection Box Capacity (US Gallons)**	**Sump/Leak Detection Box Level Detection Type**	**Sump/Leak Detection Box or Floor Drain/Line Dimensions (approximate) and Materials of Construction**	**Piping and Instrumentation Diagram Number and General Arrangement Diagram Number**
				-P1-P01T-00002
LOP-FD-00002 Floor Drain L-0124 (LOP-BULGE-00002 Drain, El. 3)	N/A	N/A	2” Dia. 6% Mo	**24590-LAW** -M6-LOP-00002003 -P1-P01T-00002
LCP-FD-00003 Floor Drain L-0124 (LCP-BULGE-00003 Drain, El. 3)	N/A	N/A	2” Dia. 316L	**24590-LAW** -M6-LCP-00002001 -P1-P01T-00002
LFP-FD-00002 Floor Drain L-0124 (LFP-BULGE-00002 Drain, El. 3)	N/A	N/A	2” Dia. 316L	**24590-LAW** -M6-LFP-00003005 -P1-P01T-00002
LVP-FD-00001 Floor Drain L-0218 (Berm floor drain for LVP-TK-00001, El. 28’)	N/A	N/A	4” Dia. 316L	**24590-LAW** -M6-LVP-00002003 -P1-P01T-00004
RLD-FD-00025 Floor Drain L-0304F (Curb floor drain for LVP-SCB~~TK~~-00001, El. 48’)	N/A	N/A	4” Dia. 316L	**24590-LAW** -M6-RLD-00003001 -P1-P01T-00005
Drain Lines				
RLD-WS-20037-S11B-01 Drain Line L-0123 (Melter 1 Encasement Assembly Drain, El. 3’)	N/A	N/A	1” Dia. 316L	**24590-LAW** -M6-LMP-00012001 -P1-P01T-00002
RLD-WS-20033-S11B-0~~1~~1 Drain Line	N/A	N/A	1” Dia.	**24590-LAW**

Table 4E-4 LAW Vitrification Facility Sumps, Leak Detection Boxes, and Floor Drains/Lines				
Sump/Leak Detection Box or Floor Drain/Line I.D.#, Room, and Elevation	**Maximum Sump/Leak Detection Box Capacity (US Gallons)**	**Sump/Leak Detection Box Level Detection Type**	**Sump/Leak Detection Box or Floor Drain/Line Dimensions (approximate) and Materials of Construction**	**Piping and Instrumentation Diagram Number and General Arrangement Diagram Number**
L-0124 (Melter 2 Encasement Assembly Drain, El. 3')			316L	-M6-LMP-00042001 -P1-P01T-00002
Autosampler Drain Lines				
RLD-WU-22123-S11B-03 ASX Sampler 00012 Lower Containment Trough Drain Line (L-0301, El. 48')	N/A	Thermal Dispersion	3" Dia. Stainless Steel 316L	**24590-LAW** -M6-RLD-00003001 -P1-P01T-00005
RLD-WU-22117-S11B-03 ASX Sampler 00013 Lower Containment Trough Drain Line- (L-0301, El. 48')	N/A	Thermal Dispersion	3" Dia. Stainless Steel 316L	**24590-LAW** -M6-RLD-00003001 -P1-P01T-00005

11.1, 11.2, 11.14, and 13.1, 13.2, and 13.14 of this Permit, as approved pursuant to Permit Conditions III.10.E.9.e.ix. and III.10.E.9.d.x.

III.10.E.5.c The Permittees will not place dangerous and/or mixed waste, treatment reagents, or other materials in the WTP Unit Tank System if these substances could cause the tank system to rupture, leak, corrode, or otherwise fail [WAC 173-303-640(5)(a)].

III.10.E.5.d The Permittees will operate the WTP Unit Tank System to prevent spills and overflows using the description of controls and practices as required under WAC 173-303-640(5)(b) described in Permit Condition III.10.C.5., and Operating Unit Group 10, Appendices 8.16, 9.18, 10.18, 11.18, and 13.18 of this Permit, as approved pursuant to Permit Condition III.10.E.9.e.iv. [WAC 173-303-640(5)(b), WAC 173-303-806(4)(c)(ix)].

III.10.E.5.e For routinely non-accessible WTP Unit Tank Systems, as specified in Operating Unit Group 10, Chapter 4 of this Permit, as updated pursuant to Permit Condition III.10.E.9.e.vi., the Permittees will mark all routinely non-accessible tank system access points with labels or signs to identify the waste contained in the tanks. The label, or sign, must be legible at a distance of at least fifty (50) feet and must bear a legend that identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the tank system(s). For the purposes of this Permit condition, "routinely non-accessible" means personnel are unable to enter these areas while waste is being managed in them [WAC 173-303-640(5)(d)].

III.10.E.5.f For all tank systems not addressed in Permit Condition III.10.E.5.e., the Permittees will mark all these tank systems holding dangerous and/or mixed waste with labels or signs to identify the waste contained in the tank. The labels, or sign, must be legible at a distance of at least fifty (50) feet, and must bear a legend that identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the tank system(s) [WAC 173-303-640(5)(d)].

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, O, and R 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 Group 10, Appendices 8.18, 9.18, 10.18, 11.18, and 13.18 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)].

III.10.E.5.h An impermeable coating, as specified in Operating Unit Group 10, Appendices 8.4, 8.5, 8.7, 8.9, 8.11, 8.12, 9.4, 9.5, 9.7, 9.9, 9.11, 9.12, 10.4, 10.5, 10.7, 10.9, 10.11, 10.12, 11.4, 11.5, 11.7, 11.9, 11.11, 11.12, and 13.4, 13.5, 13.7, 13.9, 13.11 and 13.12 of this Permit, as approved pursuant to Permit Condition III.10.E.9.b.v., will be maintained for all concrete containment systems and concrete portions of containment systems for each WTP Unit Tank System listed in Permit Tables III.10.E.A through D, I through ~~P~~K, M through O,and R through T as approved/modified pursuant to Permit Condition III.10.E.9. Concrete containment systems that do not have a liner and have construction joints, must meet the requirements of WAC 173-303-640(4)(e)(ii)(C) and -806(4)(c)(vii).

The coating will prevent migration of any dangerous and/or mixed waste into the concrete. All coatings will meet the following performance standards:

III.10.E.5.h.i The coating must seal the containment surface such that no cracks, seams, or other avenues through which liquid could migrate are present;

III.10.E.5.h.ii The coating must be of adequate thickness and strength to withstand the normal operation of equipment and personnel within the given area such that degradation or physical damage to the coating or lining can be identified and remedied before dangerous and/or mixed waste could migrate from the system; and

III.10.E.5.h.iii The coating must be compatible with the dangerous and/or mixed waste, treatment reagents, or other materials managed in the containment system [WAC 173-303-640(4)(e)(ii)(D), WAC 173-303-806(4)(c)(vii)].

III.10.E.5.i The Permittees will inspect all secondary containment systems for WTP Unit Tank Systems listed in Permit Tables III.10.E.A through D, I through ~~P~~K, M through O, and R through T as approved/modified pursuant to Permit Condition III.10.E.9., in accordance with the Inspection Plan specified in Operating Unit Group 10, Chapter 6A of this Permit, as approved pursuant to Permit Conditions III.10.E.9.e.v. and III.10.C.5., and take the following actions if a leak or spill of dangerous and/or mixed waste is detected in these containment systems [WAC 173-303-320, WAC 173-303-640(5)(c), WAC 173-303-640(6), WAC 173-303-640(7), WAC 173-303-806(4)(a)(v)]:

III.10.E.5.i.i Immediately and safely stop the flow of dangerous and/or mixed waste into the tank system or secondary containment system, in accordance with procedures based on all applicable safety analysis documentation;

III.10.E.5.i.ii Determine the source of the dangerous and/or mixed waste;

III.10.E.5.i.iii Remove the waste from the secondary containment area pursuant to WAC 173-303-640(7)(b). The waste removed from containment areas of WTP Unit Tank Systems will be managed as dangerous and/or mixed waste;

III.10.E.5.i.iv If the cause of the release was a spill that has not damaged the integrity of the tank system, the Permittees may return the tank system to service pursuant to WAC 173-303-640(7)(e)(ii). In such a case, the Permittees will take action to ensure the incident that caused liquid to enter the containment systems of these tank systems will not reoccur [WAC 173-303-320(3);

III.10.E.5.i.v If the source of the dangerous waste and/or mixed waste is determined to be a leak from a primary WTP Unit Tank System, or the system is unfit for use as determined through an integrity assessment or other inspection, the Permittees must comply with the requirements of WAC 173-303-640(7) and take the following actions [WAC 173-303-640(5)(c)]:

A. Close the tank system according to procedures in WAC 173-303-640(7)(e)(i), and Operating Unit Group 10, Chapter 11 of this Permit, as approved pursuant to Permit Condition III.10.C.8.; or

B. Repair and re-certify (in accordance with WAC 173-303-810(13)(a) as modified pursuant to Permit Condition III.10.E.1.d.) the tank system in accordance with Operating Unit Group 10, Appendices 8.18, 9.18, 10.18, 11.18, and 13.18 of this Permit, as approved pursuant to Permit Condition III.10.E.9.e.v. before the tank system is placed back into service [WAC 173-303-640(7)(e) and (f), and WAC 173-303-806(4)(c)(vii)];

will be submitted with the first IQRPE Report for tanks, identified in Permit Condition III.10.E.9.c.i. [WAC 173-303-640(3)(a), WAC 173-303-806(4)(c)(i)];

III.10.E.9.b.ii Design drawings (General Arrangement Drawings in plan) 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)];

III.10.E.9.b.iii The Permittees will provide the design criteria (references to codes and standards, load definitions, and load combinations, materials of construction, and analysis/design methodology) and typical design details for the support of the secondary containment system. This information will demonstrate the foundation will be capable of providing support to the secondary containment system, resistance to pressure gradients above and below the system, and capable of preventing failure due to settlement, compression, or uplift [WAC 173-303-640(4)(c)(ii), WAC 173-303-806(4)(c)(vii)];

III.10.E.9.b.iv A description of materials and equipment used to provide corrosion protection for external metal components in contact with soil, including factors affecting the potential for corrosion as required under WAC 173-303-640(3)(a)(iii)(B) [WAC 173-303-806(4)(c)(v)];

III.10.E.9.b.v Secondary containment/foundation and leak detection system materials selection documentation (including, but not limited to, concrete coatings and water stops, and liner materials as applicable) [WAC 173-303-806(4)(c)(i)];

III.10.E.9.b.vi Detailed description of how the secondary containment for each tank system will be installed in compliance with WAC 173-303-640(3)(c) [WAC 173-303-806(4)(c)(vi)];

III.10.E.9.b.vii Submit Permit Tables III.10.E.J, ~~L,~~ N, ~~P,~~ and S completed to provide for all secondary containment sumps and floor drains, the information as specified in each column heading, consistent with information to be provided in Permit Conditions III.10.E.9.b.i. through vi. above;

III.10.E.9.b.viii Documentation that secondary containment and leak detection systems will not accumulate hydrogen gas levels above the lower explosive limit and in accordance with Appendix 7.15 for incorporation into the Administrative Record [WAC 173-303-340].

