

ENCLOSURE

Class I modifications for quarter ending September 30, 2009

Ms. Greta P. Davis, Ecology  
Consisting of 286 pages, including cover sheet

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**Hanford Facility RCRA Permit Modification Notification Forms**

**Permit Revision 8C  
Hanford Facility RCRA Permit**

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Reviewed by RL Program Office:

  
Ray J. Corey

  
Date



<b>Hanford Facility RCRA Permit Modification Notification Form</b>				
Unit: <b>Permit Revision 8C</b>	Permit Part & Chapter: <b>Hanford Facility RCRA Permit</b>			
<u>Description of Modification:</u> Permit Introduction				
<b>Introduction</b>				
<p>Where information regarding treatment, management, and disposal of the radioactive source, byproduct material, special nuclear material (as defined by the Atomic Energy Act of 1954, as amended) and/or the radionuclide component of mixed waste has been incorporated into this permit, it is not incorporated for the purpose of regulating the radiation hazards of such components under the authority of this permit or Chapter 70.105 RCW.</p> <p>Pursuant to Chapter 70.105 RCW, the Hazardous Waste Management Act (HWMA) of 1976, as amended, Chapter 70.105D RCW, the Model Toxics Control Act (MTCA), and regulations promulgated there under by the Washington State Department of Ecology (hereafter called Ecology), codified in Chapter 173-303 Washington Administrative Code (WAC), Dangerous Waste Regulations, a Dangerous Waste Permit is issued to the United States Department of Energy (USDOE) - Richland Operations Office (RL) and Office of River Protection (ORP) [owner/operator], and its contractors [co-operators], Bechtel National, Incorporated (BNI), CH2MHILL Plateau Remediation Company (CHPRC), <u>Mission Support Alliance, LLC (MSA)</u> Fluor Hanford, Inc. (FH), Pacific Northwest National Laboratory (PNNL), Washington Closure Hanford, LLC (WCH), and Washington River Protection Solutions, LLC (WRPS) and hereafter called the Permittees, for the treatment, storage, and disposal of dangerous waste at the Hanford Facility.</p> <p>This Dangerous Waste Permit, issued in conjunction with the United States Environmental Protection Agency's (hereafter called EPA) Hazardous and Solid Waste Amendments Portion of the Resource Conservation and Recovery Act (RCRA) Permit for the Treatment, Storage, and Disposal (TSD) of Hazardous Waste (HSWA Permit), constitutes the RCRA Permit for the Hanford Facility. Use of the term "Permit" within the Dangerous Waste Permit will refer to the Dangerous Waste Permit, while use of the term "Permit" within the HSWA Permit, will refer to the HSWA Permit. Use of the same term in both the Dangerous Waste Permit and the HSWA Permit, will have the standard meaning associated with the activities addressed by the permit in which the term is used. Such meanings will prevail, except where specifically stated otherwise.</p>				
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:				
A.1. General Permit Provisions, Administrative and informational changes				
Modification Approved/Concur	<input type="checkbox"/> Yes <input type="checkbox"/> No (state reason for denial)		Reviewed by Ecology:	
<u>Reason for denial:</u>				
		G. P Davis		Date

### Hanford Facility RCRA Permit Modification Notification Form

Unit:  
**Permit Revision 8C**

Permit Part & Chapter:  
**Hanford Facility RCRA Permit**

Description of Modification: Permit Status Table

#### Permit Status Table

...

UNIT	Permit Revision		Comments/History
	Incorporated	Retired	
<b>PART III, OPERATING UNITS</b>			
616 Nonradioactive DWSF	Rev. 6	Rev. 7	Closed, 9/5/01
242-A Evaporator	Rev. 4		
305-B Storage Facility	Rev. 0	Rev. 8C	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		
400 Area Waste Management Unit	Rev. 8C		
<b>PART IV, CORRECTIVE ACTION</b>			
100-NR-1 Operable Unit	Rev. 6		
100-NR-2 Operable Unit	Rev. 6	Rev. 8C	Retired, 9/30/09

...

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:

A.1. General Permit Provisions, Administrative and informational changes

Modification Approved/Concur  Yes  No (state reason for denial)

Reason for denial:

Reviewed by Ecology:

G. P Davis

Date

<b>Hanford Facility RCRA Permit Modification Notification Form</b>				
Unit: <b>Permit Revision 8C</b>	Permit Part & Chapter: <b>Hanford Facility RCRA Permit</b>			
<p><u>Description of Modification:</u> Permit Definitions</p> <p><b>Definitions</b></p> <p>Except with respect to those terms specifically defined below, all definitions contained in the <a href="#">HFFACO</a>, May 1989, as amended, and in <a href="#">WAC 173-303-040</a> and other portions of <a href="#">Chapter 173-303 WAC</a> are hereby incorporated, in their entirety, by reference into this Permit. For terms defined in both <a href="#">Chapter 173-303 WAC</a> and the <a href="#">HFFACO</a>, the definitions contained in <a href="#">Chapter 173-303 WAC</a> will control within this Permit. Nonetheless, this Permit is intended to be consistent with the <a href="#">HFFACO</a>.</p> <p>Where terms are not defined in the regulations, the Permit, or the <a href="#">HFFACO</a>, a standard dictionary reference, or the generally accepted scientific or industrial meaning of the terms will define the meaning associated with such terms.</p> <p>As used in this Permit, words in the masculine gender also include the feminine and neuter genders, words in the singular include the plural, and words in the plural include the singular.</p> <p>The following definitions apply throughout this Permit:</p> <p>The term "<b>Area of Concern</b>" means any area of the Facility where a release of dangerous waste or dangerous constituents has occurred, is occurring, is suspected to have occurred, or threatens to occur.</p> <p>The term "<b>Contractor(s)</b>" means, unless specifically identified otherwise in this Permit, or Attachments, <del>Fluor Hanford, Inc. (FH)</del>, Bechtel National, Inc. (BNI), CH2M HILL Plateau Remediation Company, Inc. (CHPRC), <a href="#">Mission Support Alliance, LLC (MSA)</a>, Pacific Northwest National Laboratory (PNNL), Washington Closure Hanford, LLC (WCH), and Washington River Protection Solutions, LLC (WRPS).</p> <p>...</p> <p>The term "<b>Permittees</b>" means the United States Department of Energy (owner/operator), Bechtel National, Inc. (Co-operator), CH2M HILL Plateau Remediation Company (Co-operator), <a href="#">Mission Support Alliance, LLC (MSA)</a>, <del>Fluor Hanford Inc.</del>, Pacific Northwest National Laboratory (Co-operator), Washington Closure Hanford, LLC (Co-operator), Washington River Protection Solutions, LLC.</p> <p>...</p>				
WAC 173-303-830 Modification Class	Class 1	Class 1	Class 2	Class 3
Please mark the Modification Class:	X			
<p>Enter relevant WAC 173-303-830, Appendix I Modification citation number: A.1</p> <p>Enter wording of WAC 173-303-830, Appendix I Modification citation:</p> <p>A.1. General Permit Provisions, Administrative and informational changes</p>				
Modification Approved/Concur <input type="checkbox"/> Yes <input type="checkbox"/> No (state reason for denial)			Reviewed by Ecology:	
<u>Reason for denial:</u>			_____ G. P Davis Date	

<b>Hanford Facility RCRA Permit Modification Notification Form</b>				
Unit: <b>Permit Revision 8C</b>	Permit Part & Chapter: <b>Hanford Facility RCRA Permit</b>			
<u>Description of Modification:</u> Permit Acronyms				
<b>Acronyms</b>				
...				
FH _____ Fluor Hanford, Inc.				
...				
<u>MSA</u> _____ <u>Mission Support Alliance, LLC</u>				
...				
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:				
A.1. General Permit Provisions, Administrative and informational changes				
Modification Approved/Concur <input type="checkbox"/> Yes <input type="checkbox"/> No (state reason for denial)			Reviewed by Ecology:	
<u>Reason for denial:</u>				
			G. P Davis _____ Date	

<b>Hanford Facility RCRA Permit Modification Notification Form</b>					
Unit: <b>Permit Revision 8C</b>	Permit Part & Chapter: <b>Hanford Facility RCRA Permit</b>				
<u>Description of Modification:</u> Permit Condition I.A.3					
I.A.1	<p>USDOE is responsible for activities which include, but are not limited to, the overall management and operation of the Facility.</p> <p>BNI is identified as a Permittee for activities subject to the Conditions of this Permit where its agents, employees, or subcontractors have operational and/or management responsibilities and control.</p> <p>CHPRC is identified as a Permittee for activities subject to the Conditions of this Permit where its agents, employees, or subcontractors have operational and/or management responsibilities and control.</p> <p><del>HH</del><u>MSA</u> is identified as a Permittee for activities subject to the Conditions of this Permit where its agents, employees, or subcontractors have operational and/or management responsibilities and control.</p> <p>PNNL is identified as a Permittee for activities subject to the Conditions of this Permit where its agents, employees, or subcontractors have operational and/or management responsibilities and control.</p> <p>WCH is identified as a Permittee for activities subject to the Conditions of this Permit where its agents, employees, or subcontractors have operational and/or management responsibilities and control.</p> <p>WRPS is identified as a Permittee for activities subject to the Conditions of this Permit where its agents, employees, or subcontractors have operational and/or management responsibilities and control.</p>				
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					
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A.1. General Permit Provisions, Administrative and informational changes					
Modification Approved/Concur <input type="checkbox"/> Yes <input type="checkbox"/> No (state reason for denial)			Reviewed by Ecology:		
<u>Reason for denial:</u>					
			G. P Davis		Date

<b>Hanford Facility RCRA Permit Modification Notification Form</b>				
Unit: <b>Permit Revision 8C</b>	Permit Part & Chapter: <b>Hanford Facility RCRA Permit</b>			
<p><u>Description of Modification:</u> Part IV Units Retired from the Permit Revision 8C</p> <p><b>PART IV, UNIT-SPECIFIC CONDITIONS FOR UNITS IN POST-CLOSURE</b></p> <p>Corrective Action Unit 1, 100-NR-1  <del>Corrective Action Unit 2, 100-NR-2</del>                      ...</p> <p><b>UNITS RETIRED FROM THE PERMIT</b></p> <p>100 D Ponds (Closed 8/9/99)                      105-DR Large Sodium Fire Facility (Closed 7/1/04)  <u>100-NR-2 Operable Unit (Retired 9/30/09)</u>                      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)</p>				
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: A.1. General Permit Provisions, Administrative and informational changes				
Modification Approved/Concur <input type="checkbox"/> Yes <input type="checkbox"/> No (state reason for denial) <u>Reason for denial:</u>		Reviewed by Ecology:		
		_____ G. P Davis Date		

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**Hanford Facility RCRA Permit Modification Notification Forms**

**Permit Revision 8C  
Hanford Facility RCRA Permit**

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- Replace Permit Revision 8C dated December 31, 2008 with the attached Permit Revision 8C dated September 30, 2009.

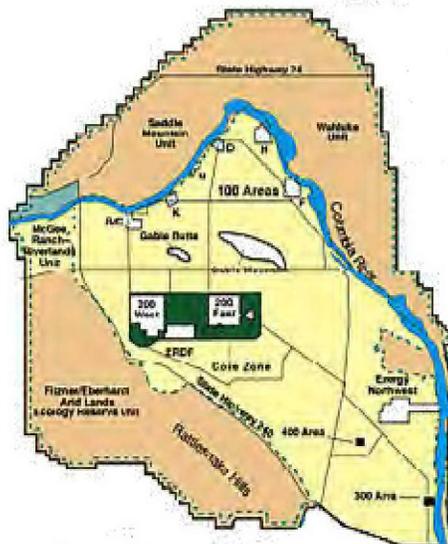
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# Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion

Revision 8C

For the Treatment, Storage, and Disposal of Dangerous Waste



Washington State Department of Ecology  
Nuclear Waste Program

September 2009

Permit Number: WA7 89000 8967  
Revision Number: 8C

Class 1 Modification  
September 30, 2009

For additional copies of this permit contact:

Washington State Department of Ecology  
3100 Port of Benton Boulevard  
Richland, Washington 99354-1670  
509-372-7950

*The Department of Ecology is an equal-opportunity agency and does not discriminate on the basis of race, creed, color disability, age, religion, national origin, sex, marital status, disabled-veteran status, Vietnam-era veteran status or sexual orientation.*

*For more information or if you have special accommodation needs, please contact the Nuclear Waste Program at (509) 372-7950.*

*Department of Ecology Headquarters telecommunications device for the deaf (TDD) number is: (360) 407-6006*

1 **DANGEROUS WASTE PORTION OF THE**  
2 **RESOURCE CONSERVATION AND RECOVERY ACT PERMIT**  
3 **FOR THE TREATMENT, STORAGE, AND DISPOSAL OF DANGEROUS WASTE**

4 Washington State Department of Ecology  
5 Nuclear Waste Program  
6 3100 Port of Benton Boulevard  
7 Richland, Washington 99354  
8 Telephone: 509-372-7950

9 Issued in accordance with the applicable provisions of the Hazardous Waste Management Act,  
10 Chapter [70.105](#) Revised Code of Washington (RCW), and the regulations promulgated there under in  
11 [Chapter 173-303](#) Washington Administrative Code (WAC).

---

12 **ISSUED TO:**

United States Department of Energy  
Richland Operations Office  
(Owner/Operator)  
P.O. Box 550, MSIN A7-50  
Richland, Washington 99352  
Telephone: (509) 376-7395

Mission Support Alliance  
2490 Garlick, MSIN H1-30  
Richland, Washington 99354  
Telephone: (509) 376-1310

Washington Closure Hanford, LLC  
(Co-operator)  
2620 Fermi Avenue, MSIN H4-24  
Richland, Washington 99354  
Telephone: (509) 372-9951

Pacific Northwest National Laboratory  
(Co-operator)  
P.O. Box 999, MSIN K1-46  
Richland, Washington 99352  
Telephone: (509) 375-5911

United States Department of Energy  
Office of River Protection  
(Owner/Operator)  
P.O. Box 450, MSIN H6-60  
Richland, Washington 99352  
Telephone: (509) 372-3062

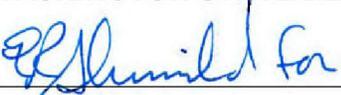
Bechtel National, Inc.  
(Co-Operator)  
2435 Stevens Center Place MSIN H4-02  
Richland, Washington 99354  
Telephone: (509) 371-2335

Washington River Protection Solutions, LLC  
(Co-operator)  
P.O. Box 1500, MSIN H6-63  
Richland, Washington 99352  
Telephone: (509) 372-9138

CH2MHILL Plateau Remediation Company  
(Co-operator)  
P.O. Box 1600, MSIN H7-30  
Richland, Washington 99352  
Telephone: (509) 376-0556

13 This Permit as modified on October 22, 2007, will remain in effect until reissuance of the  
14 September 27, 2004 Permit, unless revoked and reissued under [WAC 173-303-830\(3\)](#), terminated under  
15 [WAC 173-303-830\(5\)](#), or continued in accordance with [WAC 173-303-806\(7\)](#).

16 **ISSUED BY:**  
17 **WASHINGTON STATE DEPARTMENT OF ECOLOGY**

18   
\_\_\_\_\_

Date: 10/17/07

19 Jane A. Hedges, Program Manager  
20 Nuclear Waste Program, Department of Ecology

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1 **List of Attachments**

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

- 9 Attachment 1 Hanford Federal Facility Agreement and Consent Order, (as amended)  
10 <http://www.hanford.gov/tpa/coverpg.htm>
- 11 Attachment 2 Hanford Facility Legal Description, from Class <sup>1</sup>1 modification, dated  
12 January 7, 1999
- 13 Attachment 3 Permit Applicability Matrix, dated March 2006
- 14 Attachment 4 *Hanford Emergency Management Plan*, DOE/RL-94-02 Revision 2, as amended and  
15 approved modifications
- 16 Attachment 5 Purgewater Management Plan, July 1990
- 17 Attachment 6 Hanford Well Maintenance and Inspection Plan, BHI-01265, Revision 0, May 1999
- 18 Attachment 7 Policy on Remediation of Existing Wells and Acceptance Criteria for RCRA and  
19 CERCLA, June 1990
- 20 Attachment 33 Hanford Facility Dangerous Waste Permit Application General Information Portion,  
21 DOE/RL-91-28, Revision 7, and approved modifications

22

1 **Introduction**

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2 Where information regarding treatment, management, and disposal of the radioactive source, byproduct  
3 material, special nuclear material (as defined by the Atomic Energy Act of 1954, as amended) and/or the  
4 radionuclide component of mixed waste has been incorporated into this permit, it is not incorporated for  
5 the purpose of regulating the radiation hazards of such components under the authority of this permit or  
6 [Chapter 70.105 RCW](#).

7 Pursuant to [Chapter 70.105 RCW](#), the Hazardous Waste Management Act (HWMA) of 1976, as  
8 amended, [Chapter 70.105D RCW](#), the Model Toxics Control Act (MTCA), and regulations promulgated  
9 there under by the Washington State Department of Ecology (hereafter called Ecology), codified in  
10 [Chapter 173-303](#) Washington Administrative Code (WAC), Dangerous Waste Regulations, a Dangerous  
11 Waste Permit is issued to the United States Department of Energy (USDOE) - Richland Operations Office  
12 (RL) and Office of River Protection (ORP) [owner/operator], and its contractors [co-operators], Bechtel  
13 National, Incorporated (BNI), CH2MHILL Plateau Remediation Company (CHPRC), Mission Support  
14 Alliance, LLC (MSA)], Pacific Northwest National Laboratory (PNNL), Washington Closure  
15 Hanford, LLC (WCH), and Washington River Protection Solutions, LLC (WRPS) and hereafter called the  
16 Permittees, for the treatment, storage, and disposal of dangerous waste at the Hanford Facility.

17 This Dangerous Waste Permit, issued in conjunction with the United States Environmental Protection  
18 Agency's (hereafter called EPA) Hazardous and Solid Waste Amendments Portion of the Resource  
19 Conservation and Recovery Act (RCRA) Permit for the Treatment, Storage, and Disposal (TSD) of  
20 Hazardous Waste (HSWA Permit), constitutes the RCRA Permit for the Hanford Facility. Use of the  
21 term "Permit" within the Dangerous Waste Permit will refer to the Dangerous Waste Permit, while use of  
22 the term "Permit" within the HSWA Permit, will refer to the HSWA Permit. Use of the same term in both  
23 the Dangerous Waste Permit and the HSWA Permit, will have the standard meaning associated with the  
24 activities addressed by the permit in which the term is used. Such meanings will prevail, except where  
25 specifically stated otherwise.

26 The Permittees will comply with all terms and conditions set forth in this Permit and those portions of the  
27 Attachments that have been specifically incorporated into this Permit. When the Permit and the  
28 Attachments (except Permit Attachment 1) conflict, the wording of the Permit will prevail. The Permit is  
29 intended to be consistent with the terms and conditions of the Hanford Federal Facility Agreement and  
30 Consent Order ([HFFACO, Permit Attachment 1](#)). The Permittees will also comply with all applicable  
31 state regulations, including [Chapter 173-303 WAC](#).

32 Applicable state regulations are those which are in effect on the date of issuance, or as specified in  
33 subsequent modifications of this Permit. In addition, applicable state regulations include any self-  
34 implementing statutory provisions and related regulations which, according to the requirements of the  
35 HWMA, as amended, or other law(s), are automatically applicable to the Permittees' dangerous waste  
36 management activities, notwithstanding the conditions of this Permit.

37 This Permit is based upon the Administrative Record, as required by [WAC 173-303-840](#). The Permittees'  
38 failure in the application, or during the Permit issuance process, to fully disclose all relevant facts, or the  
39 Permittees' misrepresentation of any relevant facts at any time, will be grounds for the termination or  
40 modification of this Permit and/or initiation of an enforcement action, including criminal proceedings.  
41 The Permittees will inform Ecology of any deviation from the Permit conditions, or changes in the  
42 information on which the application is based, which would affect either the Permittees' ability to  
43 comply, or actual compliance with the applicable regulations or the Permit conditions, or which alters any  
44 condition of this Permit in any way.

1 Ecology will enforce all conditions of this Permit for which the State of Washington is authorized, or  
2 which are "state-only" provisions (i.e., conditions broader in scope or more stringent than the federal  
3 RCRA program). Any challenges of any Permit condition may be appealed in accordance with  
4 [WAC 173-303-845](#). In the event that any Permit condition is challenged by any Permittee under  
5 [WAC 173-303-845](#), Ecology may stay any such Permit condition as it pertains to all Permittees, in  
6 accordance with the same terms of any stay it grants to the challenging Permittee. If such a stay is  
7 granted, it will constitute a "stay by the issuing agency" within the meaning of [RCW 43.21B.320\(1\)](#).

8 This Permit has been developed to allow a step-wise permitting process of the Hanford Facility to ensure  
9 the proper implementation of the [HFFACO](#). In order to accomplish this, this Permit consists of six (6)  
10 parts.

11 **Part I, Standard Conditions**, contains conditions which are similar to those appearing in all dangerous  
12 waste permits.

13 **Part II, General Facility Conditions**, combines typical dangerous waste permit conditions with those  
14 conditions intended to address issues specific to the Hanford Facility. Where appropriate, the general  
15 facility conditions apply to all final status dangerous waste management activities at the Facility. Where  
16 appropriate, the general facility conditions also address dangerous waste management activities which  
17 may not be directly associated with distinct TSD units, or which may be associated with many TSD units  
18 (i.e., spill reporting, training, contingency planning, etc.). Part II also includes conditions that address  
19 corrective action at solid waste management units and areas of concern.

20 **Part III, Unit-Specific Conditions for Operating Units**, contains those Permit requirements that apply  
21 to each individual TSD unit operating under final status. Conditions for each TSD unit are found in a  
22 chapter dedicated to that TSD unit. These unit-specific chapters contain references to Standard  
23 Conditions (Part I) and General Conditions (Part II), as well as additional requirements which are  
24 intended to ensure that each TSD unit is operated in an efficient and environmentally protective manner.  
25 Additional requirements may also be added when an operating unit ceases operations and undergoes  
26 closure.

27 **Part IV, Unit-Specific Conditions for Corrective Action**, contains those permit requirements which  
28 apply to specific RPP units that are undergoing corrective action under the [HFFACO](#). RPP units may  
29 include solid waste management units and other areas of concern (i.e., releases that are not at solid waste  
30 management units and do not constitute a solid waste management unit) that are undergoing corrective  
31 action. For The Comprehensive Environmental Response, Conservation, and Liability Act (CERCLA)  
32 and RCRA past practice (RPP) units identified in the [HFFACO](#), the corrective action conditions are  
33 structured around continued coordination with, and reliance on, the investigation and cleanup  
34 requirements established under the [HFFACO](#). For TSD units identified in the [HFFACO](#), the corrective  
35 action conditions contemplate use of closure and post-closure processes to satisfy corrective action.

36 **Part V, Unit-Specific Conditions for Units Undergoing Closure**, contains those requirements which  
37 apply to those specific TSD units, included in this part, that are undergoing closure. In accordance with  
38 Section 5.3 of the Action Plan of the [HFFACO](#), all TSD units that undergo closure, irrespective of permit  
39 status, will be closed pursuant to the authorized State Dangerous Waste Program in accordance with  
40 [WAC 173-303-610](#). Requirements for each TSD unit undergoing closure are found in a chapter dedicated  
41 to that TSD unit. These unit-specific chapters contain references to Standard Conditions (Part I) and  
42 General Conditions (Part II), as well as additional requirements which are intended to ensure that each  
43 TSD unit is closed in an efficient and environmentally protective manner.

1 **Part VI, Unit-Specific Conditions for Units in Post-Closure**, contains those requirements which apply  
2 to those specific units in this part that have completed modified or landfill closure requirements, and now  
3 only need to meet Post-Closure Standards. As set forth in Section 5.3 of the Action Plan of the [HFFACO](#),  
4 certain TSD units will be permitted for post-closure care pursuant to the authorized State Dangerous  
5 Waste Program ([173-303 WAC](#)) and the Hazardous and Solid Waste Amendments. Requirements for  
6 each unit undergoing post-closure care are found in a chapter, within this part, dedicated to that unit.  
7 These unit specific chapters may contain references to Standard Conditions (Part I) and General  
8 Conditions (Part II), as well as the unit specific conditions, all of which are intended to ensure the unit is  
9 managed in an efficient, environmentally protective manner.

10

1 **Unit Status Table**

PERMIT REVISION	REVISION DATE	UNITS INCORPORATED
Permit Revision 0	8/29/94	616 NDWSF, 305-B Storage Facility, 183-H SEB, 300 ASE, 2727-S, NRDWSF
Permit Revision 1	4/28/95	Simulated High-Level Waste Slurry, 218-E-9 Borrow Pit Demo Site, 200 W Area Ash Pit Demo Site, 2101-M Pond, 216-B-3 Expansion Ponds
Permit Revision 2	8/29/95	Hanford Patrol Academy Demolition Site, 105-DR Large Sodium Fire Facility, 304 Concretion Facility
Permit Revision 3	11/25/96	4843 Alkali Metal Storage Facility, 3718-F Alkali Metal Treatment & Storage Facility, 303-K Storage Facility, 300 APT
Permit Revision 4	1/28/98	PUREX Storage Tunnels, LERF & 200 Area ETF, 242-A Evaporator, 325 HWTUs
Permit Revision 5	5/18/99	100 D Ponds, 1301-N & 1325-Liquid Waste Disposal Facility, 1324-N Surface Impoundment, 1324-NA Percolation Pond
Permit Revision 6	3/28/00	Permit Condition II.Y, Corrective Action
Permit Revision 7	2/27/01	Waste Treatment & Immobilization Plant, 300 Area WATS
Permit Revision 8	9/23/04	No new units, modification updates
Permit Revision 8A	3/6/06	Integrated Disposal Facility
Permit Revision 8B	1/2007	331-C Storage Unit, PFP Treatment Unit, 241-Z Treatment & Storage Tanks, 303-M Oxide Facility
Permit Revision 8C	8/2007	400 Area Waste Management Unit, 224-T TRUSAF

UNIT	Permit Revision		Comments/History
	Incorporated	Retired	
<b>PART III, OPERATING UNITS</b>			
616 Nonradioactive DWSF	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		
400 Area Waste Management Unit	Rev. 8C		
<b>PART IV, CORRECTIVE ACTION</b>			
100-NR-1 Operable Unit	Rev. 6		
100-NR-2 Operable Unit	Rev. 6	Rev. 8C	Retired, 9/30/09
<b>PART V, UNDERGOING CLOSURE UNITS</b>			
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		
1324-NA Percolation Pond	Rev. 5		
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
303-K Storage Facility	Rev. 4	Rev. 6	Closed, 7/22/02
304 Concretion Facility	Rev. 2	Rev. 6	Closed, 1/21/96
311 Tanks	Rev. 6	Rev. 7	Closed, 5/20/02. 300 Area WATS Part A
3718-F Alkali Metal Treatment /Storage	Rev. 3	Rev. 6	Closed, 8/4/98
4843 Alkali Metal Storage Facility	Rev. 3	Rev. 6	Closed, 4/14/97
Hanford Patrol Academy Demo Site	Rev. 2	Rev. 6	Closed, 11/28/95
Simulated High Level Waste Slurry	Rev. 1	Rev. 6	Closed, 9/6/95

PFP Treatment Unit (HA-20MB)	Rev. 8B	Rev. 8B	Closed, 2/8/05.
241-Z Treatment and Storage Tanks	Rev. 8B	Rev. 8B	Closed 2/22/07
303-M Oxide Facility	Rev. 8B	Rev. 8B	Closed; 6/15/06
224-T Transuranic Waste Storage and Assay Facility	Rev. 8C		
<b>PART VI, POSTCLOSURE UNITS</b>			
183-H Solar Evaporation Basin	Rev 4		
300 Area Process Trenches	Rev 3		
<b>PROCEDURALLY CLOSED</b>			
216-U-12 Crib	N/A	N/A	Closed, 7/19/07
221-T Test Facility	N/A	N/A	Closed, 2/22/99
2727-WA SRE Sodium Storage Bldg	N/A	N/A	Closed, 2/22/99
324 Pilot Plant	N/A	N/A	Closed, 6/9/97
332 Storage Facility	N/A	N/A	Closed, 4/21/97
437 Maintenance and Storage Facility	N/A	N/A	Closed, 9/11/03
Biological Treatment Test Facilities	N/A	N/A	Closed, 12/10/96
Physical/Chemical Treatment Test Facilities	N/A	N/A	Closed, 5/13/96
Sodium Storage/Sodium Reaction	N/A	N/A	Closed, 9/17/03
Thermal Treatment Test Facilities	N/A	N/A	Closed, 5/13/96
<b>TO BE INCORPORATED</b>			
1706-KE Waste Treatment System			
207-A South Retention Basin			
216-A-10 Crib			
216-A-29 Ditch			
216-A-36B Crib			
216-A-37-1 Crib			
216-B-3 Main Pond			
216-B-63 Trench			
216-S-10 Pond & Ditch			
222-S Dangerous & Mixed Waste TSD Unit			
241-CX Tank System			
600 Area Purgewater Storage and Treatment Facility			
Central Waste Complex			
Contact Handled Transuranic Mixed Waste Packaging and Interim Storage Facility			
DST System/204-AR Waste Unloading Station			
Grout Treatment Facility			
Hexone Storage & Treatment Facility			
IHLW Interim Storage/Canister Storage Building			
Low-Level Burial Grounds			
Nonradioactive Dangerous Waste Landfill			
Single-Shell Tank System			
T Plant Complex			
Waste Encapsulation and Storage Facility			
Waste Receiving and Processing Facility			
<b>TRANSITION UNDER HFFACO ACTION PLAN, SECTION 8 (Will not be incorporated into Permit)</b>			
B Plant Complex			
PUREX Plant			

1  
2

## 1 **Definitions**

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2 Except with respect to those terms specifically defined below, all definitions contained in the [HFFACO](#),  
3 May 1989, as amended, and in [WAC 173-303-040](#) and other portions of [Chapter 173-303 WAC](#) are  
4 hereby incorporated, in their entirety, by reference into this Permit. For terms defined in both  
5 [Chapter 173-303 WAC](#) and the [HFFACO](#), the definitions contained in [Chapter 173-303 WAC](#) will  
6 control within this Permit. Nonetheless, this Permit is intended to be consistent with the [HFFACO](#).

7 Where terms are not defined in the regulations, the Permit, or the [HFFACO](#), a standard dictionary  
8 reference, or the generally accepted scientific or industrial meaning of the terms will define the meaning  
9 associated with such terms.

10 As used in this Permit, words in the masculine gender also include the feminine and neuter genders,  
11 words in the singular include the plural, and words in the plural include the singular.

12 The following definitions apply throughout this Permit:

13 The term "**Area of Concern**" means any area of the Facility where a release of dangerous waste or  
14 dangerous constituents has occurred, is occurring, is suspected to have occurred, or threatens to occur.

15 The term "**Contractor(s)**" means, unless specifically identified otherwise in this Permit, or Attachments,  
16 Bechtel National, Inc. (BNI), CH2M HILL Plateau Remediation Company, Inc. (CHPRC), Mission  
17 Support Alliance, LLC (MSA), Pacific Northwest National Laboratory (PNNL), Washington Closure  
18 Hanford, LLC (WCH), and Washington River Protection Solutions, LLC (WRPS).