III.10.E.9.b.ix A detailed description of how tank system design provides access for conducting future tank integrity assessments [WAC 173-303-640(3)(b), WAC 173-303-806(4)(c)(vi)];

III.10.E.9.c The Permittees will submit to Ecology, pursuant to Permit Condition III.10.C.9.f., prior to installation of each tank as identified in Permit Tables III.10.E.A through D, and I, K, M, O, and R engineering information as specified below, for incorporation into Operating Unit Group 10, Appendices 8.1 through 8.9, 8.11 through 8.14, 9.1 through 9.9, 9.11 through 9.14, 10.1 through 10.9, 10.11 through 10.14, 11.1 through 11.9, 11.11 through 11.14, 13.1 through 13.9, and 13.11 through 13.14 of this Permit. Tanks will include primary sumps. At a minimum, engineering information specified below will show the

heading, consistent with information to be provided in Permit Conditions III.10.E.9.c.i. through ix.;

III.10.E.9.c.xi Documentation that tanks are designed to prevent the accumulation of hydrogen gas levels above the lower explosive limit for incorporation into the Administrative Record [WAC 173-303-340];

III.10.E.9.c.xii Documentation that tanks are designed to prevent escape of vapors and emissions of acutely or chronically toxic (upon inhalation) Extremely Hazardous Waste limit and in accordance with Appendix 7.15 for incorporation into the Administrative Record [WAC 173-303-640(5)(e), WAC 173-303-806(4)(c)(xii)];

III.10.E.9.d The Permittees will submit to Ecology, pursuant to Permit Condition III.10.C.9.f., prior to installation of ancillary equipment for each tank system, as identified in Permit Tables III.10.E.A, through D, I through K~~P~~, M through O, and R through T not addressed in Permit Condition III.10.E.9.c., engineering information as specified below, for incorporation into Operating Unit Group 10, Appendices 8.1 through 8.9, 8.11 through 8.14, 9.1 through 9.9, 9.11 through 9.14, 10.1 through 10.9, 10.11 through 10.14, 11.1 through 11.9,11.11 through 11.14, 13.1 through 13.9, and 13.11 through 13.14 of this Permit. At a minimum, engineering information specified below will show the following as required pursuant to WAC 173-303-640 (the information specified below will include dimensioned engineering drawings):

III.10.E.9.d.i IQRPE Reports (specific to ancillary equipment) will include a review of design drawings, calculations, and other information as applicable, on which the certification report is based. The reports will include, but not be limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Operating Unit Group 10, Appendix 8.0 through 13.0 of this Permit, may be included in the report by reference and should include drawing and document numbers. The IQRPE Reports will be consistent with the information provided separately in Permit Conditions III.10.E.9.d.ii. through xiii. below and the IQRPE Reports specified in Permit Conditions III.10.E.9.b and III.10.E.9.c. [WAC 173-303-640(3)(a), WAC 173-303-806(4)(c)(i)];

III.10.E.9.d.ii Design drawings (Process Flow Diagrams, Piping and Instrumentation Diagrams [including pressure control systems], etc.) specifications (including required performance warranties), and other information specific to ancillary equipment (these drawings should include all equipment such as pipe, valves, fittings, pumps, instruments, etc.) [WAC 173-303-640(3)(a), WAC 173-303-806(4)(c)(i), (iii), (iv)];

III.10.E.9.d.iii The Permittees will provide the design criteria (references to codes and standards, load definitions, and load combinations, materials of construction, and analysis/design methodology) and typical design details for the support of the ancillary equipment [WAC 173-303-640(3)(a), WAC 173-303-640(3)(f), WAC 173-303-806(4)(c)(i)];

III.10.E.9.d.iv A description of materials and equipment used to provide corrosion protection for external metal components in contact with soil and water, including factors affecting the potential for corrosion as required under WAC 173-303-640(3)(a)(iii)(B) [WAC 173-303-806(4)(c)(v)];

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)];

Table III.10.E.J – Pretreatment Plant Tank Systems Secondary Containment Systems, Including Sumps, Leak Detection Boxes, Bulges, Autosamplers, and Floor Drains

Sump, Bulge or Drain Line I.D.# & Room Location	Maximum Sump (gallons) Capacity	Sump Type/Nominal Operating Volume (gallons)	Sump, Bulge or Drain Line Dimensions[a] (inches) & Materials of Construction	Engineering Description (Drawing No.'s, Specifications No.'s, etc.)
ASX Sampler 00025 Lower Containment Trough/Dam (P-0307, El. 56')	N/A	N/A	3" Dia. Stainless Steel	**24590-PTF** -M6-PWD-00007, Rev 3
[a]Dimensions listed are based on permitted design. Actual dimensions may vary within plus or minus (TBD). Note #1: These are special cases due to their location in equipment berms. The capacity for these drain lines is based on a unique bounding case for liquid spillage.				

Table III.10.E.K - LAW Vitrification Plant Tank Systems Primary[a] Containment Sump Systems

Sump I.D.# & Room Location	Maximum Sump Capacity (gallons)	Sump Dimensions[b] (feet) & Materials of Construction	Engineering Description (Drawing Nos., Specifications Nos., etc.)
RESERVED	RESERVED	RESERVED	RESERVED
[a] Primary sumps are defined in Permit Section III.10.C, and must comply with dangerous waste tank system requirements for tanks as described in WAC-173-303-640. [b]Dimensions listed are based on permitted design. Actual dimensions may vary within plus or minus (TBD).			

~~Table III.10.E.L - LAW Vitrification Plant Tank Systems Secondary Containment Systems, Including Sumps, Bulges, Autosamplers, and Floor Drains~~

~~Sump or Drain Line I.D.# & Room Location~~	~~Maximum Sump (gallons) or Drain Line (gallons per minute) Capacity~~	~~Sump Type/Nominal Operating Volume (gallons)~~	~~Sump or Drain Line Dimensions[a] (inches) & Materials of Construction~~	~~Engineering Description (Drawing Nos., Specifications Nos., etc.)~~
~~RLD-SUMP-00028~~	~~59~~	~~Dry Sump~~	~~24" Dia. By 30" deep Stainless Steel~~	~~**24590-LAW** -M6-RLD-00002005, Rev 0~~

~~Table III.10.E.L - LAW Vitrification Plant Tank Systems Secondary Containment Systems, Including Sumps, Bulges, Autosamplers, and Floor Drains~~

~~Sump or Drain Line I.D.# & Room Location~~	~~Maximum Sump (gallons) or Drain Line (gallons per minute) Capacity~~	~~Sump Type/Nominal Operating Volume (gallons)~~	~~Sump or Drain Line Dimensions[a] (inches) & Materials of Construction~~	~~Engineering Description (Drawing Nos., Specifications Nos., etc.)~~
~~L-B001B (C3/C5 Drains/Sump Collection Vessel Cell, El. -21')~~			~~(6% Mo)~~	~~-P1-P01T-00001, Rev 4~~
~~RLD-SUMP-00029 L-0123 (Process Cell, El. +3')~~	~~37~~	~~Dry Sump~~	~~30" Dia. By 12" deep Stainless Steel (6% Mo)~~	~~**24590-LAW** -M6-RLD-00003002, Rev 2 -P1-P01T-00002, Rev 7~~
~~RLD-SUMP-00030 L-0123 (Process Cell, El. +3')~~	~~37~~	~~Dry Sump~~	~~30" Dia. By 12" deep Stainless Steel (6% Mo)~~	~~**24590-LAW** -M6-RLD-00003002, Rev 2 -P1-P01T-00002, Rev 7~~
~~RLD-SUMP-00031 L-0124 Process Cell Sump, El. +3')~~	~~37~~	~~Dry Sump~~	~~30" Dia. By 12" deep Stainless Steel (6% Mo)~~	~~**24590-LAW** -M6-RLD-00003002, Rev 2 -P1-P01T-00002, Rev 7~~
~~RLD-SUMP-00032 L-0124 (Process Cell, El. +3')~~	~~37~~	~~Dry Sump~~	~~30" Dia. By 12" deep Stainless Steel (6% Mo)~~	~~**24590-LAW** -M6-RLD-00003002, Rev 2 -P1-P01T-00002, Rev 7~~
~~RLD-SUMP-00035 L-0126 (Effluent Cell, El. +3')~~	~~37~~	~~Dry Sump~~	~~30" Dia. By 12" deep Stainless Steel (6% Mo)~~	~~**24590-LAW** -M6-RLD-00003003, Rev 2 -P1-P01T-00002, Rev 7~~
~~RLD-SUMP-00036 L-0126 (Effluent Cell, El. +3')~~	~~37~~	~~Dry Sump~~	~~30" Dia. By 12" deep Stainless Steel (6% Mo)~~	~~**24590-LAW** -M6-RLD-00003003, Rev 2 -P1-P01T-00002, Rev 7~~

~~Table III.10.E.L - LAW Vitrification Plant Tank Systems Secondary Containment Systems, Including Sumps, Bulges, Autosamplers, and Floor Drains~~

~~Sump or Drain Line I.D.# & Room Location~~	~~Maximum Sump (gallons) or Drain Line (gallons per minute) Capacity~~	~~Sump Type/Nominal Operating Volume (gallons)~~	~~Sump or Drain Line Dimensions[a] (inches) & Materials of Construction~~	~~Engineering Description (Drawing Nos., Specifications Nos., etc.)~~
~~Drain Line ID# = RLD-FD-00001 L-B001B (RLD-BULGE-00001 Drain, El. -21')~~	~~N/A~~	~~N/A~~	~~2" Dia. 316L~~	~~24590-LAW M6-RLD-00002003, Rev 0~~
~~Drain Line ID# = RLD-FD-00035 L-0126 (RLD-BULGE-0000-4 Drain, El. +3')~~	~~N/A~~	~~N/A~~	~~2" Dia. 6% Mo~~	~~24590-LAW M6-RLD-00001005, Rev 0~~
~~Drain Line ID# = LOP-FD-00001 L-0123 (LOP-BULGE-00001 drain, El. +3)~~	~~N/A~~	~~N/A~~	~~2" Dia. 6% Mo~~	~~24590-LAW M6-LOP-0001003, Rev 0~~
~~Drain Line ID# = LCP-FD-00001 L-0123 (LCP-BULGE-00001 Drain, El. +3')~~	~~N/A~~	~~N/A~~	~~2" Dia. 316L~~	~~24590-LAW M6-LCP-00001001, Rev 0~~
~~Drain Line ID# = LCP-FD-00002 L-0123 (LCP-BULGE-00002 Drain, El. +3')~~	~~N/A~~	~~N/A~~	~~2" Dia. 316L~~	~~24590-LAW M6-LCP-00001004, Rev 0 M6-LCP-00001005, Rev 0~~
~~Drain Line ID# = RLD-WS-20037-S11B-01~~	~~N/A~~	~~N/A~~	~~1" Dia. 316L~~	~~24590-LAW M6-LMP-00012001, Rev 0~~

~~Table III.10.E.L - LAW Vitrification Plant Tank Systems Secondary Containment Systems, Including Sumps, Bulges, Autosamplers, and Floor Drains~~

~~Sump or Drain Line I.D.# & Room Location~~	~~Maximum Sump (gallons) or Drain Line (gallons per minute) Capacity~~	~~Sump Type/Nominal Operating Volume (gallons)~~	~~Sump or Drain Line Dimensions[a] (inches) & Materials of Construction~~	~~Engineering Description (Drawing Nos., Specifications Nos., etc.)~~
~~L-0123 (Melter 1 Encasement Assembly Drain, El. +3')~~				
~~Drain Line ID# = LFP-FD-00001~~ ~~L-0123 (LFP-BULGE-00001 Drain, El. +3)~~	~~N/A~~	~~N/A~~	~~2" Dia. 316L~~	~~**24590-LAW**~~ ~~-M6-LFP-00001005, Rev 0~~
~~Drain Line ID# = LOP-FD-00002~~ ~~L-0124 (LOP-BULGE-00002 Drain, El. +3)~~	~~N/A~~	~~N/A~~	~~2" Dia. 6% Mo~~	~~**24590-LAW**~~ ~~-M6-LOP-00002003, Rev 0~~
~~Drain Line ID# = LCP-FD-00003~~ ~~L-0124 (LCP-BULGE-00003 Drain, El. +3)~~	~~N/A~~	~~N/A~~	~~2" Dia. 316L~~	~~**24590-LAW**~~ ~~-M6-LCP-00002001, Rev 0~~ ~~-M6-LCP-00002002, Rev 0~~
~~Drain Line ID# = LFP-FD-00002~~ ~~L-0124 (LFP-BULGE-00002 Drain, El. +3)~~	~~N/A~~	~~N/A~~	~~2" Dia. 316L~~	~~**24590-LAW**~~ ~~-M6-LFP-00003005, Rev 0~~
~~Drain Line ID# = RLD-WS-20033-S11B-01~~ ~~L-0124 (Melter 2 Encasement Assembly Drain, El. +3')~~	~~N/A~~	~~N/A~~	~~1" Dia. 316L~~	~~**24590-LAW**~~ ~~-M6-LMP-00042001, Rev 0~~