19 The term "**Critical Systems**" as applied to determining whether a Permit modification is required, means  
20 those specific portions of a TSD unit's structure, or equipment, whose failure could lead to the release of  
21 dangerous waste into the environment, and/or systems which include processes which treat, transfer,  
22 store, or dispose of regulated wastes. A list identifying the critical systems of a specific TSD unit may be  
23 developed and included in Part III, V, and/or VI of this Permit. In developing a critical system list, or in  
24 the absence of a critical system list, [WAC 173-303-830](#) Modifications will be considered.

25 The term "**Dangerous Constituent**" means any constituent identified in [WAC 173-303-9905](#) or  
26 [40 CFR Part 264 Appendix IX](#), any constituent which caused a waste to be listed or designated as  
27 dangerous under [Chapter 173-303 WAC](#), and any constituents within the meaning of hazardous substance  
28 at [RCW 70.105D.020\(7\)](#).

29 The term "**Dangerous Waste**" means those solid wastes designated under [Chapter 173-303 WAC](#) as  
30 dangerous or extremely hazardous waste. As used in the Permit, the phrase "dangerous waste" will refer  
31 to the full universe of wastes regulated by [Chapter 70.105 RCW](#) and [Chapter 173-303 WAC](#) (including  
32 dangerous waste, hazardous waste, extremely hazardous waste, mixed waste, and acutely hazardous  
33 waste).

34 The term "**Days**" means calendar days, unless specifically identified otherwise. Any submittal,  
35 notification, or recordkeeping requirement that would be due, under the Conditions of this Permit, on a  
36 Saturday, Sunday, or federal, or state holiday, will be due on the following business day, unless  
37 specifically stated otherwise in the Permit.

38 The term "**Director**" means the Director of the Washington State Department of Ecology, or a designated  
39 representative. The Program Manager of the Nuclear Waste Program (with the address as specified on  
40 page one [1] of this Permit) is a duly authorized and designated representative of the Director for  
41 purposes of this Permit.

42 The term "**Ecology**" means the Washington State Department of Ecology (with the address as specified  
43 on page one [1] of this Permit).

- 1 The term "**Facility**" means all contiguous land, structures, other appurtenances, and improvements on the  
2 land used for recycling, reusing, reclaiming, transferring, storing, treating, or disposing of dangerous  
3 waste. The legal and physical description of the Facility is set forth in Permit Attachment 2.
- 4 The term "**Facility**" for the purposes of corrective action under Permit Condition II.Y, means all  
5 contiguous property under the control of the Permittees and all property within the meaning of "facility"  
6 at [RCW 70.105D.020\(3\)](#) as set forth in Permit Attachment 2.
- 7 The term "**HFFACO**" means the Hanford Federal Facility Agreement and Consent Order, as amended  
8 (Commonly referred to as Tri-Party Agreement [TPA]).
- 9 The term "**Permittees**" means the United States Department of Energy (owner/operator), Bechtel  
10 National, Inc. (Co-operator), CH2M HILL Plateau Remediation Company (Co-operator), Mission  
11 Support Alliance, LLC (MSA), Pacific Northwest National Laboratory (Co-operator), Washington  
12 Closure Hanford, LLC (Co-operator), Washington River Protection Solutions, LLC.
- 13 The term "**Permittees**" for purposes of corrective action under Permit Condition II.Y means only the  
14 United States Department of Energy (owner/operator).
- 15 The term "**Raw Data**" means the initial value of analog or digital instrument output, and/or manually  
16 recorded values obtained from measurement tools or personal observation. These values are converted  
17 into reportable data (e.g., concentration, percent moisture) via automated procedures and/or manual  
18 calculations.
- 19 The term "**RCRA Permit**" means the Dangerous Waste Portion of the RCRA Permit for the Treatment,  
20 Storage, and Disposal of Dangerous Waste (Dangerous Waste Permit) issued by the Washington State  
21 Department of Ecology, pursuant to [Chapter 70.105 RCW](#) and [Chapter 173-303 WAC](#), coupled with the  
22 HSWA Portion of the RCRA Permit for the Treatment, Storage, and Disposal of Hazardous Waste  
23 (HSWA Permit) issued by EPA, Region 10, pursuant to [42 U.S.C. 6901 et seq.](#) and [40 CFR Parts 124](#) and  
24 [270](#).
- 25 The term "**Reasonable Times**" means normal business hours; hours during which production, treatment,  
26 storage, construction, disposal, or discharge occurs, or times when Ecology suspects a violation requiring  
27 immediate inspection.
- 28 The term "**Release**" means any intentional or unintentional spilling, leaking, pouring, emitting, emptying,  
29 discharging, injecting, pumping, escaping, leaching, dumping, or disposing of dangerous constituents into  
30 the environment and includes the abandonment or discarding of barrels, containers, and other receptacles  
31 containing dangerous waste or dangerous constituents, and includes any releases within the meaning of  
32 release at [RCW 70.105D.020\(20\)](#).
- 33 The term "**Significant Discrepancy**" in regard to a manifest or shipping paper, means a discrepancy  
34 between the quantity or type of dangerous waste designated on the manifest, or shipping paper, and the  
35 quantity or type of dangerous waste a TSD unit actually receives. A significant discrepancy in quantity is  
36 a variation greater than ten (10) percent in weight for bulk quantities (e.g., tanker trucks, railroad tank  
37 cars, etc.), or any variation in piece count for nonbulk quantities (i.e., any missing container or package  
38 would be a significant discrepancy). A significant discrepancy in type is an obvious physical or chemical  
39 difference which can be discovered by inspection or waste analysis (e.g., waste solvent substituted for  
40 waste acid).
- 41 The term "**Solid Waste Management Unit (SWMU)**" means any discernible location at the Facility  
42 where solid wastes have been placed at any time, irrespective of whether the location was intended for the  
43 management of solid or dangerous waste, and includes any area at the Facility at which solid wastes have  
44 been routinely and systematically released (for example through spills), and includes dangerous waste  
45 treatment, storage, and disposal units.

1 The term "**Unit**" or "**TSD unit**", as used in Parts I through VI of this Permit, means the contiguous area  
2 of land on or in which dangerous waste is placed, or the largest area in which there is a significant  
3 likelihood of mixing dangerous waste constituents in the same area. A TSD unit, for purposes of this  
4 Permit, is a subgroup of the Facility which has been identified in a Hanford Facility Dangerous Waste  
5 Part A Form.

6

1 **Acronyms**

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2	ALARA	As Low As Reasonably Achievable
3	AMSF	Alkali Metal Storage Facility
4	APDS	Ash Pit Demolition Site
5	APP	Used to Denote Appendix Page Numbers
6	APT	Area Process Trenches
7	ARAR	Applicable, Relevant, and Appropriate Requirements
8	BNI	Bechtel National, Inc
9	BPDS	Borrow Pit Demolition Site
10	CD/RR	Chemical Disposal/Recycle Request
11	CERCLA	Comprehensive Environmental Response Compensation and Liability Act of
12		1980 (as Amended by the Superfund Reauthorization Act of 1986)
13	CFR	Code of Federal Regulations
14	CHPRC	CH2M HILL Plateau Remediation Company
15	CIP	Construction Inspection Plan
16	CLARC	Cleanup Levels and Risk Calculations
17	CLP	Contract Laboratory Program
18	COC	Chemical Contaminants of Concern
19	CPP	CERCLA Past Practice
20	USDOE-RL	U.S. Department of Energy, Richland Operations Office
21	USDOE-ORP	U.S. Department of Energy, Office of River Protection
22	DQO	Data Quality Objective
23	DSC	Differential Scanning Colorimetry
24	EC	Emergency Coordinator
25	Ecology	Washington State Department of Ecology
26	EPA	U.S. Environmental Protection Agency
27	ERA	Expedited Response Action
28	ETF	200 Area Effluent Treatment Facility
29	<a href="#">HFFACO</a>	Hanford Federal Facility Agreement and Consent Order
30	GW	Ground Water
31	HPADS	Hanford Patrol Academy Demolition Site
32	HSWA	Hazardous and Solid Waste Amendments of 1984
33	HWMA	Hazardous Waste Management Act
34	ID	Identification
35	IRM	Interim Remedial Measure
36	LDR	Land Disposal Restrictions
37	LERF	Liquid Effluent Retention Facility
38	LSFF	105-DR Large Sodium Fire Facility
39	MSA	Mission Support Alliance, LLC
40	MTCA	Model Toxics Control Act

1	OSWER	Office of Solid Waste and Emergency Response
2	PNNL	Pacific Northwest National Laboratory
3	QA	Quality Assurance
4	QAPP	Quality Assurance Project Plan
5	QC	Quality Control
6	RCRA	Resource Conservation and Recovery Act of 1976
7	RCW	Revised Code of Washington
8	ROD	Record of Decision
9	RPD	Relative Percent Difference
10	RPP	RCRA Past Practice
11	SAP	Sampling and Analysis Plan
12	SARA	Superfund Amendments and Reauthorization Act of 1986
13	SCD	Security Control Devices
14	SHLWS	Simulated High Level Waste Slurry
15	SOP	Standard Operating Procedure
16	SWMU	Solid Waste Management Unit
17	TCLP	Toxicity Characteristic Leaching Procedure
18	TSD	Treatment, Storage, and/or Disposal
19	USDOE	United States Department of Energy
20	U.S.C.	United States Code
21	WAC	Washington Administrative Code
22	WAP	Waste Analysis Plan
23	WCH	Washington Closure Hanford, LLC
24	WRPS	Washington River Protection Solutions, LLC
25	WTP	Waste Treatment and Immobilization Plant
26	183-H	183-H Solar Evaporation Basins
27	242-A	242-A Evaporator
28	300 APT	300 Area Process Trenches
29	300 ASE	300 Area Solar Evaporator
30	303-K	303-K Storage Facility
31	305-B	305-B Storage Facility
32	325 HWTUs	325 Hazardous Waste Treatment Units
33	616-NRDWSF	616 Nonradioactive Dangerous Waste Storage Facility
34		

**PART I STANDARD CONDITIONS**

**I.A EFFECT OF PERMIT**

The Permittees are authorized to treat, store, and dispose of dangerous waste in accordance with the Conditions of this Permit and in accordance with the applicable provisions of [Chapter 173-303 WAC](#) (including provisions of the Chapter as they have been applied in the [HFFACO](#)). Any treatment, storage, or disposal of dangerous waste by the Permittees at the Facility that is not authorized by this Permit, or by [WAC 173-303-400](#) (including provisions of this regulation as they have been applied in the [HFFACO](#)), for those TSD units not subject to this Permit, and for which a Permit is required by [Chapter 173-303 WAC](#), is prohibited.

TSD units operating or closing under interim status will maintain interim status until that TSD unit is incorporated into Part III, V, and/or VI of this Permit, or until interim status is terminated under [WAC 173-303-805\(8\)](#). Interim status units will be incorporated into this Permit through the Permit modification process.

The Conditions of this Permit will be applied to the Facility as defined by the Permit Applicability Matrix (Permit Attachment 3).

I.A.1 USDOE is responsible for activities which include, but are not limited to, the overall management and operation of the Facility.

BNI is identified as a Permittee for activities subject to the Conditions of this Permit where its agents, employees, or subcontractors have operational and/or management responsibilities and control.

CHPRC is identified as a Permittee for activities subject to the Conditions of this Permit where its agents, employees, or subcontractors have operational and/or management responsibilities and control.

MSA is identified as a Permittee for activities subject to the Conditions of this Permit where its agents, employees, or subcontractors have operational and/or management responsibilities and control.

PNNL is identified as a Permittee for activities subject to the Conditions of this Permit where its agents, employees, or subcontractors have operational and/or management responsibilities and control.

WCH is identified as a Permittee for activities subject to the Conditions of this Permit where its agents, employees, or subcontractors have operational and/or management responsibilities and control.

WRPS is identified as a Permittee for activities subject to the Conditions of this Permit where its agents, employees, or subcontractors have operational and/or management responsibilities and control.

I.A.2 Coordination with the [HFFACO](#)

Each TSD unit will have an application for a final status Permit or closure/post-closure plan submitted to Ecology in accordance with the schedules identified in the [HFFACO](#) Milestone M-20-00 or in accordance with [WAC 173-303-830](#). After completion of the Permit application or closure/post-closure plan review, a final Permit decision will be made pursuant to [WAC 173-303-840](#). Specific Conditions for each TSD unit will be incorporated into this Permit in accordance with the Class 3 Permit modification procedure identified in Permit Condition I.C.3.

1 **I.B PERSONAL AND PROPERTY RIGHTS**

2 This Permit does not convey property rights of any sort, or any exclusive privilege; nor  
3 does it authorize any injury to persons or property, or any invasion of other private rights,  
4 or any violation of federal, state, or local laws or regulations.

5 **I.C PERMIT ACTIONS**

6 I.C.1 Modification, Revocation, Reissuance, or Termination

7 This Permit may be modified, revoked and reissued, or terminated by Ecology for cause  
8 per [WAC 173-303-810\(7\)](#) as specified in [WAC 173-303-830\(3\), \(4\), and \(5\)](#).

9 I.C.2 Filing of a Request

10 The filing of a request for a Permit modification, or revocation and reissuance, or  
11 termination, or a notification of planned changes, or anticipated noncompliance on the  
12 part of the Permittees, will not stay any Permit condition [[WAC 173-303-810\(7\)](#)]except  
13 as provided in [WAC 173-303-810\(2\)](#) under an emergency permit.

14 I.C.3 Modifications

15 I.C.3.a Except as provided otherwise by specific language in this Permit, the Permit modification  
16 procedures of [WAC 173-303-830\(2\), \(3\), and \(4\)](#) will apply to modifications or changes  
17 in design or operation of the Facility, or any modification or change in dangerous waste  
18 management practices covered by this Permit.

19 I.C.3.b As an exception, the Permittees will provide notifications to Ecology required by  
20 [WAC 173-303-830\(4\)\(a\)\(i\)\(A\)](#) on a quarterly basis. Each quarterly notification will be  
21 submitted within ten (10) days of the end of the quarter, and provide the required  
22 information for all such modification s put into effect during that reporting period.

23 I.C.3.c Quarterly reporting periods will be based upon the state Fiscal Year. For notifications  
24 required by the Permittees to persons on the facility mailing list described in  
25 [WAC 173-303-830\(4\)\(a\)\(i\)\(B\)](#), [-830\(4\)\(b\)\(ii\)](#), [-830\(4\)\(c\)\(ii\)](#), and [-830\(4\)\(e\)\(ii\)\(C\)](#), use of  
26 appropriate [HFFACO Community Relations Plan](#) publications and/or list servers for  
27 public involvement satisfy the notification requirements.

28 **I.D SEVERABILITY**

29 I.D.1 Effect of Invalidation

30 The provisions of this Permit are severable, and if any provision of this Permit, or the  
31 application of any provision of this Permit to any circumstance is contested and/or held  
32 invalid, the application of such provision to other circumstances and the remainder of this  
33 Permit will not be affected thereby. Invalidation of any state statutory or regulatory  
34 provision which forms the basis for any Condition of this Permit does not affect the  
35 validity of any other state statutory or regulatory basis for said Condition.

36 I.D.2 Final Resolution

37 In the event that a Condition of this Permit is stayed for any reason, the Permittees will  
38 continue to comply with the related applicable and relevant interim status standards in  
39 [WAC 173-303-400](#) until final resolution of the stayed Condition, unless Ecology  
40 determines compliance with the related applicable and relevant interim status standards  
41 would be technologically incompatible with compliance with other Conditions of this  
42 Permit, which have not been stayed, or unless the [HFFACO](#) authorizes an alternative  
43 action, in which case the Permittees will comply with the [HFFACO](#).

1 **I.E DUTIES AND REQUIREMENTS**

2 I.E.1 Duty to Comply

3 The Permittees will comply with all Conditions of this Permit, except to the extent and  
4 for the duration such noncompliance is authorized by an emergency Permit issued under  
5 [WAC 173-303-804](#). Any Permit noncompliance other than noncompliance authorized by  
6 an emergency Permit constitutes a violation of [Chapter 70.105 RCW](#), as amended, and is  
7 grounds for enforcement action, Permit termination, modification or revocation and  
8 reissuance of the Permit, and/or denial of a Permit renewal application.

9 I.E.2 Compliance Not Constituting Defense

10 Compliance with the terms of this Permit does not constitute a defense to any order  
11 issued or any action brought under Section 3007, 3008, 3013, or 7003 of RCRA  
12 (42 U.S.C. Sections 6927, 6928, 6934, and 6973), Section 104, 106(a) or 107 of the  
13 Comprehensive Environmental Response, Compensation, and Liability Act of 1980  
14 (CERCLA) [42 U.S.C. Sections 9604, 9606(a), and 9607], as amended by the Superfund  
15 Amendments and Reauthorization Act of 1986 (42 U.S.C. 9601 et seq.), or any other  
16 federal, state, or local law governing protection of public health, or the environment;  
17 provided, however, that compliance with this Permit during its term constitutes  
18 compliance at those areas subject to this Permit for the purpose of enforcement with  
19 [WAC 173-303-140](#), [WAC 173-303-180](#), [WAC 173-303-280 through -395](#),  
20 [WAC 173-303-600 through -680](#), [WAC 173-303-810](#), and [WAC 173-303-830](#), except for  
21 Permit modification s and those requirements not included in the Permit that become  
22 effective by statute, or that are promulgated under [40 CFR Part 268](#) restricting the  
23 placement of dangerous waste in or on the land.

24 I.E.3 Duty to Reapply

25 If the Permittees wish to continue an activity regulated by this Permit after the expiration  
26 date of this Permit, the Permittees must apply for, and obtain a new Permit, in accordance  
27 with [WAC 173-303-806\(6\)](#).

28 I.E.4 Permit Expiration and Continuation

29 This Permit, and all Conditions herein, will remain in effect beyond the Permit's  
30 expiration date until the effective date of the new Permit, if the Permittees have submitted  
31 a timely, complete application for renewal per [WAC 173-303-806](#) and, through no fault  
32 of the Permittees, Ecology has not made a final Permit determination as set forth in  
33 [WAC 173-303-840](#).

34 I.E.5 Need to Halt or Reduce Activity Not a Defense

35 It will not be a defense in the case of an enforcement action that it would have been  
36 necessary to halt or reduce the permitted activity in order to maintain compliance with the  
37 Conditions of this Permit.

38 I.E.6 Duty to Mitigate

39 In the event of noncompliance with the Permit, the Permittees will take all reasonable  
40 steps to minimize releases to the environment, and will carry out such measures as are  
41 reasonable to minimize or correct adverse impacts on human health and the environment.

- 1 I.E.7 Proper Operation and Maintenance
- 2 The Permittees will at all times properly operate and maintain all facilities and systems of  
3 treatment and control, which are installed or used by the Permittees, to achieve  
4 compliance with the Conditions of this Permit. Proper operation and maintenance  
5 includes effective performance, adequate funding, adequate operator staffing and  
6 training, and adequate laboratory and process controls, including appropriate quality  
7 assurance/quality control procedures. This provision requires the operation of backup or  
8 auxiliary facilities, or similar systems only when necessary to achieve compliance with  
9 the Conditions of the Permit.
- 10 I.E.8 Duty to Provide Information
- 11 The Permittees will furnish to Ecology, within a reasonable time, any relevant  
12 information which Ecology may request to determine whether cause exists for modifying,  
13 revoking and reissuing, or terminating this Permit, or to determine compliance with this  
14 Permit. The Permittees will also furnish to Ecology, upon request, copies of records  
15 required to be kept by this Permit.
- 16 I.E.9 Inspection and Entry
- 17 The Permittees will allow Ecology, or authorized representatives, upon the presentation  
18 of Ecology credentials, to:
- 19 I.E.9.a During operating hours, and at all other reasonable times, enter and inspect the Facility or  
20 any unit or area within the Facility, where regulated activities are located or conducted, or  
21 where records must be kept under the Conditions of this Permit;
- 22 I.E.9.b Have access to, and copy, at reasonable times, any records that must be kept under the  
23 Conditions of this Permit;
- 24 I.E.9.c Inspect at reasonable times any portion of the Facility, equipment (including monitoring  
25 and control equipment), practices, or operations regulated or required under this Permit;  
26 and,
- 27 I.E.9.d Sample or monitor, at reasonable times, for the purposes of assuring Permit compliance,  
28 or as otherwise authorized by state law, as amended, for substances or parameters at any  
29 location.
- 30 I.E.10 Monitoring and Records
- 31 I.E.10.a Samples and measurements taken by the Permittees for the purpose of monitoring  
32 required by this Permit will be representative of the monitored activity. Sampling  
33 methods will be in accordance with [WAC 173-303-110](#) or [40 CFR 261](#), unless otherwise  
34 specified in this Permit, or agreed to in writing by Ecology. Analytical methods will be  
35 as specified in the most recently published test procedure of the documents cited in  
36 [WAC 173-303-110\(3\)\(a\) through \(h\)](#), unless otherwise specified in this Permit, or agreed  
37 to in writing by Ecology.
- 38 I.E.10.b The Permittees will retain at the TSD unit(s), or other locations approved by Ecology, as  
39 specified in Parts III, V, and/or VI of this Permit, records of monitoring information  
40 required for compliance with this Permit, including calibration and maintenance records  
41 and all original strip chart recordings for continuous monitoring instrumentation, copies  
42 of reports and records required by this Permit, and records of data used to complete the  
43 application for this Permit for a period of at least ten (10) years from the date of the  
44 sample, measurement, report, or application, unless otherwise required for certain  
45 information by other Conditions of this Permit. This information may be retained on  
46 electronic media.

- 1 I.E.10.c The Permittees will retain at the Facility, or other approved location, records of all  
2 monitoring and maintenance records, copies of all reports and records required by this  
3 Permit, and records of all data used to complete the application for this Permit, which are  
4 not associated with a particular TSD unit, for a period of at least ten (10) years from the  
5 date of certification of completion of post-closure care, or corrective action for the  
6 Facility, whichever is later. This information may be retained on electronic media.
- 7 I.E.10.d The record retention period may be extended by request of Ecology at any time by  
8 notification, in writing, to the Permittees, and is automatically extended during the course  
9 of any unresolved enforcement action regarding this Facility to ten (10) years beyond the  
10 conclusion of the enforcement action.
- 11 I.E.10.e Records of monitoring information shall include:
- 12 I.E.10.e.i The date, exact place and time of sampling or measurements;
- 13 I.E.10.e.ii The individual who performed the sampling or measurements and their affiliation;
- 14 I.E.10.e.iii The dates the analyses were performed;
- 15 I.E.10.e.iv The individual(s) who performed the analyses and their affiliation;
- 16 I.E.10.e.v The analytical techniques or methods used; and,
- 17 I.E.10.e.vi The results of such analyses
- 18 I.E.11 Reporting Planned Changes
- 19 The Permittees will give notice to Ecology, as soon as possible, of any planned physical  
20 alterations, or additions to the Facility subject to this Permit. Such notice does not  
21 authorize any noncompliance with, or modification of, this Permit.
- 22 I.E.12 Certification of Construction or Modification
- 23 I.E.12.a The Permittees may not commence treatment, storage, or disposal of dangerous wastes in  
24 a new or modified portion of TSD units subject to this Permit until:
- 25 I.E.12.b The Permittees have submitted to Ecology, by certified mail, overnight express mail, or  
26 hand delivery, a letter signed by the Permittees, and a registered professional engineer,  
27 stating that the TSD unit has been constructed or modified in compliance with the  
28 Conditions of this Permit; and,
- 29 I.E.12.c Ecology has inspected the modified or newly constructed TSD unit, and finds that it is in  
30 compliance with the Conditions of this Permit; or
- 31 I.E.12.d Within fifteen (15) days of the date of receipt of the Permittees' letter, the Permittees  
32 have not received notice from Ecology of its intent to inspect, prior inspection is waived,  
33 and the Permittees may commence treatment, storage, and disposal of dangerous waste.
- 34 I.E.13 Anticipated Noncompliance
- 35 The Permittees will give at least thirty (30) days advance notice to Ecology of any  
36 planned changes in the Facility subject to this Permit, or planned activity which might  
37 result in noncompliance with Permit requirements.
- 38 If thirty (30) days advance notice is not possible, then the Permittees will give notice  
39 immediately after the Permittees become aware of the anticipated noncompliance. Such  
40 notice does not authorize any noncompliance with, or modification of, this Permit.

- 1 I.E.14 Transfer of Permits
- 2 I.E.14.a This Permit may be transferred to a new owner/operator only if it is modified, or revoked  
3 and reissued, pursuant to [WAC 173-303-830\(3\)\(b\)](#). Unit-specific portion may be  
4 transferred to a new Co-operator as a Class <sup>1</sup>1 modification with prior approval of the  
5 Department's director.
- 6 I.E.14.b Before transferring ownership or operation of the Facility during its operating life, the  
7 owner/operator will notify the new owner/operator in writing, of the requirements of  
8 [WAC 173-303-290\(2\)](#), [-600](#) and [-806](#), and this Permit.
- 9 I.E.15 Immediate Reporting
- 10 I.E.15.a The Permittees will verbally report to Ecology any release of dangerous waste or  
11 hazardous substances, or any noncompliance with the Permit which may endanger human  
12 health or the environment. Any such information will be reported immediately after the  
13 Permittees become aware of the circumstances.
- 14 I.E.15.b The immediate verbal report will contain all the information needed to determine the  
15 nature and extent of any threat to human health and the environment, including the  
16 following:
- 17 I.E.15.b.i Name, address, and telephone number of the Permittee responsible for the release or  
18 noncompliant activity;
- 19 I.E.15.b.ii Name, location, and telephone number of the unit at which the release occurred;
- 20 I.E.15.b.iii Date, time, and type of incident;
- 21 I.E.15.b.iv Name and quantity of material(s) involved;
- 22 I.E.15.b.v The extent of injuries, if any;
- 23 I.E.15.b.vi An assessment of actual or potential hazard to the environment and human health, where  
24 this is applicable;
- 25 I.E.15.b.vii Estimated quantity of released material that resulted from the incident; and,
- 26 I.E.15.b.viii Actions which have been undertaken to mitigate the occurrence.
- 27 I.E.15.c The Permittees will report, in accordance with Permit Conditions I.E.15.a and I.E.15.b,  
28 any information concerning the release, or unpermitted discharge, of any dangerous  
29 waste or hazardous substances that may cause an endangerment to drinking water  
30 supplies, or ground or surface waters, or of a release, or discharge of dangerous waste, or  
31 hazardous substances, or of a fire or explosion at the Facility, which may threaten human  
32 health or the environment. The description of the occurrence and its cause will include  
33 all information necessary to fully evaluate the situation and to develop an appropriate  
34 course of action.
- 35 I.E.15.d For any release or noncompliance not required to be reported to Ecology immediately, a  
36 brief account must be entered within two (2) working days, into the TSD Operating  
37 Record, for a TSD unit, or into the Facility Operating Record, inspection log, or separate  
38 spill log, for non-TSD units. This account must include: the time and date of the release,  
39 the location and cause of the release, the type and quantity of material released, and a  
40 brief description of any response actions taken or planned.
- 41 I.E.15.e All releases, regardless of location of release, or quantity of release, will be controlled  
42 and mitigated, if necessary, as required by [WAC 173-303-145\(3\)](#).

- 1 I.E.16 Written Reporting  
2 Within fifteen (15) days after the time the Permittees become aware of the circumstances  
3 of any noncompliance with this Permit, which may endanger human health or the  
4 environment, the Permittees will provide to Ecology a written report. The written report  
5 will contain a description of the noncompliance and its cause (including the information  
6 provided in the verbal notification); the period of noncompliance including exact dates  
7 and times; the anticipated time noncompliance is expected to continue, if the  
8 noncompliance has not been corrected; corrective measures being undertaken to mitigate  
9 the situation, and steps taken or planned to reduce, eliminate, and prevent recurrence of  
10 the noncompliance.
- 11 I.E.17 Manifest Discrepancy Report
- 12 I.E.17.a For dangerous waste received from outside the Facility, whenever a significant  
13 discrepancy in a manifest is discovered, the Permittees will attempt to reconcile the  
14 discrepancy. If not reconciled within fifteen (15) days of discovery, the Permittees will  
15 submit a letter report in accordance with [WAC 173-303-370\(4\)](#), including a copy of the  
16 applicable manifest or shipping paper, to Ecology.
- 17 I.E.17.b For dangerous waste which is being transported within the Facility (i.e., shipment of on-  
18 site generated dangerous waste), whenever a significant discrepancy in the shipping  
19 papers (see Permit Condition II.Q.1) is discovered, the Permittees will attempt to  
20 reconcile the discrepancy. If not reconciled within fifteen (15) days of discovery, the  
21 Permittees will note the discrepancy in the receiving unit's Operating Record.
- 22 I.E.18 Unmanifested Waste Report
- 23 The Permittees will follow the provisions of [WAC 173-303-370](#) for the receipt of any  
24 dangerous waste shipment from off-site. The Permittees will also submit a report in  
25 accordance with [WAC 173-303-390\(1\)](#) to Ecology within fifteen (15) days of receipt of  
26 any unmanifested dangerous waste shipment received from off-site sources.
- 27 I.E.19 Other Noncompliance
- 28 The Permittees will report to Ecology all instances of noncompliance, not otherwise  
29 required to be reported elsewhere in this Permit, at the time the Annual Dangerous Waste  
30 Report is submitted.
- 31 I.E.20 Other Information
- 32 Whenever the Permittees become aware that they have failed to submit any relevant facts  
33 in a Permit application, closure plan, or post-closure plan, or submitted incorrect  
34 information in a Permit application, closure plan, or post-closure plan, or in any report to  
35 Ecology, the Permittees will promptly submit such facts or corrected information.
- 36 I.E.21 Reports, Notifications, and Submissions
- 37 All written reports, notifications or other submissions, which are required by this Permit  
38 to be sent, or given to the Director or Ecology, should be sent certified mail, overnight  
39 express mail, or hand delivered, to the current address and telephone number shown  
40 below. This address and telephone number may be subject to change.

1 Washington State Department of Ecology  
2 Nuclear Waste Program  
3 3100 Port of Benton Blvd  
4 Richland, Washington 99354  
5 Telephone: (509) 372-7950

6 Telephonic and oral reports/notifications also need to be provided to Ecology's Richland  
7 Office.

8 Ecology will give the Permittees written notice of a change in address or telephone  
9 number. It is the responsibility of the Permittees to ensure any required reports,  
10 notifications, or other submissions are transmitted to the addressee listed in this  
11 Condition. However, the Permittees will not be responsible for ensuring verbal and  
12 written correspondence reaches a new address or telephone number until after their  
13 receipt of Ecology's written notification.

14 I.E.22 Annual Report

15 The Permittees will comply with the annual reporting requirements of  
16 [WAC 173-303-390\(2\)\(a\) through \(e\), and \(g\)](#).

17 **I.F SIGNATORY REQUIREMENT**

18 All applications, reports, or information submitted to Ecology, which require  
19 certification, will be signed and certified in accordance with [WAC 173-303-810\(12\) and](#)  
20 [\(13\)](#). All other reports required by this Permit and other information requested by  
21 Ecology will be signed in accordance with [WAC 173-303-810\(12\)](#).

22 **I.G CONFIDENTIAL INFORMATION**

23 The Permittees may declare as confidential any information required to be submitted by  
24 this Permit, at the time of submission, in accordance with [WAC 173-303-810\(15\)](#).

25 **I.H DOCUMENTS TO BE MAINTAINED AT FACILITY SITE**

26 The Permittees will maintain at the Facility, or some other location approved by Ecology,  
27 the following documents and amendments, revisions, and modifications to these  
28 documents: (1) This Permit and all Attachments; and (2) The Hanford Facility Operating  
29 Record.

30 All dangerous waste Part B permit applications, post closure permit applications, and  
31 closure plan applications are maintained in the Administrative Record located at  
32 2440 Stevens, Room 1101, Richland, WA.

33 Other approved locations: (1) 700 Area, (2) Locations within the City of Richland under  
34 control of one or more of the Permittees, (3) Administrative Record locations within the  
35 Stevens Center complex, (4) Consolidated Information Center at Washington State  
36 University, Tri-Cities. (5) Archived records at the National Archives and Records  
37 Administration (NARA), Pacific Alaska Region, 6125 Sand Point Way NE, Seattle,  
38 Washington, 98115-7999.

39 These documents will be maintained for ten (10) years after post-closure care or  
40 corrective action for the Facility, whichever is later, has been completed and certified as  
41 complete.

**PART II GENERAL FACILITY CONDITIONS**

**II.A FACILITY CONTINGENCY PLAN**

II.A.1 The Permittees will immediately carry out applicable provisions of the *Hanford Emergency Management Plan* as provided in Permit Attachment 4, pursuant to [WAC 173-303-360\(2\)](#), whenever there is an incident meeting the criteria of Permit Attachment 4, Section 4.2. Enforceable portions of Permit Attachment 4, *Hanford Emergency Management Plan* (DOE/RL-94-02) are identified in Permit Attachment 4, Appendix A.

II.A.2 The Permittees will comply with the requirements of [WAC 173-303-350\(4\)](#), as provided in the *Hanford Emergency Management Plan* (Permit Attachment 4). The *Hanford Emergency Management Plan* provides reference to the need for unit-specific contingency documentation. Unit-specific contingency documentation for Part III TSD units is included in Part III of this Permit. Unit-specific contingency documentation for Part V and VI TSD units required by this Permit condition is maintained in the Hanford Facility Operating Record, Unit-Specific files.

II.A.3 The *Permittees* will review and amend, if necessary, the applicable portions of the *Hanford Emergency Management Plan*, as provided in Permit Attachment 4, pursuant to [WAC 173-303-350\(5\)](#), and in accordance with the provisions of [WAC 173-303-830\(4\)](#). The Permittees will be able to demonstrate how Amendments to the applicable portions are controlled. The plan will be amended within a period of time agreed upon by Ecology.

II.A.4 The Permittees will comply with the requirements of [WAC 173-303-350\(3\)](#) and [-360\(1\)](#) concerning the emergency coordinator, except the names and home telephone numbers will be on file with the single point-of-contact, phone number (509) 373-3800 or 375-2400 (for PNNL units) as described in the *Hanford Emergency Management Plan*.

**II.B PREPAREDNESS AND PREVENTION**

II.B.1 The Permittees will equip the Facility with the equipment specified in [WAC 173-303-340\(1\)](#) as specified in the *Hanford Emergency Management Plan* (Permit Attachment 4). Unit-specific preparedness and prevention provisions are included in Parts III, V, and/or VI of this Permit.

II.B.2 The Permittees will test and maintain the equipment specified in Permit Condition II.B.1 as necessary to assure proper operation in the event of emergency.

II.B.3 The Permittees will maintain access to communications or alarms pursuant to [WAC 173-303-340\(2\)](#), as provided in the *Hanford Emergency Management Plan* (Permit Attachment 4) and unit-specific contingency plans.

II.B.4 The Permittees will comply with [WAC 173-303-340\(4\)](#) and [WAC 173-303-355\(1\)](#) pertaining to arrangements with local authorities.

II.B.5 Based on the arrangements with local authorities required by [WAC 173-303-340\(4\)](#) documented in Permit Attachment 4, Table 3-1, the Permittees will maintain the Memorandums of Understanding to comply with [WAC 173-303-350\(4\)\(b\)](#). The Hanford Facility Memorandums of Understanding with local authorities provides emergency planning and coordination equivalent to submittal of the contingency plan to local authorities

1 **II.C PERSONNEL TRAINING**

2 II.C.1 The Permittees will conduct personnel training as required by [WAC 173-303-330](#). The  
3 Permittees will maintain documents in accordance with [WAC 173-303-330\(2\) and \(3\)](#).  
4 Training records may be maintained in the Hanford Facility Operating Record, or on  
5 electronic data storage.

6 II.C.2 All Hanford Facility personnel will receive general Facility training within six (6) months  
7 of hire. This training will provide personnel with orientation of dangerous waste  
8 management activities being conducted at the Hanford Facility. This training will  
9 include:

10 II.C.2.a Description of emergency signals and appropriate personnel response;

11 II.C.2.b Identification of contacts for information regarding dangerous waste management  
12 activities;

13 II.C.2.c Introduction to waste minimization concepts;

14 II.C.2.d Identification of contact(s) for emergencies involving dangerous waste; and

15 II.C.2.e Familiarization with the applicable portions of the *Hanford Emergency Management*  
16 *Plan*.

17 II.C.3 Description of training plans for personnel assigned to TSD units subject to this Permit  
18 are delineated in the unit-specific Chapters in Parts III, V, and/or VI of this Permit.

19 II.C.4 The Permittees will provide the necessary training to non-Facility personnel (i.e., visitors,  
20 sub-contractors), as appropriate, for the locations of such personnel, and the activities that  
21 will be undertaken. At a minimum, this training will describe dangerous waste  
22 management hazards at the Facility.

23 **II.D WASTE ANALYSIS**

24 II.D.1 All waste analyses required by this Permit will be conducted in accordance with a written  
25 waste analysis plan (WAP), or sampling and analysis plan (SAP). Operating TSD units  
26 will have a WAP, which will be approved through incorporation of the TSD unit into Part  
27 III of this Permit. Closing TSD units, and units in post-closure, should have a SAP and,  
28 if necessary, a WAP, which will be approved through incorporation of the TSD unit into  
29 Part V and/or VI of this Permit.

30 II.D.2 Until a WAP is implemented in accordance with Permit Condition II.D.1., any unit(s)  
31 identified in Parts III, V, and/or VI of this Permit, without a unit-specific WAP approved  
32 by Ecology, will not treat, store, or dispose of dangerous waste, unless specified  
33 otherwise by Ecology in writing.

34 II.D.3 Each TSD unit WAP will include:

35 II.D.3.a The parameters for which each dangerous waste will be analyzed, and the rationale for  
36 selecting these parameters; (i.e., how analysis for these parameters will provide sufficient  
37 information on the waste properties to comply with [WAC 173-303-300\(1\), \(2\), \(3\), and](#)  
38 [\(4\)](#);

39 II.D.3.b The methods of obtaining or testing for these parameters;

40 II.D.3.c The methods for obtaining representative samples of wastes for analysis (representative  
41 sampling methods are discussed in [WAC 173-303-110\(2\)](#);

- 1 II.D.3.d The frequency with which analysis of a waste will be reviewed, or repeated, to ensure  
2 that the analysis is accurate and current;
- 3 II.D.3.e The waste analyses which generators have agreed to supply;
- 4 II.D.3.f Where applicable, the methods for meeting the additional waste analysis requirements for  
5 specific waste management methods, as specified in [WAC 173-303-140\(4\)\(b\)](#),  
6 [173-303-395\(1\)](#), [173-303-630 through 173-303-670](#), and [40 CFR 264.1034](#), [264.1063](#),  
7 [284\(a\)](#), and [268.7](#), for final status facilities;
- 8 II.D.3.f.i For off-site facilities, the procedures for confirming that each dangerous waste received  
9 matches the identity of the waste specified on the accompanying manifest, or shipping  
10 paper. This includes at least:
- 11 II.D.3.f.i.a The procedure for identifying each waste movement at the Facility; and,
- 12 II.D.3.f.i.b The method for obtaining a representative sample of the waste to be identified, if the  
13 identification method includes sampling.
- 14 II.D.3.f.ii For surface impoundments exempted from Land Disposal Restrictions (LDR) under  
15 [40 CFR 268.4\(a\)](#), incorporated by reference in [WAC 173-303-140\(2\)](#), the procedures and  
16 schedules for:
- 17 II.D.3.f.iii The sampling of impoundment contents;
- 18 II.D.3.f.iv The analysis of test data; and
- 19 II.D.3.f.v The annual removal of residues that are not delisted under [40 CFR 260.22](#), or which  
20 exhibit a characteristic of hazardous waste and either;
- 21 II.D.3.f.v.a Do not meet applicable treatment standards of [40 CFR Part 268, Subpart D](#); or
- 22 II.D.3.f.v.b Where no treatment standards have been established:
- 23 II.D.3.f.v.b.1 Such residues are prohibited from land disposal under [40 CFR 268.32](#), or [RCRA](#)  
24 [Section 3004\(d\)](#); or
- 25 II.D.3.f.v.b.2 Such residues are prohibited from land disposal under [40 CFR 268.33\(f\)](#); and
- 26 II.D.4 Should waste analysis be required by this Permit at a location on the Facility, other than  
27 at a TSD unit, a SAP will be maintained by the Permittees, and made available upon  
28 request from Ecology. Any SAP required by this Permit, not associated with a particular  
29 TSD unit, will include the elements of Permit Conditions II.D.3.a.
- 30 **II.E QUALITY ASSURANCE/QUALITY CONTROL**
- 31 II.E.1 All WAPs and SAPs required by this Permit will include a quality assurance/quality  
32 control (QA/QC) plan, or equivalent, to document all monitoring procedures to ensure  
33 that all information, data, and resulting decisions are technically sound, statistically valid,  
34 and properly documented in accordance with [HFFACO Action Plan §6.5](#), Quality  
35 Assurance, and reported/made available in accordance with [HFFACO Action Plan §9.6](#),  
36 Data Access and Delivery Requirements.
- 37 II.E.2 The level of QA/QC for the collection, preservation, transportation, and analysis of each  
38 sample required for implementation of this Permit may be based upon an Ecology-  
39 approved DQO for the sample. These DQOs will be approved by Ecology in writing or  
40 through incorporation of unit plans and Permits into Parts III, V, and/or VI of this Permit.

1 **II.F GROUND WATER AND VADOSE ZONE MONITORING**

2 The Permittees will comply with the ground water monitoring requirements of  
3 [WAC 173-303-645](#). This Condition will apply only to those wells the Permittees use for  
4 the ground water monitoring programs applicable to the TSD units incorporated into  
5 Parts III, V, and/or VI of this Permit. Where releases from TSD units subject to this  
6 Permit have been documented or confirmed by investigation, or where vadose zone  
7 monitoring is proposed for integration with ground water monitoring, the Permittees will  
8 evaluate the applicability of vadose zone monitoring. The Permittees will consult with  
9 Ecology regarding the implementation of these requirements. If agreed to by Ecology,  
10 integration of ground water and vadose zone monitoring, for reasons other than this  
11 Permit, may be accommodated by this Permit. Results from other investigation activities  
12 will be used whenever possible to supplement and/or replace sampling required by this  
13 Permit.

14 II.F.1 Purgewater Management

15 Purgewater will be handled in accordance with the requirements set forth in Permit  
16 Attachment 5, *Purgewater Management Plan*.

17 II.F.2 Well Remediation and Abandonment

18 II.F.2.a The Permittees will inspect the integrity of active resource protection wells as defined by  
19 [WAC 173-160-030](#), subject to this Permit, at least once every five (5) years. These  
20 inspections will be recorded in the Operating Record. The Permittees will prepare and  
21 maintain a plan and schedule by January 26, 1995, specifying the schedule and technical  
22 standards for this program. The Permittees will provide a copy of this plan upon the  
23 request of Ecology.

24 II.F.2.b The Permittees will evaluate resource protection wells subject to this Permit according to  
25 Sections 4.0 and 5.0 of the *Hanford Well Maintenance Inspection Plan* (Permit  
26 Attachment 6) and the *Policy on Remediation of Existing Wells and Acceptance Criteria*  
27 *for RCRA and CERCLA*, June 1990 (Permit Attachment 7), to determine if a well has a  
28 potential use as a qualified well. The Permittees will abandon or remediate unusable  
29 wells according to the requirements of [Chapter 18.104 RCW](#), [Chapter 173-160 WAC](#),  
30 and [Chapter 173-162 WAC](#) to ensure that the integrity of wells subject to this Permit is  
31 maintained. The time for this remediation will be specified in Parts III, V, and/or VI of  
32 this Permit.

33 II.F.2.c Ecology will receive notice in writing at least seventy-two (72) hours before the  
34 Permittees remediate (excluding maintenance activities), or abandon any well subject to  
35 this Permit.

36 II.F.2.d For wells subject to this Permit, the Permittees will achieve full compliance with  
37 [Chapter 173-160 WAC](#) and [Chapter 18.104 RCW](#) consistent with a rolling five (5) year  
38 schedule agreed to by Ecology and the Permittees. This process will be completed by the  
39 year 2012.

40 II.F.3 Well Construction

41 All wells constructed pursuant to this Permit will be constructed in compliance with  
42 [Chapter 173-160 WAC](#).

43 **II.G SITING CRITERIA**

44 The Permittees will comply with the applicable notice of intent and siting criteria of  
45 [WAC 173-303-281](#) and [WAC 173-303-282](#), respectively.

1 **II.H RECORDKEEPING AND REPORTING**

2 The provisions of [WAC 173-303-620](#) are not applicable to the Hanford Facility because  
3 the USDOE is both owner and operator of the Hanford Facility.  
4 [WAC 173-303-620\(1\)\(c\)](#).

5 **II.I FACILITY OPERATING RECORD**

6 II.I.1 The Permittees will maintain a written Facility Operating Record until ten (10) years after  
7 post-closure, or corrective action is complete and certified for the Facility, whichever is  
8 later. Except as specifically provided otherwise in this Permit, the Permittees will also  
9 record all information referenced in this Permit in the Facility Operating Record within  
10 seven (7) working days after the information becomes available. A TSD unit-specific  
11 Operating Record will be maintained for each TSD unit at a location identified in  
12 Parts III, V, and VI of this Permit. This information may be maintained on electronic  
13 media. Each TSD unit-specific Operating Record will be included by reference in the  
14 Facility Operating Record. Information required in each TSD unit-specific Operating  
15 Record is identified on a unit-by-unit basis in Part III, V, or VI of this Permit. The  
16 Facility Operating Record will include, but not be limited to, the following information.

17 II.I.1.a A description of the system(s) currently utilized to identify and map solid waste  
18 management units and their locations. The description of the system(s) is required to  
19 include an identification of on-site access to the system's data, and an on-site contact  
20 name and telephone number. In addition to, or as part of, this system(s), the Permittees  
21 will also maintain a list identifying active ninety (90)-day waste storage areas, and  
22 dangerous waste satellite accumulation areas and their locations. The list will identify the  
23 location, the predominant waste types managed at the area, and a date identifying when  
24 the list was compiled. Maps will be provided by the Permittees upon request by Ecology;

25 II.I.1.b Records and results of waste analyses required by [WAC 173-303-300](#);

26 II.I.1.c An identification of the system(s) currently utilized to generate Occurrence Reports. The  
27 identification of the system(s) is required to include a description, an identification of an  
28 on-site location of hard-copy Occurrence Reports, an identification of on-site access to  
29 the system's data, and an on-site contact name and telephone number;

30 II.I.1.d Copies of all unmanifested waste reports;

31 II.I.1.e The *Hanford Emergency Management Plan*, as well as summary reports, and details of  
32 all incidents that require implementing the contingency plan, as specified in  
33 [WAC 173-303-360\(2\)\(k\)](#);

34 II.I.1.f An identification of the system(s) currently utilized and being developed to record  
35 personnel training records and to develop training plans. The identification of the  
36 system(s) is required to include a description, an identification of on-site access to the  
37 system's data, and an on-site contact name and telephone number;

38 II.I.1.g Preparedness and prevention arrangements made pursuant to [WAC 173-303-340\(4\)](#) and  
39 documentation of refusal by state or local authorities that have declined to enter into  
40 agreements in accordance with [WAC 173-303-340\(5\)](#);

41 II.I.1.h Reserved Condition;

42 II.I.1.i Reserved Condition;

43 II.I.1.j Documentation (e.g., waste profile sheets) of all dangerous waste transported to or from  
44 any TSD unit subject to this Permit. This documentation will be maintained in the  
45 receiving unit's Operating Record from the time the waste is received;

- 1 II.I.1.k An identification of the system(s) currently utilized to cross-reference waste locations to  
2 specific manifest document numbers. The identification of the system(s) is required to  
3 include a thorough description, an identification of an on-site location of a hard-copy data  
4 report, an identification of on-site access to the system's data, and an on-site contact  
5 name and telephone number;
- 6 II.I.1.l Reserved Condition;
- 7 II.I.1.m Annual Reports required by this Permit;
- 8 II.I.1.n An identification of all systems currently utilized to record monitoring information,  
9 including all calibration and maintenance records, and all original strip chart recordings  
10 for continuous monitoring instrumentation. The identification of systems will include a  
11 description of the systems. The descriptions will include a confirmation that the criteria  
12 of Permit Condition I.E.10 is provided by the utilization of the system. The identification  
13 of the systems will also include an identification of on-site access to the system's data, an  
14 on-site contact name and telephone number;
- 15 II.I.1.o Reserved Condition;
- 16 II.I.1.p Summaries of all records of ground water corrective action required by  
17 [WAC 173-303-645](#);
- 18 II.I.1.q An identification of the system(s) currently being utilized and being developed to  
19 evaluate compliance with the Conditions of this Permit and with [Chapter 173-303 WAC](#).  
20 The identification of the system(s) will include a description of the system(s), an  
21 identification of on-site access to the system's data, and an on-site contact name and  
22 telephone number. The description of the system(s) will also include a definition of  
23 which portion(s) of the system(s) is accessible to Ecology;
- 24 II.I.1.r All deed notifications required by this Permit (to be included by reference);
- 25 II.I.1.s All inspection reports required by this Permit; and
- 26 II.I.1.t All other reports as required by this Permit, including design change documentation and  
27 nonconformance documentation.
- 28 **II.J FACILITY CLOSURE**
- 29 II.J.1 Final closure of the Hanford Facility will be achieved when closure activities for all TSD  
30 units have been completed, as specified in Parts III, IV, V, or VI of this Permit.  
31 Completion of these activities will be documented using either certifications of closure,  
32 in accordance with [WAC 173-303-610\(6\)](#), or certifications of completion of post-closure  
33 care, in accordance with [WAC 173-303-610\(11\)](#).
- 34 II.J.2 The Permittees will close all TSD units as specified in Parts III, V, and/or VI of this  
35 Permit.
- 36 II.J.3 The Permittees will submit a written notification of, or request for, a Permit modification  
37 in accordance with the provisions of [WAC 173-303-610\(3\)\(b\)](#), whenever there is a  
38 change in operating plans, facility design, or the approved closure plan. The written  
39 notification or request must include a copy of the amended closure plan for review, or  
40 approval, by Ecology.

- 1 II.J.4 The Permittees will close the Facility in a manner that:
- 2 II.J.4.a Minimizes the need for further maintenance;
- 3 II.J.4.b Controls, minimizes or eliminates, to the extent necessary to protect human health and  
4 the environment, post-closure escape of dangerous waste, dangerous constituents,  
5 leachate, contaminated run-off, or dangerous waste decomposition products, to the  
6 ground, surface water, ground water, or the atmosphere; and
- 7 II.J.4.c Returns the land to the appearance and use of surrounding land areas to the degree  
8 possible, given the nature of the previous dangerous waste activity.
- 9 II.J.4.d Meets the requirements of [WAC 173-303-610\(2\)\(b\)](#).
- 10 **II.K SOIL/GROUND WATER CLOSURE PERFORMANCE STANDARDS**
- 11 II.K.1 For purposes of Permit Condition II.K, the term "clean closure" shall mean the status of a  
12 TSD unit at the Facility which has been closed to the cleanup levels prescribed by  
13 [WAC 173-303-610\(2\)\(b\)](#), provided certification of such closure has been accepted by  
14 Ecology.
- 15 II.K.2 The Permittees may close a TSD unit to background levels as defined in Ecology  
16 approved Hanford Site Background Documents, if background concentrations exceed the  
17 levels prescribed by Permit Condition II.K.1. Closure to these levels, provided the  
18 Permittees comply with all other closure requirements for a TSD unit as identified in  
19 Parts III, V, and/or VI of this Permit, shall be deemed as "clean closure".
- 20 II.K.3 Except for those TSD units identified in Permit Conditions II.K.1, II.K.2, or II.K.4, the  
21 Permittees may close a TSD unit to a cleanup level specified under Method C of  
22 [Chapter 173-340 WAC](#). Closure of a TSD unit to these levels, provided the Permittees  
23 comply with all other closure requirements for the TSD unit as specified in Parts III, V,  
24 and/or VI of the Permit, and provided the Permittees comply with Permit  
25 Conditions II.K.3.a through II.K.3.c, shall be deemed as a "modified closure".
- 26 II.K.3.a For "modified closures", the Permittees shall provide institutional controls in accordance  
27 with [WAC 173-340-440](#) which restricts access to the TSD unit for a minimum of  
28 five (5) years following completion of closure. The specific details and duration of  
29 institutional controls shall be specified in Parts III, V, and/or VI of this Permit for a  
30 particular TSD unit.
- 31 II.K.3.b For "modified closures", the Permittees shall provide periodic assessments of the TSD  
32 unit to determine the effectiveness of the closure. The specific details of the periodic  
33 assessments shall be specified in Parts III, V, and/or VI of this Permit. The periodic  
34 assessments shall include, as a minimum, a compliance monitoring plan in accordance  
35 with [WAC 173-340-410](#) that will address the assessment requirements on a unit-by-unit  
36 basis. At least one (1) assessment activity shall take place after a period of five (5) years  
37 from the completion of closure, which will demonstrate whether the soils and ground  
38 water have been maintained at or below the allowed concentrations as specified in  
39 Parts III, V, or VI of this Permit. Should the required assessment activities identify  
40 contamination above the allowable limits as specified in Parts III, V, and/or VI, the TSD  
41 unit must be further remediated, or the requirements of II.K.4 must be followed. Should  
42 the required assessment activities demonstrate that contamination has diminished, or  
43 remained the same, the Permittees may request that Ecology reduce, or eliminate the  
44 assessment activities and/or institutional controls.
- 45 II.K.3.c For "modified closures", the Permittees shall specify the particular activities required by  
46 this Condition in a Post-Closure Permit application.

- 1 II.K.4 Any TSD unit for which Permit Conditions II.K.1, II.K.2, or II.K.3, are not chosen as the  
2 closure option, closing the TSD unit as a landfill may be selected. Closure and post-  
3 closure of the TSD unit as a landfill, must follow the procedures and requirements  
4 specified in [WAC 173-303-610](#).
- 5 II.K.5 The cleanup option selected shall be specified in Parts III, V, and/or VI of this Permit,  
6 and shall be chosen with consideration of the potential future site use for that TSD  
7 unit/area. Definitions contained within [Chapter 173-340 WAC](#) shall apply to Permit  
8 Condition II.K. Where definitions are not otherwise provided by this Permit, the  
9 [HFFACO](#), or [Chapter 173-303 WAC](#).
- 10 II.K.6 Deviations from a TSD unit closure plan required by unforeseen circumstances  
11 encountered during closure activities, which do not impact the overall closure strategy,  
12 but provide equivalent results, shall be documented in the TSD unit-specific Operating  
13 Record and made available to Ecology upon request, or during the course of an  
14 inspection.
- 15 II.K.7 Where agreed to by Ecology, integration of other statutorily or regulatory mandated  
16 cleanups may be accommodated by this Permit. Results from other cleanup investigation  
17 activities shall be used whenever possible to supplement and/or replace TSD unit closure  
18 investigation activities. All, or appropriate parts of, multipurpose cleanup and closure  
19 documents can be incorporated into this Permit through the Permit modification process.  
20 Cleanup and closures conducted under any statutory authority, with oversight by either  
21 Ecology or the EPA, which meet the equivalent of the technical requirements of Permit  
22 Conditions II.K.1 through II.K.4, may be considered as satisfying the requirements of this  
23 Permit.

## 24 II.L DESIGN AND OPERATION OF THE FACILITY

- 25 II.L.1 Proper Design and Construction
- 26 The Permittees will design, construct, maintain, and operate the Facility to minimize the  
27 possibility of a fire, explosion, or any unplanned sudden or non-sudden release of  
28 hazardous substances to air, soil, ground water, or surface water, which could threaten  
29 human health, or the environment.
- 30 II.L.2 Design Changes, Nonconformance, and As-Built Drawings
- 31 II.L.2.a After completing the Permit modification process in Permit Condition I.C.3, the  
32 Permittees will conduct all construction subject to this Permit in accordance with the  
33 approved designs, plans and specifications that are required by this Permit, unless  
34 authorized otherwise in Permit Conditions II.L.2.b or II.L.2.c. For purposes of Permit  
35 Conditions II.L.2.b and II.L.2.c, an Ecology construction inspector, or TSD unit manager,  
36 are designated representatives of Ecology.
- 37 II.L.2.b During construction of a project subject to this Permit, changes to the approved designs,  
38 plans and specifications will be formally documented. All design change documentation  
39 will be maintained in the TSD unit-specific Operating Record and will be made available  
40 to Ecology upon request or during the course of an inspection. The Permittees will  
41 provide copies of design change documentation affecting any critical system to Ecology  
42 within five (5) working days of initiating the design change documentation.  
43 Identification of critical systems will be included by the Permittees in each TSD unit-  
44 specific dangerous waste Permit application, closure plan or Permit modification, as  
45 appropriate. Ecology will review a design change documentation modifying a critical  
46 system, and inform the Permittees in writing within two (2) working days, whether the  
47 proposed design change documentation, when issued, will require a Class 1, 2, or 3

1 Permit modification. If after two (2) working days Ecology has not responded, it will be  
2 deemed as acceptance of the design change documentation by Ecology.

3 II.L.2.c During construction of a project subject to this Permit, any work completed which does  
4 not meet or exceed the standards of the approved design, plans and specifications will be  
5 formally documented with nonconformance documentation. All nonconformance  
6 documentation will be maintained in the TSD unit-specific Operating Record and will be  
7 made available to Ecology upon request, or during the course of an inspection. The  
8 Permittees will provide copies of nonconformance documentation affecting any critical  
9 system to Ecology within five (5) working days after identification of the  
10 nonconformance. Ecology will review nonconformance documentation affecting a  
11 critical system and inform the Permittees in writing, within two (2) working days,  
12 whether a Permit modification is required for any nonconformance, and whether prior  
13 approval is required from Ecology before work proceeds, which affects the  
14 nonconforming item. If Ecology does not respond within two (2) working days, it will be  
15 deemed as acceptance and no Permit modification will be required.

16 II.L.2.d Upon completion of a construction project subject to this Permit, the Permittees will  
17 produce as-built drawings of the project which incorporate the design and construction  
18 modifications resulting from all project design change documentation and  
19 nonconformance documentation, as well as modifications made pursuant to  
20 [WAC 173-303-830](#). The Permittees will place the drawings into the Operating Record  
21 within twelve (12) months of completing construction, or within an alternate period of  
22 time specified in a unit-specific Permit Condition in Part III or V of this Permit.

23 II.L.2.e Facility Compliance  
24 The Permittees in receiving, storing, transferring, handling, treating, processing, and  
25 disposing of dangerous waste, will design, operate, and/or maintain the Facility in  
26 compliance with all applicable federal, state, and local laws and regulations.

27 **II.M SECURITY**

28 The Permittees will comply with the security provisions of [WAC 173-303-310](#). The  
29 Permittees may comply with the requirements of [WAC 173-303-310\(2\)](#) on a unit-by-unit  
30 basis.

31 **II.N RECEIPT OF DANGEROUS WASTES GENERATED OFF-SITE**

32 II.N.1 Receipt of Off-Site Waste

33 The Permittees will comply with Permit Conditions II.N.2 and II.N.3 for any dangerous  
34 wastes which are received from sources outside the United States, or from off-site  
35 generators.

36 II.N.2 Waste from Sources Outside the United States

37 The Permittees will meet the requirements of [WAC 173-303-290\(1\)](#) for waste received  
38 from outside the United States.

39 II.N.3 Notice to Generator

40 For waste received from off-site sources (except where the owner/operator is also the  
41 generator), the Permittees will inform the generator in writing that they have the  
42 appropriate Permits for, and will accept, the waste the generator is shipping, as required  
43 by [WAC 173-303-290\(3\)](#). The Permittees will keep a copy of this written notice as part  
44 of the TSD unit-specific Operating Record.

1 **II.O GENERAL INSPECTION REQUIREMENTS**

2 II.O.1 The Permittees will inspect the Facility to prevent malfunctions and deterioration,  
3 operator errors, and discharges, which may cause or lead to the release of dangerous  
4 waste constituents to the environment, or threaten human health. Inspections must be  
5 conducted in accordance with the provisions of [WAC 173-303-320\(2\)](#). In addition to the  
6 TSD unit inspections specified in Parts III, V, and/or VI, the following inspections will  
7 also be conducted:

8 II.O.1.a The 100, 200 East, 200 West, 300, and 400 areas will be inspected annually.

9 II.O.1.b The Permittees will inspect the banks of the Columbia River, contained within the  
10 Facility boundary, once a year. The inspection will be performed from the river, by boat,  
11 and the inspectors will follow the criteria in Permit Condition II.O.1.c.

12 II.O.1.c The Permittees will visually inspect the areas identified in Permit Conditions II.O.1.a and  
13 II.O.1.b for malfunctions, deterioration, operator errors, and discharges which may cause  
14 or lead to the release of dangerous waste constituents to the environment, or that threaten  
15 human health. Specific items to be noted are as follows:

16 II.O.1.c.i Remains of waste containers, labels, or other waste management equipment;

17 II.O.1.c.ii Solid waste disposal sites not previously identified for remedial action;

18 II.O.1.c.iii Uncontrolled waste containers (e.g., orphan drums);

19 II.O.1.c.iv Temporary or permanent activities that could generate an uncontrolled waste form; and

20 II.O.1.c.v Unpermitted waste discharges.

21 II.O.1.d The Permittees will notify Ecology at least seven (7) days prior to conducting these  
22 inspections in order to allow representatives of Ecology to be present during the  
23 inspections.

24 II.O.2 If the inspection by the Permittees, conducted pursuant to Permit Condition II.O.1,  
25 reveals any problems, the Permittees will take remedial action on a schedule agreed to by  
26 Ecology.

27 II.O.3 The inspection of high radiation areas will be addressed on a case-by-case basis in either  
28 Part III of this Permit, or prior to the inspections required in Permit Condition II.O.1.

29 **II.P MANIFEST SYSTEM**

30 II.P.1 The Permittees will comply with the manifest requirements of [WAC 173-303-370](#) for  
31 waste received from off-site and [WAC 173-303-180](#) for waste shipped off-site.