~~Table III.10.E.L - LAW Vitrification Plant Tank Systems Secondary Containment Systems, Including Sumps, Bulges, Autosamplers, and Floor Drains~~

~~Sump or Drain Line I.D.# & Room Location~~	~~Maximum Sump (gallons) or Drain Line (gallons per minute) Capacity~~	~~Sump Type/Nominal Operating Volume (gallons)~~	~~Sump or Drain Line Dimensions[a] (inches) & Materials of Construction~~	~~Engineering Description (Drawing Nos., Specifications Nos., etc.)~~
~~LVP-FD-00001 L-0218 (Berm floor drain for LVP-TK-00001, El. 28')[b]~~	~~N/A~~	~~N/A~~	~~4" Dia. 316L~~	~~**24590-LAW** M6-LVP-00002003, Rev 0~~
~~RLD-FD-00025 L-0304F (Curb floor drain for Caustic Scrubber, El. 48')[b]~~	~~N/A~~	~~N/A~~	~~4" Dia. 316L~~	~~**24590-LAW** M6-RLD-00003001, Rev 0~~
~~ASX Sampler 00012 Lower Containment Trough/Dam (L-0301, El. 48')~~	~~N/A~~	~~N/A~~	~~3" Dia. Stainless Steel (316L)~~	~~**24590-LAW** M6-RLD-00003001, Rev 0~~
~~ASX Sampler 00013 Lower Containment Trough/Dam (L-0301, El. 48')~~	~~N/A~~	~~N/A~~	~~3" Dia. Stainless Steel (316L)~~	~~**24590-LAW** M6-RLD-00003001, Rev 0~~

~~[a]Dimensions listed are based on permitted design. Actual dimensions may vary within plus or minus (TBD).~~

~~[b]This sump is routinely accessible for inspections and maintenance.~~

~~Table III.10.E.P – Laboratory Tank Systems Secondary Containment Systems, Including Sumps, Leak Detection Boxes, and Floor Drains~~

~~Sump I.D.# & Room Location~~	~~Maximum Sump Capacity (gallons)~~	~~Sump Type/Nominal Operating Volume (gallons)~~	~~Sump Dimensions[a] (inches) & Materials of Construction~~	~~Engineering Description (Drawing Nos., Specifications Nos., etc.)~~
~~RLD-SUMP-00041 A-B003 (C3 Effluent Vessel Cell, El. -18'7')~~	~~30~~	~~Dry~~	~~30" Dia. X ~13" Deep Stainless Steel~~	~~**24590-LAB** M6-RLD-00002001, Rev 1 P1-60-00007, Rev 3~~
~~RLD-SUMP-00042 A-B004 (C5 Effluent Vessel Cell, El. -19'2')~~	~~30~~	~~Dry~~	~~30" Dia. X ~13" Deep Stainless Steel~~	~~**24590-LAB** M6-RLD-00001001, Rev 1 P1-60-00007, Rev 3~~
~~RLD-SUMP-00045 A-B002 (C3 Pump Pit Sump, EL -6'-81/2"LP)~~	~~1.56~~	~~Dry~~	~~2'-0" X 2'-6" X 1/2"~~	~~**24590-LAB** M6-RLD-00002001, Rev 1 P1-60-00007, Rev 3~~
~~RLD-SUMP-00043A A-B007 (C5 Pump Pit Sump, EL -6'-7"LP)~~	~~1.40~~	~~Dry~~	~~1'-6" X 3'-0" X 1/2" Stainless Steel~~	~~**24590-LAB** M6-RLD-00001001, Rev 1 P1-60-00007, Rev 3~~
~~RLD-SUMP-00043B A-B005 (C5 Pump Pit Sump, EL -6'-7" LP)~~	~~1.40~~	~~Dry~~	~~1'-6" X 3'-0" X 1/2" Stainless Steel~~	~~**24590-LAB** M6-RLD-00001001, Rev 1 P1-60-00007, Rev 3~~
~~RLD-SUMP-00044 A-B006 (C5 Piping Pit Sump, EL -6'-7" LP)~~	~~1.56~~	~~Dry~~	~~2'-0" X 2'-6" X 1/2" Stainless Steel~~	~~**24590-LAB** M6-RLD- 00001001, Rev 1 P1-60-00007, Rev 3~~
~~RLD-WU-02207-S11E-04 A-B003, (C3 Effluent Vessel Cell)~~	~~N/A~~	~~N/A~~	~~4" Dia 316L~~	~~**24590-LAB** M6-RLD-00002001, Rev 1~~

~~Table III.10.E.P – Laboratory Tank Systems Secondary Containment Systems, Including Sumps, Leak Detection Boxes, and Floor Drains~~

~~Sump I.D.# & Room Location~~	~~Maximum Sump Capacity (gallons)~~	~~Sump Type/Nominal Operating Volume (gallons)~~	~~Sump Dimensions[a] (inches) & Materials of Construction~~	~~Engineering Description (Drawing Nos., Specifications Nos., etc.)~~
~~RLD-ZN-02203-S11E-04 A-B004, (C5 Effluent Vessel Cell)~~	~~N/A~~	~~N/A~~	~~4" Dia 316L~~	~~**24590-LAB** -M6-RLD- 00001001, Rev 1~~
~~RLD-ZN-03393-S11E-04 A-B004, (C5 Effluent Vessel Cell)~~	~~N/A~~	~~N/A~~	~~4" Dia 316L~~	~~**24590-LAB** -M6-RLD- 00001001, Rev 1~~
~~RLD-ZN-03394-S11E-04 A-B004, (C5 Effluent Vessel Cell)~~	~~N/A~~	~~N/A~~	~~4" Dia 316L~~	~~**24590-LAB** -M6-RLD- 00001001, Rev 1~~
~~RLD-LDB-00002 A-B004 (C5 Effluent Vessel Cell, El. -10')~~	~~6~~	~~N/A~~	~~8" Dia. x 24" Length/ Stainless Steel~~	~~**24590-LAB** -M6-RLD-00008001, Rev 0~~
~~RLD-LDB-00004 A-B004 (C5 Effluent Vessel Cell, El. -10')~~	~~6~~	~~N/A~~	~~8" Dia. x 24" Length/ Stainless Steel~~	~~**24590-LAB** -M6-RLD-00008001, Rev 0~~
~~RLD-LDB-00005 A-B003 (C3 Effluent Vessel Cell, El. -10')~~	~~6~~	~~N/A~~	~~8" Dia. x 24" Length/ Stainless Steel~~	~~**24590-LAB** -M6-RLD-00007001, Rev 0~~
~~RLD-LDB-00006 A-B003 (C3 Effluent Vessel Cell, El. -10')~~	~~6~~	~~N/A~~	~~8" Dia. x 24" Length/ Stainless Steel~~	~~**24590-LAB** -M6-RLD- 00007001, Rev 0~~
~~RLD-LDB-00007 A-B003 (C3 Effluent Vessel Cell, El. -10')~~	~~6~~	~~N/A~~	~~8" Dia. x 24" Length/ Stainless Steel~~	~~**24590-LAB** -M6-RLD- 00007001, Rev 0~~

~~Table III.10.E.P – Laboratory Tank Systems Secondary Containment Systems, Including Sumps, Leak Detection Boxes, and Floor Drains~~

~~Sump I.D.# & Room Location~~	~~Maximum Sump Capacity (gallons)~~	~~Sump Type/Nominal Operating Volume (gallons)~~	~~Sump Dimensions[a] (inches) & Materials of Construction~~	~~Engineering Description (Drawing Nos., Specifications Nos., etc.)~~
~~RLD-LDB-00008 A-B003 (C3 Effluent Vessel Cell, El. -10')~~	~~6~~	~~N/A~~	~~8" Dia. x 24" Length/ Stainless Steel~~	~~**24590-LAB** -M6-RLD- 00007001, Rev 0~~
~~RLD-LDB-00009 A-B004 (C5 Effluent Vessel Cell, El. -10')~~	~~6~~	~~N/A~~	~~8" Dia. x 24" Length/ Stainless Steel~~	~~**24590-LAB** -M6-RLD- 00008001, Rev 0~~
~~RLD-LDB-00011 A-B003 (C3 Effluent Vessel Cell, El. -10')~~	~~6~~	~~N/A~~	~~8" Dia. x 24" Length/ Stainless Steel~~	~~**24590-LAB** -M6-RLD-00007001, Rev 0~~
~~RESERVED~~	~~RESERVED~~	~~RESERVED~~	~~RESERVED~~	~~RESERVED~~
~~[a]Dimensions listed are based on permitted design. Actual dimensions may vary within plus or minus (TBD).~~				

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Table III.10.E.R - EMF Plant Tank Systems Description

Dangerous and/or Mixed Waste Tank Systems Name	Unit Designation	Engineering Description (Drawing Nos, Specification Nos, etc.)	Narrative Description, Tables & Figures	Maximum Capacity (gallons)
DEP-VSL-00001 ED-B001 Low-point drain vessel	DEP	Reserved	Section 4G.2.1; Table 4G-1	18,000
DEP-VSL-00002 E-0105 Evaporator feed vessel	DEP	Reserved	Section 4G.2.2; Table 4G-1	42,300

Quarter Ending September 30, 2018

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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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Remove 24590-WTP-PER-HV-02-001, Rev 1, Fugitive Emissions Control Description, from Appendix 7.15 and incorporate the information into Chapter 4 of the Dangerous Waste Permit (DWP).

Chapter 4, Process Information, with redline changes.

Submitted by Co-Operator:

Roger J. Landon 8/2/18

Roger J. Landon *Date*

Reviewed by ORP Program Office:

TRML 8-20-18

Thomas W. Fletcher *Date*

Quarter Ending September 2018

24590-WTP-PCN-ENV-18-003

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

Description of Modification:

The purpose of this Class [1]1 modification is to remove 24590-WTP-PER-HV-02-001, Rev 1, Fugitive Emissions Control Description, from Appendix 7.15 and incorporate the information into Chapter 4 Process Information of the DWP. This will include information on confinement zones and a fugitive dust control description.

24590-WTP-PER-HV-02-001, Rev 1 is referenced in Chapters 4D - Pretreatment Facility, 4E - Low Activity Waste Vitrification Facility and 4F - High Level Waste Vitrification Facility. These references have been removed from the chapters and replaced with a new reference that leads the reader to section 4.2.10 Air Emissions for information on fugitive emissions from containment buildings.

In accordance with Permit Condition III.10.C.2.e, this permit modification sent to Ecology includes page changes to the Permit, attachments, and permit application supporting documentation.

WAC 173-303-830 Modification Class:	Class 1	Class [1]1	Class 2	Class 3
Please mark the Modification Class:		X		

Enter relevant WAC 173-303-830, Appendix I Modification citation number: N/A

Enter wording of WAC 173-303-830, Appendix I Modification citation:

In accordance with WAC 173-303-830(4)(d)(i), this modification notification is requested to be reviewed and approved as a Class [1]1 modification. WAC 173-303-830(4)(d)(ii)(A) states, "Class 1 modifications apply to minor changes that keep the permit current with routine changes to the facility or its operation. These changes do not substantially alter the permit conditions or reduce the capacity of the facility to protect human health or the environment. In the case of Class 1 modifications, the director may require prior approval."

Modification Approved/Concur: [X] Yes [ ] Denied (state reason below) Reason for denial:	Reviewed by Ecology: S. Dahl — Date: 10/1/18

- Waste management area figures showing containment building locations to be permitted.

~~Control of fugitive emissions from containment buildings is described in *Fugitive Emissions Control Description* (24590-WTP-PER-HV-02-001) located in Operating Unit Group 10 Appendix 7.15.~~

Control of fugitive emissions from containment buildings is described in Chapter 4 Process Information, Section 4.2.10.5 Ventilation Control.

The following sections address each of the containment buildings.

4D.3.1 Pretreatment Hot Cell Containment Building (P-0123)

The Pretreatment Hot Cell Containment Building is situated between Feed Receipt Cell (Room P-0108B) and Remote Decontamination Maintenance Cave (Room P-0123A), in the central portion of the PTF. The room contains process equipment, which may require remote maintenance over the life of the plant. Typical waste management activities performed in the containment building include waste storage, the removal and staging of remote-handled process equipment prior to decontamination, repair, and/or packaging of waste for disposal. Equipment located in the Hot Cell Containment Building can be moved, using an overhead crane and a power manipulator, into the Remote Decontamination Maintenance Cave for decontamination and size reduction for waste packaging, or decontamination for maintenance.

Due to the radiation and contamination levels, personnel are prohibited from entering and working in Room P-0123. All activities within the room will be remotely controlled. The hot cell provides secondary containment for tank systems located in the room, and for tank systems located in adjacent black cells. The hot cell floor provides primary containment for spills that occur during associated maintenance activities.

The Pretreatment Hot Cell Containment Building contains two tank systems, three primary containment sumps and three miscellaneous units.

Cesium Ion Exchange Process System

Cesium Exchange Columns CXP-IXC-00001/2/3/4 remove cesium from permeate produced by the ultrafiltration system and are regulated as dangerous waste tanks.

Ultrafilter Process System

Ultrafilters UFP-FILT-00001A-5A and UFP-FILT-00001B-5B concentrate the waste feed for the HLW vitrification process and are regulated as dangerous waste tanks.

Primary Containment Sumps

The hot cell floor slopes to three primary containment sumps; PWD System Sumps PWD-SUMP-00026, PWD-SUMP-00028, and PWD-SUMP-00029. Design, construction, and operating requirements applicable to primary containment sumps are detailed in DWP III.10.E. Each primary containment sump will have a steam ejector for transferring liquids to PWD System Vessel PWD-VSL-00044. The sumps will be covered with stainless steel grating and/or screen mesh to protect the ejectors from debris. Figure 4A-128 in Appendix 4A contains a conceptual design for a typical, primary containment sump.

LAW Evaporator Reboiler Miscellaneous Unit

Waste is pumped through LAW Evaporator Reboiler TLP-RBLR-00001 and concentrated by flash evaporation. The concentrated waste is transferred to the Treated LAW Evaporator Separator Vessel TLP-SEP-00001.

Cesium Evaporator Concentrate Reboiler

Dilute acidic solution from Cesium Evaporator Separator Vessel CNP-EVAP-00001 is recirculated through Reboiler CNP-HX-00001 and concentrated by flash evaporation.

When the LAW melter has reached the end of its operating life, it is disconnected from all systems and all penetrations on the enclosure are seal welded before it is be moved out of the LAW vitrification facility. Prior to deployment the LSM is surveyed and decontaminated as required and is loaded on the TOC melter transport system.

4E.3 Containment Buildings

This section describes how these units are designed and operated, in accordance with the requirements of WAC 173-303-695, which incorporates 40 CFR 264 Subpart DD, "Containment Buildings", by reference. Regulatory citations in this section list the applicable section of the CFR to make it easier for readers to find the requirement. A typical containment building is illustrated in Chapter 4A, Figure 4A-59.

There are twenty-one containment buildings at the WTP: five located within the pretreatment facility; six in the LAW vitrification facility; and ten in the HLW vitrification facility. The regulated units in the LAW vitrification facility are:

- LAW LSM gallery containment building (L-0112)
- ILAW container finishing containment building (L-0109B, L-0109C, L-0109D, L-0109E, L-0115B, L-0115C, L-0115D, L-0115E, L-0116A)
- LAW vitrification facility consumable import/export containment building (L-0119B)
- LAW vitrification facility C3 workshop containment building (L-0226A)
- LAW pour cave containment building (L-B009B, L-B011B, L-B011C, L-B013B, L-B013C, L-B015A)
- ILAW container buffer storage containment building (L-B025C, L-B025D)

Table 4E-5 summarizes the units within the LAW vitrification facility. The following figures and drawings found in DWP Operating Unit Group 10 provide further detail for the containment buildings:

- Figure 4A-59 depicting common features of containment buildings.
- General arrangement figures and drawings showing locations of containment buildings.
- Waste management area figures showing containment building locations to be permitted.

~~Control of fugitive emissions from containment buildings is described in *Fugitive Emissions Control Description* (24590-WTP-PER-HV-02-001) located in Operating Unit Group 10 Appendix 7.15.~~

Control of fugitive emissions from containment buildings is described in Chapter 4 Process Information, Section 4.2.10.5 Ventilation Control.

The following sections address each of the containment buildings.

4E.3.1 LAW LSM Gallery Containment Building (L-0112)

There will be six containment buildings in the LAW vitrification facility. The first is the LAW LSM gallery containment building, which will house the two LAW Melters. The LAW Melters are designed to include a roller or wheel assembly that travels on rails that will be used to move the melters in and out of the containment building. Spent LAW Melters will be disconnected from the offgas system, feed lines, electrical lines, and instrumentation. Open ports will be seal welded. The sealed exterior of the melter will be decontaminated, if needed, prior to removal from the containment building.

LAW LSM Gallery Containment Building Design

The LAW LSM gallery containment building will be completely enclosed within the LAW vitrification facility. The unit will be designed to prevent the release and exposure of dangerous constituents to the outside environment. The design and construction of the LAW vitrification facility exterior will prevent water from running into the facility.

Table 4F-6 summarizes the units within the HLW vitrification facility. The following figures and drawings found in DWP Operating Unit Group 10 provide further detail for the containment buildings:

- Figure 4A-59 depicting common features of containment buildings.
- General arrangement figures and drawings showing locations of containment buildings.
- Waste management area figures showing containment building locations to be permitted.

~~Control of fugitive emissions from containment buildings is described in *Fugitive Emissions Control Description* (24590-WTP-PER-HV-02-001) located in Operating Unit Group 10 Appendix 7.15.~~

Control of fugitive emissions from containment buildings is described in Chapter 4 Process Information, Section 4.2.10 Air Emissions.

The following sections address each of the containment buildings.

4F.3.1 HLW Melter Cave 1 Containment Building (H-0117, H-0116B, H-0310A) and HLW Melter Cave 2 Containment Building (H-0106, H-0105B, H-0304A)

The HLW melter cave 1 and HLW melter cave 2 containment buildings are located in the central portion of the HLW vitrification facility. Each of the containment buildings will house an HLW melter cave, an overpack C3/C5 airlock, and an equipment decontamination pit.

Typical waste management activities performed in these containment buildings include the dismantling and packaging of spent consumables and decontamination of equipment for hands-on maintenance. The types of spent consumables will include waste recirculators, lid heaters, bubblers, thermocouples, and jumpers. When spent consumables are ready for change out, they will be placed on a consumable storage rack while awaiting size reduction. The consumables will be reduced in size by dismantling or cutting the spent equipment, or both. This process will be remotely conducted on tables in the containment building. The spent consumables will be placed in baskets and lowered into containers in a transfer tunnel that passes under the HLW melter cave 1 and 2 containment buildings (H-0117, H-0116B, H-0310A and H-0106, H-0105B, H-0304A). The C3/C5 airlocks will be used for packing or unpacking melters or their components.

In case of a HLW melter failure, the melter will be evaluated for meeting the receiving TSD waste acceptance criteria, particularly in terms of the radiological contamination in the HLW glass residue present in the melter, before it is placed in an overpack.

The equipment decontamination pit located within the melter cave containment building will house the Decontamination Tanks (HSH-TK-00001/2) where equipment removed from the melter cave will be decontaminated prior to maintenance. The equipment will be initially decontaminated by soaking in the decontamination tank. After evaluation, additional decontamination may be performed using manipulators before the levels are acceptable for hands-on maintenance.

Located within the melter cave containment building will be the HLW melter; the submerged bed scrubber and HEMEs, which will function as part of the melter offgas system, the Feed Preparation Vessels (HFP-VSL-00001/5), and the HLW Melter Feed Vessels (HFP-VSL-00002/6). These tank systems will have secondary containment.

HLW Melter Cave 1 and HLW Melter Cave 2 Containment Building Design

The two HLW melter containment buildings are completely enclosed within the HLW vitrification facility. Each of the melter cave containment buildings will house an HLW melter cave, an overpack C3/C5 airlock cell, and an equipment decontamination pit. Both melter cave containment buildings are designed to prevent the release of dangerous constituents and exposure to the outside environment. The design and construction of the HLW vitrification facility exterior will prevent water from running into the facility. The roof of the HLW vitrification facility will be metal. Run-off will be collected by roof drains

engineering design minimizes the likelihood of tank, ancillary equipment, and containment system overflows, and over-pressurization, ruptures, leaks, corrosion, and other failures.

In general, overflows are prevented by inventory control in conjunction with level monitoring. The fluid levels in a vessel are maintained within low- and high-level ranges. Appropriate alarm settings are used to note deviations from the designed settings. Automatic trip action is designed to shut down feed to the vessel when the high-level settings are exceeded. These automatic trip actions are provided for vessels with the potential for high operational and environmental impact in case of an accident or release.

Most of the WTP tank systems are designed to incorporate minimal or zero maintenance requirements and are based on a design life of approximately 40 years. The design emphasis of zero maintenance minimizes the likelihood of spills and overflows in the tank systems. In the event that the process controls fail to prohibit vessel overfilling, engineered overflows are provided to prevent liquid from entering the vessel ventilation systems. Vessels that are nominally operating at atmospheric pressure have a suitable gravity or engineered overflow system, unless an overflow can be shown not to be possible. Vessels or systems that normally operate at above atmospheric pressures are not be provided with overflows.

The following principles apply when designing an engineered overflow system:

- The overflow system for vessels must be instantaneously and continuously available for use.
- Overflowed process streams must be returned to the waste treatment process.
- Overflow systems must meet the requirements of WAC 173-303, *Dangerous Waste Regulations*, Section 640, Tank Systems. In meeting these requirements, overflowing direct to the cell floor is only considered as the last overflow in a cascaded system. Where an overflow is from a vessel to the cell, the overflow system maintains segregation of the cell and vessel ventilation systems. The compatibility of the overflowing liquid and the recipient vessel is considered.
- A vessel overflow line is sized to handle the maximum inflow to the vessel without the liquid level in the overflowing tank reaching an unacceptably high level. No valves or other restrictions are permitted in the overflow line. This line is also designed to prevent the buildup of material that could cause blockages.
- The overflow receiver is sufficiently sized to contain the overflow.
- Inspections are performed on the various tank and overflow systems, using the example schedules described in DWP Operating Unit Group 10, Chapter 6A.

4.2.9 Labels or Signs

Tanks managing mixed or dangerous waste are labeled according to the requirements of DWP permit conditions DWP III.10.E.5.e, for routinely non-accessible tanks, and DWP III.10.E.5.f, for tanks not addressed in DWP III.10.E.5.e. The labels inform employees and emergency personnel of the types of waste present, warn of the identified risks, and provide other pertinent information.

4.2.10 Air Emissions

~~This section describes air emissions from vessel ventilation systems and reverse flow diverter exhausts. Organic emissions from vents associated with evaporator or distillation units are also discussed.~~

4.2.10.1 Tank System Emissions

Most of the tanks are connected to a vessel ventilation system to collect vapors. Vessel vents are located on process vessels and tanks, breakpots, and other small vessels. Exhaust from reverse flow diverters and pulse jet mixers are also collected.

4.2.10.2 Process Vents

The air emission regulations, specified under WAC 173-303-690 and 40 CFR 264 Subpart AA, apply to process vents associated with distillation, fractionation, thin-film evaporation, and air or steam stripping operations that manage mixed waste with total organic carbon concentrations of at least 10 parts per million by weight. The WTP does not use these regulated processes; therefore, this regulation does not apply to the WTP.

4.2.10.3 Equipment Leaks

Regulations provided in WAC 173-303-691 and 40 CFR 264 Subpart BB contain the "Air Emission Standards for Equipment Leaks". These air emission standards do not apply to the WTP because waste feed entering the WTP contains less than 10% total organic carbon by weight and is excluded under 40 CFR 264.1050(b).