32 II.P.2 Transportation of dangerous wastes along roadways, if such routes are not closed to  
33 general public access at the time of transport, can be manifested pursuant to an alternate  
34 tracking system as allowed by [WAC 173-303-180\(6\)](#). The alternate tracking system can  
35 be a paper system or an electronic system. The roadways addressed by this condition are  
36 a public or private right-of-way within or along the border of contiguous property where  
37 the movement is under control of the USDOE. The alternate tracking system will consist  
38 of documentation between the offering Hanford Facility location and the receiving  
39 Hanford Facility location containing the following information:

40 II.P.2.a Hanford Facility offeror name, location, and telephone number;

41 II.P.2.b Hanford Facility receiver name, location, and telephone number;

42 II.P.2.c Description of waste;

43 II.P.2.d Number and type of containers;

- 1 II.P.2.e Total quantity of waste;  
2 II.P.2.f Unit volume/weight;  
3 II.P.2.g Dangerous waste number(s) or U.S. Department of Transportation hazard class; and  
4 II.P.2.h Special handling instructions including emergency contacts.  
5 II.P.3 The Hanford Facility offeror and receiver will resolve any discrepancies of information  
6 found related to Permit Conditions II.P.2.a through II.P.2.h.  
7 II.P.4 If the discrepancies cannot be resolved at the Hanford Facility receiving location, a new  
8 Hanford Facility receiver location will be agreed upon, or the dangerous waste will be  
9 returned to the offeror location. The documentation accompanying the movement of  
10 dangerous waste will be updated to reflect the new receiving location.

11 **II.Q ON-SITE TRANSPORTATION**

12 II.Q.1 Documentation must accompany any on-site dangerous waste which is transported to or  
13 from any TSD unit subject to this Permit, through or within the 600 Area, unless the  
14 roadway is closed to general public access at the time of shipment. Waste transported by  
15 rail or by pipeline is exempt from this Condition. This documentation will include the  
16 following information, unless other unit-specified provisions are designated in Part III or  
17 V of this Permit:

- 18 II.Q.1.a Generator's name, location, and telephone number;  
19 II.Q.1.b Receiving TSD unit's name, location, and telephone number;  
20 II.Q.1.c Description of waste;  
21 II.Q.1.d Number and type of containers;  
22 II.Q.1.e Total quantity of waste;  
23 II.Q.1.f Unit volume/weight;  
24 II.Q.1.g Dangerous waste number(s); and  
25 II.Q.1.h Any special handling instructions.  
26 II.Q.2 All non-containerized solid, dangerous waste transported to or from TSD units, subject to  
27 this Permit, will be covered to minimize the potential for material to escape during  
28 transport.

29 **II.R EQUIVALENT MATERIALS**

- 30 II.R.1 The Permittees may substitute an equivalent or superior product for any equipment or  
31 materials specified in this Permit. Use of equivalent or superior products will not be  
32 considered a modification of this Permit. A substitution will not be considered equivalent  
33 unless it is at least as effective as the original equipment or materials in protecting human  
34 health and the environment.  
35 II.R.2 The Permittees will place in the Operating Record (within seven [7] days after the change  
36 is put into effect) the substitution documentation, accompanied by a narrative  
37 explanation, and the date the substitution became effective. Ecology may judge the  
38 soundness of the substitution.  
39 II.R.3 If Ecology determines that a substitution was not equivalent to the original, it will notify  
40 the Permittees that the Permittees' claim of equivalency has been denied, of the reasons  
41 for the denial, and that the original material or equipment must be used. If the product  
42 substitution is denied, the Permittees will comply with the original approved product  
43 specification, or find an acceptable substitution.

1 **II.S LAND DISPOSAL RESTRICTIONS (LDR)**

2 Unless specifically identified otherwise in the [HFFACO](#), the Permittees will comply with  
3 all LDR requirements as set forth in [WAC 173-303-140](#).

4 **II.T ACCESS AND INFORMATION**

5 To the extent that work required by this Permit must be done on property not owned or  
6 controlled by the Permittees, the Permittees must utilize their best efforts to obtain access  
7 and information at these locations.

8 **II.U MAPPING OF UNDERGROUND PIPING**

9 II.U.1 Reserved.

10 II.U.2 Reserved.

11 II.U.3 The Permittees will maintain piping maps for existing, newly identified, and/or new  
12 dangerous waste underground pipelines (including active, inactive, and abandoned  
13 pipelines, which contain or contained dangerous waste subject to the provisions of  
14 [Chapter 173-303 WAC](#)) at the Hanford Facility. The maps will identify the origin,  
15 destination, direction of flow, size, depth and type (i.e., reinforced concrete, stainless  
16 steel, cast iron, etc.), of each pipe, and the location of their diversion boxes, valve pits,  
17 seal pots, catch tanks, receiver tanks, and pumps, and utilize Washington State Plane  
18 Coordinates, NAD 83(91), meters. If the type of pipe material is not documented on  
19 existing drawings, the most probable material type will be provided. The maps will also  
20 identify whether the pipe is active, inactive, or abandoned. The age of all pipes requiring  
21 identification pursuant to this Condition will be documented in an Attachment to the  
22 submittal. If the age cannot be documented, an estimate of the age of the pipe will be  
23 provided based upon best engineering judgment. These maps need not include the pipes  
24 within a fenced tank farm or within a building/structure. These maps will be compiled  
25 using documented QA/QC control methods and procedures outlined in DOE/RL-96-50,  
26 Hanford Facility RCRA Permit Mapping and Marking of Dangerous Waste Underground  
27 Pipelines Report, September 1996. These maps and any Attachments will be maintained  
28 in the Facility Operating Record and be updated annually as required by Permit  
29 Condition II.U.4.

30 II.U.4 Permittees will maintain current all maps required by Permit Condition II.U.3. These  
31 maps will be updated to incorporate new or revised information available by March 30th  
32 of each year. By September 30th of each year, the Permittees will submit to Ecology a  
33 list of maps that have been updated. The updated maps (including any Attachments) and  
34 the annual list submitted to Ecology will be maintained in the Facility Operating Record.

35 **II.V MARKING OF UNDERGROUND PIPING**

36 The Permittees will maintain marking of underground pipelines located outside the  
37 200 East, 200 West, 300, 400, 100N, and 100K Areas. These pipelines will be marked at  
38 the point they pass beneath an area fence, at their origin and destination, at any point they  
39 cross an improved road, and every 100 meters along the pipeline corridor where  
40 practicable. The markers will be labeled with a sign that reads "Buried Dangerous Waste  
41 Pipe" and will be visible from a distance of fifteen (15) meters.

1 **II.W OTHER PERMITS AND/OR APPROVALS**

2 II.W.1 The Permittees will be responsible for obtaining all other applicable federal, state, and  
3 local permits authorizing the development and operation of the Facility. To the extent  
4 that work required by this Permit must be done under a permit and/or approval pursuant  
5 to other regulatory authority, the Permittees will use their best efforts to obtain such  
6 permits.

7 II.W.2 All other permits related to dangerous waste management activities are severable and  
8 enforceable through the permitting authority under which they are issued.

9 II.W.3 All air emissions from units subject to this Permit will comply with all applicable state  
10 and federal regulations pertaining to air emission controls, including but not limited to,  
11 [Chapter 173-400 WAC](#), General Regulations for Air Pollution Sources; [Chapter 173-460](#)  
12 [WAC](#), Controls for New Sources of Toxic Air Pollutants; and [Chapter 173-480 WAC](#),  
13 Ambient Air Quality Standards and Emission Limits for Radionuclides.

14 **II.X SCHEDULE EXTENSIONS**

15 II.X.1 The Permittees will notify Ecology in writing, as soon as possible, of any deviations or  
16 expected deviations, from the schedules of this Permit. The Permittees will include with  
17 the notification all information supporting their claim that they have used best efforts to  
18 meet the required schedules. If Ecology determines that the Permittees have made best  
19 efforts to meet the schedules of this Permit, Ecology will notify the Permittees in writing  
20 by certified mail, that the Permittees have been granted an extension. Such an extension  
21 will not require a Permit modification under Permit Condition I.C.3. Should Ecology  
22 determine that the Permittees have not made best efforts to meet the schedules of this  
23 Permit, Ecology may take such action as deemed necessary.

24 Copies of all correspondence regarding schedule extensions will be kept in the Operating  
25 Record.

26 II.X.2 Any schedule extension granted through the approved change control process identified  
27 in the [HFFACO](#) will be incorporated into this Permit. Such a revision will not require a  
28 Permit modification under Permit Condition I.C.3.

29 **II.Y CORRECTIVE ACTION**

30 In accordance with [WAC 173-303-646](#) and [WAC 173-303-815\(2\)\(b\)\(ii\)](#), the Permittee  
31 must conduct corrective action, as necessary to protect human health and the  
32 environment, for releases of dangerous waste and dangerous constituents from solid  
33 waste management units and areas of concern at the facility, including releases that have  
34 migrated beyond the facility boundary. The Permittee may be required to implement  
35 measures within the facility to address releases, which have migrated beyond the  
36 facility's boundary. As specified in Permit Conditions II.Y.1.g, II.Y.2.a.iii, and  
37 II.Y.2.a.ii, the Permittee's right to challenge Ecology's authority to impose corrective  
38 action with respect to radionuclides, CERCLA Past Practice (CPP) Units (as identified  
39 under Permit Condition II.Y.2.a.) and selected solid waste management units not covered  
40 by the [HFFACO](#) at property currently subleased to US Ecology, Inc. (as identified under  
41 Permit Condition II.Y.3.a.i), is reserved until such time as Ecology chooses to impose  
42 corrective action in accordance with the Permit modification procedures of  
43 [WAC 173-303-830](#).

- 1 II.Y.1 Compliance with [Chapter 173-340 WAC](#)
- 2 In accordance with [WAC 173-303-646](#), the Permittee must conduct corrective action "as  
3 necessary to protect human health and the environment". To ensure that corrective action  
4 will be conducted as necessary to protect human health and the environment, except as  
5 provided in Permit Condition II.Y.2, the Permittee must conduct corrective action in a  
6 manner that complies with the following provisions of [Chapter 173-340 WAC](#):
- 7 II.Y.1.a As necessary to select a cleanup action in accordance with [WAC 173-340-360](#) and  
8 [WAC 173-340-350](#) State Remedial Investigation and Feasibility Study;
- 9 II.Y.1.b [WAC 173-340-360](#) Selection of Cleanup Actions;
- 10 II.Y.1.c [WAC 173-340-400](#) Cleanup Actions;
- 11 II.Y.1.d [WAC 173-340-410](#) Compliance Monitoring Requirements;
- 12 II.Y.1.e [WAC 173-340-420](#) Periodic Site Reviews;
- 13 II.Y.1.f [WAC 173-340-440](#) Institutional Controls; and
- 14 II.Y.1.g [WAC 173-340-700 through -760](#) Cleanup Standards, except that to the extent that  
15 Ecology seeks to impose corrective action with respect to radionuclides regulated under  
16 the provisions of the Atomic Energy Act, as amended, 42 U.S.C. § 2011 et.seq. (AEA),  
17 the Permittee may challenge Ecology's authority to impose such corrective action  
18 through a timely appeal of the permit modification issued by Ecology without argument  
19 from Ecology that such right has been waived by a failure to fully litigate that issue  
20 through an appeal taken within thirty (30) days of the issuance of this permit, and without  
21 argument from the Permittee that such requirement fails to satisfy a cause for Permit  
22 modification under [WAC 173-303-830\(3\)\(a\)](#).
- 23 II.Y.2 Acceptance of Work under Other Authorities or Programs and Integration with the  
24 [HFFACO](#).
- 25 Corrective action is necessary to protect human health and the environment for all units  
26 identified in [Appendix B](#) and [Appendix C](#) of the [HFFACO](#). Notwithstanding Permit  
27 Condition II.Y.1, work under other cleanup authorities or programs, including work  
28 under the [HFFACO](#), may be used to satisfy corrective action requirements, provided it  
29 protects human health and the environment.
- 30 II.Y.2.a For units identified in [Appendix C](#) of the [HFFACO](#), as amended, as CERCLA Past  
31 Practice (CPP) Units, Ecology accepts work under the [HFFACO](#), as amended, and under  
32 the CERCLA program, as satisfying corrective action requirements to the extent provided  
33 for in, and subject to the reservations and requirements of, Permit Conditions II.Y.2.a.i  
34 through II.Y.2.a.iv.
- 35 II.Y.2.a.i For any unit identified in [Appendix C](#) of the [HFFACO](#) as a CPP unit, the Permittee must  
36 comply with the requirements and schedules related to investigation and cleanup of the  
37 CPP unit(s) developed and approved under the [HFFACO](#), as amended. The requirements  
38 and schedules related to investigation and cleanup of CPP units currently in place under  
39 the [HFFACO](#), as amended, and in the future developed and approved under the [FFAOC](#),  
40 as amended, are incorporated into this Permit by this reference and apply under this  
41 Permit as if they were fully set forth herein. If the Permittee is not in compliance with  
42 requirements of the [HFFACO](#), as amended, that relate to investigation or cleanup of CPP  
43 unit(s), Ecology may take action to independently enforce the requirements as corrective  
44 action requirements under this Permit.

- 1 II.Y.2.a.ii For any unit identified in [Appendix C](#) of the [HFFACO](#) as a CPP unit, in the case of an  
2 interim ROD, a final decision about satisfaction of corrective action requirements will be  
3 made in the context of issuance of a final ROD.
- 4 II.Y.2.a.iii If EPA and Ecology, after exhausting the dispute resolution process under [Section XXVI](#)  
5 of the [HFFACO](#), cannot agree on requirements related to investigation or cleanup of CPP  
6 unit(s), Ecology will notify the Permittee, in writing, of the disagreement and impose, in  
7 accordance with the Permit Modification Procedures of [WAC 173-303-830](#), a  
8 requirement for the Permittee to conduct corrective action for the subject units(s) in  
9 accordance with Permit Condition II.Y.1. The Permittee may challenge Ecology's  
10 authority to impose such corrective action requirements through a timely appeal of such  
11 permit modification, without argument from Ecology that the Permittee's right to raise  
12 such challenge has been waived by a failure to fully litigate that issue through an appeal  
13 taken within thirty (30) days of the issuance of this permit, and without argument from  
14 the Permittee that such requirement fails to satisfy a cause for Permit modification under  
15 [WAC 173-303-830\(3\)\(a\)](#). Within sixty (60) days of receipt of the above permit  
16 modification, or within some other reasonable period of time agreed to by Ecology and  
17 the Permittee, the Permittee must submit for Ecology review and approval, a plan to  
18 conduct corrective action in accordance with Permit Condition II.Y.1 for the subject  
19 unit(s). The Permittee's plan may include a request that Ecology evaluate work under  
20 another authority or program. Approved corrective action plans under this Condition will  
21 be incorporated into this Permit in accordance with the Permit Modification Procedures  
22 of [WAC 173-303-830](#).
- 23 II.Y.2.a.iv The Permittee must maintain information on corrective action for CPP units covered by  
24 the [HFFACO](#) in accordance with the [HFFACO Action Plan §9.0](#) and [§10.0](#). In addition,  
25 the Permittee must maintain all reports and other information developed in whole, or in  
26 part, to implement the requirements of Permit Condition II.Y.2.a, including reports of  
27 investigations and all raw data, in the Facility Operating Record in accordance with  
28 Permit Condition II.I. Information that is maintained in the Hanford Site Administrative  
29 Record may be incorporated by reference into the Facility Operating Record.
- 30 II.Y.2.b For units identified in [Appendix C](#) of the [HFFACO](#), as amended, as RPP units, Ecology  
31 accepts work under the [HFFACO](#), as amended, as satisfying corrective action  
32 requirements to the extent provided for, and subject to the reservations and requirements  
33 of, Permit Conditions II.Y.2.b.i through II.Y.2.b.iv.
- 34 II.Y.2.b.i For any unit identified in [Appendix C](#) of the [HFFACO](#), as amended, as RPP unit, until a  
35 Permit modification is complete under Permit Condition II.Y.2.b.iii., the Permittee must  
36 comply with the requirements and schedules related to investigation and cleanup of RPP  
37 units developed and approved under the [HFFACO](#), as amended. The requirements and  
38 schedules related to investigation and cleanup of RPP units currently in place under the  
39 [HFFACO](#), as amended, and in the future developed and approved under the [HFFACO](#),  
40 as amended, are incorporated into this Permit by this reference and apply under this  
41 Permit as if they were fully set forth herein. Until a permit modification is complete  
42 under Permit Condition II.Y.2.b.iii, if the Permittee is not in compliance with  
43 requirements and schedules related to investigation and cleanup of RPP units developed  
44 and approved under the [HFFACO](#), as amended, Ecology may take action to  
45 independently enforce the requirements as corrective action requirements under this  
46 Permit.
- 47 II.Y.2.b.ii When the Permittee submits a corrective measures study for an individual RPP unit or a  
48 group of RPP units, the Permittee must, at the same time, recommend a remedy for the  
49 unit(s). The remedy recommendation must contain all the elements of a draft cleanup  
50 action plan under [WAC 173-340-360\(10\)](#).

- 1 II.Y.2.b.iii After considering the Permittees' corrective measures study and remedy  
2 recommendation, Ecology will make a tentative remedy selection decision and publish  
3 the decision for public review and comment. Public review and comment may be  
4 accomplished by publishing the tentative decision as a draft Permit under  
5 [WAC 173-303-840\(10\)](#), or by a method that provides an equivalent opportunity for  
6 public review and participation. Following public review and comment, Ecology will  
7 make a final remedy selection decision. Final remedy decisions will be incorporated into  
8 the Permit using the Permit Modification Procedures of [WAC 173-303-830](#).
- 9 II.Y.2.b.iv The Permittee must maintain information on corrective action for RPP units covered by  
10 the [HFFACO](#), as amended, in accordance with [HFFACO Action Plan §9.0](#) and [§10.0](#). In  
11 addition, the Permittee must maintain all reports and other information developed in  
12 whole, or in part, to implement the requirements of Permit Condition II.Y.2.b, including  
13 reports of investigations and all raw data, in the Facility Operating Record in accordance  
14 with Permit Condition II.I. Information that is maintained in the Hanford Site  
15 Administrative Record may be incorporated into the Facility Operating Record by  
16 reference.
- 17 II.Y.2.c For each TSD unit or group of units, when the Permittee submits a certification of closure  
18 or a certification of completion of post-closure care, or at an earlier time agreed to by  
19 Ecology and the Permittee, the Permittee must, at the same time, either:
- 20 II.Y.2.c.i Document that the activities completed under closure and/or post-closure satisfy the  
21 requirements for corrective action; or
- 22 II.Y.2.c.ii If the activities completed under closure and/or post-closure care do not satisfy corrective  
23 action requirements, identify the remaining corrective action requirements and the  
24 schedule under which they will be satisfied, if remaining corrective action requirements  
25 will be satisfied by work developed and carried out under the [HFFACO](#) provisions for  
26 RPP units or CPP units, a reference to the appropriate RPP or CPP process and schedule  
27 will suffice.
- 28 II.Y.2.c.iii Ecology will make final decisions as to whether the work completed under closure and/or  
29 post-closure care satisfies corrective action, specify any unit-specific corrective action  
30 requirements, and incorporate the decision into this Permit in accordance with the Permit  
31 Modification Procedures of [WAC 173-303-830](#).
- 32 II.Y.2.d Notwithstanding any other condition in this Permit, Ecology may directly exercise any  
33 administrative or judicial remedy under the following circumstances:
- 34 II.Y.2.d.i Any discharge or release of dangerous waste, or dangerous constituents, which are not  
35 addressed by the [HFFACO](#), as amended;
- 36 II.Y.2.d.ii Discovery of new information regarding dangerous constituents or dangerous waste  
37 management, including but not limited to, information about releases of dangerous waste  
38 or dangerous constituents which are not addressed under the [HFFACO](#), as amended; or
- 39 II.Y.2.d.iii A determination that action beyond the terms of the [HFFACO](#), as amended, is necessary  
40 to abate an imminent and substantial endangerment to the public health, or welfare, or to  
41 the environment.
- 42 II.Y.3 Releases of Dangerous Waste or Dangerous Constituents Not Covered By the [HFFACO](#)
- 43 II.Y.3.a US Ecology
- 44 II.Y.3.a.i The following solid waste management units are not covered by the [HFFACO](#):
- 45 II.Y.3.a.i.a US Ecology, Inc., SWMU 1: Chemical Trench;

- 1 II.Y.3.a.i.b US Ecology, Inc., SWMU 2-13: Low-level radioactive waste trenches 1 through 11A;  
2 and
- 3 II.Y.3.a.i.c US Ecology, Inc., SWMU 17: Underground resin tank.
- 4 II.Y.3.a.ii Selected solid waste management units identified in Permit Condition II.Y.3.a.i are  
5 currently being investigated by US Ecology in accordance with the Comprehensive  
6 Investigation US Ecology – Hanford Operations Workplan. Following completion of this  
7 investigation and any closure required of such solid waste management unit under the  
8 authority of the Washington State Department of Health, or within one (1) year of the  
9 effective date of this Permit Condition, whichever is earlier, Ecology will make a  
10 tentative decision as to whether additional investigation or cleanup is necessary to protect  
11 human health or the environment for the solid waste management units identified in  
12 Permit Condition II.Y.3.a.i, and publish that decision as a draft permit in accordance with  
13 [WAC 173-303-840\(10\)](#). Following the associated public comment period, and  
14 consideration of any public comments received during the public comment period,  
15 Ecology will publish as final permit conditions under [WAC 173-303-840\(8\)](#) either:
- 16 II.Y.3.a.ii.a A decision that corrective action is not necessary to protect human health or the  
17 environment;
- 18 II.Y.3.a.ii.b An extension to the schedule established under Permit Condition II.I.Y.3.a.ii; or
- 19 II.Y.3.a.ii.c A decision that corrective action in accordance with Permit Condition II.Y.1 is necessary  
20 to protect human health or the environment.
- 21 II.Y.3.a.iii If Ecology decides under Permit Condition II.Y.3.a.ii that corrective action is necessary  
22 to protect human health or the environment, the Permittee may challenge Ecology’s  
23 authority to impose such corrective action requirements through a timely appeal of such  
24 permit modification, without argument from Ecology that the right to raise such  
25 challenge has been waived by a failure to fully litigate that issue through an appeal taken  
26 within thirty (30) days of the issuance of this permit, and with argument from the  
27 Permittee that such requirement fails to satisfy a cause for permit modification under  
28 [WAC 173-303-830\(3\)\(a\)](#). Within one hundred and eighty (180) days of receipt of the  
29 above Permit modification, the Permittee must submit, for Ecology review and approval,  
30 a plan to conduct corrective action in accordance with Permit Condition II.Y.1.  
31 Approved corrective action plans under this condition will be incorporated into this  
32 Permit in accordance with the Permit Modification Procedures of [WAC 173-303-830](#).
- 33 II.Y.3.b Newly Identified Solid Waste Management Units and Newly Identified Releases of  
34 Dangerous Waste or Dangerous Constituents.
- 35 The Permittee must notify Ecology of all newly-identified solid waste management units  
36 and all newly-identified areas of concern at the Facility. For purposes of this condition, a  
37 ‘newly-identified’ solid waste management unit or a ‘newly-identified’ area of concern is  
38 a unit or area not identified in the [HFFACO](#), as amended, on the effective date of this  
39 condition and not identified by Permit Condition II.Y.3.a. Notification to Ecology must  
40 be in writing and must include, for each newly-identified unit or area, the information  
41 required by [WAC 173-303-806\(4\)\(a\)\(xxiii\)](#) and [WAC 173-303-806\(4\)\(a\)\(xxiv\)](#).  
42 Notification to Ecology must occur at least once every calendar year, in January, and  
43 must include all units and areas newly identified since the last notification, except that if  
44 a newly identified unit or area may present an imminent and substantial endangerment to  
45 human health or the environment, notification must occur within five (5) days of  
46 identification of the unit or area. If information required by  
47 [WAC 173-303-806\(4\)\(a\)\(xxiii\)](#) or [WAC 173-303-806\(4\)\(a\)\(xxiv\)](#) is already included in

1 the Waste Information Data System, it may be incorporated by reference into the required  
2 notification.

3 **II.Z WASTE MINIMIZATION**

4 In accordance with [WAC 173-303-380\(1\)\(q\)](#), and Section 3005(h) of RCRA,  
5 42 U.S.C. 6925(h), the Permittee must place a certification in the Hanford Facility  
6 Operating Record, Unit-Specific Files on an annual basis that:

7 II.Z.1.a A program is in place to reduce the volume and toxicity of hazardous waste generated to  
8 the degree determined by the Permittee to be economically practicable; and,

9 II.Z.1.b The proposed method of treatment, storage or disposal is that practicable method  
10 currently available to the Permittee, which minimizes the present and future threat to  
11 human health and the environment.

12 II.Z.2 The Permittee will maintain each such certification of waste minimization in the  
13 operating record as required by Permit Condition II.I.1.

14 **II.AA AIR EMISSION STANDARDS FOR PROCESS VENTS**

15 The Permittees will comply with applicable requirements of [WAC 173-303-690](#) for  
16 process vents associated with Part III units performing specific separations processes  
17 unless exempted by [WAC 173-303-690\(1\)\(d\)](#). Threshold limits applied to process vents  
18 potentially requiring emission controls subject to [WAC 173-303-690](#) are evaluated based  
19 on the summation of applicable emission sources for the entire Hanford Facility. When  
20 the summed emissions fall below threshold limits in [40 CFR 264.1032\(a\)\(1\)](#), no emission  
21 control devices are required. If threshold limits in [40 CFR 264.1032\(a\)\(1\)](#) are predicted  
22 to be exceeded, the Permittees will notify Ecology to determine the appropriate course of  
23 action. Unit-specific information is contained in Part III of the Permit for applicable  
24 units.

25 **II.BB AIR EMISSION STANDARDS FOR EQUIPMENT LEAKS**

26 The Permittees will comply with applicable requirements of [WAC 173-303-691](#) for  
27 certain equipment leaks associated with Part III units unless exempted by  
28 [WAC 173-303-691\(1\)\(e\) or \(f\)](#). Air emission standards apply to equipment that contacts  
29 or contains hazardous wastes with organic concentrations of at least 10 percent by  
30 weight. Unit-specific information is contained in Part III of the Permit for applicable  
31 units.

32 **II.CC AIR EMISSION STANDARDS FOR TANKS, SURFACE IMPOUNDMENTS,  
33 AND CONTAINERS**

34 The Permittees shall comply with applicable requirements of [WAC 173-303-692](#) for  
35 containers, tanks, and surface impoundment areas associated with Part III units unless  
36 exempted by [WAC 173-303-692\(1\)\(b\)](#). Unit-specific information is contained in Part III  
37 of the Permit for applicable units.