4.2.10.4 Tanks and Containers

The regulations specified under WAC 173-303-692 and 40 CFR 264 Subpart CC do not apply to the WTP mixed waste tank systems and containers. These tanks and containers qualify as waste management units that are "used solely for the management of radioactive dangerous waste in accordance with applicable regulations under the authority of the Atomic Energy Act and the Nuclear Waste Policy Act" and are excluded under 40 CFR 264.1080(b)(6). Containers bearing nonradioactive, dangerous waste, such as maintenance and laboratory waste, that is not excluded under 40 CFR 264.1080 (b)(2) or 40 CFR 264.1080(b)(8), will comply with the tank and container standards specified under 40 CFR 264 Subpart CC.

4.2.10.5 Ventilation Control

This section describes air emissions from vessel ventilation systems and reverse flow diverter exhausts. Organic emissions from vents associated with evaporator or distillation units are also discussed.

In compliance with the Washington Administrative Code, WAC 173-303-695, WTP facilities have been designed to prevent fugitive emissions of contaminants from containment buildings within the WTP permitted facilities through pathways other than HEPA-filtered and monitored discharge points to the environment. WTP HVAC systems, in conjunction with the building structures provide the confinement system needed to prevent exit of contaminants from WTP facilities through doors, windows, building cracks or other unmonitored and unfiltered exit paths directly to the environment.

The WTP facilities are designed such that they are segregated into confinement zones for ventilation control purposes. WTP confinement zones consist of barriers or barrier systems, which includes walls, floors and roofs, and the associated HVAC systems.

WTP facilities' ventilation confinement zones consist of the following:

Confinement Zone	Contamination Classification	Ventilation Design Philosophy Definitions
Primary	C5	Plant areas and associated ventilation ductwork that are in direct contact with airborne contaminants to adjacent zones under both normal and abnormal operating conditions. Maintained at approximately (-) 1.0 to (-) 1.4 inches of water relative to C3 areas.
Secondary	C3	Contaminated areas where work requires protective clothing. Maintained at maximum negative pressure of (-) 0.4-inches of water relative to surrounding C2 areas.
Tertiary	C2	Controlled Area. Operating areas of the process building that have direct interfaces with contaminated areas and have the potential to be contaminated.

		Maintained at a slight negative pressure with respect to atmosphere.

Information regarding specific facilities can be found in Chapters 4D.3, 4E.3, and 4F.3.

Airborne contaminants in C2 areas will cascade to C3 areas or be removed by C2 exhaust system HEPA filters prior to discharge to the environment. Airborne contaminants in C3 areas will cascade to C5 areas or be removed by C3 exhaust system HEPA filters prior to discharge to the environment, including releases from containment buildings within C3 areas. Airborne contaminant in C5 areas will be removed by C5 exhaust system HEPA filters prior to discharge to the environment, including releases from containment buildings within C5 areas.

The systems are interlocked such that the exhaust system serving areas of lesser contamination potential can not operate without the exhaust systems serving areas of higher contamination potential operating. This precludes pressurization of WTP areas and possible fugitive dust emissions from the facility through doors, windows, building cracks, or other unmonitored and unfiltered exit paths.

The following design features and operational measures will be used to prevent fugitive dust from escaping from containment buildings resulting in unfiltered and unmonitored releases to the environment, and control fugitive emissions such that openings will not exhibit visible emissions:

- Cascading air flow from areas of least potential contamination to areas of greatest potential contamination (i. e., C2 to C3 to C5 areas).
- Greater negative pressure in confinement areas compared to outside environment pulls air into the area preventing backflow
- Intake from one confinement zone to another through air in-bleed units, with isolation and backflow control type features
- HEPA filtration of exhausted air is monitored prior to atmosphere discharge through the exhaust stack. C2 and C3 exhaust systems have one stage of HEPA filters. C5 exhaust systems have two stages of HEPA filters.
- Redundant exhaust fans maintain negative pressure and cascading airflow during normal operation, routine fan maintenance and repair conditions.
- Personnel ingress and egress through airlocks and subchange rooms.
- Dedicated HEPA-filter systems will be provided for each maintenance area, workshop, and decontamination room where local process-generated airborne contaminants will be collected to prevent spread outside of the area.
- Containment buildings (i.e., cells or areas) are typically located within C3 or C5 areas for control of airborne contamination.
- Containment buildings are located within ventilation-controlled process facilities.

4.2.11 Management of Ignitable, Reactive and Incompatible Waste in Tanks

In the Baseline configuration, mixed waste from the Hanford Tank Farms is initially designated as both ignitable (D001) and reactive (D003). The D001 and D003 waste numbers are as described in the waste analysis plan in DWP Operating Unit Group 10, Appendix 3A. The Pretreatment Facility process vessels are located in a manner that meets the National Fire Protection Association (NFPA) buffer zone requirements for process vessels, as contained in Tables 2-1 through 2-6 of the *NFPA-30 Flammable and Combustible Liquids Code* (NFPA 1981). The process vessels are designed to store the waste in such a way that it is protected from materials or conditions that could cause the contents to ignite or react. Vessel contents will be constantly mixed and will be actively vented to process stacks, which will be

Quarter Ending September 30, 2018

24590-WTP-PCN-ENV-18-008

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Part III, Operating Unit 10
Waste Treatment and Immobilization Plant

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Correct error in Appendix 1.5, High Level Waste Facility (HLW) Interim Compliance Schedule Section III.10.J.5.

High Level Waste Facility (HLW) Interim Compliance Schedule Section III.10.J.5 with redline changes.

Submitted by Co-Operator:

Roger J. Landon 8/2/18

Roger J. Landon *Date*

Reviewed by ORP Program Office:

8-20-18

Thomas W. Fletcher *Date*

Quarter Ending June 30, 2018

24590-WTP-PCN-ENV-18-008

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

Description of Modification:

The purpose of this Class 1 modification is to update Appendix 1.5, High Level Waste Facility (HLW) Interim Compliance Schedule Section III.10.J.5 to correct typographical errors.

This modification requests Ecology approval and incorporation into the permit of the updated text in Section III.10.J.5 where references to LAW should be changed to HLW. Also, this section references Permit Condition III.10.11.5 where it should reference Permit Condition III.10.J.5.

In accordance with Permit Condition III.10.C.2.e, this permit modification sent to Ecology may include page changes to the Permit, attachments, and permit application supporting documentation

WAC 173-303-830 Modification Class:	Class 1	Class [1]1	Class 2	Class 3
Please mark the Modification Class:	X			

Enter relevant WAC 173-303-830, Appendix I Modification citation number: A.2

Enter wording of WAC 173-303-830, Appendix I Modification citation: Correction to typographical error.

Modification Approved/Concur: [X] Yes [ ] Denied (state reason below)

Reason for denial:

Reviewed by Ecology:

S. Dahl 10/2/18

S. Dahl Date

WASTE TREATMENT AND IMMOBILIZATION PLANT
APPENDIX 1.5
WTP INTERIM COMPLIANCE SCHEDULE
WTP HIGH-LEVEL WASTE FACILITY

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
11/28/2017	8C.2017.8F

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APPENDIX 1.5
WTP INTERIM COMPLIANCE SCHEDULE
WTP HIGH-LEVEL WASTE FACILITY

High-Level Waste Facility Interim Compliance Schedule		
	Compliance Schedule Submittal	**Interim Compliance Date[1]**
	III.10.C.2	
HLW-1	Submit documentation stating the Waste Treatment and Immobilization Plant (WTP) High-Level Waste (HLW) Facility has been constructed in compliance with the Permit.	12/31/2030
	III.10.C.3	
HLW-3	Update and submit Waste Analysis Plan and associated Quality Assurance Project Plan (Chapter 3A and 3B) to Ecology for review and approval.	6/30/2030
	III.10.C.5	
HLW-4	Update and submit Procedures to Prevent Hazards and Inspection Schedule (Chapter 6 and Chapter 6A) to Ecology for review and approval.	6/30/2030
	III.10.C.6	
HLW-5	Update and submit the Contingency Plan (Chapter 7) to Ecology for review and approval.	6/30/2030
	III.10.C.7	
HLW-6	Update and submit Training Program (Chapter 8) to Ecology for review and approval.	6/30/2030
HLW-7	Submit under separate cover the actual WTP Dangerous Waste Training Plan for incorporation into Administrative Record.	6/30/2030
	III.10.C.8	
HLW-8	Update and resubmit the Closure Plan (Chapter 11) to Ecology for review and approval.	6/30/2030
	CONTAINERS III.10.D.10	
HLW-11	Update and submit descriptions of container management practices (Appendix 4F) to Ecology for review and approval.	6/30/2030
HLW-46	Submit the updated BOF-001 permit package associated with the Failed Melter Storage Building (Building 32)	6/30/2030
	TANK SYSTEMS III.10.E.9	
HLW-13	Update and submit engineering information for each dangerous waste tank and primary sump (Appendix 4F) to Ecology for review and approval.	6/30/2030

High-Level Waste Facility Interim Compliance Schedule		
	Compliance Schedule Submittal	**Interim Compliance Date[1]**
HLW-14	Update and submit engineering information for each tank system ancillary equipment (Appendix 4F) to Ecology for review and approval.	6/30/2030
HLW-15	Update and submit descriptions of tank management practices (Appendix 4F) to Ecology for review and approval.	6/30/2030
	CONTAINMENT BUILDINGS III.10.F.7	
HLW-17	Update and submit descriptions of containment building management practices (Appendix 4F) to Ecology for review and approval.	6/30/2030
	HLW~~LAW~~ SHORT TERM MELTER UNIT III.10.J~~11~~.5	
HLW-30	Update and submit descriptions of management practices for the HLW Vitrification Miscellaneous Treatment System (Appendix 4F) to Ecology for review and approval.	6/30/2030
HLW-31	Submit HLW~~LAW~~ Vitrification Environmental Performance Demonstration Test Plan for Ecology review and approval.	1/30/2030
	REPORT OF PROGRESS	
HLW-45	Update and submit Process Information (Chapter 4) to Ecology for review and approval.	6/30/2030
	FINAL COMPLIANCE DATE	
HLW-32	Final Compliance Date (Hot Commissioning Complete).	12/31/2033

[1]The HLW compliance date (HLW-1) and final compliance (HLW-32) have been revised to reflect dates established in the Amended Consent Decree, *State of Washington v. Dept. of Energy*, (Case 2:08-CV-08-5085-RMP (E.D. WA March 11, 2016)

Quarter Ending Dec. 31, 2018 24590-WTP-PCN-ENV-18-012

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

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Submitted by Co-Operator:

Roger J. Landon 9/4/18

Roger J. Landon Date

Reviewed by ORP Program Office:

10/10/18

Thomas W. Fletcher Date

Quarter Ending Dec. 31, 2018

24590-WTP-PCN-ENV-18-012

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

Description of Modification:

Section 3A.6 Land Disposal Restrictions Evaluation for Immobilized Waste of the WAP has been revised to reflect new regulations in WAC 173-303-910(6) regarding site-specific variances.

The following sentence replaces the reference from EPA approval to Ecology approval:

Consequently, the WTP is preparing a petition for a site-specific variance as directed under 40 CFR 268.44(h) that would specify high-level waste vitrification (HLVIT) as the method of treatment for Hanford tank waste processed through the Waste Treatment and Immobilization Plant for all applicable waste codes.

In accordance with Permit Condition III.10.C.2.e, this permit modification includes a redline Chapter 3A for inclusion in the WTP Permit.

WAC 173-303-830 Modification Class:	Class 1	Class [1]1	Class 2	Class 3
Please mark the Modification Class:		X		

Enter relevant WAC 173-303-830, Appendix I Modification citation number:
Enter wording of WAC 173-303-830, Appendix I Modification citation:

Modification Approved/Concur: ☑ Yes ☐ Denied (state reason below)

Reason for denial:

Reviewed by Ecology:

S. Dahl 12/6/2018

S. Dahl Date

(1) All hazardous constituents in the waste or in the treatment residue must be at or below the values found in the table for that waste ("total waste standards"); or

(2) The hazardous constituents in the extract of the waste or in the extract of the treatment residue must be at or below the values found in the table ("waste extract standards"); or

(3) The waste must be treated using the technology specified in the table ("technology standard"), which are described in detail in § 268.42, Table 1 – Technology Codes and Description of Technology-Based Standards.