1 **PART III UNIT-SPECIFIC CONDITIONS FOR FINAL STATUS OPERATIONS**

- 2 Operating Unit 2, PUREX Storage Tunnels
- 3 Operating Unit 3, Liquid Effluent Retention Facility and 200 Area Effluent Treatment Facility
- 4 Operating Unit 4, 242-A Evaporator
- 5 Operating Unit 5, 325 Hazardous Waste Treatment Units
- 6 Operating Unit 10, Waste Treatment and Immobilization Plant
- 7 Operating Unit 11, Integrated Disposal Facility
- 8 Operating Unit 15, 331-C Storage Unit
- 9 Operating Unit 16, 400 Area Waste Management Unit

10 **PART IV UNIT SPECIFIC CONDITIONS FOR CORRECTIVE ACTION**

- 11 Corrective Action Unit 1, 100-NR-1

12 **PART V UNIT-SPECIFIC CONDITIONS FOR UNITS UNDERGOING CLOSURE**

- 13 Closure Unit 1, 1325-N Liquid Waste Disposal Facility
- 14 Closure Unit 2, 1301-N Liquid Waste Disposal Facility
- 15 Closure Unit 3, 1324-N Surface Impoundment and 1324-NA Percolation Pond

16 **PART VI UNIT-SPECIFIC CONDITIONS FOR UNITS IN POST-CLOSURE**

- 17 Post-Closure Unit 1, 300 Area Process Trenches
- 18 Post-Closure Unit 2, 183-H Solar Evaporation Basins

19 **UNITS RETIRED FROM THE PERMIT**

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- 20 100 D Ponds (Closed 8/9/99)
- 21 105-DR Large Sodium Fire Facility (Closed 7/1/04)
- 22 100-NR-2 Operable Unit(9/30/09)
- 23 200 West Area Ash Pit Demolition Site (Closed 11/28/95)
- 24 2101-M Pond (Closed 11/28/95)
- 25 216-B-3 Expansion Ponds (Closed 7/31/95)
- 26 218-E-8 Borrow Pit Demolition Site (Closed 11/28/95)
- 27 224-T Transuranic Waste Storage and Assay Facility (Closed 11/12/08)
- 28 241-Z Treatment and Storage Tanks (Closed 2/22/07)
- 29 2727-S Nonradioactive Dangerous Waste Storage Facility (Closed 7/31/95)
- 30 300 Area Solvent Evaporator (Closed 7/31/95)
- 31 300 Area Waste Acid Treatment System (Closed 10/30/2005)
- 32 303-K Storage Facility (Closed 7/22/02)
- 33 303-M Oxide Facility (Closed 6/15/06)
- 34 304 Concretion Facility (Closed 1/21/96)
- 35 305-B Storage Facility (Closed 7/2/07)
- 36 3718-F Alkali Metal Treatment and Storage Facility Closure Plan (Closed 8/4/98)
- 37 4843 Alkali Metal Storage Facility Closure Plan (Closed 4/14/97)
- 38 Hanford Patrol Academy Demolition Site (Closed 11/28/95)
- 39 Plutonium Finishing Plant Treatment Unit (Closed 2/8/05)
- 40 Simulated High Level Waste Slurry Treatment and Storage Unit (Closed 10/23/95)
- 41

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**Hanford Facility RCRA Permit Modification Notification Forms**

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

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**Permit Modification Index**

Page 2 of 6: Hanford Facility Permit, III.5  
Page 3 of 6: Addendum B, §B.2.2.2.6:  
Page 4 of 6: Addendum B, §B.2.2.2.6  
Page 5 of 6: Addendum B, §B.3.2.6  
Page 6 of 6: Addendum B, Table B.2

Submitted by Co-Operator:

Reviewed by DOE Program Office:

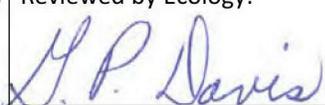
  
Eric G. Damberg

07 AUG 2009  
Date

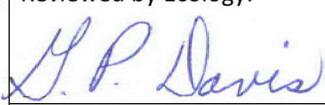
  
Joe R. Franco

9/10/09  
Date

<b>Hanford Facility RCRA Permit Modification Notification Form</b>				
Unit: <b>325 Hazardous Waste Treatment Units</b>	Permit Part <b>Part III, Operating Unit 5</b>			
<p><u>Description of Modification:</u> Hanford Facility Permit, III.5:</p> <p style="text-align: center;"><b>PART III, OPERATING UNIT GROUP 5 PERMIT CONDITIONS</b></p> <p style="text-align: center;"><b>325 Hazardous Waste Treatment Units</b></p>				
<p><b><u>UNIT DESCRIPTION:</u></b></p> <p>The 325 Hazardous Waste Treatment Units (325 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; and the Hazardous Waste Treatment Unit (HWTU) that includes Rooms 520, 524, and 528 of the 325 Building located in the south portion of the 300 Area.</p>				
<p><b><u>List of Addenda Specific to Operating Unit Group 5</u></b></p> <p>Addendum A Part A Form, dated September 30, 2008</p> <p>Addendum B Waste Analysis Plan, dated <del>September 30, 2009</del> <del>March 31, 2009</del></p> <p>Addendum C Process Information, dated June 30, 2009</p> <p>Addendum D Groundwater Monitoring (Reserved)</p> <p>Addendum E Procedures to Prevent Hazards, dated June 30, 2009</p> <p>Addendum F Preparedness and Prevention, dated June 30, 2009</p> <p>Addendum G Personnel Training, dated March 31, 2009</p> <p>Addendum H Closure Plan, dated June 30, 2009</p> <p>Addendum I Inspection Requirements, dated June 30, 2009</p> <p>Addendum J Contingency Plan, dated December 31, 2008</p>				
WAC 173-303-830 Modification Class	Class 1	Class 1	Class 2	Class 3
Please mark the Modification Class:	X			
<p>Enter relevant WAC 173-303-830, Appendix I Modification citation number: A.1</p> <p>Enter wording of WAC 173-303-830, Appendix I Modification citation: A.1 General Permit Provisions, Administrative and informational changes</p>				
Modification Approved/Concur <input checked="" type="checkbox"/> Yes <input type="checkbox"/> Denied (state reason below) Reason for denial:	Reviewed by Ecology: <div style="text-align: right; font-family: cursive; font-size: 1.2em;">G.P. Davis 8-31-09</div>			
	G. P Davis		Date	

<b>Hanford Facility RCRA Permit Modification Notification Form</b>				
Unit: <b>325 Hazardous Waste Treatment Units</b>	Permit Part <b>Part III, Operating Unit 5</b>			
<p><u>Description of Modification:</u> Addendum B, §B.2.2.2.6:</p> <p><b>B.2.2.2.5 Testing Methods</b></p> <p>The methods utilized for chemical verification at the 325 HWTUs are selected based on the appropriateness for the waste being verified. Tests performed are selected from the following.</p> <p><b>Water Miscibility/Separable Organics.</b> Performed utilizing water solubility Hazcat© test kits per the instructions given in those kits. These tests are not performed on materials known to be organic peroxides, ethers, and/or water reactive.</p> <p><b>Oxidizers:</b> Performed utilizing oxidizer Hazcat© test kits per the instructions given in those kits. These tests are not performed on materials known to be organic peroxides, ethers, and/or water reactive.</p> <p><b>pH:</b> SW-846 Method 9040, 9041, or 9045 (by pH meter or pH paper). This test will not be performed on organic liquids.</p> <p><b>Cyanides:</b> Performed utilizing cyanide Hazcat© test kits per the instructions given in those kits.</p> <p><b>Sulfides:</b> Performed utilizing sulfide Hazcat© test kits per the instructions given in those kits.</p> <p><b>Flashpoint:</b> Performed utilizing flashpoint tester, e.g. Setaflash tester. <del>Not performed on materials described as aqueous, or any solids.</del></p> <p><b>Halogenated/Volatile Organics:</b> Examination with a photoionizer or flame ionizer to determine if the waste contains volatile organic compounds. Clor-D-Tect© kits may be used to detect organic halogens.</p>				
WAC 173-303-830 Modification Class	Class 1	Class 11	Class 2	Class 3
Please mark the Modification Class:	X			
<p>Enter relevant WAC 173-303-830, Appendix I Modification citation number: A.1</p> <p>Enter wording of WAC 173-303-830, Appendix I Modification citation: A.1 General Permit Provisions, Administrative and informational changes</p>				
Modification Approved/Concur	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> Denied (state reason below)		Reviewed by Ecology:
<u>Reason for denial:</u>				 G. P. Davis
				8-31-09 Date

<b>Hanford Facility RCRA Permit Modification Notification Form</b>				
Unit: <b>325 Hazardous Waste Treatment Units</b>	Permit Part <b>Part III, Operating Unit 5</b>			
<p><u>Description of Modification:</u> Addendum B, §B.2.2.2.6:</p> <p><b>B.2.2.2.6 Quality Assurance/Quality Control for Analytical Verification</b></p> <p>Each testing process is subject to QA/QC requirements as follows. The data quality objectives for these analyses are given in Section B.4.5.</p> <p><b>Water Miscibility/Separable Organics:</b> Performed utilizing water solubility Hazcat© test kits per the instructions given in those kits using test kits that are not older than the expiration date specified on the kit. Data interpretations are performed utilizing the manufacturer’s instructions for the test kit.</p> <p><b>Oxidizers:</b> Performed according to manufacturer’s instructions utilizing test kits that are not older than the expiration date specified on the kit. Data interpretations are performed utilizing the manufacturer’s instructions for the test kit.</p> <p><b>pH:</b> Calibration of pH meters and pH paper is performed as required by the appropriate method being used (SW-846 method 9040, 9041, or 9045).</p> <p><b>Cyanides:</b> Performed according to manufacturer’s instructions utilizing test kits that are not older than the expiration date specified on the kit. Data interpretations are performed utilizing the manufacturer’s instructions for the test kit.</p> <p><b>Sulfides:</b> Performed according to manufacturer’s instructions utilizing test kits that are not older than the expiration date specified on the kit. Data interpretations are performed utilizing the manufacturer’s instructions for the test kit.</p> <p><del><b>Flashpoint:</b> The flashpoint measurement instrument is calibrated daily (when in use) using material of a known flash point and according to manufacturer’s instructions.</del></p> <p><b>Halogenated/Volatile Organics:</b> The photoionizer is calibrated daily (when in use) to a standard gas mixture in accordance with manufacturer’s instructions. Data interpretations are performed utilizing observed data (meter readings) with adjustment as necessary based on the relative responsiveness of the waste compared to the standard mixture utilized for calibration. These adjustments are given in photoionizer manufacturer’s literature. Clor-D-Tect© tests are performed according to manufacturer’s instructions utilizing test kits that are not older than the expiration date specified on the kit. Data interpretations are performed utilizing the manufacturer’s instructions for the test kit.</p>				
WAC 173-303-830 Modification Class	Class 1	Class 11	Class 2	Class 3
Please mark the Modification Class:	X			
<p>Enter relevant WAC 173-303-830, Appendix I Modification citation number: A.1</p> <p>Enter wording of WAC 173-303-830, Appendix I Modification citation:</p> <p>A.1 General Permit Provisions, Administrative and informational changes</p>				
Modification Approved/Concur	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> Denied (state reason below)		Reviewed by Ecology
<u>Reason for denial:</u>				<div style="display: flex; justify-content: space-between;"> <span>G. P. Davis</span> <span>8-31-09</span> </div>
				Date

Hanford Facility RCRA Permit Modification Notification Form				
Unit: <b>325 Hazardous Waste Treatment Units</b>	Permit Part <b>Part III, Operating Unit 5</b>			
<p><u>Description of Modification:</u> Addendum B, §B.3.2.6:</p> <p><b><del>B.3.2.6</del> — Flashpoint</b></p> <p><b><del>Rationale:</del></b> Confirm that waste matches that described on waste acceptance documentation</p> <p><b><del>Method:</del></b> Flashpoint measurement instrument</p> <p><b><del>Failure Criteria:</del></b> Test results do not confirm the flash point of the waste within a 5% tolerance or result in a change in designation with respect to the characteristic of ignitability</p>				
WAC 173-303-830 Modification Class	Class 1	Class 11	Class 2	Class 3
Please mark the Modification Class:	X			
<p>Enter relevant WAC 173-303-830, Appendix I Modification citation number: A.1</p> <p>Enter wording of WAC 173-303-830, Appendix I Modification citation: A.1 General Permit Provisions, Administrative and informational changes</p>				
Modification Approved/Concur <input checked="" type="checkbox"/> Yes <input type="checkbox"/> Denied (state reason below) <u>Reason for denial:</u>	Reviewed by Ecology:  8-31-09 <hr/> G. P Davis <span style="float: right;">Date</span>			



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**Hanford Facility RCRA Permit Modification**

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

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**Remove and replace the following sections for Part III, Operating Unit 16:**

- Remove Operating Unit 16, Unit Specific Conditions dated June 30, 2009, and replace with Unit Specific Conditions dated September 30, 2009
- Remove Addendum B, Waste Analysis Plan dated March 31, 2009 and replace with Addendum B, Waste Analysis Plan dated September 30, 2009

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**PART III, OPERATING UNIT GROUP 5 PERMIT CONDITIONS**

**325 Hazardous Waste Treatment Units**

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**Unit Description:**

The 325 Hazardous Waste Treatment Units (325 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; and the Hazardous Waste Treatment Unit (HWTU) that includes Rooms 520, 524, and 528 of the 325 Building located in the south portion of the 300 Area.

**List of Addenda Specific to Operating Unit Group 5**

- Addendum A Part A Form, dated September 30, 2008
- Addendum B Waste Analysis Plan, dated September 30, 2009
- Addendum C Process Information, dated June 30, 2009
- Addendum D Groundwater Monitoring (Reserved)
- Addendum E Procedures to Prevent Hazards, dated June 30, 2009
- Addendum F Preparedness and Prevention, dated June 30, 2009
- Addendum G Personnel Training, dated March 31, 2009
- Addendum H Closure Plan, dated June 30, 2009
- Addendum I Inspection Requirements, dated June 30, 2009
- Addendum J Contingency Plan, dated December 31, 2008

**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 Hazardous Waste Treatment Units (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](#)]

- 1 **III.5.C WASTE ANALYSIS**
- 2 III.5.C.1 The Permittees will comply with requirements in Addendum B for waste analysis for all  
3 dangerous and/or mixed waste managed at this unit. [[WAC 173-303-300\(5\)](#)]
- 4 III.5.C.2 The Permittees will have an accurate and complete waste profile as described in  
5 Addendum B, Section B.1.1.1.2.1 for every waste stream accepted by the 325 HWTUs.  
6 [[WAC 173-303-380\(1\)\(a\)\(b\)](#)]
- 7 III.5.C.3 The Permittees will place a copy of each waste profile required by Permit  
8 Condition II.5.C.2 in the Hanford Facility Operating Record, 325 HWTUs File required  
9 by Permit Condition II.I.2. [[WAC 173-303-380\(1\)\(a\)\(b\)](#)]
- 10 III.5.C.4 The Permittees will comply with the requirements in Addendum C, Sections C.1.11, and  
11 C.2.1.5, to prevent hazards from ignitable, reactive, or incompatible wastes.  
12 [[WAC 173-303-395\(1\)](#)]
- 13 III.5.C.5 The Permittees will make a copy of the waste profile required by Permit  
14 Condition III.5.C.2 available upon request. [[WAC 173-303-380\(1\)\(a\) and \(b\)](#)]
- 15 **III.5.D RECORDKEEPING AND REPORTING**
- 16 III.5.D.1 The Permittees will place the following into the Hanford Facility Operating Record,  
17 325 HWTUs File required by Permit Condition II.I.2: [[WAC 173-303-380](#)]
- 18 III.5.D.1.a A description of and quantity of each dangerous and/or mixed waste accepted for storage  
19 in the 325 HWTUs; [[WAC 173-303-380\(1\)\(a\)](#)]
- 20 III.5.D.1.b Records and results of any sampling or analysis of wastes accepted for storage at the  
21 325 HWTUs, and from any other sampling and analysis required by Addendum B;  
22 [[WAC 173-303-380\(1\)\(c\)](#)]
- 23 III.5.D.1.c Summary reports and details of all incidents that require implementation of Addendum J,  
24 Contingency Plan according to the requirements of Permit Condition III.5.G.1;  
25 [[WAC 173-303-380\(1\)\(d\)](#)]
- 26 III.5.D.1.d An inspection log, or a summary of such log, of inspections conducted pursuant to Permit  
27 Condition III.5.H.1; [[WAC 173-303-380\(1\)\(e\)](#)]
- 28 III.5.D.1.e Records required by [WAC 173-303-380\(1\)\(k\)](#) and (o), incorporated by reference.
- 29 **III.5.E SECURITY**
- 30 III.5.E.1 The Permittees will maintain security at the 325 HWTUs according to the requirements  
31 in Addendum E, and in accordance with Permit Attachment 33 and required by Permit  
32 Condition II.L. [[WAC 173-303-310\(2\)\(b\)](#)]
- 33 III.5.E.2 The Permittees will post warning signs at all entrances to the 325 HWTUs.  
34 [[WAC 173-303-310\(2\)\(a\)](#)]
- 35 **III.5.F PREPAREDNESS AND PREVENTION**
- 36 III.5.F.1 The Permittees will comply with the Preparedness and Prevention requirements in  
37 Addendum F. [[WAC 173-303-340](#)]
- 38 **III.5.G CONTINGENCY PLAN**
- 39 III.5.G.1 The Permittee will comply with Addendum J, in addition to the requirements of Permit  
40 Condition II.A when applicable. Enforceable portions of Addendum J are identified in  
41 Permit Addendum J, Page J-i. [[WAC 173-303-350](#)]

- 1     **III.5.H     INSPECTIONS**
- 2     III.5.H.1     The Permittee will perform inspections of the 325 HWTUs according to Addendum I,  
3     Inspection Plan. The inspection shall include:
- 4     III.5.H.1.a     All monitoring equipment, safety and emergency equipment, security devices and  
5     operating and structural equipment that help prevent, detect, or respond to hazards to the  
6     public health or the environment. [[WAC 173-303-320\(2\)](#)]
- 7     III.5.H.2     The inspection schedule required by Permit Condition III.5.H.1 will provide the  
8     frequency of inspection for specific items. The frequency should be based on the rate of  
9     possible deterioration of equipment and the probability of an environmental or human  
10    health incident. Areas subject to spills must be inspected daily when in use.  
11    [[WAC 173-303-320\(2\)\(c\)](#)]
- 12    III.5.H.3     The Permittee must remedy any problems revealed by inspections conducted pursuant to  
13    Permit Condition III.5.H.1, on a schedule that prevents hazards to the public health and  
14    the environment. Where a hazard is imminent or has already occurred, remedial action  
15    must be taken immediately. [[WAC 173-303-320\(3\)](#)]
- 16    III.5.H.4     The Permittees will place a copy of the inspection requirements and schedule prepared  
17    according to Permit Condition III.5.H.1 in the Hanford Facility Operating Record,  
18    325 HWTUs File required by Permit Condition II.I.2. [[WAC 173-303-320\(2\)\(a\)](#)]
- 19    III.5.H.5     The Permittee will keep an inspection log or summary of inspections conducted pursuant  
20    to Permit Condition III.5.H.1, including at a minimum the following:
- 21    III.5.H.5.a     Date and time of the inspection;
- 22    III.5.H.5.b     Printed name and the handwritten signature of the inspector;
- 23    III.5.H.5.c     Notation of the observations made;
- 24    III.5.H.5.d     An account of spills or discharges in accordance with Permit Condition II.E, and the date  
25    and description of any repairs or remedial actions taken.
- 26    **III.5.I     TRAINING PLAN**
- 27    III.5.I.1     The Permittee will include Addendum G training requirements in the written training  
28    plan required by Permit Condition II.C. [[WAC 173-303-330](#)]
- 29    **III.5.J     OTHER GENERAL REQUIREMENTS**
- 30    III.5.J.1     The Permittees will conduct waste management activities within 325 HWTUs authorized  
31    by this Permit according to the requirements in Addendum F, Sections F.3.1, and F.3.2.  
32    The Permittees will document compliance with these provisions in the Hanford Facility  
33    Operating Record, 325 HWTUs File. [[WAC 173-303-395\(1\)\(a\)-\(c\)](#)]
- 34    III.5.J.2     The Permittees will comply with the requirements of [WAC 173-303-395\(2\)](#), incorporated  
35    by reference.
- 36    **III.5.K     CLOSURE**
- 37    III.5.K.1     The Permittees will close the 325 HWTUs in accordance with Addendum H, Closure  
38    Plan. [[WAC 173-303-610\(4\)](#)]
- 39    III.5.K.2     The Permittees will amend the Closure Plan in accordance with Permit Condition II.J.2  
40    and Addendum H. [[WAC 173-303-610\(3\)\(b\)](#)]
- 41    III.5.K.3     The Permittees will provide Ecology with a Notice of Closure according to Permit  
42    Condition II.J.1. [[WAC 173-303-610\(3\)\(c\)](#)]

- 1     **III.5.L           POST CLOSURE**
- 2                    Reserved
- 3     **III.5.M           CRITICAL SYSTEMS**
- 4                    Reserved
- 5     **III.5.N           RESERVED**
- 6     **III.5.O           CONTAINERS**
- 7     III.5.O.1        Container Storage Unit Standards
- 8     III.5.O.1.a     The Permittees will maintain the integrity of container storage secondary containment as  
9                    documented in Addendum C, Sections C.1.4, and C.1.5, including all chemically resistant  
10                   coatings and sealants described in Addendum C, Section C.1.4.1.1, as necessary to ensure  
11                   any spills or releases do not migrate to the underlying concrete or soils.
- 12    III.5.O.1.b     The Permittees will place documentation of any damage to and subsequent repairs of  
13                   chemically resistant coatings in the Hanford Facility Operating Record, 325 HWTUs File  
14                   required by Permit Condition II.I.2. [[WAC 173-303-630\(7\)](#)]
- 15    III.5.O.1.c     Within thirty (30) days of the effective date of this Permit, the Permittee will place  
16                   documentation in the Hanford Facility Operating Record, 325 HWTUs File identifying  
17                   the specific chemical resistant floor and wall coatings used for secondary containment in  
18                   the 325 HWTUs. This documentation will demonstrate that these materials are  
19                   impervious to the wastes managed in each of the 325 HWTUs cells to contain spills until  
20                   the collected material is detected and removed.. [[WAC 173-303-630\(7\)\(a\)\(i\)](#)]
- 21    III.5.O.2        Container Management Standards
- 22    III.5.O.2.a     The Permittees are authorized to manage containerized wastes at the 325 HWTUs  
23                   according to the requirements of Addendum C, Section C.1.2. [[WAC 173-303-630\(2\)](#)]
- 24    III.5.O.2.b     The Permittees will store containers according to the waste segregation and storage  
25                   arrangements specified in Addendum C, and the hazard class assigned as part of the  
26                   waste acceptance process required by Addendum B. [[WAC 173-303-630\(7\)](#),  
27                   [WAC 173-303-395\(2\)](#)]
- 28    III.5.O.2.c     In addition to storage capacity limitations specified elsewhere in this Chapter, the  
29                   Permittees will ensure that the storage limits for flammable liquids, combustible liquids,  
30                   combustible fibers, flammable gasses and liquefied flammable gasses identified in  
31                   [WAC 173-303-630\(8\)\(b\)](#) are not exceeded at any time. In addition, the Permittees will  
32                   ensure the capacity limitation for explosive waste in [WAC 173-303-630\(8\)\(a\)](#) is not  
33                   exceeded at any time. [[WAC 173-303-630\(8\)](#)]
- 34    III.5.O.2.d     The Permittees will label containers according to the requirements of Addendum C,  
35                   Section C.1.3. The Permittees will also ensure that:
- 36    III.5.O.2.d.i    Container labels are not obscured or are otherwise unreadable;
- 37    III.5.O.2.d.ii   Containers are oriented so that labels are readily visible;
- 38    III.5.O.2.d.iii   Container labels are removed or completely obscured when the container to which they  
39                   are attached is rendered empty. [[WAC 173-303-630\(3\)](#)]

- 1 III.5.O.2.e The Permittees will ensure wastes are compatible with containers in which they are  
2 managed and with other wastes stored at the 325 HWTUs according to the requirements  
3 Addendum C, Sections C.1.10 and C.1.11, and Addendum F, Section F.2.2.  
4 [[WAC 173-303-630\(4\)](#), [WAC 173-303-630\(9\)](#)]
- 5 III.5.O.2.f The Permittees will comply with the requirements for managing wastes in containers in  
6 [WAC 173-303-630\(5\)\(a\)](#) and (b), incorporated by reference.
- 7 III.5.O.2.g The Permittees will ensure the physical arrangement and spacing of containers within the  
8 325 HWTUs satisfies the following requirements. [[WAC 173-303-630\(5\)\(c\)](#)]
- 9 III.5.O.2.g.i The Permittees will comply with the requirements for waste stored in cells, storage  
10 cabinets and shelves, as documented in Addendum C, Section C.1.2;
- 11 III.5.O.2.g.ii The Permittees will ensure the physical arrangement and spacing of drums that are stored  
12 in the 325 HWTUs are stored in rows no more than two drums wide and with a  
13 separation of at least thirty (30) inches between rows of drums to ensure that all drums  
14 are readily accessible for movement and inspection. [[WAC 173-303-630\(5\)\(c\)](#),  
15 [WAC 173-303-340\(3\)](#)]
- 16 III.5.O.2.h The Permittees will remove any accumulated liquids from container storage areas in the  
17 325 HWTUs, including individual secondary containment systems (spill pallets, portable  
18 booms, or other commercially available drum containment systems) that may be used to  
19 ensure containers are not in contact with free liquids and to prevent overflow of the  
20 container storage area secondary containment. [[WAC 173-303-630\(7\)](#)]
- 21 III.5.O.2.i The Permittees may treat wastes in containers via consolidation of wastes, decanting of  
22 free liquids and addition of absorbents. Absorbents must satisfy the requirements of  
23 [WAC 173-303-140\(4\)\(b\)\(iv\)](#), incorporated by reference, for wastes to be land disposed in  
24 Washington. The Permittees may not use addition of absorbents for purposes of  
25 changing the treatability group of a waste with respect to the land disposal restriction  
26 standards of [40 CFR 268](#), incorporated by reference by [WAC 173-303-140](#).
- 27 III.5.O.2.j Waste stored in the SAL is exempt from [WAC 173-303-692](#), as the SAL is used  
28 exclusively to manage mixed waste. The Permittees will comply with the requirements  
29 for air emissions from containers in Addendum C, Section C.3 for waste stored in the  
30 325 HWTUs. [[WAC 173-303-692](#)]
- 31 III.5.O.3 Container Storage Inspection Requirements
- 32 III.5.O.3.a The Permittee will inspect the 325 HWTUs according to Addendum I, Inspection  
33 Requirements. [[WAC 173-303-630\(6\)](#)]
- 34 III.5.O.3.b The Permittees will comply with the requirements of [WAC 173-303-395\(1\)\(d\)](#),  
35 incorporated by reference. [[WAC 173-303-395\(1\)\(d\)](#)]
- 36 **III.5.P TANK SYSTEMS**
- 37 III.5.P.1 The Permittees will develop, maintain, and follow a written schedule and requirements  
38 for conducting integrity assessments. The schedule will meet the requirements of  
39 Addendum C, Section C.2.1.1.2 and consideration of the following factors:
- 40 III.5.P.1.a Results of past integrity assessments;
- 41 III.5.P.1.b Age of the tank system(s);
- 42 III.5.P.1.c Materials of construction of each tank system, including any liners;
- 43 III.5.P.1.d Characteristics of the wastes managed by each tank system;
- 44 III.5.P.1.e Any other relevant factors. [[WAC 173-303-640\(2\)\(e\)](#)]

- 1 III.5.P.2 The Permittees will maintain a copy of the schedule required by Permit  
2 Condition III.5.P.1 in the Hanford Facility Operating Record, 325 HWTUs File, and  
3 conduct periodic integrity assessments according to the schedules and requirements of the  
4 schedule. If results of these assessments indicate a tank has structural deficiencies or  
5 lacks integrity such that it may collapse, rupture or fail, the Permittees must follow the  
6 requirements of [WAC 173-303-640\(7\)](#), incorporated by reference.  
7 [\[WAC 173-303-640\(2\)\(e\)\]](#)
- 8 III.5.P.3 If the findings of an integrity assessment conducted pursuant to Permit  
9 Condition III.5.P.1 indicate a tank has structural deficiencies or lacks integrity such that it  
10 may collapse, rupture or fail, the Permittees will evaluate the waste acceptance criteria in  
11 Addendum B, the applicable tank design and/or operating requirements in Addendum C,  
12 and any other Permit requirements which may reasonably influence the integrity of the  
13 tank in question. Based on this review, the Permittees will request the required Permit  
14 modifications in accordance with Permit Condition I.C.3 to minimize any adverse effects  
15 of future waste management activities on the integrity of the tank.  
16 [\[WAC 173-303-640\(2\)\(d\), WAC 173-303-815\(2\)\(b\)\]](#)
- 17 III.5.P.4 Tank System Operating Requirements
- 18 III.5.P.4.a The Permittees will comply with the requirements of [WAC 173-303-640\(5\)\(a\)](#),  
19 incorporated by reference.
- 20 III.5.P.4.b The Permittees will comply with the requirements of Addendum C, Section C.2.1.2.4.  
21 [\[WAC 173-303-640\(5\)\(b\)\]](#)
- 22 III.5.P.4.c The Permittees will comply with the requirements of Addendum C, Section C.2.1.4.  
23 [\[WAC 173-303-640\(5\)\(d\)\]](#)
- 24 III.5.P.4.d The Permittees will comply with the requirements of [WAC 173-303-640\(7\)](#), incorporated  
25 by reference, in response to spills or leaks from tank systems at Operating Unit Group 5.  
26 [\[WAC 173-303-640\(5\)\(c\)\]](#)
- 27 III.5.P.4.e The Permittees will comply with the requirements of [WAC 173-303-640\(10\)](#),  
28 incorporated by reference.
- 29 III.5.P.5 Tank System Inspection Requirement
- 30 III.5.P.5.a The Permittees will inspect the Operating Unit Group 5 tank systems authorized by  
31 Permit Condition III.5.B.2 according to Addendum I, Inspection Requirements.  
32 [\[WAC 173-303-640\(6\)\(a\)-\(c\)\]](#)
- 33 III.5.P.5.b The Permittees will place documentation of inspections conducted pursuant to Permit  
34 Condition III.3.P.5.a in the Hanford Facility Operating Record, 325 HWTUs File  
35 required by Permit Condition II.I.2. These records will contain the following  
36 information: [\[WAC 173-303-640\(6\)\(d\)\]](#)
- 37 III.5.P.5.b.i Date and time of the inspection
- 38 III.5.P.5.b.ii Printed name and the handwritten signature of the inspector
- 39 III.5.P.5.b.iii Notation of the observations made
- 40 III.5.P.5.b.iv Date and description of any repairs or remedial actions taken, and/or the scheduled date  
41 for the repairs or remedial actions.
- 42 III.5.P.5.c The Permittees will remedy any problems revealed by the inspections required by Permit  
43 Condition III.3.P.9, on a schedule that prevents hazards to the public health and  
44 environment. Where a hazard is imminent or has already occurred, remedial action must  
45 be taken immediately. [\[WAC 173-303-640\(6\)\(d\)\]](#)

- 1 III.5.P.6 Approved Waste and Storage Limits
- 2 III.5.P.6.a Subject to conditions in Addendum C, the Permittees may store a maximum of  
3 1,218 liters of dangerous and/or mixed waste in the tank system in the 325 HWTUs  
4 (S02). A maximum of 1,218 liters per day of dangerous and/or mixed waste may be  
5 treated in tanks in the 325 HWTUs (T01).
- 6 III.5.P.6.b The Permittees shall only store or treat in the SAL tank the following mixed waste listed  
7 in the Dangerous and Mixed Waste Tank System:
- 8 III.5.P.6.b.i Dangerous and/or mixed waste generated by Pacific Northwest National Laboratory; or
- 9 III.5.P.6.b.ii Mixed waste generated at other Hanford Facility locations and mixed waste generated  
10 from offsite facilities, which have been transferred and accepted by the 325 HWTUs  
11 pursuant to the provisions in Addendum B, Waste Analysis Plan, and this Permit.
- 12 III.5.P.6.b.iii The Permittee shall not place or store containerized dangerous and/or mixed waste,  
13 accepted by the 325 HWTUs pursuant to incoming wastes procedures in Addendum B,  
14 Waste Analysis Plan, in any area other than container storage areas as identified in  
15 Addendum C, Section C.1.2.
- 16 III.5.P.7 Tank System Design and Construction
- 17 III.5.P.7.a Tank System Installation and Certification will be retained by the Permittees and made  
18 available upon request.
- 19 III.5.P.8 Integrity Assessments
- 20 III.5.P.8.a Results of the integrity assessments shall be included in the Hanford Facility Operating  
21 Record, 325 HWTUs File until final closure and corrective action are complete and  
22 certified.
- 23 III.5.P.8.b Any tank system, including its secondary containment system, found to be leaking, or  
24 otherwise unfit for service, immediately shall be removed from service and the  
25 Permittees shall comply with the requirements of [WAC 173-303-640\(7\)](#). Such a tank  
26 system, including its secondary containment system, shall not be returned to service until  
27 the Permittees have obtained the required certification.
- 28 III.5.P.8.c The Permittees shall maintain the integrity of all containment systems for tank systems.
- 29 III.5.P.9 Tank Management Practices
- 30 III.5.P.9.a The Permittees shall not place mixed wastes or treatment reagents in the tank system if  
31 these could cause the tank, its ancillary equipment, or a containment system to rupture,  
32 leak, corrode, or otherwise fail.
- 33

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1	<b>Addendum B</b>	<b>Waste Analysis Plan</b>
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1 **Addendum B**

**Waste Analysis Plan**

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2 **Executive Summary**

3 The 325 Hazardous Waste Treatment Units (325 HWTUs) collect, consolidate, and prepare dangerous  
4 waste for shipment. Waste is primarily received from onsite generators and offsite Pacific Northwest  
5 National Laboratory (PNNL) facilities. The purpose of this Waste Analysis Plan (WAP) is to document  
6 the process to confirm PNNL's knowledge about dangerous waste before storing waste at the  
7 325 HWTUs, as required in [WAC 173-303-300](#). The purpose of waste analysis at permitted facilities is  
8 to assure that waste can be stored properly.

9 *Waste analysis* at permitted facilities consists of obtaining and reviewing a *detailed chemical, physical,*  
10 *and/or biological analysis* of a waste prior to storage. This detailed analysis can consist of *knowledge* of  
11 the wastes as defined in [WAC 173-303-040](#), typically provided by the generator, data obtained by direct  
12 testing, or a combination of both. When the analysis provided by the generator relies upon knowledge,  
13 that knowledge must be documented and confirmed. The waste analysis performed by PNNL waste  
14 management staff is used to determine the acceptability of the waste for storage at the 325 HWTUs.

15 This WAP describes the process for inspection and, if necessary, analysis of wastes received at the  
16 325 HWTUs to confirm that the waste matches the identity of the waste on the accompanying shipping  
17 documentation. The WAP also contains a description of the sampling methodologies, analytical  
18 techniques, and processes that are undertaken for confirmatory sampling and analysis of dangerous waste  
19 managed in the 325 HWTUs. Finally, the WAP describes the records that are maintained in order to meet  
20 requirements specified in the Hanford Facility Dangerous Waste Permit.