The total waste standards and waste extract standards require repeated sampling and analysis of the waste to demonstrate that the dangerous constituents in the waste are at or below the values found in the table. These standards are appropriate for a limited dangerous waste stream, but are not a good choice for a mixed waste stream of extended duration because of repeated human exposure during sampling and analysis.

Table 1 in 40 CFR 268.42, *Land Disposal Restrictions – Treatment Standards Expressed as Specified Technologies*, includes the technology-based standard "HLVIT" (high-level vitrification). At the request of DOE, the HLVIT treatment technology was promulgated by the EPA to treat the tank waste at the Savannah River Site (refer to *Land Disposal Restrictions for Third Third Scheduled Wastes; Rule* [EPA 1990]). According to the table in 40 CFR 268.40 regarding treatment standards for hazardous wastes, HLVIT is the technology for the treatment of the following dangerous waste numbers from radioactive high-level wastes generated during the reprocessing of fuel rods:

D002	Corrosivity (pH)
D004	Arsenic
D005	Barium
D006	Cadmium
D007	Chromium (total)
D008	Lead
D009	Mercury
D010	Selenium
D011	Silver

Similar to the treatment of the Savannah River Site tank waste, the treatment of the Hanford tank waste will require many years of WTP operation. Rather than repeated sampling and analysis of the waste to demonstrate LDR using the total waste standard or the waste extract standard, it would be appropriate to treat the Hanford tank waste to a specific treatment standard (e.g., the HLVIT technology-based standard described above for the Savannah River Site tank waste). Consequently, the WTP is preparing a petition for a site-specific variance as directed under 40 CFR 268.44(h) that would specify high-level waste vitrification (HLVIT) as the method of treatment for Hanford tank waste processed through the Waste Treatment and Immobilization Plant for all applicable waste codes.
~~to the EPA and Ecology to establish a new treatment standard that will be specific to the Hanford tank waste. The new treatment standard would specify vitrification as the land disposal treatment standard for tank waste for the characteristic and listed waste numbers applicable to the Hanford tank waste.~~

~~As required by 40 CFR 268.44, the petition will be submitted in accordance with the procedures specified in 40 CFR 260.20, *Hazardous Waste Management System General*. Report RPT-W375LV-EN00002, *Approach to Immobilized Hanford Tank Waste Land Disposal Restrictions Compliance*, describes the petition process. The negotiated petition will be published in the Federal Register for public comment. After successful resolution of public comments, the EPA would promulgate a final rule establishing the treatment standard. The Hanford tank waste would then meet LDR through treatment by the promulgated treatment standard.~~

Hanford Facility RCRA Permit Modification Notification Forms

Part III, Operating Unit Group 16

400 Area Waste Management Unit

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Page 2 of 3: Unit specific conditions

Page 3 of 3: Revision Instructions

Submitted by Co-Operator:

Deborah Singleton — Date: 10-18-18

Reviewed by DOE Program Office:

Duane Carter — Date: 10-18-18

Hanford Facility RCRA Permit Modification Form

Unit:	Permit Part
400 Area Waste Management Unit	***Part III, Operating Unit Group 16***

Description of Modification:

Unit Specific Conditions - Remove references to Permit Condition II.I.2, which no longer exists in the Permit. This change applies to Condition: III.16.D.1.

replace with the Permit condition II.I.1

SLD

WAC 173-303-830 Modification Class	Class 1	Class 1	Class 2	Class 3
Please mark the Modification Class:	~~X~~ e	X		

Enter relevant WAC 173-303-830, Appendix I Modification citation number: SLD

A.1 Administrative and informational changes

Modification Concurrence: Approved ☑ Yes ☐ No

Reason for Non-concurrence:

Reviewed by Ecology:

S. L. Dahl-Crumpler — Date 11/8/18

Revision Instructions:

Revise 400 Area Waste Management Unit Permit Conditions (unit-specific) to incorporate the changes shown herein.

ACRONYMS

FFTF	Fast Flux Test Facility
CCP	Core Component Pot
PPA	Property Protected Area
ISA	Interim Storage Area
FSF	Fuel Storage Facility
WMU	Waste Management Unit

III.16.A COMPLIANCE WITH UNIT-SPECIFIC PERMIT CONDITIONS

III.16.A.1 The Permittees will comply with all conditions in this Chapter and its addenda with respect to dangerous waste management and dangerous waste management units in the 400 Area WMU, in addition to conditions in Permit Parts I and II.

III.16.B GENERAL WASTE MANAGEMENT

III.16.B.1 The Permittees are authorized to accept, according to the waste acceptance procedure documented in Addendum B, Section B.2, mixed debris generated from demolition and decommissioning of the Fast Flux Test Facility reactor system containing or contaminated with residual elemental sodium and sodium hydroxide. The Permittee will store these wastes in the ISA.

III.16.B.2 The Permittees are authorized to store core component pots generated prior to the effective date of this permit in two large metal boxes in the 400 Area WMU, FSF.

III.16.B.3 The Permittees are authorized store mixed waste in the ISA up to a maximum capacity of 19,000 gallons.

III.16.B.4 The Permittees will maintain the physical structure of dangerous waste management units in the 400 Area WMU as documented in the Unit Description above and Addendum C, Figures C.1 and C.2.

III.16.B.5 The Permittees will maintain appropriate administrative controls and work practices to ensure that only wastes specified in Permit Condition III.16.B.1, are received by the ISA for storage, and that no co-mingling or cross-contamination of the waste stream specified in Permit Condition III.16.B.1 with any other waste stream may occur.

III.16.C WASTE ANALYSIS

III.16.C.1 The Permittees will have an accurate and complete waste profile for the waste stream identified in Permit Condition III.16.B.1. This waste profile will be signed and dated upon approval by the 400 Area WMU authorized representative. [WAC 173-303-380(1)(a)]

III.16.C.2 The Permittees will make a copy of the waste profile required by Permit Condition III.16.C.1 available upon request. [WAC 173-303-815(2)(b)(ii)]

III.16.D RECORDKEEPING AND REPORTING

III.16.D.1 The Permittees will place the following into the Hanford Facility Operating Record, 400 Area WMU File ~~required by Permit Condition II.I.2~~ required by Permit Condition II.I.1 [WAC 173-303-380]

SD

III.16.D.2 Records required by WAC 173-303-380(1)(o), incorporated by reference.

III.16.E SECURITY

III.16.E.1 The Permittees will post warning signs at all entrances to the FSF and the ISA specified in Addendum E, Section E.1.1. [WAC 173-303-310(2)(a)]

III.16.F PREPAREDNESS AND PREVENTION

Hanford Facility RCRA Permit Modification Notification Forms

Part V, Closure Unit CUG-2

1301-N Liquid Waste Disposal Facility

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Page 3 of 6	Parts I & II, Standard and General Conditions (Pages 14, 48, and 49)
Page 4 of 6	Attachment 9 Permit Applicability Matrix (Page 11)
Page 5 of 6	1301-N Liquid Waste Disposal Facility Unit Specific Conditions and Chapters
Page 6 of 6	Revision Instructions

Submitted by Co-Operator:

Co-Operator Name — Date: 12/05/2018

Reviewed by DOE Program Office:

DOE Program Office Name — Date: 12-6-18

Hanford Facility RCRA Permit Modification Form

Unit:	Permit Part
N/A	Part I & II Standard & General Conditions

Description of Modification:

List of Attachments (page 9) – Revisions are needed to address the change history for Attachment 9.

WAC 173-303-830 Modification Class	Class 1	Class 1	Class 2	Class 3
Please mark the Modification Class:	X			

Enter relevant WAC 173-303-830, Appendix I Modification citation number:

A.1. Administrative and informational changes

Modification ~~Approved~~ Concurred: ☑ Yes ☐ No

Reason for non-concurrence:

Reviewed by Ecology:

S. L. Dahl-Crumpler

12-12-18

Date

Hanford Facility RCRA Permit Modification Form

Unit:	Permit Part
N/A	Part I & II Standard & General Conditions

Description of Modification:

Changes are needed to convey the removal of 1301-N Liquid Waste Disposal Facility Closure Unit Group 2 (CUG-2) requirements from the permit. Revisions are made to pages 14, 48, and 49 to show this unit is being retired from the permit Revision 8C and to identify the date of closure (18-NWP-188, 11/28/18).

WAC 173-303-830 Modification Class	Class 1	Class 1	Class 2	Class 3
Please mark the Modification Class:		X		

The permittees request that proposed changes be reviewed and approved as a Class 1-prime modification pursuant to WAC 173-303-830(4)(d).

The permittees have completed closure activities following the approved Closure Plan, Chapter 4.0 for CUG-2. DOE submitted information to demonstrate completion of closure activities (19-AMRP-0024, dated 11/14/18). Ecology issued a letter accepting the clean closure certification on 11/28/18 (18-NWP-188).

This modification is the final step in removing requirements for the 1301-N Liquid Waste Disposal Facility CUG-2 from the permit.

Modification Approved: ☑ Yes ☐ No (state reason for denial)

Reason for denial:

Reviewed by Ecology:

12-12-18

S. L. Dahl-Crumpler Date

Hanford Facility RCRA Permit Modification Form

Unit:	Permit Part
N/A	Attachment 9, Permit Applicability Matrix

Description of Modification:

Changes are needed to convey the removal of 1301-N Liquid Waste Disposal Facility Closure Unit Group 2 (CUG-2) requirements from the permit. Revisions are made to page 11 to show this unit is being retired from the permit Revision 8C (18-NWP-188, 11/28/18).

WAC 173-303-830 Modification Class	Class 1	Class 1	Class 2	Class 3
Please mark the Modification Class:		X		

The permittees request that proposed changes be reviewed and approved as a Class 1-prime modification pursuant to WAC 173-303-830(4)(d).

The permittees have completed closure activities following the approved Closure Plan, Chapter 4.0 for CUG-2. DOE submitted information to demonstrate completion of closure activities (19-AMRP-0024, dated 11/14/18). Ecology issued a letter accepting the clean closure certification on 11/28/18 (18-NWP-188).

This modification is the final step in removing requirements for the 1301-N Liquid Waste Disposal Facility CUG-2 from the permit.

Modification Approved: ☑ Yes ☐ No (state reason for denial)

Reason for denial:

Reviewed by Ecology:

S. L. Dahl-Crumpler

12-12-18
Date

Hanford Facility RCRA Permit Modification Form

Unit:	Permit Part
1301-N Liquid Waste Disposal Facility	**Part V, Closure Unit Group CUG-2**

Description of Modification:

Changes are needed to retire permit requirements for the 1301-N Liquid Waste Disposal Facility, Closure Unit Group 2. The following CUG-2 Chapters are being removed from the permit:

- Unit Specific Conditions
- Chapter 1.0: Part A Form
- Chapter 2.0: Unit Description
- Chapter 3.0: Groundwater Monitoring
- Chapter 4.0: Closure Activities
- Chapter 5.0: Post-closure Plan

WAC 173-303-830 Modification Class	Class 1	Class 1	Class 2	Class 3
Please mark the Modification Class:	X			

The permittees request that proposed changes be reviewed and approved as a Class 1-prime modification pursuant to WAC 173-303-830(4)(d).

The permittees have completed closure activities following the approved Closure Plan, Chapter 4.0 for CUG-2. DOE submitted information to demonstrate completion of closure activities (19-AMRP-0024, dated 11/14/18). Ecology issued a letter accepting the clean closure certification on 11/28/18 (18-NWP-188).

This modification is the final step in removing requirements for the 1301-N Liquid Waste Disposal Facility CUG-2 from the permit.

Modification ~~Approved~~ Concurred: ☑ Yes ☐ No (state reason for denial)

Reason for denial:

Reviewed by Ecology:

S. L. Dahl-Crumpler

12-12-18

Date

Remove and Replace the Following Pages:

Revise the Parts I & II (Standard & General Conditions) as shown herein.
Revise Attachment 9 (Permit Applicability Matrix) as shown herein.
Remove 1301-N Liquid Waste Disposal Facility Unit Specific Conditions
Remove Chapter 1.0: Part A Form
Remove Chapter 2.0: Unit Description
Remove Chapter 3.0: Groundwater Monitoring
Remove Chapter 4.0: Closure Activities
Remove Chapter 5.0: Post-closure Plan

LIST OF ATTACHMENTS

The following listed documents are attached in their entirety. However, only those portions of the attachments specified in Parts I through VI are enforceable conditions of this Permit and subject to the permit modification requirements of Permit Condition I.C.3. Changes to portions of the attachments, which are not subject to the permit modification process, will be addressed in accordance with Permit Conditions I.E.8, I.E.11, I.E.13, I.E.15, through I.E.20, and I.E.22. The Washington State Department of Ecology (Ecology) has, as deemed necessary, modified specific language in these attachments. These modifications are described in the conditions (Parts I through VI), and thereby supersede the language of the attachment.

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Attachment 4	*Hanford Emergency Management Plan*, DOE/RL-94-02 Revision 6, as amended and approved modifications
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Attachment 6	Reports and Records, dated September 18, 2018
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Attachment 9	Permit Applicability Matrix, dated ~~August 28~~December 31, 2018
Attachment 10	Purgewater Management Plan, July 1990

Unit	Permit Revision		Comments/History
	Incorporated	Retired	
PART III, OPERATING UNITS			
616 Non-Radioactive Dangerous Waste Storage Facility	Rev. 6	Rev. 7	Closed, 9/5/01
242-A Evaporator	Rev. 4		
305-B Storage Facility	Rev. 0		Closed, 7/2/07
325 Hazardous Waste Treatment Units	Rev. 4		RLWT procedural closure, 9/04
LERF & 200 Area ETF	Rev. 4		
PUREX Storage Tunnels	Rev. 3		
Waste Treatment and Immobilization Plant	Rev. 7		Permitted unit under construction
Integrated Disposal Facility	Rev. 8A		
331-C Storage Unit	Rev. 8B	Rev. 8C	Closed, 7/22/11
400 Area Waste Management Unit	Rev. 8C		
PART IV, CORRECTIVE ACTION			
100-NR-1 Operable Unit	Rev. 6		
100-NR-2 Operable Unit	Rev. 6	Rev. 8C	Retired, 9/30/09
PART V, UNDERGOING CLOSURE UNITS			
100-D Ponds	Rev. 5	Rev. 6	Closed, 8/9/99
105 DR Large Sodium Fire Facility	Rev. 2	Rev. 6	Closed, 7/1/04
1301-N Liquid Waste Disposal Facility	Rev. 5	Rev. 8C	Closed, 11/28/18
1324-N Surface Impoundment	Rev. 5	Rev. 8C	Closed, 04/25/17
1324-NA Percolation Pond	Rev. 5	Rev. 8C	Closed, 04/25/17
1325-N Liquid Waste Disposal Facility	Rev. 5		
200 West Area Ash Pit Demo Site	Rev. 1	Rev. 6	Closed, 11/28/95
2101-M Pond	Rev. 1	Rev. 6	Closed, 11/28/95
216-B-3 Expansion Ponds	Rev. 1	Rev. 6	Closed, 7/31/95
218-E-8 Borrow Demolition Site	Rev. 1	Rev. 6	Closed, 11/28/95
2727-S Storage Facility	Rev. 0	Rev. 6	Closed, 7/31/95
300 Area Solvent Evaporator	Rev. 0	Rev. 6	Closed, 7/31/95
300 Area Waste Acid Treatment System	Rev. 6	Rev. 8B	Closed, 1/21/05

II.Z.1.b The proposed method of treatment, storage or disposal is that practicable method currently available to the Permittee, which minimizes the present and future threat to human health and the environment.

II.Z.2 The Permittee will maintain each such certification of waste minimization in the operating record as required by Permit Condition II.I.1.

II.AA Air Emission Standards for Process Vents

The Permittees will comply with applicable requirements of WAC 173-303-690 for process vents associated with Part III units performing specific separations processes unless exempted by WAC 173-303-690(1)(d). Threshold limits applied to process vents potentially requiring emission controls subject to WAC 173-303-690 are evaluated based on the summation of applicable emission sources for the entire Hanford Facility. When the summed emissions fall below threshold limits in 40 CFR 264.1032(a)(1), no emission control devices are required. If threshold limits in 40 CFR 264.1032(a)(1) are predicted to be exceeded, the Permittees will notify Ecology to determine the appropriate course of action. Unit-specific information is contained in Part III of the Permit for applicable units.

II.BB Air Emission Standards for Equipment Leaks

The Permittees will comply with applicable requirements of WAC 173-303-691 for certain equipment leaks associated with Part III units unless exempted by WAC 173-303-691(1)(e) or (f). Air emission standards apply to equipment that contacts or contains hazardous wastes with organic concentrations of at least 10 percent by weight. Unit-specific information is contained in Part III of the Permit for applicable units.

II.CC Air Emission Standards for Tanks, Surface Impoundments, and Containers

The Permittees shall comply with applicable requirements of WAC 173-303-692 for containers, tanks, and surface impoundment areas associated with Part III units unless exempted by WAC 173-303-692(1)(b). Unit-specific information is contained in Part III of the Permit for applicable units.

PART III UNIT-SPECIFIC CONDITIONS FOR FINAL STATUS OPERATIONS

Operating Unit 2, PUREX Storage Tunnels

Operating Unit 3, Liquid Effluent Retention Facility and 200 Area Effluent Treatment Facility

Operating Unit 4, 242-A Evaporator

Operating Unit 5, 325 Hazardous Waste Treatment Units

Operating Unit 10, Waste Treatment and Immobilization Plant

Operating Unit 11, Integrated Disposal Facility

Operating Unit 16, 400 Area Waste Management Unit

PART IV UNIT SPECIFIC CONDITIONS FOR CORRECTIVE ACTION

Corrective Action Unit 1, 100-NR-1

PART V UNIT-SPECIFIC CONDITIONS FOR UNITS UNDERGOING CLOSURE

Closure Unit 1, 1325-N Liquid Waste Disposal Facility

~~Closure Unit 2, 1301-N Liquid Waste Disposal Facility~~

Closure Unit 6, Waste Encapsulation and Storage Facility Hot Cells A through F

PART VI UNIT-SPECIFIC CONDITIONS FOR UNITS IN POST-CLOSURE

Post Closure Unit 1, 300 Area Process Trenches

Post Closure Unit 2, 183-H Solar Evaporation Basins

UNITS RETIRED FROM THE PERMIT

100 D Ponds (Closed 8/9/99)

105-DR Large Sodium Fire Facility (Closed 7/1/04)

100-NR-2 Operable Unit (9/30/09)

200 West Area Ash Pit Demolition Site (Closed 11/28/95)

2101-M Pond (Closed 11/28/95)

216-B-3 Expansion Ponds (Closed 7/31/95)

218-E-8 Borrow Pit Demolition Site (Closed 11/28/95)

224-T Transuranic Waste Storage and Assay Facility (Closed 11/12/08)

241-Z Treatment and Storage Tanks (Closed 2/22/07)

2727-S Nonradioactive Dangerous Waste Storage Facility (Closed 7/31/95)

300 Area Solvent Evaporator (Closed 7/31/95)

300 Area Waste Acid Treatment System (Closed 10/30/2005)

303-K Storage Facility (Closed 7/22/02)

303-M Oxide Facility (Closed 6/15/06)

304 Concretion Facility (Closed 1/21/96)

305-B Storage Facility (Closed 7/2/07)

3718-F Alkali Metal Treatment and Storage Facility Closure Plan (Closed 8/4/98)

4843 Alkali Metal Storage Facility Closure Plan (Closed 4/14/97)

Hanford Patrol Academy Demolition Site (Closed 11/28/95)

Plutonium Finishing Plant Treatment Unit (Closed 2/8/05)

Simulated High Level Waste Slurry Treatment and Storage Unit (Closed 10/23/95)

FS-1 Outdoor Container Storage Area (Closed 10/25/2016)

616 Non-Radioactive Dangerous Waste Storage Facility (Closed 9/5/01)

331-C Storage Unit (Closed 7/22/11)

207-A South Retention Basin (Closed 5/18/17)

1324-N Surface Impoundment & 1324-NA Percolation Pond (Closed 4/25/2017)

1706-KE Waste Treatment System Facility (Closed 1/11/18)

600 Area Purgewater Storage and Treatment Facility (Closed 2/16/18)

1301-N Liquid Waste Disposal Facility (Closed 11/28/18)

PART III									
CONDITION		**CATEGORY**							**QUALIFIERS**
PART	**TITLE**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	
III.	**Unit Specific Conditions for Final Status Operations**								
III.2	PUREX Storage Tunnels						*		
III.3	Liquid Effluent Retention Facility & 200 Area Effluent Treatment Facility						*		
III.4	242-A Evaporator						*		
III.5	325 Hazardous Waste Treatment Units						*		
III.10	Waste Treatment and Immobilization Plant						*		
III.11	Integrated Disposal Facility						*		
III.16	400 Area Waste Management Unit						*		
PART IV									
IV.	**Unit Specific Conditions for Corrective Action**								
IV.1	100-NR-1				*	*			
PART V									
V.	**Unit Specific Conditions for Units Undergoing Closure**								
V.1	1325-N Liquid Waste Disposal Facility					*			
~~V.2~~	~~1301-N Liquid Waste Disposal Facility~~					~~*~~			
V.6	Waste Encapsulation and Storage Facility Hot Cells A through F					*			

CATEGORIES ARE DEFINED AS FOLLOWS:

H. Leased Land
I. North Slope and Arid Lands Ecology Reserve (ALE)
J. Interim Status Treatment, Storage, or Disposal Facility (TSD) Units
K. Areas Between TSDs (excluding A and B)
L. TSD Unit Closures (in Part V)
M. TSD Operating Units (in Part III)
N. TSD Units in Post-Closure/Modified Closure (in Part VI)

* Condition applies to this category, as modified by applicable footnotes and qualifiers.

1 – For Category B, Part I Conditions only apply if future TSD activities are begun on the North Slope or ALE.

2 – For Category C, all Part I Conditions apply to activities subject to Conditions II.U. and II.V.

3 – For Category D, Part I Conditions only apply to activities subject to Conditions II.A., II.C., II.D.4., II.G., II.I., II.L.2.e, II.O., II.Q., II.S., II.T., II.X., and II.Y.

Hanford Facility RCRA Permit Modification Notification Forms

Part V, Closure Unit CUG-1

1325-N Liquid Waste Disposal Facility

Index

Page 2 of 6:	Parts I & II, Standard and General Conditions (List of Attachments, Page 9)
Page 3 of 6	Parts I & II, Standard and General Conditions (Pages 14, 48, and 49)
Page 4 of 6	Attachment 9 Permit Applicability Matrix (Page 11)
Page 5 of 6	1325-N Liquid Waste Disposal Facility Unit Specific Conditions and Chapters
Page 6 of 6	Revision Instructions

Submitted by Co-Operator:		Reviewed by DOE Program Office:	
	12/05/2018		12-6-18
Co-Operator Name	Date	DOE Program Office Name	Date

Hanford Facility RCRA Permit Modification Form

Unit:	Permit Part
N/A	Part I & II Standard & General Conditions

Description of Modification:

List of Attachments (page 9) – Revisions are needed to address the change history for Attachment 9.

WAC 173-303-830 Modification Class	Class 1	Class 1	Class 2	Class 3
Please mark the Modification Class:	X			

Enter relevant WAC 173-303-830, Appendix I Modification citation number:
A.1. Administrative and informational changes

Modification ~~Approved~~ Concurred: [✓] Yes [ ] No

Reason for non-concurrence:

Reviewed by Ecology:

S. L. Dahl-Crumpler 12-12-18
Date

Hanford Facility RCRA Permit Modification Form

Unit:	Permit Part
N/A	Part I & II Standard & General Conditions

Description of Modification:

Changes are needed to convey the removal of 1325-N Liquid Waste Disposal Facility Closure Unit Group 1 (CUG-1) requirements from the permit. Revisions are made to pages 14, 48, and 49 to show this unit is being retired from the permit Revision 8C and to identify the date of closure (18-NWP-188, 11/28/18).