21

1 **Definitions**

<b>Term</b>	<b>Definition</b>
Analysis	Obtaining and reviewing information provided by the waste generator and/or provided by other means to confirm the information provided concerning a waste stream.
Compatible	As applied to suitability of containers, tanks or sampling equipment, <i>compatible</i> means the waste will not react with or otherwise damage the container, tank, or sampling equipment such that the ability of the equipment to contain the waste is not impaired. For determination of compatibility for storage, refer to definition of <i>incompatible waste</i> .
Database	The PNNL waste management database (the Integrated Waste Management System) containing profile, confirmation, storage, and shipment information on each container of waste.
Fingerprint Analysis	Testing of significant parameters expected from a waste (as documented in its approved profile) performed after physical transfer of the waste to the 325 HWTUs. Fingerprint analysis is intended to verify that the waste transferred to the 325 HWTUs matches the profile provided. Fingerprinting is usually performed by visual examination of the waste and/or use of readily available testing methods such as test kits.
Incompatible Waste	Materials/wastes unsuitable for placement in a particular device or facility because it may corrode or decay the containment materials, or is unsuitable for mixing with another waste or material because the mixture might produce heat or pressure, fire or explosion, violent reaction, toxic dusts, fumes, mists, or gases, or flammable fumes or gases. Refer to Table 1.
Inspection	Viewing of the contents of the container, container markings and labeling, number of containers, and/or the container itself as a means of confirming the identity of the waste
Knowledge	Sufficient information about a waste to substitute reliably for direct testing of the waste. To be sufficient and reliable, the <i>knowledge</i> used must provide information necessary to manage the waste in accordance with the requirements of this chapter. <a href="#">[WAC 173-303-040]</a> Note: <i>Knowledge</i> may be used by itself or in combination with testing to designate as waste pursuant to <a href="#">WAC 173-303-070(3)(c)</a> , or to obtain a detailed chemical, physical, and/or biological analysis of a waste as required in <a href="#">WAC 173-303-300(2)</a> .
Profile	A <i>detailed physical, chemical, and/or biological analysis of a dangerous waste</i> provided by the waste generator in order to allow the 325 HWTUs staff to perform waste analysis. The Chemical Disposal/Recycle Request (CDRR) and/or Radioactive Waste Disposal Request (RWDR) at PNNL currently serve as the waste profile. A sample CDRR is shown in Table B.3.
Testing	Performance of a procedure that yields a quantitative or qualitative evaluation of the type and/or quantity of materials present. Sometimes referred to as <i>analysis</i> or <i>laboratory analysis</i> , but for purposes of this procedure, the term <i>testing</i> is used to distinguish it from waste analysis (refer to definition of <i>analysis</i> above).
Verification	Determination that the waste in question is that waste described on the approved profile. Verification may include inspection and/or fingerprint analysis.
Waste Stream	Wastes that are physically or chemically different from each other; wastes that are generated from different types of processes; or wastes that are of the same type, but generated at different points in the process or at different process locations.

## 1 **B. WASTE ANALYSIS PLAN**

### 2 **B.1 UNIT DESCRIPTION**

3 The 325 HWTUs are two dangerous waste treatment and storage units owned and operated by DOE and  
4 co-operated by Pacific Northwest National Laboratory (PNNL). The 325 HWTUs are used for the  
5 collection, consolidation, packaging, storage, treatment, and preparation for transport and disposal of  
6 dangerous waste, universal waste, and recyclables, including mixed waste. It is an integral part of the  
7 PNNL waste management system.

#### 8 **B.1.1 Description of Unit Processes and Activities**

9 The 325 HWTUs are two units within the 325 Building, located in the 300 Area on the Hanford Facility  
10 (refer to Addendum A for location). These dangerous waste management units are referred to as the  
11 Shielded Analytical Laboratory (SAL), and the Hazardous Waste Treatment Unit (HWTU).

12 The 325 Building includes the following: (1) a central portion (completed in 1953) that consists of three  
13 floors (basement, ground, and second) containing general-purpose laboratories, provided with special  
14 ventilation and work enclosures; (2) a south (front) wing containing office space, locker rooms, and a  
15 lunch room; and (3) east and west wings containing shielded enclosures with remote manipulators. The  
16 Shielded Analytical Laboratory (SAL) is located in Rooms 32, 200, 201, 202, and 203. The HWTU is  
17 located in Rooms 520, 524 and 528.

18 The 325 HWTUs store and treat dangerous waste generated by Hanford Facility programs (primarily from  
19 research activities in the 325 Building and other Pacific Northwest National Laboratory [PNNL]  
20 facilities) and potentially from other onsite/offsite laboratories. Storage in containers, and bench- or  
21 small-scale treatment of dangerous waste occur in both the HWTU and the SAL. At the SAL, dangerous  
22 waste liquid is stored in a tank in Room 32. As described in further detail in Addendum C, permit  
23 conditions applicable to container management in both dangerous waste management units are established  
24 in accordance with [WAC 173-303-630](#). Similarly, permit conditions applicable to the SAL tank have  
25 been established in accordance with [WAC 173-303-640](#).

26 The fire water-collection tank, which serves rooms 520 and 528 of the HWTU, is located beneath Room  
27 520 in the basement of the 325 Building. The rectangular tank measures 1.65 meters by 2.25 meters by  
28 1.92 meters, and has a 22,710-liter capacity. The sides and floor of the tank are constructed of epoxy-  
29 coated carbon-steel plate. The steel sides and floor provide support for the chemical-resistant  
30 polypropylene liner. The tank is secured to the concrete floor of the 325 Building with 1.3-centimeter  
31 bolts at 1.82-meter intervals.

#### 32 **B.1.1.1 How Waste is Accepted, Moved, Processed, and Managed**

33 PNNL's waste management organization maintains a waste management database to support the  
34 identification and tracking of waste from profiling through final disposition, and maintain the information  
35 required by permit conditions established in accordance with [WAC 173-303-380](#). This section contains  
36 information on waste acceptance and analysis. Waste movement, processing, and management are  
37 discussed in Addendum C.

##### 38 **B.1.1.1.1 Narrative Process Descriptions**

39 Wastes to be managed at the 325 HWTUs are generated by PNNL's research laboratory and support  
40 activities, usually in small quantities. These wastes are managed in accordance with generator  
41 requirements prior to being submitted for transfer to the 325 HWTUs during the accumulation period.

##### 42 **B.1.1.1.2 Narrative Waste Characterization**

43 Waste streams accepted for storage at the 325 HWTUs can be categorized as follows:

44 Listed Waste from Specific and Nonspecific Sources

1 Certain wastes from specific and nonspecific sources identified in [WAC 173-303-9904](#) (designated with  
2 'F' waste codes) are accepted at the 325 HWTUs for storage and subsequent shipment. Addendum A  
3 identifies the dangerous waste numbers and estimated annual management quantities for each. These  
4 estimated annual management quantities are the maximum allowable amounts for storage or treatment in  
5 the 325 HWTUs.

6 Spent solvents may be halogenated or non-halogenated. Spent degreasing solvents (F001) as well as  
7 spent halogenated solvents (F002) are generated primarily in research activities, with a few generated by  
8 maintenance activities. Spent non-halogenated solvents (F003, F004, and F005) are also primarily  
9 generated by research activities, with a few generated by maintenance activities. WPCB state source  
10 waste (PCB electrical equipment waste) has been generated in limited amounts in the past and could be  
11 stored at the 325 HWTUs if future generating activities occur.

#### 12 Discarded Commercial Chemical Products

13 Discarded commercial chemical products are those described in [WAC 173-303-081](#). Addendum A  
14 identifies all of the discarded commercial chemical products listed in [WAC 173-303-9903](#), as research  
15 activities have the potential to generate any of these wastes. Estimated annual management quantities are  
16 given based on prior experience.

17 These wastes ('P' and 'U' waste codes) are typically received at the 325 HWTUs in the manufacturer's  
18 original container. These containers are usually 4 liters or less in volume, and are glass or polyethylene  
19 jars or bottles, or metal cans. Such wastes may be discarded at the end of a project, as part of a lab  
20 cleanout, or after the passage of an expiration date, that renders the chemical non-useable due to quality  
21 assurance requirements of Laboratory projects.

#### 22 Characteristic Waste

23 Some wastes from research activities and maintenance, although not listed pursuant to [WAC 173-303-081](#)  
24 or [-082](#), exhibit one or more characteristics of dangerous waste described in [WAC 173-303-090](#).  
25 Although wastes exhibiting any of these characteristics are routinely managed at the 325 HWTUs, the  
26 most prevalent waste types are ignitable wastes (D001), corrosive wastes (D002), solid corrosives  
27 (WSC2), and wastes containing chromium (D007) and/or lead (D008). All characteristic waste codes and  
28 estimated annual management quantities are given in Addendum A. These estimated annual management  
29 quantities are the maximum allowable amounts for storage or treatment in the 325 HWTUs.

#### 30 Criteria Waste (Toxic and/or Persistent)

31 Wastes from research or maintenance activities that is not a listed waste and does not exhibit a  
32 characteristic of dangerous waste may designate as state dangerous waste criteria wastes, pursuant to  
33 [WAC 173-303-100](#). Wastes exhibiting the criteria of toxicity (WT02) are PNNL's most prevalent waste  
34 type. All criteria waste codes and their estimated annual management quantities are given in  
35 Addendum A.

### 36 **B.1.1.1.3 Waste Acceptance Process**

#### 37 Waste Submittal

38 The waste analysis process for the 325 HWTUs begins when the generating unit completes and transmits  
39 a profile to the waste management organization for the waste stream. This profile is currently submitted  
40 electronically into the waste management database by field-deployed waste management staff. The  
41 profile provides the *detailed physical, chemical, and/or biological analysis* of each waste submitted.  
42 Information required includes a physical description of the waste, accounting for 100% of the contents,  
43 and identity and concentration of the hazardous constituents known or reasonably expected to be in the  
44 waste; location and container information; identity of the waste generator; and the hazards of the waste.  
45 Profile information includes process knowledge and any available testing data on the waste.

46 Profile information must meet the following four distinct information needs for management of dangerous  
47 waste at the 325 HWTUs.

- 1 • Verify that wastes are properly designated in accordance with WAC 173-303 and whether those
- 2 wastes are DW or EHW;
- 3 • Identify or verify the applicable treatment standards under WAC 173-303-140 and whether the waste
- 4 complies with applicable treatment standards under [WAC 173-303-140](#);
- 5 • Identify and verify specific characteristics of waste in solid, liquid, or solution form;
- 6 • Determine how to safely handle, transport, analyze, store, and dispose of the waste.

#### 7 Evaluation and Acceptance

8 After a profile is submitted, waste management staff first performs a consistency check of profile  
9 information. For instance, profile data is checked to confirm that percentages of waste constituents listed  
10 add to 100%, physical state is consistent with chemical description, and that chemicals are compatible  
11 with container type. The purpose of this check is to determine if any process knowledge provided  
12 constitutes *knowledge* for purposes of the Dangerous Waste Regulations, i.e. is adequate to substitute for  
13 testing information in order to quantify constituents and characteristics, and enable proper management of  
14 the waste in accordance with the Dangerous Waste Regulations. Any information discrepancies are noted  
15 and resolved with the profile submitter. Discrepancies that cannot be resolved result in rejection of the  
16 waste profile.

17 Once the consistency check is complete, waste designation information is verified. Any constituent  
18 regulated under other regulations is also checked (e.g. PCBs, asbestos) and DOT hazard class and packing  
19 group information is determined based on the hazard description given in DOT regulations. Applicable  
20 LDR treatment standards are identified and underlying hazardous constituents (UHC) are identified, as  
21 appropriate. The verified waste codes, other identification, LDR treatment standard and UHC  
22 information, and DOT hazard class and packing group information associated with the waste are  
23 confirmed for correct entry in the waste management database.

24 Once designation verification is complete, the waste management staff determines if a waste is  
25 unacceptable for storage (e.g. waste code not listed in Addendum A), and storage capacity limits are  
26 checked. If the waste is confirmed to meet the storage type and quantity limitations of Addenda A, B, and  
27 C, it meets the waste acceptance criteria, and is acceptable for storage. The approved waste is assigned a  
28 unique identification number, cell location, and hazard classification. The profile is noted as *approved*.

#### 29 Confirmation of Knowledge

30 In PNNL's experience, process knowledge from the generator is generally sufficient to meet the  
31 requirements for a *detailed chemical, physical, and/or biological analysis* of wastes accepted at the  
32 325 HWTUs for the following reasons:

- 33 • Wastes stored at the 325 HWTUs are generated on the Hanford Site and/or by PNNL research
- 34 programs who maintain effective administrative control over individual waste generating units (i.e.,
- 35 the same organization generates the waste and operates the storage unit).
- 36 • Some wastes stored at the 325 HWTUs are discarded chemical products for which knowledge of
- 37 waste characteristics is available without further analysis.
- 38 • Most of the waste stored at the 325 HWTUs is a result of research activities that are carefully
- 39 controlled and documented; this documentation includes information on chemical constituent inputs
- 40 and outputs.

41 To confirm the sufficiency and reliability of the knowledge provided by generators, waste management  
42 activities (e.g. satellite accumulation areas) are co-managed by field-deployed waste management staff.  
43 These staff assists in obtaining the data and other information utilized to prepare the profile, and review  
44 the quality and sufficiency of the information provided in order to confirm that it is adequate for safely  
45 managing the waste. Other methods for confirmation noted in [WAC 173-303-300\(2\)\(a\)](#) may be used  
46 instead of or in conjunction with onsite visits and data review in special situations.

1 Instances where the 325 require testing HWTUs to corroborate process knowledge include the following:

- 2 • when waste management personnel have reason to suspect a change in the waste based on  
3 inconsistencies on the profile or in packaging or labeling of the waste
- 4 • when the information submitted previously by a generator does not match the characteristics of the  
5 waste that was submitted
- 6 • when a receiving TSD facility rejects the waste because waste verification at that facility reveals an  
7 inconsistency with the waste profile provided by the 325 HWTUs

8 Testing is not required when the inconsistency deals with a listing based on process usage (e.g. F001  
9 designation based on use as a solvent).

10 If a waste stream is profiled and multiple shipments of the same waste stream are accepted using the same  
11 approved profile, it must be reevaluated when the generator and/or the 325 HWTUs personnel have  
12 reason to believe the process generating the waste, or the characteristic or the chemical constituents of the  
13 waste stream, have changed, or there is a manifest discrepancy (for wastes received from off-site),  
14 shipping paper discrepancy (receipt of wastes from on-site dangerous waste management units) or failure  
15 of the waste verification process. Even if no such instances occur, the waste stream will be re-profiled  
16 and re-evaluated at least annually.

## 17 **B.1.2 Identification and Classification of Waste**

18 The 325 HWTUs dangerous waste management units are used for container and tank storage and  
19 treatment of dangerous waste. As a result, the following waste types are not accepted for storage:

- 20 • Bulk solids (non-containerized)

21 Dangerous waste containing source, special nuclear, or byproduct material under the Atomic Energy Act  
22 (i.e. mixed waste) is only accepted when already containerized or when it is to be managed in the  
23 permitted tank in Room 32 of the SAL.

24 Refer to Addendum C, Sections C.1.10, C.1.11, and C.2.1.5 for precautions taken in the storage of  
25 various types of wastes (e.g. ignitable, reactive, or incompatible wastes).

26 A wide range of waste container sizes/volumes is typically used to manage wastes at the 325 HWTUs due  
27 to the variety of research and maintenance activities supported. Refer to Addendum C for a description of  
28 secondary containment and container types and sizes managed. No individual container of material  
29 requiring secondary containment per [WAC 173-303-630\(7\)](#) in excess of the secondary containment  
30 capacity of the location where the waste will be managed in OUG-5 dangerous waste management units  
31 will be accepted or managed at the unit without management approval and additional secondary  
32 containment system capacity provided as required by permit conditions established pursuant to  
33 [WAC 173-303-630\(7\)](#). No shipment of bulk liquid greater than the operational capacity of the storage  
34 tank (1218 liters) will be accepted.

35 Containerized wastes managed include labpacks conforming to the standards of [WAC 173-303-161](#), and  
36 hazardous debris and contaminated soil as defined in [40 CFR 268.2](#) (incorporated by reference at  
37 [WAC 173-303-140](#)).

38 Along with waste received for storage and treatment, the 325 HWTUs also generates dangerous waste as  
39 a byproduct of waste handling and treatment activities. Typically, these wastes include personal  
40 protective equipment, rags, and other spent materials that designate as hazardous waste when discarded.  
41 Such wastes are accumulated at the 325 HWTUs in satellite or 90-day accumulation areas (as appropriate)  
42 and a profile submitted for formal acceptance into the unit.

1 **B.1.2.1 Dangerous Waste Numbers, Quantities, and Design Capacity**

2 Refer to Addendum A for the waste numbers, quantities, types of treatment performed, and design  
3 capacity for the 325 HWTUs.

4 **B.2 WASTE CONFIRMATION**

5 **B.2.1 Pre-Shipment Review**

6 Once a waste profile has been approved per the process in Section B.1.1.1.2, it is scheduled for pickup by  
7 Waste Management staff. At pickup, waste management organization staff visits the generator storage  
8 area and make a final inspection of the waste containers to determine whether the profile and contents  
9 label information match completely, and whether the containers are adequate for transport to and storage  
10 at the 325 HWTUs. The purpose of visual inspection is to confirm that the waste matches the description  
11 in the profile. As a quality assurance/quality control measure, only trained and experienced personnel  
12 conduct visual inspection of wastes to verify that the waste being picked up matches the description  
13 provided by the waste generator and evaluated during the waste verification/waste acceptance process.

14 If the waste is a discarded commercial chemical product, the contents of the container are inspected to  
15 verify that they match the description of the product. For other waste, e.g., spent solvents, waste  
16 descriptions are compared with the products in use at the generating unit to determine if the profile  
17 description is accurate. If, after visual inspection of the waste, any doubt remains as to the identity of the  
18 waste, the waste is not picked up. The generator is required to resubmit the profile with accurate  
19 information.

20 After inspection of the waste at the generating unit, and the information in the profile matches with the  
21 container labeling and visual inspection, the waste is picked up for transport to the 325 HWTUs. Any  
22 appropriate DOT labeling is applied. In addition, each waste container is labeled with a physical  
23 description of the waste (accounting for 100% of the contents), identity, and concentration of the  
24 hazardous constituents known or reasonably expected to be in the waste, and major risk(s). This  
25 information helps the waste handlers verify safe handling, storage, retrieval, and transportation of  
26 dangerous waste.

27 Most of the waste stored at the 325 HWTUs is generated on the Hanford Site and/or by PNNL research  
28 programs within the 300 Area. All transportation of dangerous waste to the 325 HWTUs will be  
29 according to the requirements of Permit Condition II.N. Additional requirements for waste generated  
30 outside the 300 Area include proper manifesting (if appropriate) to the 325 HWTUs and utilizing proper  
31 packaging for transport over public roadways. Although PNNL waste generated outside of the 300 Area  
32 is considered to be generated offsite since it may be transported to the 325 HWTUs on roads accessible to  
33 the public, it is generated under the same administrative controls as wastes that are generated *onsite*  
34 (i.e., in the 300 Area). Therefore, no distinction is necessary between *on-site* and *off-site* for PNNL waste  
35 with respect to the waste analysis requirements of this WAP.

36 **B.2.2 Receipt Verification**

37 The waste acceptance procedure for receipt of waste from both on- and off-site is based on the following  
38 requirements. These verification procedures are summarized in Table B.2.

39 **B.2.2.1 Physical Verification Process**

40 **B.2.2.1.1 Inspection of Shipping Papers/Documentation**

41 Document Verification

42 The necessary documentation (e.g. manifest or onsite shipping paper) for the entire shipment are verified  
43 (i.e., signatures are dated, all waste containers included in the shipment are accounted for and correctly  
44 indicated on the shipment documentation, there is consistency throughout the different shipment  
45 documentation, and the documentation matches the labels on the containers).

1 B.2.2.1.1.1.1 Response to Significant Discrepancies. The primary concern during acceptance of  
2 containers for storage is improper packaging or manifest discrepancies. Containers with such  
3 discrepancies are not accepted at the 325 HWTUs until the discrepancy has been resolved. Depending on  
4 the nature of the condition, such discrepancies can be resolved using one or more of the following  
5 alternatives.

- 6 • Incorrect or incomplete entries on the uniform hazardous waste manifest or on-site shipping  
7 documentation can be corrected or completed with concurrence of the onsite generator or offsite  
8 generator. Corrections are made by drawing a single line through the incorrect entry. Corrected  
9 entries are initialed and dated by the individual making the correction.
- 10 • The waste packages can be held and the onsite generator or offsite waste generator requested to  
11 provide verbal or written instructions for use in correcting the condition before the waste is accepted.
- 12 • Waste packages can be returned as unacceptable.
- 13 • If a noncompliant dangerous waste package is received from an offsite waste generator, the waste  
14 package is non-returnable because of condition, packaging, etc., and if an agreement cannot be  
15 reached among the involved parties to resolve the noncompliant condition, then the issue will be  
16 referred to DOE for resolution. Ecology will be notified in writing if a discrepancy is not resolved  
17 within 15 days after receiving a noncompliant shipment. Pending resolution, such waste packages,  
18 although not accepted, might be placed in the 325 HWTUs. The package(s) will be segregated from  
19 other waste, and an entry will be made into the 325 HWTUs logbook describing the actions that were  
20 taken to store the packages in a safe manner until a resolution has been reached.

21 B.2.2.1.1.1.2 Activation of Contingency Plan for Damaged Shipment. If waste shipments arrive at the  
22 325 HWTUs in a condition that presents a hazard to public health or the environment, the Building  
23 Emergency Procedure is implemented as described in Addendum J, Contingency Plan.

#### 24 Inspection of Waste Containers

25 The condition of waste containers is checked to verify that the containers are in good condition (i.e., free  
26 of holes and punctures). Shielded, classified, and remote-handled mixed waste is not physically inspected  
27 except for examination of the external container.

#### 28 Inspection of Container Labeling

29 Shipment documentation is used to verify that the containers are labeled with the appropriate  
30 Hazardous/Dangerous Waste labeling and associated markings according to the contents of the waste  
31 container.

32 Acceptance of Waste Containers. The 325 HWTUs personnel sign the shipment documents and retain a  
33 copy. Any discrepancies and their resolution are recorded in the waste management database and the  
34 Hanford Facility Operating Record, 325 HWTUs File.

### 35 **B.2.2.2 Chemical Verification Process**

36 The purpose of chemical verification is to verify that the waste received matches that described in the  
37 waste profile. Onsite and offsite waste received at the 325 HWTUs will receive chemical verification  
38 at the unit according to the following process.

#### 39 **B.2.2.2.1 Exceptions to Chemical Verification**

- 40 • Laboratory reagents and commercial products such as paint, lubricants, solvent, or cleaning products  
41 are not subject to analytical verification when received in their original containers.
- 42 • Heterogeneous wastes (such as discarded machinery, shop rags, labpacks, and debris) that do not  
43 yield a representative sample are only subject to the physical screening process.
- 44 • Asbestos wastes.

- 1 • Spill cleanup wastes resulting from the spill or release of known materials.
- 2 • Wastes previously receiving chemical verification at the accumulation area (e.g. North Richland) in
- 3 accordance with the requirements of this section B.2.2.2.
- 4 • Any mixed waste with a dose rate exceeding 20 millirem/hour at contact.
- 5 • Any transuranic waste (waste containing more than 100 nanocuries/gram of transuranic isotopes).
- 6 • Any shielded, classified, or remote-handled waste.

7 **B.2.2.2.1.1** Waste designated for listing criteria based on process information (e.g. F001 waste  
8 identified as a used solvent).

#### 9 **B.2.2.2.2 Number of Verifications**

10 Five percent of waste containers received from PNNL generating locations will receive chemical  
11 verification each month. The number of containers to be verified in any month is based on five percent of  
12 the number of containers received at the 325 HWTUs during the previous three months, divided by three,  
13 exclusive of those exempt from verification as described in Section B.2.2.2.1 above. Fractional numbers  
14 are rounded upwards. For example, if 40 qualifying containers are received in June 50 containers in July,  
15 and 60 containers in August, an average of 50 per month, 3 containers ( $50 \times 5\% = 2.5$ , rounded to 3)  
16 would be sampled and analytically verified. Note that during the first three months of operation under  
17 this WAP, the *previous three months* are the three calendar months preceding the effective date of this  
18 Permit.

19 Ten percent of the number of containers on any shipment from offsite (except PNNL generating  
20 locations) receives chemical verification. If a shipment contains waste from more than one generator, ten  
21 percent of containers from each generator receive chemical verification.

#### 22 **B.2.2.2.3 Selection Process**

23 Randomly selected containers from onsite will receive chemical verification until the required number of  
24 verifications necessary for that month is accomplished. A variety of non-PNNL generating locations and  
25 waste types, if any, will be analyzed to the extent practicable. However, the number of containers  
26 selected from any given shipment will be based on the number of containers scheduled for pickup during  
27 the current month as well as the number of containers in the individual shipment that are subject to  
28 chemical verification.

#### 29 **B.2.2.2.4 Sampling**

30 Waste containers selected for verification are sampled using the methods in [WAC 173-303-110\(2\)](#) for  
31 representative samples, or utilizing a similar method suitable to the container. For instance, to sample a  
32 one-liter bottle of homogeneous liquid, glass tubing, or a pipet would be utilized to obtain a representative  
33 sample instead of a COLIWASA. Generally, these samples are analyzed immediately, so preservation  
34 techniques are not utilized. If the samples must be stored, they will be preserved in accordance with the  
35 requirements of the analytical technique being used (Table B.2).

#### 36 **B.2.2.2.5 Testing Methods**

37 The methods utilized for chemical verification at the 325 HWTUs are selected based on the  
38 appropriateness for the waste being verified. Tests performed are selected from the following.

39 **Water Miscibility/Separable Organics.** Performed utilizing water solubility Hazcat© test kits per the  
40 instructions given in those kits. These tests are not performed on materials known to be organic  
41 peroxides, ethers, and/or water reactive.

42 **Oxidizers:** Performed utilizing oxidizer Hazcat© test kits per the instructions given in those kits. These  
43 tests are not performed on materials known to be organic peroxides, ethers, and/or water reactive.

1 **pH:** SW-846 Method 9040, 9041, or 9045 (by pH meter or pH paper). This test will not be performed on  
2 organic liquids.

3 **Cyanides:** Performed utilizing cyanide Hazcat© test kits per the instructions given in those kits.

4 **Sulfides:** Performed utilizing sulfide Hazcat© test kits per the instructions given in those kits.

5 **Halogenated/Volatile Organics:** Examination with a photoionizer or flame ionizer to determine if the  
6 waste contains volatile organic compounds. Clor-D-Tect© kits may be used to detect organic halogens.

#### 7 **B.2.2.2.6 Quality Assurance/Quality Control for Analytical Verification**

8 Each testing process is subject to QA/QC requirements as follows. The data quality objectives for these  
9 analyses are given in Section B.4.5.

10 **Water Miscibility/Separable Organics:** Performed utilizing water solubility Hazcat© test kits per the  
11 instructions given in those kits using test kits that are not older than the expiration date specified on the  
12 kit. Data interpretations are performed utilizing the manufacturer's instructions for the test kit.

13 **Oxidizers:** Performed according to manufacturer's instructions utilizing test kits that are not older than  
14 the expiration date specified on the kit. Data interpretations are performed utilizing the manufacturer's  
15 instructions for the test kit.

16 **pH:** Calibration of pH meters and pH paper is performed as required by the appropriate method being  
17 used (SW-846 method 9040, 9041, or 9045).

18 **Cyanides:** Performed according to manufacturer's instructions utilizing test kits that are not older than  
19 the expiration date specified on the kit. Data interpretations are performed utilizing the manufacturer's  
20 instructions for the test kit.

21 **Sulfides:** Performed according to manufacturer's instructions utilizing test kits that are not older than the  
22 expiration date specified on the kit. Data interpretations are performed utilizing the manufacturer's  
23 instructions for the test kit.

24 Halogenated/Volatile Organics. The photoionizer is calibrated daily (when in use) to a standard gas  
25 mixture in accordance with manufacturer's instructions. Data interpretations are performed utilizing  
26 observed data (meter readings) with adjustment as necessary based on the relative responsiveness of the  
27 waste compared to the standard mixture utilized for calibration. These adjustments are given in  
28 photoionizer manufacturer's literature. Clor-D-Tect© tests are performed according to manufacturer's  
29 instructions utilizing test kits that are not older than the expiration date specified on the kit. Data  
30 interpretations are performed utilizing the manufacturer's instructions for the test kit.

#### 31 **B.2.3 Waste Acceptance**

32 Once waste items have been confirmed by physical and necessary chemical verification, as described  
33 above, the waste is considered *accepted* and placed in the designated location in the unit determined prior  
34 to pickup. Containers of dangerous waste are managed according to the requirements of Addendum C.

#### 35 **B.3 SELECTING WASTE ANALYSIS PARAMETERS**

36 Physical and chemical screening parameters are chosen from those in Sections B.3.1 and B.3.2,  
37 respectively, as described in Section B.2.2.2 and B.2.2.3 of this WAP. Parameters for confirmation of  
38 designation and compliance with LDR requirements are given in Section B.3.3. Parameters, methods,  
39 and rationale for physical and chemical screening parameters and the pre-shipment review (Section B.2.1)  
40 are summarized in Table B.2.

1 **B.3.1 Physical Screening Parameters**

2 **B.3.1.1 Visual Inspection, Rationale**

3 Waste containers (and contents visible through the container or through an easily and safely opened lid)  
4 are examined to confirm that waste matches the physical description given in the waste profile  
5 documentation. Labeling examination also identifies waste prohibited by LDR requirements related to  
6 downstream TSD unit acceptance criteria. For instance, an organic destined for incineration might  
7 contain acids that the intended facility does not have permit authorization to treat by DEACT.

8 **B.3.1.2 Visual Inspection, Method**

9 Waste containers are inspected by trained, experienced personnel to verify that it matches the description  
10 in the profile. If the waste is a discarded product, the contents of the container are inspected to verify that  
11 they match the description of the product. For other waste, e.g., spent solvents, waste descriptions are  
12 compared with the products in use at the generating unit. This information is compared to the description  
13 of the waste in the profile. If, after visual inspection of the waste and inquiry of the generating unit  
14 personnel, any doubt remains as to the identity of the waste, the waste is not picked up and required to be  
15 re-profiled by the generator.

16 **B.3.1.3 Visual Inspection, Failure Criteria**

17 Waste does not correlate with the description of the waste (e.g. color, layering, consistency).

18 **B.3.2 Chemical Screening Parameters**

19 **B.3.2.1 Water Miscibility**

20 **Rationale:** Water miscibility/separable organics testing is chosen to confirm that waste matches that  
21 described on waste acceptance documentation, identify separable organics, and/or identify waste  
22 prohibited by downstream TSD unit acceptance criteria. Not performed on organic peroxides, ether, or  
23 water-reactive wastes.

24 **Method:** Performed using water solubility Hazcat© test kits per the instructions given in those kits.

25 **Failure Criteria:** Test results do not confirm the presence or absence of constituents of interest.

26 **B.3.2.2 Oxidizer**

27 **Rationale:** The oxidizer test is performed to confirm that waste matches that described on waste  
28 acceptance documentation, and verify waste requires oxidizer management pursuant to  
29 [WAC 173-303-395](#) (1)(b) at the 325 HWTUs. Not performed on organic peroxides, ether, or water-  
30 reactive compounds.

31 **Method:** HazCat© Oxidizer Screen Test Kit

32 **Failure Criteria:** Test results do not confirm the presence or absence of constituents of interest.

33 **B.3.2.3 pH**

34 **Rationale:** Used to confirm that waste matches that described on waste acceptance documentation and to  
35 verify compliance with [WAC 173-303-395](#)(1)(b) concerning separation of incompatible wastes. (Not  
36 used for solids or organic liquids).

37 **Method:** pH Screen [SW-846](#) Method 9040C or 9045 (pH meter) or 9041A (pH paper).

38 **Failure Criteria:** Test result does not match the pH given in the profile within a 4.0 pH unit tolerance, or  
39 the observed pH results in a designation change (e.g. profiled as non-corrosive, but exhibits a pH  $\leq 2.0$  or  
40  $\geq 12.5$ ).

#### 1 **B.3.2.4 Cyanides**

2 **Rationale:** Confirm that waste matches that described on waste acceptance documentation; verify waste  
3 requires compliance with [WAC 173-303-395](#)(1)(b) concerning separation of incompatible wastes.

4 **Method:** HazCat© Cyanide Screen Test Kit

5 **Failure Criteria:** Test results do not confirm the presence or absence of cyanide.

#### 6 **B.3.2.5 Sulfides**

7 **Rationale:** Confirm that waste matches that described on waste acceptance documentation; verify waste  
8 requires compliance with [WAC 173-303-395](#)(1)(b) concerning separation of incompatible wastes.

9 **Method:** HazCat© Sulfide Screen Test Kit

10 **Failure Criteria:** Test results do not confirm the presence or absence of sulfide.

#### 11 **B.3.2.6 Halogenated/Volatile Organic Compounds**

12 **Rationale:** Confirm that waste matches that described on waste acceptance documentation

13 **Method:** Photoionizer or Flame Ionizer, or Clor-D-Tect Kits©

14 **Failure Criteria:** Test results do not confirm the presence or absence of organics (photoionizer or flame  
15 ionizer testing) or of halogenated organics (Clor-D-Tect Kits).

16 If a waste is determined to have failed any of the tests performed above, the discrepancy resolution  
17 process described in Section B.2.2.1.1.1.1 of this WAP is utilized to resolve the discrepancy. If the  
18 discrepancy cannot be easily resolved, the waste is returned to the generator and must be re-profiled prior  
19 to consideration for acceptance.

#### 20 **B.3.3 Other Analysis Parameters**

21 The 325 HWTUs does not have any process vents that manage hazardous waste with organic  
22 concentrations of at least 10 parts per million by weight percent, or pumps, or compressors used more  
23 than 300 hours per year that come into contact with hazardous waste with an organic concentration of at  
24 least 10 percent by weight. As a result, no special waste analysis requirements for volatile organics are  
25 required by [WAC 173-303-690](#) or [-691](#).

26 A variety of small volume chemical wastes is generated by PNNL's research laboratory activities. These  
27 containers typically range in sizes from 10 ml to 5 gallons. These wastes are brought to the 325 HWTUs  
28 and segregated by compatibility for storage (refer to *incompatible waste* in the definitions section of this  
29 WAP) in the unit until enough waste is accumulated to fill a labpack or bulking container, usually a 30- to  
30 55-gallon drum. All containers having a design capacity greater than 0.1 m<sup>3</sup> to less than or equal to  
31 0.46 m<sup>3</sup> are equipped with a cover and comply with all applicable Department of Transportation  
32 regulations on packaging hazardous waste for transport under [49 CFR 178](#).

33 DOT approved intermediate bulk packaging may be used for some solid (non-dangerous) wastes. These  
34 containers range in size from 0.1 cu yard (27 cu ft) to 1.6 cu yard (43 cu ft) and are approved for solid  
35 waste only. With these limitations in place, no special waste analysis requirements for volatile organics  
36 are required by [WAC 173-303-692](#) (Subpart CC requirements).

#### 37 **B.4 SELECTING SAMPLING PROCEDURES**

##### 38 **B.4.1 Sampling Strategies**

39 Samples are collected for chemical screening as required by Section B.2.2.2 of this WAP. Sample  
40 collection methods conform to the representative sample methods referenced in [WAC 173-303-110](#)(2).

#### 1 **B.4.2 Sampling Methods**

2 In all instances, sampling methods will conform to the representative sample method referenced in  
3 [WAC 173-303-110\(2\)](#), i.e., ASTM standards for solids and [SW-846](#) for liquids. Some adaptation of the  
4 method may be necessary for small containers being sampled for chemical screening, as discussed in  
5 Section B.2.2.2.4. Exceptions to the methods may also be used if permissible pursuant to  
6 [WAC 173-303-110](#), NRC/EPA *Clarification of RCRA Hazardous Waste Testing Requirements for Low-*  
7 *Level Radioactive Mixed Waste – Final Guidance* ([62 Federal Register 62080](#), November 20, 1997), Data  
8 Quality Objectives, and/or an alternative approved by Ecology pursuant to the permit modification  
9 process. The specific sampling methods and equipment used varies with the chemical and physical nature  
10 of the waste material and the sampling circumstances.

#### 11 **B.4.3 Selecting Sampling Equipment**

12 Representative samples of liquid waste from containers (vertical *core sections*) are typically obtained  
13 using a composite liquid waste sampler (COLIWASA) or tubing, as appropriate. The sampler is long  
14 enough to reach the bottom of the container in order to provide a representative sample of all phases of  
15 the containerized liquid waste. If a liquid waste has more than one phase, each phase is separated for  
16 individual testing, depending on the waste management pathways of the phases.

17 Other waste types that might require sampling are sludges, powders, and granules. In general, nonviscous  
18 sludges are sampled using a COLIWASA. Highly viscous sludges and cohesive solids are sampled using  
19 a trier, as described in [ASTM](#) Standard D1452-80. Dry powders and granules are sampled using a thief,  
20 as described in [ASTM](#) Standard D346-75.

21 Samplers are constructed of material compatible with the waste. In general, aqueous liquids are sampled  
22 using polyethylene samplers, organic liquids using glass samplers, and solids using polyethylene  
23 samplers. Disposable samplers are used whenever possible to eliminate the potential for cross-  
24 contamination. If non-disposable sampling equipment is used, it is decontaminated between samples as  
25 necessary to ensure subsequent samples are representative of the wastes being sampled.

#### 26 **B.4.4 Sample Preservation**

27 All sample containers, preservation techniques, and hold times follow [SW-846](#) protocol. Many samples  
28 are immediately analyzed at the 325 HWTUs or in nearby laboratories in the 325 Building and are not  
29 preserved.

#### 30 **B.4.5 Establishing Quality Assurance and Quality Control for Sampling**

31 Pacific Northwest National Laboratory is committed to maintaining a high standard of quality for all of its  
32 activities. A crucial element in maintaining that standard is a quality-assurance program that provides  
33 management controls for conducting activities in a planned and controlled manner and enabling the  
34 verification of those activities.

35 The QA/QC objective of the 325 HWTUs is to control and characterize errors associated with collected  
36 data and to illustrate that waste testing has been performed according to specification in this waste  
37 analysis plan.

38 The data-quality objectives (DQO) for the waste sampling and data analyses are as follows:

- 39 • Determine if waste samples are representative of the contents of the containers at the time the samples  
40 were taken.
- 41 • Determine if waste accepted for storage meets the 325 HWTUs waste-acceptance criteria  
42 (Addendum B).
- 43 • Determine if waste to be accepted match the corresponding waste description in the approved waste  
44 profile.

1 **B.5 LABORATORY SELECTION AND QUALITY ASSURANCE/QUALITY CONTROL**

2 **B.5.1 Evaluation of Laboratories**

3 Laboratory selection is limited. Preference will be given to any PNNL facility or other laboratories on the  
4 Hanford Facility that exhibit-demonstrated experience and capabilities in four major areas:

- 5 • comprehensive written QA/QC program based on DOE-RL requirements specifically for that  
6 laboratory
- 7 • audited for effective implementation of QA/QC program
- 8 • participate in performance-evaluation samples to demonstrate analytical proficiency
- 9 • demonstrated ability to produce analytical data meeting the data quality requirements of this WAP.

10 All laboratories (onsite or offsite) are required to have the following QA/QC documentation:

- 11 • Daily analytical data generated in the contracted analytical laboratories are controlled by the  
12 implementation of an analytical laboratory QA plan.
- 13 • Before commencement of the contract for analytical work, the laboratory will have its QA plan  
14 available for review. At a minimum, the QA plan will document the following:
- 15 • sample custody and management practices
- 16 • requirements for sample preparation and analytical procedures
- 17 • instrument maintenance and calibration requirements
- 18 • internal QA/QC measures, including the use of method blanks
- 19 • required sample preservation protocols
- 20 • analysis capabilities

21 **B.5.2 Quality Assurance/Quality Control Objectives**

22 The objective of the QA/QC program is to control and characterize any errors associated with the  
23 collected data and to confirm that the data collected is adequate for its intended purpose. Quality-  
24 assurance activities, such as the use of standard methods for locating and collecting samples, are intended  
25 to limit the introduction of error. Quality-control activities, such as the collection of duplicate samples  
26 and the inclusion of blanks in sample sets, are intended to provide the information required to characterize  
27 any errors in the data. Other QC activities, such as planning the QC program and auditing ongoing and  
28 completed activities, verify that the specified methods are followed and that the QA information needed  
29 for characterizing error is obtained. To illustrate that waste testing has been performed according to  
30 requirements of this waste analysis plan, activities include:

- 31 • Field inspections—performed and documented by waste management staff at the generating location.  
32 The inspections primarily are visual examinations but might include measurements of materials and  
33 equipment used, techniques employed, and the final products. The purpose of these inspections is to  
34 confirm the sufficiency and reliability of the knowledge used for the waste profile.
- 35 • Field-testing—performed onsite by the 325 HWTUs staff (or designee) according to specified  
36 procedures or protocol identified by the manufacturer’s instructions supplied in the field test kits.
- 37 • Laboratory analyses—performed by onsite or offsite laboratories on samples of waste. The purpose of  
38 the laboratory analyses is to determine constituents or characteristics present and the concentration or  
39 level.

1 The 325 HWTUs will assess analytical data used for decision making according to the following quality  
2 standards, as appropriate for the data considered:

- 3 • Precision: Agreement between the collected samples/duplicates for the same parameters, at the same  
4 location, subjected to the same preparation and analytical techniques. Analytical precision also  
5 includes agreement among individual test portions taken from the same sample.
- 6 • Accuracy: Agreement between the observed data and the result of QA samples (e.g. certified  
7 standards, in-house standards, and performance evaluation samples).
- 8 • Representativeness: The degree to which the data accurately represent the waste stream. Criteria  
9 evaluated include number and adequacy of sampling locations, use of appropriate sampling and  
10 analytical methods, and documentation of environmental conditions at time of sampling.
- 11 • Completeness: Amount of data obtained versus amount requested.
- 12 • Comparability: Ability to compare one data set to another. Usually addressed by evaluating proper  
13 use of standard methods prescribed in this WAP.

14 These practices verify that all data and the decisions based on that data are technically sound, statistically  
15 valid, and properly documented.

16 The primary purpose of waste testing is to confirm the waste is acceptable for treatment or storage at the  
17 325 HWTUs in compliance with the requirements of this WAP. Waste testing also is performed to verify  
18 the safe management of waste being stored and control of the acceptance of waste for storage. The  
19 specific objectives of the waste-sampling and analysis program at the 325 HWTUs are as follows:

- 20 • Identify the presence of waste that is incompatible with waste currently stored.
- 21 • Provide a detailed chemical and physical analysis of the waste before the waste is accepted at the  
22 325 HWTUs to ensure proper management and disposal.
- 23 • Provide an analysis that is accurate and up-to-date.
- 24 • Ensure safe management of waste undergoing storage at the 325 HWTUs.
- 25 • Demonstrate compliance with applicable LDR treatment standards, for waste treated at the  
26 325 HWTUs.
- 27 • Identify and reject waste that does not meet the 325 HWTUs acceptance requirements  
28 (e.g., incomplete information).

### 29 **B.5.3 Laboratory Quality Assurance/Quality Control**

30 All analytical work performed by independent laboratories, is defined, and controlled by a Statement of  
31 Work, prepared in accordance with administrative procedures and requirements of this WAP. The daily  
32 quality of analytical data generated in the analytical laboratories will be controlled by the implementation  
33 of an analytical laboratory QA plan. At a minimum, the plan will document the following:

- 34 • sample custody and management practices
- 35 • requirements for sample preparation and analytical procedures
- 36 • instrument maintenance and calibration requirements
- 37 • internal QA/QC measures, including the use of method blanks
- 38 • required sample preservation protocols following receipt of samples at the laboratory
- 39 • analysis capabilities

1 The types of internal quality-control checks are as follows and are used as specified in the analytical  
2 laboratory's program as described in Section B.5.1:

- 3 • Method Blanks—Method blanks usually consist of laboratory reagent-grade water treated in the same  
4 manner as the sample (i.e., digested, extracted, distilled) that is analyzed and reported as a standard  
5 sample would be reported.
- 6 • Method Blank Spike—A method blank spike is a sample of laboratory reagent-grade water fortified  
7 (spiked) with the analytes of interest, which is prepared and analyzed with the associated sample  
8 batch.
- 9 • Laboratory Control Sample—A QC sample introduced into a process to monitor the performance of  
10 the system.
- 11 • Matrix Spikes—An aliquot of sample spiked with a known concentration of target analyte(s). The  
12 spiking occurs prior to sample preparation and analysis.
- 13 • Laboratory Duplicate Samples—Duplicate samples are obtained by splitting a field sample into two  
14 separate aliquots and performing two separate analyses on the aliquots. The analyses of laboratory  
15 duplicates monitor the precision of the analytical method for the sample matrix; however, the  
16 analyses might be affected by nonhomogeneity of the sample, in particular, by nonaqueous samples.  
17 Duplicates are performed only in association with selected protocols. Duplicates are performed only  
18 in association with selected protocols. Laboratory duplicates are performed on 5 percent of the  
19 samples (1 in 20) or one per batch of samples. If the precision value exceeds the control limit, then  
20 the sample set must be reanalyzed for the parameter in question.
- 21 • Known QC Check Sample—This is a reference QC sample as denoted by [SW-846](#) of known  
22 concentration, obtained from the EPA, the National Institute of Standards and Technology, or an  
23 EPA-approved commercial source. This QC sample is taken to check the accuracy of an analytical  
24 procedure. The QC sample is particularly applicable when a minor revision or adjustment has been  
25 made to an analytical procedure or instrument. The results of a QC-check standard analysis are  
26 compared with the true values, and the percent recovery of the check sample is calculated.

#### 27 PNNL Analytical Chemistry Laboratory QA/QC

28 PNNL's analytical chemistry laboratory may need to be used to analyze samples of potentially radioactive  
29 dangerous waste. It has a rigorous QA plan that verifies that data produced are defensible, scientifically  
30 valid, and of known precision and accuracy, and meets the requirements of its clients.

### 31 **B.5.4 DATA ASSESSMENT**

32 Analytical data will be communicated clearly and documented to verify that laboratory data-quality  
33 objectives are achieved.

- 34 • The acquired data need to be scientifically sound, of known quality, and thoroughly documented.  
35 The DQOs for the data assessment are given in Section B.5.2.

## 36 **B.6 SELECTING WASTE RE-EVALUATION FREQUENCIES**

### 37 **B.6.1 Periodic Re-Evaluation**

38 Periodic re-evaluation is an evaluation of a waste stream that provides verification that the results from  
39 the initial verification are still valid. Periodic re-evaluation of a waste stream also checks for changes in  
40 the waste stream. Most waste stream containers are individually profiled, and hence subject to both  
41 physical and chemical analysis as described in Section B.2.2.1 and B.2.2.2 of this WAP, each time they  
42 are received at the 325 Hazardous Waste Treatment Units. Any waste stream received by the 325  
43 Hazardous Waste Treatment Units not re-profiled each time containers of that waste stream are submitted  
44 (i.e. *standing profiles*) will be re-evaluated at least annually.

## 1 **B.6.2 Re-Evaluation for Cause**

2 Re-evaluation of a waste stream under a *standing profile* will also be required if any of the following  
3 occur:

- 4 • The 325 Hazardous Waste Treatment Units personnel have reason to suspect a change in the waste,  
5 based on inconsistencies in packaging, labeling, or visual inspection of the waste.
- 6 • The information submitted previously does not match the characteristics of the waste submitted as  
7 identified through fingerprint testing.
- 8 • The process generating the waste changes

## 9 **B.7 SPECIAL WASTE ANALYSIS PROCEDURAL REQUIREMENTS**

### 10 **B.7.1 Procedures for Receiving Onsite and Offsite Waste**

11 Most of the waste stored at the 325 Hazardous Waste Treatment Units is generated on the Hanford Site  
12 and/or by PNNL research programs within the 300 Area. Additional requirements for waste generated off  
13 the Hanford Site include proper manifesting (if required) to the 325 Hazardous Waste Treatment Units  
14 and proper packaging for transport over public roadways. Offsite waste is subject to more stringent  
15 chemical verification (Section B.2.2.2.2). Although PNNL waste generated outside of the 300 Area is  
16 considered to be generated offsite since it may be transported to the 325 Hazardous Waste Treatment  
17 Units on roads accessible to the public, it is under the same administrative controls as wastes that are  
18 generated onsite (i.e., in the 300 Area).

19 The procedures for receiving waste at the 325 Hazardous Waste Treatment Units are given in Section B.2.

### 20 **B.7.2 Provisions for Complying with Land Disposal Restriction Requirements**

21 The *Dangerous Waste Regulations* prohibit the land disposal of certain types of wastes. Most of the  
22 waste types stored at the 325 Hazardous Waste Treatment Units falls within the purview of these land-  
23 disposal restrictions (LDRs). Occasionally, treatment takes place that is intended to meet the applicable  
24 LDRs for a stored waste. Information presented below describes how generators and the 325 Hazardous  
25 Waste Treatment Units personnel characterize, document, and certify waste subject to LDR requirements.

#### 26 **B.7.2.1 Waste Treatment**

27 Permitted waste treatment occurs at the 325 Hazardous Waste Treatment Units. Waste received may or  
28 may not meet the applicable LDR treatment standards determined during the acceptance process  
29 (Section B.2). Waste received for storage that does not meet the applicable LDR treatment standards at  
30 the *point of generation* will receive treatment at the 325 Hazardous Waste Treatment Units, and/or by  
31 offsite facilities.

32 Shipments of waste shall not be accepted from any non-PNNL generator without any required LDR  
33 certification accompanying each shipment. For waste received from non-PNNL generators, the  
34 325 Hazardous Waste Treatment Units shall receive the information required by [WAC 173-303-140](#)  
35 regarding LDR wastes. The generator must sign the LDR certification.

36 The types and quantities of waste treated at the 325 Hazardous Waste Treatment Units are described in  
37 Addendum A. When these treatments are performed to meet applicable LDR treatment standards, the  
38 requirements of this section apply.

39 Since treatments conducted at the 325 Hazardous Waste Treatment Units are generally conducted as small  
40 bench-scale operations (except for in-tank treatments), trace contaminants in wastes are usually not a  
41 threat to the safety or conduct of these treatments. However, before accepting waste for treatment via  
42 thermal treatment (T11-T18) or biological treatment (T67-T77) technologies given in  
43 [WAC 173-303-380\(2\)\(d\)](#), 325 HWTUs staff will review, and amend if necessary, this WAP to include

1 any additional data needs expected to be triggered by those technologies and the need to demonstrate  
2 compliance with applicable LDR treatment standards.

### 3 **B.7.2.2 Sampling and Analytical Methods**

4 Testing of treated waste will be performed as provided in [40 CFR 268.7\(b\)](#) according to the treatment  
5 standards of [40 CFR 268.40](#) (adopted by reference at [WAC 173-303-140](#)). Sampling methods for treated  
6 wastes will be chosen from the methods given in Section B.4 appropriate to the treated waste. Analytical  
7 methods used for confirmation that the specified treatment standard(s) of [40 CFR 268.40](#) (incorporated by  
8 reference at [WAC 173-303-140](#)) and any applicable state-specific LDRs will be selected from those  
9 specified in [WAC 173-303-110\(3\)](#) as appropriate for the treated waste being analyzed.

10 Since most wastes are submitted as individual waste streams, sampling and analysis of treated waste is  
11 performed on each batch as specified in [40 CFR 268.40\(b\)](#), adopted by reference at [WAC 173-303-140](#).

### 12 **B.7.2.3 Land Disposal Restriction Certification of Treatment**

13 Permitted waste treatment occurs at the 325 Hazardous Waste Treatment Units. Certification of treatment  
14 related to waste treated at the 325 Hazardous Waste Treatment Units is managed in accordance with the  
15 recordkeeping process described in Section B.8.

## 16 **B.8 RECORDKEEPING**

17 Records associated with the waste-analysis plan and waste-verification program are maintained by the  
18 waste-management organization and are placed in the Hanford Facility Operating Record, 325 HWTUs  
19 File. A copy of the profile for each waste stream accepted at the 325 Hazardous Waste Treatment Units  
20 shall be placed in the Hanford Facility Operating Record, 325 HWTUs File. Organizational units  
21 associated with generator activities maintain their sampling and analysis records. The waste analysis plan  
22 shall be revised through the permit modification process whenever regulation changes affect the waste  
23 analysis plan.

24 The 325 Hazardous Waste Treatment Units has and will continue to receive and store restricted or  
25 prohibited waste. Because the 325 Hazardous Waste Treatment Units personnel verify designations and  
26 characterization, including LDR determinations, qualified staff for PNNL-generated waste prepare all  
27 notifications and certifications, as required by [40 CFR 268](#), incorporated by reference by  
28 [WAC 173-303-140](#). The 325 Hazardous Waste Treatment Units staff collects information from  
29 generators via the waste profile to assure that applicable LDR treatment standards have been properly  
30 identified, as well as any information documenting compliance with applicable LDR treatment standards.  
31 The notifications and certifications are submitted to onsite and offsite TSD units during the waste-  
32 shipment process. Additionally, any necessary LDR treatment variance requests are prepared by PNNL  
33 qualified staff for U.S. DOE submittal to Ecology for approval.

34 The 325 Hazardous Waste Treatment Units staff requires applicable LDR information/notifications from  
35 non-PNNL generators.

36 Where a restricted or prohibited waste does not meet the applicable treatment standards set forth in  
37 [40 CFR 268](#), Subpart D, the 325 Hazardous Waste Treatment Units provides to the onsite dangerous  
38 waste management unit or offsite TSD facility a written notice that includes the information required by  
39 [40 CFR 268.7](#).

40 In instances where the 325 HWTUs staff determines that a restricted waste is being managed that can be  
41 land-disposed without further treatment, the 325 HWTUs staff submits a written notice and certification  
42 to the onsite dangerous waste management unit or offsite TSD facility where the waste is being shipped,  
43 stating that the waste meets applicable treatment standards set forth in [40 CFR 268](#), Subpart D,  
44 incorporated by reference by [WAC 173-303-140](#), and includes the information required by [40 CFR 268.7](#).

45 The certification accompanying any of the notices previously described is signed by an authorized  
46 representative of the generator and states the following:

1        *I certify under penalty of law that I personally have examined and am familiar with the waste through*  
2        *analysis and testing or through knowledge of the waste to support this certification that the waste*  
3        *complies with the treatment standards specified in [40 CFR 268](#), Subpart D and all applicable*  
4        *prohibitions set forth in [40 CFR 268.32](#) or RCRA Section 3004(d). I believe that the information I*  
5        *submitted is true, accurate, and complete. I am aware that there are significant penalties for*  
6        *submitting a false certification, including the possibility of a fine and imprisonment.*

7        Certifications and notifications of treatment are prepared and submitted in accordance with the applicable  
8        requirements of [40 CFR 268.7\(b\)](#), incorporated by reference by [WAC 173-303-140](#).

9        Copies of all notices and certifications described are placed in the Hanford Facility Operating Record, 325  
10       HWTUs File and retained for at least 5 years from the date that the waste was last sent to an onsite  
11       dangerous waste management unit or offsite TSD facility. After that time, the notices and certifications  
12       are sent to Records Storage.

### 13    **B.9 REFERENCES**

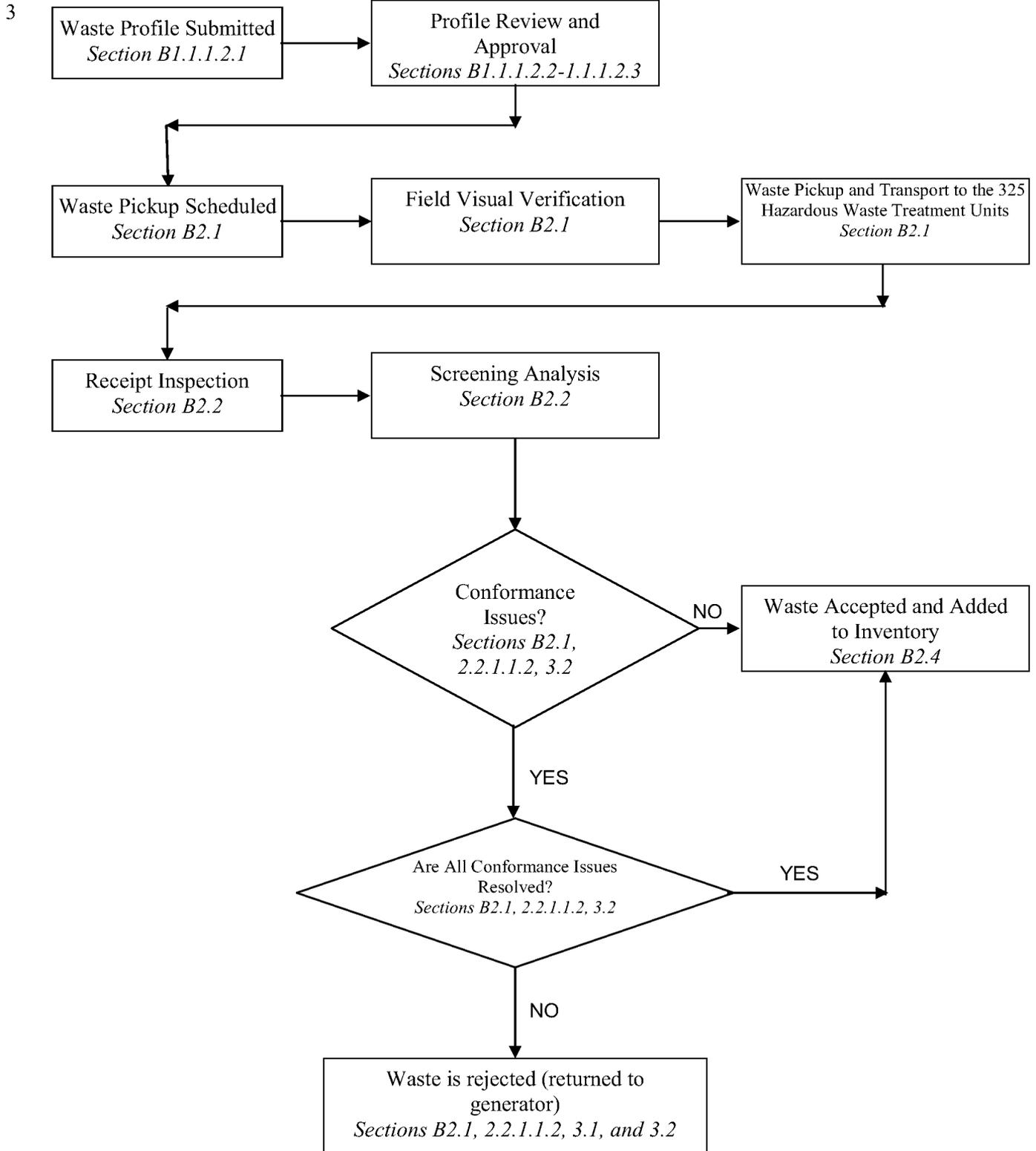
14    U.S. Environmental Protection Agency. 1994. *Waste Analysis At Facilities That Generate, Treat, Store,*  
15       *And Dispose of Hazardous Waste: A Guidance Manual.* [OSWER 9938.4-03](#), Washington, DC.

16    Washington Administrative Code. 2005. *Dangerous Waste Regulations.* [WAC 173-303](#), Olympia, WA.

17    Washington Department of Ecology. 2008. *[Hanford Facility Resource Conservation and Recovery Act](#)*  
18       *[Permit](#)*, Revision 9, as amended.

19

1 **Figure B.1. Waste Confirmation and Acceptance Process for the 325 Hazardous Waste**  
2 **Treatment Units**



**Table B.1. Waste Compatibility Chart**

Class or Division 1		Notes	1.1 1.2	1.3	1.4	1.5	1.6	2.1	2.2	2.3 Gas Zone A	2.3 Gas Zone B	3	4.1	4.2	4.3	5.1	5.2	6.1 Liquids PGI Zone A	7	8 Liquids Only
Explosives	1.1 1.2	A	*	*	*	*	*	X	X	X	X	X	X	X	X	X	X	X	X	X
Explosives	1.3		*	*	*	*	*	X	X	X	X	X	X	X	X	X	X	X	X	X
Explosives	1.4		*	*	*	*	*	O		O	O	O		O				O		O
Very insensitive explosives	1.5	A	*	*	*	*	*	X	X	X	X	X	X	X	X	X	X	X	X	X
Extremely insensitive explosives	1.6		*	*	*	*	*													
Flammable gases	2.1		X	X	O	X				X	O							O	O	
Non-toxic, non-flammable gases	2.2		X			X														
Poisonous gas Zone A	2.3		X	X	O	X		X				X	X	X	X	X	X			X
Poisonous gas Zone B	2.3		X	X	O	X		O				O	O	O	O	O	O			O
Flammable liquids	3		X	X	O	X				X	O					O		X		
Flammable solids	4.1		X			X				X	O							X		O
Spontaneously combustible materials	4.2		X	X	O	X				X	O							X		X
Dangerous when wet materials	4.3		X	X		X				X	O							X		O
Oxidizers	5.1	A	X	X		X				X	O	O						X		O
Organic peroxides	5.2		X	X						X	O							X		O
Poisonous liquids PG I Zone A	6.1		X	X	O	X		O				X	X	X	X	X	X			X
Radioactive materials	7		X			X		O												
Corrosive liquids	8		X	X	O	X				X	O		O	X	O	O	O	X		

(Key on following page)

1 For definition of these hazard classes, refer to [49 CFR 173.2](#).

B.19

**Table B.1 Key**

<b>Notation</b>	<b>Description</b>
(blank)	No incompatibility restrictions apply; materials may be stored together. Also true for any hazard class not shown (e.g. state-only dangerous waste)
X	Materials may not be stored together in the same cell; separate secondary containment is required.
O	Materials may not be stored together in the same secondary containment, but may be stored in the same cell if necessary, provided individual secondary containment devices are provided.
*	Explosives compatibility is described in <a href="#">49 CFR 174.81(f)</a> (refer to Table given there)
A	Notwithstanding the 'X' in the table, ammonium nitrate fertilizer may be stored with Division 1.1 or 1.5 materials if necessary.