WAC 173-303-830 Modification Class	Class 1	Class '1	Class 2	Class 3
Please mark the Modification Class:		X		

The permittees request that proposed changes be reviewed and approved as a Class 1-prime modification pursuant to WAC 173-303-830(4)(d).

The permittees have completed closure activities following the approved Closure Plan, Chapter 4.0 for CUG-1. DOE submitted information to demonstrate completion of closure activities (19-AMRP-0024, dated 11/14/18). Ecology issued a letter accepting the clean closure certification on 11/28/18 (18-NWP-188).

This modification is the final step in removing requirements for the 1325-N Liquid Waste Disposal Facility CUG-1 from the permit.

Modification Approved: [✓] Yes [ ] No (state reason for denial)

Reason for denial:

Reviewed by Ecology:

S. L. Dahl-Crumpler 12-12-18 Date

Hanford Facility RCRA Permit Modification Form

Unit:	Permit Part
N/A	Attachment 9, Permit Applicability Matrix

Description of Modification:

Changes are needed to convey the removal of 1325-N Liquid Waste Disposal Facility Closure Unit Group 1 (CUG-1) requirements from the permit. Revisions are made to page 11 to show this unit is being retired from the permit Revision 8C (18-NWP-188, 11/28/18).

WAC 173-303-830 Modification Class	Class 1	Class 1	Class 2	Class 3
Please mark the Modification Class:		X		

The permittees request that proposed changes be reviewed and approved as a Class 1-prime modification pursuant to WAC 173-303-830(4)(d).

The permittees have completed closure activities following the approved Closure Plan, Chapter 4.0 for CUG-1. DOE submitted information to demonstrate completion of closure activities (19-AMRP-0024, dated 11/14/18). Ecology issued a letter accepting the clean closure certification on 11/28/18 (18-NWP-188).

This modification is the final step in removing requirements for the 1325-N Liquid Waste Disposal Facility CUG-1 from the permit.

Modification Approved: ☑ Yes ☐ No (state reason for denial)

Reason for denial:

Reviewed by Ecology:

S. L. Dahl-Crumpler 12-12-18 Date

Hanford Facility RCRA Permit Modification Form

Unit:	Permit Part
1325-N Liquid Waste Disposal Facility	**Part V, Closure Unit Group CUG-1**

Description of Modification:

Changes are needed to retire permit requirements for the 1325-N Liquid Waste Disposal Facility, Closure Unit Group 1. The following CUG-1 Chapters are being removed from the permit:

- Unit Specific Conditions
- Chapter 1.0: Part A Form
- Chapter 2.0: Unit Description
- Chapter 3.0: Groundwater Monitoring
- Chapter 4.0: Closure Activities
- Chapter 5.0: Post-closure Plan

WAC 173-303-830 Modification Class	Class 1	Class 1	Class 2	Class 3
Please mark the Modification Class:	X			

The permittees request that proposed changes be reviewed and approved as a Class 1-prime modification pursuant to WAC 173-303-830(4)(d).

The permittees have completed closure activities following the approved Closure Plan, Chapter 4.0 for CUG-1. DOE submitted information to demonstrate completion of closure activities (19-AMRP-0024, dated 11/14/18). Ecology issued a letter accepting the clean closure certification on 11/28/18 (18-NWP-188).

This modification is the final step in removing requirements for the 1325-N Liquid Waste Disposal Facility CUG-1 from the permit.

Modification ~~Approved~~ Concurred: [✓] Yes [ ] No (state reason for denial)

Reason for denial:

Reviewed by Ecology:

S. L. Dahl-Crumpler 12-12-18 Date

Remove and Replace the Following Pages:

Revise the Parts I & II (Standard & General Conditions) as shown herein.
Revise Attachment 9 (Permit Applicability Matrix) as shown herein.
Remove 1325-N Liquid Waste Disposal Facility Unit Specific Conditions
Remove Chapter 1.0: Part A Form
Remove Chapter 2.0: Unit Description
Remove Chapter 3.0: Groundwater Monitoring
Remove Chapter 4.0: Closure Activities
Remove Chapter 5.0: Post-closure Plan

LIST OF ATTACHMENTS

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Unit	Permit Revision		Comments/History
	Incorporated	Retired	
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242-A Evaporator	Rev. 4		
305-B Storage Facility	Rev. 0		Closed, 7/2/07
325 Hazardous Waste Treatment Units	Rev. 4		RLWT procedural closure, 9/04
LERF & 200 Area ETF	Rev. 4		
PUREX Storage Tunnels	Rev. 3		
Waste Treatment and Immobilization Plant	Rev. 7		Permitted unit under construction
Integrated Disposal Facility	Rev. 8A		
331-C Storage Unit	Rev. 8B	Rev. 8C	Closed, 7/22/11
400 Area Waste Management Unit	Rev. 8C		
PART IV, CORRECTIVE ACTION			
100-NR-1 Operable Unit	Rev. 6		
100-NR-2 Operable Unit	Rev. 6	Rev. 8C	Retired, 9/30/09
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100-D Ponds	Rev. 5	Rev. 6	Closed, 8/9/99
105 DR Large Sodium Fire Facility	Rev. 2	Rev. 6	Closed, 7/1/04
1301-N Liquid Waste Disposal Facility	Rev. 5		
1324-N Surface Impoundment	Rev. 5	Rev. 8C	Closed, 04/25/17
1324-NA Percolation Pond	Rev. 5	Rev. 8C	Closed, 04/25/17
1325-N Liquid Waste Disposal Facility	Rev. 5	Rev. 8C	Closed, 11/28/18
200 West Area Ash Pit Demo Site	Rev. 1	Rev. 6	Closed, 11/28/95
2101-M Pond	Rev. 1	Rev. 6	Closed, 11/28/95
216-B-3 Expansion Ponds	Rev. 1	Rev. 6	Closed, 7/31/95
218-E-8 Borrow Demolition Site	Rev. 1	Rev. 6	Closed, 11/28/95
2727-S Storage Facility	Rev. 0	Rev. 6	Closed, 7/31/95
300 Area Solvent Evaporator	Rev. 0	Rev. 6	Closed, 7/31/95
300 Area Waste Acid Treatment System	Rev. 6	Rev. 8B	Closed, 1/21/05

II.Z.1.b The proposed method of treatment, storage or disposal is that practicable method currently available to the Permittee, which minimizes the present and future threat to human health and the environment.

II.Z.2 The Permittee will maintain each such certification of waste minimization in the operating record as required by Permit Condition II.I.1.

II.AA Air Emission Standards for Process Vents

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II.BB Air Emission Standards for Equipment Leaks

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PART III UNIT-SPECIFIC CONDITIONS FOR FINAL STATUS OPERATIONS

Operating Unit 2, PUREX Storage Tunnels

Operating Unit 3, Liquid Effluent Retention Facility and 200 Area Effluent Treatment Facility

Operating Unit 4, 242-A Evaporator

Operating Unit 5, 325 Hazardous Waste Treatment Units

Operating Unit 10, Waste Treatment and Immobilization Plant

Operating Unit 11, Integrated Disposal Facility

Operating Unit 16, 400 Area Waste Management Unit

PART IV UNIT SPECIFIC CONDITIONS FOR CORRECTIVE ACTION

Corrective Action Unit 1, 100-NR-1

PART V UNIT-SPECIFIC CONDITIONS FOR UNITS UNDERGOING CLOSURE

~~Closure Unit 1, 1325-N Liquid Waste Disposal Facility~~

Closure Unit 2, 1301-N Liquid Waste Disposal Facility

Closure Unit 6, Waste Encapsulation and Storage Facility Hot Cells A through F

PART VI UNIT-SPECIFIC CONDITIONS FOR UNITS IN POST-CLOSURE

Post Closure Unit 1, 300 Area Process Trenches

Post Closure Unit 2, 183-H Solar Evaporation Basins

UNITS RETIRED FROM THE PERMIT

100 D Ponds (Closed 8/9/99)

105-DR Large Sodium Fire Facility (Closed 7/1/04)

100-NR-2 Operable Unit (9/30/09)

200 West Area Ash Pit Demolition Site (Closed 11/28/95)

2101-M Pond (Closed 11/28/95)

216-B-3 Expansion Ponds (Closed 7/31/95)

218-E-8 Borrow Pit Demolition Site (Closed 11/28/95)

224-T Transuranic Waste Storage and Assay Facility (Closed 11/12/08)

241-Z Treatment and Storage Tanks (Closed 2/22/07)

2727-S Nonradioactive Dangerous Waste Storage Facility (Closed 7/31/95)

300 Area Solvent Evaporator (Closed 7/31/95)

300 Area Waste Acid Treatment System (Closed 10/30/2005)

303-K Storage Facility (Closed 7/22/02)

303-M Oxide Facility (Closed 6/15/06)

304 Concretion Facility (Closed 1/21/96)

305-B Storage Facility (Closed 7/2/07)

3718-F Alkali Metal Treatment and Storage Facility Closure Plan (Closed 8/4/98)

4843 Alkali Metal Storage Facility Closure Plan (Closed 4/14/97)

Hanford Patrol Academy Demolition Site (Closed 11/28/95)

Plutonium Finishing Plant Treatment Unit (Closed 2/8/05)

Simulated High Level Waste Slurry Treatment and Storage Unit (Closed 10/23/95)

FS-1 Outdoor Container Storage Area (Closed 10/25/2016)

616 Non-Radioactive Dangerous Waste Storage Facility (Closed 9/5/01)

331-C Storage Unit (Closed 7/22/11)

207-A South Retention Basin (Closed 5/18/17)

1324-N Surface Impoundment & 1324-NA Percolation Pond (Closed 4/25/2017)

1706-KE Waste Treatment System Facility (Closed 1/11/18)

600 Area Purgewater Storage and Treatment Facility (Closed 2/16/18)

1325-N Liquid Waste Disposal Facility (Closed 11/28/18)

PART III									
CONDITION		**CATEGORY**							**QUALIFIERS**
PART	**TITLE**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	
III.	**Unit Specific Conditions for Final Status Operations**								
III.2	PUREX Storage Tunnels						*		
III.3	Liquid Effluent Retention Facility & 200 Area Effluent Treatment Facility						*		
III.4	242-A Evaporator						*		
III.5	325 Hazardous Waste Treatment Units						*		
III.10	Waste Treatment and Immobilization Plant						*		
III.11	Integrated Disposal Facility						*		
III.16	400 Area Waste Management Unit						*		
PART IV									
IV.	**Unit Specific Conditions for Corrective Action**								
IV.1	100-NR-1				*	*			
PART V									
V.	**Unit Specific Conditions for Units Undergoing Closure**								
~~V.1~~	~~1325-N Liquid Waste Disposal Facility~~					~~*~~			
V.2	1301-N Liquid Waste Disposal Facility					*			
V.6	Waste Encapsulation and Storage Facility Hot Cells A through F					*			

CATEGORIES ARE DEFINED AS FOLLOWS:

H. Leased Land

I. North Slope and Arid Lands Ecology Reserve (ALE)

J. Interim Status Treatment, Storage, or Disposal Facility (TSD) Units

K. Areas Between TSDs (excluding A and B)

L. TSD Unit Closures (in Part V)

M. TSD Operating Units (in Part III)

N. TSD Units in Post-Closure/Modified Closure (in Part VI)

* Condition applies to this category, as modified by applicable footnotes and qualifiers.

1 – For Category B, Part I Conditions only apply if future TSD activities are begun on the North Slope or ALE.

2 – For Category C, all Part I Conditions apply to activities subject to Conditions II.U. and II.V.

3 – For Category D, Part I Conditions only apply to activities subject to Conditions II.A., II.C., II.D.4., II.G., II.I., II.L.2.e, II.O., II.Q., II.S., II.T., II.X., and II.Y.