Source: [49 CFR 174.81](#)

**Table B.2. Summary of Test Parameters, Rationales, and Methods**

Parameter <sup>(a)</sup>	Method <sup>(b)</sup>	Rationale for Selection
<b>Physical Screening</b>		
Visual inspection	Field method—observe phases, presence of solids in waste	Confirm that waste matches that described on waste acceptance documentation; identify waste prohibited by LDR requirements related to downstream TSD unit acceptance criteria
<b>Chemical Screening</b>		
Water miscibility/separable organics (c)	Water solubility Hazcat © test kits	Confirm that waste matches that described on waste acceptance documentation; identify separable organics; identify waste prohibited by LDR requirements related to downstream TSD unit acceptance criteria
Oxidizer	Oxidizer Screen Hazcat © test kits	Confirm that waste matches that described on waste acceptance documentation; verify compliance with <a href="#">WAC 173-303-395(1)(b)</a>
pH	pH screen <a href="#">SW-846</a> Method 9040, 9041, or 9045	Confirm that waste matches that described on waste acceptance documentation; verify compliance with <a href="#">WAC 173-303-395(1)(b)</a>
Cyanides	Cyanide screen Hazcat © test kits	Confirm that waste matches that described on waste acceptance documentation; verify compliance with <a href="#">WAC 173-303-395(1)(b)</a>
Sulfides	Sulfide screen Hazcat © test kits	Confirm that waste matches that described on waste acceptance documentation; verify compliance with <a href="#">WAC 173-303-395(1)(b)</a>
Halogenated/Volatile Organic Compounds	Photoionizer or Flame Ionizer, or Clor-D-Tect Kits©	Confirm that waste matches that described on waste acceptance documentation
<b>Pre-Shipment Review</b>		
Mercury (total)	Generator knowledge or <a href="#">SW-846</a> Method 7470/7471	Identify waste prohibited by LDR requirements related to downstream TSD unit acceptance criteria.
Toxicity characteristic organic compounds (d)	Generator knowledge or <a href="#">SW-846</a> Methods 1311 and 8260 (volatile organic compounds) and 8270 (semi volatile organic compounds)	Identify waste not identified in Addendum A, Part A Form
Polycyclic aromatic hydrocarbons	Generator knowledge or <a href="#">SW-846</a> Method 8270 or 8100	Identify waste not identified in Addendum A, Part A Form, (for waste with >1% solids and for which WPO3 could apply)

- (a) Addition parameters can be used on current waste acceptance criteria of the downstream TSD unit. Operation limits transfer/shipments are based on current waste acceptance criteria.
- (b) Procedures based on EPA [SW-846](#), unless otherwise noted. When regulations require a specific method, the method shall be followed.
- (c) These tests will not be performed on materials known to be organic peroxides, ether, and/or water reactive compounds.
- (d) This test is only performed on waste to be stored in tank TK-1 in addition to any other appropriate chemical screening.



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**Hanford Facility RCRA Permit Modification Notification Forms**

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**Part III, Operating Unit 10  
Waste Treatment and Immobilization Plant (WTP)**

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PCNs for quarter ending September 30, 2009:

<b><u>PCN Number</u></b>	<b><u>Modification Form Approval Date</u></b>	<b><u>Facility</u></b>
24590-HLW-PCN-ENV-08-008	9/28/09	HLW
24590-HLW-PCN-ENV -09-001	9/28/09	HLW
24590-PTF-PCN-ENV-06-020	9/22/09	PTF
24590-PTF-PCN-ENV-09-002	9/4/09	PTF
24590-PTF-PCN-ENV-09-004	8/19/09	PTF
24590-PTF-PCN-ENV-09-007	9/10/09	PTF

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Quarter Ending December 31,  
2008

24590-HLW-PCN-ENV-08-008

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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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Page 2 of 3: Hanford Facility RCRA Permit, Part III, Operating Unit 10, Waste Treatment and Immobilization Plant  
Replace Mechanical Systems Data Sheets 24590-HLW-MVD-RLD-P0005 (24590-HLW-MV-RLD-VSL-00007), 24590-HLW-MVD-RLD-P0007 (24590-HLW-MV-RLD-VSL-00008), and 24590-HLW-MVD-RLD-P0008 (24590-HLW-MV-RLD-VSL-00002), in Appendix 10.6 of the Dangerous Waste Permit.

Submitted by Co-Operator:

Reviewed by ORP Program Office:

  
for DAKlein

10/2/08  
Date



10/31/08  
Date

D. A. Klein

S. J. Olinger

Quarter Ending December 31,  
2008

24590-HLW-PCN-ENV-08-008

### Hanford Facility RCRA Permit Modification Notification Form

Unit:

**Waste Treatment and Immobilization Plant**

Permit Part & Chapter:

**Part III, Operating Unit 10**

Description of Modification:

The purpose of this Class 1 modification is to update mechanical systems data sheets 24590-HLW-MVD-RLD-P0005 (24590-HLW-MV-RLD-VSL-00007), 24590-HLW-MVD-RLD-P0007 (24590-HLW-MV-RLD-VSL-00008), and 24590-HLW-MVD-RLD-P0008 (24590-HLW-MV-RLD-VSL-00002).

The following specifications are being submitted to replace the specifications currently in Appendix 10.6.

Appendix 10.6

Replace:	24590-HLW-MVD-RLD-P0005, Rev. 0	With:	24590-HLW-MVD-RLD-00005, Rev. 7
Replace:	24590-HLW-MVD-RLD-P0007, Rev. 1	With:	24590-HLW-MVD-RLD-00007, Rev. 7
Replace:	24590-HLW-MVD-RLD-P0008, Rev. 1	With:	24590-HLW-MVD-RLD-00008, Rev. 4

This modification requests Ecology approval and incorporation into the permit the specific changes to this specification that have been issued since the last revision of the specification. Revisions are the result of ongoing design (changes from vendor preliminary data to vendor detailed design) and incorporate general criteria from a design verification review. The following identifies the significant changes that have been revised on the attached specifications.

24590-HLW-MVD-RLD-00005, Rev. 7

- Provided reference for calculation
- Lowered specific gravity
- Increased vessel operating external pressure and temperature
- Increased vessel design temperature
- Provided reference for equipment cyclic data sheet
- Updated minimum and maximum operating pressures and temperatures
- Updated number of cycles on equipment cyclic data sheet
- Added section on hydrodynamic loading for pulse jet mixers for both single and multiple overblows
- Added equipment qualification datasheet
- Specified nozzle loads
- Added, deleted and changed notes

24590-HLW-MVD-RLD-00007, Rev. 7

- Provided reference for calculation
- Lowered specific gravity
- Increased vessel operating external pressure and temperature
- Increased vessel design temperature
- Decreased corrosion allowance
- Provided reference for equipment cyclic data sheet
- Updated minimum and maximum operating pressures and temperatures
- Updated number of cycles on equipment cyclic data sheet
- Added section on hydrodynamic loading for pulse jet mixers for both single and multiple overblows
- Added equipment qualification datasheet
- Specified nozzle loads

Quarter Ending December 31,  
2008

24590-HLW-PCN-ENV-08-008

- Added, deleted and changed notes

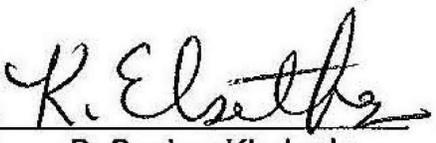
24590-HLW-MVD-RLD-00008, Rev. 4

- Provided reference for process data sheet
- Provided reference for calculation
- Updated operating and total volume
- Added mounting elevation
- Changed support type from skirt to legs
- Added reference for nozzle loads
- Added equipment cyclic data sheet
- Added a note

The following is a list of outstanding change documents that have not been incorporated into this modification:

24590-HLW-MVD-RLD-00008, Rev. 4

- 24590-HLW-MVN-RLD-00022

WAC 173-303-830 Modification Class: <sup>1 2</sup>	Class 1	Class <sup>1</sup> 1	Class 2	Class 3
Please mark the Modification Class:	X			
Enter Relevant WAC 173-303-830, Appendix I Modification citation number: A.1 and A.3				
Enter wording of WAC 173-303-830, Appendix I Modification citation:				
A.1 - Administrative and informational changes				
A.3 - Equipment replacement or upgrading with functionally equivalent components				
Modification Approved: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (state reason for denial)		Reviewed by Ecology:		
Reason for denial:				
		B. Becker-Khaleel <span style="float: right;">9-28-2008</span> Date		
		Kelly Elsethagen		

<sup>1</sup> Class 1 modifications requiring prior Agency approval.

<sup>2</sup> If the proposed modification does not match any modification listed in WAC 173-303-830 Appendix I, then the proposed modification should automatically be given a Class 3 status. This status may be maintained by the Department of Ecology, or down graded to a Class '1, if applicable.

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**MECHANICAL SYSTEMS DATA SHEET: VESSEL**

PLANT ITEM No.  
24590-HLW-MV-RLD-VSL-00007

Project:	<b>RPP-WTP</b>	P&ID:	<b>24590-HLW-M6-RLD-00001</b>
Project No:	<b>24590</b>	Calculation:	<b>24590-HLW-M6C-RLD-00002; 24590-HLW-MVC-30-00001</b> <sup>7</sup>
Project Site:	<b>Hanford</b>	Vessel Drawing	<b>24590-HLW-MV-RLD-00003</b>
Description:	<b>Acidic Waste Vessel RLD-VSL-00007</b>		

**Reference Data**

Charge Vessels (Tag Numbers)	<b>RLD-VSL-00015A, RLD-VSL-00015B</b>
Pulsejet Mixers / Agitators (Tag Numbers)	<b>RLD-PJM-00005, RLD-PJM-00006, RLD-PJM-00007, RLD-PJM-00008</b>
RFDs/Pumps (Tag Numbers)	<b>RLD-RFD-00162A, RLD-RFD-00162B</b>

**Design Data**

Quality Level	<b>Q (See Note 15)</b> <sup>7</sup>		Fabrication Specs	<b>24590-WTP-3PS-MV00-T0001</b>		
Seismic Category	<b>SC-2</b>		Design Code	<b>ASME VIII Div 1</b>		
Service/Contents	<b>Radioactive Liquid</b>		Code Stamp	<b>Yes</b>		
Design Specific Gravity	<b>1.0</b> <sup>7</sup>		NB Registration	<b>Yes</b>		
Maximum Operating Volume	gal	<b>15,758 (Note 3)</b>	Weights (lbs)	Empty	Operating	Test
Total Volume	gal	<b>18,145 (Note 3)</b>	Estimated	<b>43,000</b>	<b>186,000</b>	<b>194,000</b>
Environmental Qualification	<sup>7</sup> <b>See Attached EQ Section</b>					

Inside Diameter	inch	<b>156</b>			Wind Design	<b>Not Required</b>
Length/Height (TL-TL)	inch	<b>186</b>			Snow Design	<b>Not Required</b>
		Vessel Operating	Vessel Design	Coil/Jacket Design	Seismic Design	<b>24590-WTP-3PS-MV00-T0002</b> <b>24590-WTP-3PS-SS90-T0001</b>
Internal Pressure	psig	<b>Atm</b>	<b>15</b>	<b>None</b>	<sup>7</sup>	
External Pressure	psig	<b>0.83</b> <sup>7</sup>	<b>FV</b> <sup>7</sup>	<b>None</b>	Postweld Heat Treat	<b>Not Required</b>
Temperature	°F	<b>195</b> <sup>7</sup>	<b>220</b> <sup>7</sup>	<b>None</b>	Corrosion Allowance	inch <b>0.04 (Note 10 &amp; 11)</b>
Min. Design Metal Temp.	°F	<b>40</b>			<sup>7</sup>	

**Materials of Construction**

Component	Material	Minimum Thickness / Size	Containment
Top Head	<b>SB 688 N08367</b>	<b>See Drawing</b>	<b>Auxiliary (see Note 4)</b>
Shell	<b>SB 688 N08367</b>	<b>See Drawing</b>	<b>Primary (see Note 4)</b>
Bottom Head	<b>SB 688 N08367</b>	<b>See Drawing</b>	<b>Primary (see Note 4)</b>
Support	<b>SA 240 304 (Note 2)</b>	<b>See Drawing</b>	<b>N/A</b>
Jacket/Coils/Half-Pipe Jacket	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
Internals	<b>SB 688 N08367</b>	<b>See Drawing</b>	<b>Thermocouples Primary (see Note 4)</b>
Pipe Seamless	<b>SB 690 N08367 / SB 622 N06022 (Note 8)</b>	<b>See Drawing</b>	<b>See Notes-1 and 4</b>
Forgings/ Bar stock	<b>SB 564 N08367</b>	<b>See Drawing</b>	<b>N/A</b>
Gaskets	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
Bolting	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>

**Miscellaneous Data**

Orientation	<b>Vertical</b>	Support Type	<b>Skirt</b>
Insulation Function	<b>Not Applicable</b>	Insulation Material	<b>Not Applicable</b>
Insulation Thickness (inch)	<b>Not Applicable</b>	Internal Finish	<b>Descaled as laid</b>
		External Finish	<b>Descaled as laid</b>

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.



**MECHANICAL SYSTEMS DATA SHEET: VESSEL**

PLANT ITEM No.

24590-HLW-MV-RLD-VSL-00007

**Notes/Remarks**

\* To be determined by the vendor.

- Note 1:** Nozzle necks below the high operating liquid level are Primary, others Auxiliary.
- Note 2:** Material shall have Carbon Content of 0.030% Max. Non-welded specialty items are excluded from this requirement.
- Note 3:** Vessel volumes are approximate and do not account for manufacturing tolerances, nozzles, and displacement of internals.
- Note 4:** All welds forming part of the primary and auxiliary containment including nozzle attachment welds shall be subjected to 100% volumetric examination.
- Note 5:** This vessel is located in a Black Cell.
- Note 6:** Contents of this document are Dangerous Waste Permit affecting.
- Note 7:** As a minimum, all welds on internal components and supports shall be dye-penetrant tested.
- Note 8:** Use SB 622 N06022 material for Ejectors (by others) and Ejector Piping.
- Note 9:** Deleted as per Report No. 24590-WTP-RPT-M-04-0007 Rev. 0 dated 29 Oct 2004.
- Note 10:** Seller shall ensure that an additional 0.10" is available for erosion in the bottom head and shall report the minimum thickness required for all specified loading conditions, exclusive of erosion and corrosion allowances.
- Note 11:** Seller shall ensure that an additional 0.05" is available for erosion in the interior conical surface of the pulse jet mixers.
- Note 12:** Deleted. 
- Note 13:** This revision of the data sheet incorporates SDDR No. 24590-WTP-SDDR-PROC-04-00670 by reference.
- Note 14:** Required data for thermal stress analysis for the nozzle exposed to higher temperatures.
- Cell ambient temperature = 112 °F
  - Headspace temperature = Operating temperature = 143 °F
  - Ambient and headspace natural convection heat transfer coefficients = 1.63 BTU/h-ft<sup>2</sup>-°F
  - Hot ejector transfers from vessel (Ejectors RLD-EJCTR-00008, -00050, -00056, & -00059):
    - a. Only one of the hot ejectors will be used at a time during transfers.
    - b. Transfer frequency = 1 transfer/24 hrs for 5.4 hrs; steam mass flow rate = 1192 lb/hr
- Note 15:** Vessel to be designed, fabricated, tested to L-2 requirements defined in 24590-WTP-3PS-MV00-T0001.
- Note 16:** All hydrodynamic and overblow loads shall be included with the seismic analysis as per this data sheet.
- Note 17:** 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.
- Note 18:** The vessel design shall account for buoyancy effects due to the room flood height of 22 ft. assuming the vessel is empty (worst case).
- Note 19:** Revision 7 revises quality level, design specific gravity, operating & design temperature, operating external pressure, deleted weld overlay around ejector nozzles, added Notes 15 - 19, revised cyclic data, cyclic notes for parent vessel, hydrodynamic info, E&NS Safety Screen box, and added E&NS signature box. Added sections for MOB, revised Nozzle Loads, DOE Radioactive Materials Disclaimer (Note 17), Table of Nozzle Connections, and Equipment Qualification Datasheet.

**Seismic** 

Seismic Response Spectra curves: Figures 549, 550, and 552 from calculation 24590-HLW-S0C-S15T-00009 (See CCN 138092). Seismic analysis to be combined with operating conditions, single overblow, and any sloshing loads imposed. Sloshing loads on vessel internals are considered per ASCE 4-98. Analysis to consider worst case seismic loads on the vessel proper and on the vessel internals. The response curves and sloshing loads will be provided via the Material Requisition.



**MECHANICAL SYSTEMS DATA SHEET: VESSEL**

PLANT ITEM No.  
24590-HLW-MV-RLD-VSL-00007

**Equipment Cyclic Data Sheet - Parent Vessel**

Component Plant Item Number:	24590-HLW-MV-RLD-VSL-00007
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	SB 688 N08367
Design Life	40 years
Component Function and Life Cycle Description	See Calculation 24590-HLW-MVC-11-00002.

Load Type	Min	Max	Number of Cycles	Comment
Design Pressure    psig	FV	15	10	Nominal assumption
Operating Pressure    psig	-6.0 -0.83	0 -0.18	14,600 3.8E7	Max Operating Case 1 Max. Operating Case 2
Operating Temperature    °F	59	195	14,600	
Contents Specific Gravity	1.0	1.0	14,600	
Contents Level    inch	Empty	Flooded	14,600	One cycle per day.

Localized Features	
Nozzles	<p><i>Within 50°F of operating temperature range except as noted below</i></p> <p><i>Normal operations will cause Superheated Steam at 358 °F design temperature to enter the vessel through the transfer ejectors (Nozzles N31, N32, N33 N39) once per day and through the emptying ejectors (Nozzles N13, N34, N35, N38) once per month.</i></p>
Air Inlet	
Delivery	
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.
- **Perform fatigue assessment/analysis for the following nozzles and associated piping over 40 years from 0 psig at 59 °F to the pressure and temperature indicated in the Table of Nozzle Connections for the pressure/temperature cycles indicated (pressure cycles shall coincide with temperature cycles):**
  - a. N27, N28, N31, N32, N33, N39 - 14,600 cycles
  - b. N13, N17, N18, N19, N34, N35, N38 - 480 cycles



**MECHANICAL SYSTEMS DATA SHEET: VESSEL**

PLANT ITEM No.

24590-HLW-MV-RLD-VSL-00007

**Hydrodynamic Loading - Pulse Jet Mixers (PJMs)**



Pulse Jet Mixers (PJMs) are designed to blow the fluid in the vessel in the form of a jet that induces agitation and mixing in the fluid. The mixing is required for various reasons: to enhance the heat transfer from the fluid to the cooling jackets and to release hydrogen from the fluid are examples. PJMs work on pressurized air to drive the fluid out of the PJM and into the vessel, this is called the "drive" phase. After the drive phase, the PJM is refilled with the vessel fluid via a suction applied to the PJM internals. The end of the drive phase is controlled such that the PJM does not empty completely. However, a condition can exist in which the PJM continues to blow during the drive phase, ejecting air after all the fluid is expelled. This condition is called a PJM overblow. This can occur with a single PJM overblowing or if more than one PJM overblows, it is called Multiple Overblow (MOB). Fluid motion during single overblow or MOB in a vessel causes hydrodynamic loads on the internal vessel components in the form of increased pressure. This fluid motion is cyclic based on the number of drive phases imposed by the PJMs. There are several types of hydrodynamic loads that the vessel internals will be designed for: 1) Normal operations, 2) Single Overblow, and 3) Multiple Overblow. The vessel internals shall be designed and supported for all three of these load conditions and this load combination is also to be assumed to act concurrently with seismic loads. The following tables and graphs indicate the required pressure/forces to apply to the vessel internals along with the number of cycles for each condition.

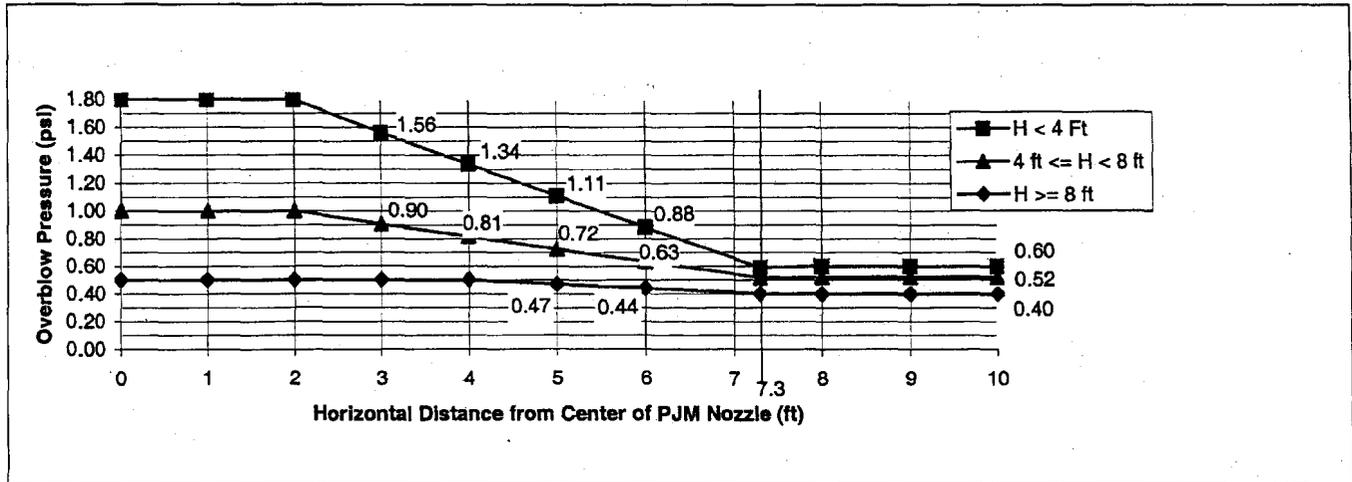
**Normal Operations Loading - PJMs**

Pulse jet mixers (PJM) impose a cyclical hydrodynamic load on all internal components. The components shall be designed and supported against these hydrodynamic loads due to normal operations. The following table indicates the hydrodynamic pressure for normal conditions at ranges of elevations in the vessel and the number of design cycles for this condition. The hydrodynamic forces cycle between the indicated pressure ranges applied across the projected area of the component. Positive hydrodynamic forces act in the radial, outward direction and the vertical, upward direction. Seller shall apply the radial load simultaneously in the radial direction and normal to the radial direction in the horizontal plane. This load combination acts concurrently with seismic loads for normal PJM operations.

Condition	Hydrodynamic Pressure Range, psi				Number of Cycles
	Between PJM Center and Vessel Wall		Between Vessel Center and PJM Center		
	Radial	Vertical	Radial	Vertical	
Normal Operation	-0.80 to 0.80	-0.80 to 0.40	-0.20 to 0.30	-0.20 to 0.25	3.8E7

**Single Overblow Loading- PJMs**

Single PJM Overblow loads vary as a function of the distance from the center of the overblowing pulse jet mixer nozzle and the elevation 'H' above the overblowing pulse jet mixer nozzle, up to the overflow level, as plotted in the form of overblow pressures:



For all vessel internal components other than the overblowing pulse jet mixer, the overblow forces shall be applied a) in the vertical upward direction, and b) in the horizontal direction, radiating from the centerline of the overblowing pulse jet mixer. For the overblowing pulse jet mixer, the force shall be applied in the vertical upward direction only. The overblow force on all components, including structures and supports, shall be calculated by applying the overblow pressure at the location of the nearest surface of the component and to the projected area of the component, facing the appropriate direction. The normal force component, specified for the normal pulse jet mixer operation condition, is not applicable to the overblow condition. Any single pulse jet mixer may overblow 1000 cycles. Reference CCN 125541 dated 07/27/05. This load combination acts concurrently with seismic loads.

**Notes**

- Cycle increase: The Seller must increase the numbers of operational cycles given above by 10% to account for commissioning duty unless otherwise noted.



**MECHANICAL SYSTEMS DATA SHEET: VESSEL**

PLANT ITEM No.  
24590-HLW-MV-RLD-VSL-00007

**Multiple Overblow Loading- PJMs**  $\triangle_7$

Multiple PJM Overblow (MOB) loads vary as a function of the horizontal distance from the center of the overblowing pulse jet mixer nozzle and the elevation 'H' above the overblowing pulse jet mixer nozzle up to the overflow level as plotted in the form of overblow pressures. Multiple application of the Single Overblow loading forms the basis for the MOB loads. Usage of the above Single Overblow graph along with Report # 24590-WTP-RPT-M-06-003 (Summary Report: Hydrodynamic Loads for PJM Multiple Overblow Condition) is required to determine the forces on each vessel internal component (targets) due to MOB. (Note: this report will be provided in the Material Requisition Package). This load condition does not act concurrently with seismic loads, but will be included with other normal operating load conditions. The number of cycles applied to MOB is 400 cycles.

**Equipment Cyclic Data Sheet - Charge Vessels**

Component Plant Item Number:	RLD-VSL-00015A, RLD-VSL-00015B
Component Description	Charge Vessels

The information below is provisional and envelopes operational duty for fatigue assessment. It is not to be used as operational data.

Materials of Construction	SB 688 N08367				
Design Life	40 years				
Component Function and Life Cycle Description	This component is part of a pumping system. It repeatedly floods and empties. The action is caused by vacuum or air pressure being presented to the top nozzle. The surrounding parent vessel may contain any level of the fluid between the maximum operating level and the heel level. The charge vessel is subjected to buoyancy forces when immersed in the parent vessel contents. The vessel is in cyclic duty.				
<b>Load Type</b>	Min	Max	Number of Cycles	Comment	
Design Pressure	psig	FV	135 $\triangle_7$	100 $\triangle_7$	Nominal assumption
Operating Pressure	psig	FV	60 $\triangle_7$	14,600 $\triangle_7$	
Operating Temperature	°F	59 $\triangle_7$	195 $\triangle_7$	14,600 $\triangle_7$	Same as parent vessel
Contents Specific Gravity		1.0 $\triangle_7$	1.0 $\triangle_7$	14,600 $\triangle_7$	
Contents Level	inch	Empty	Flooded	14,600 $\triangle_7$	Coincident with pressure cycles
<b>Localized Features</b>					
Nozzles	As above		As above		
Air Inlet	As above		As above		
Delivery					
Supports	buoyant to loaded		14,600 cycles		

**Notes**

- Cycle increase: The Seller must increase the numbers of operational cycles given above by 10% to account for commissioning duty unless otherwise noted.
- CVs inside parent vessels shall have buoyancy effects considered. PJMs shall be similarly considered and also the liquid thrust effect.



**MECHANICAL SYSTEMS DATA SHEET: VESSEL**

PLANT ITEM No.  
24590-HLW-MV-RLD-VSL-00007

**Equipment Cyclic Data Sheet - PJMs**

Component Plant Item Number:	RLD-PJM-00005, RLD-PJM-00006, RLD-PJM-00007 & RLD-PJM-00008
Component Description	Pulse Jet Mixers

*The information below is provisional and envelopes operational duty for fatigue assessment. It is not to be used as operational data.*

Materials of Construction		SB 688 N08367			
Design Life		40 years			
Component Function and Life Cycle Description		This component is part of a mixing system. It repeatedly floods and empties. The action is caused by vacuum or air pressure being presented to the top nozzle. The surrounding parent vessel may contain any level of the fluid between the maximum operating level and the heel level. The PJM is subjected to buoyancy forces when immersed in the parent vessel contents. The vessel is in cyclic duty.			
Load Type		Min	Max	Number of Cycles	Comment
Design Pressure	psig	FV	135 $\triangle$	100 $\triangle$	Nominal assumption
Operating Pressure	psig	FV	14 $\triangle$	3.8E7 $\triangle$	Max. Operating
Operating Temperature	°F	59 $\triangle$	195 $\triangle$	NA	
Contents Specific Gravity		1.0 $\triangle$	1.0 $\triangle$	NA	
Contents Level	inch	Empty	Flooded	3.8E7 $\triangle$	Coincident with pressure cycles
Thrust	lbf	-262 $\triangle$	262	3.8E7 $\triangle$	See Note below
<b>Localized Features</b>					
Nozzles		As above		As above	
Air Inlet		As above		As above	
Delivery					
Supports		As above		As above with contents level changing coincident with pressure cycles.	

**Notes**

- **Cycle Increase:** The Seller must increase the numbers of operational cycles given above by 10% to account for commissioning duty unless otherwise noted.
- **CVs inside parent vessels shall have buoyancy effects considered. PJMs shall be similarly considered and also the liquid thrust effect. The PJM supports shall be designed to cycle between fully buoyant (PJM empty and parent vessel full) and fully loaded (PJM full and parent vessel empty) states. Thrust load shall be applied only to the fully buoyant state. Assume the parent vessel is full for 50% of the number of PJM cycles.**



**MECHANICAL SYSTEMS DATA SHEET: VESSEL**

**PLANT ITEM No.**  
24590-HLW-MV-RLD-VSL-00007

**Nozzle Loads** 

**Nozzle loads per 24590-WTP-3PS-MV00-T0001 Appendix A except for the following nozzles listed below per CCN 166594:**

Nozzle Number	Nozzle Size (In)	Orientation (V* / H**)	Load Case	Design Loads (Force in lbs, Moment in ft-lb)					
				Fx	Fy	Fz	Mx	My	Mz
N17	3	V	Weight	130	70	70	180	110	140
			Seismic	163	245	245	523	790	783
			Thermal	165	250	210	222	665	1080
N18	3	V	Weight	130	70	70	115	115	115
			Seismic	163	245	245	523	783	783
			Thermal	420	330	210	222	665	1270
N19	3	V	Weight	140	70	70	115	115	115
			Seismic	163	260	245	523	783	1320
			Thermal	190	210	210	222	665	665
N41	8	H	Weight	310	500	310	490	615	615
			Seismic	325	325	325	786	1180	1180
			Thermal	720	530	595	1480	1920	1920

**Notes for Nozzle Loads** 

\*V = vertical head nozzle - values are x = North/South, y = vertical, z = East/West (global coordinates), Vessel 0° defined as North  
 \*\*H = horizontal shell nozzle - values are per axes shown in 24590-WTP-3PS-MV00-T0001, Appendix A (local coordinates)  
 Nozzle loads shown for N17, N18, N19, & N41 are to be used in place of those specified in 24590-WTP-3PS-MV00-T0001 – do not apply any thermal reduction factors

**Table of Nozzle Connections** 

Internal vessel piping and nozzle design shall be compatible with the following external connection pipe size and pressure/temperature conditions outside the vessel:

Nozzle	Connecting Pipe Size	Design Pressure (psig)	Design Temperature (°F)
N01	2" - 40S	135/FV	113
N02	2" - 40S	135/FV	113
N03	2" - 40S	135/FV	113
N04	2" - 40S	135/FV	113
N05	1" - 40S	135/FV	113
N06	1" - 40S	135/FV	113
N07	1-1/2" - 40S	15	165
N08	1-1/2" - 40S	15	165
N09	1" - 40S	110	200
N10	2" - 40S	110	200
N11	2" - 40S	109	358
N12	2" - 40S	109	358
N13	2" - 40S	109	358
N14	CAPPED	N/A	N/A
N15	2" - 40S	109	358
N16	2" - 40S	109	358



**MECHANICAL SYSTEMS DATA SHEET: VESSEL**

**PLANT ITEM No.**

**24590-HLW-MV-RLD-VSL-00007**

N17	3" - 40S	50	225
N18	3" - 40S	50	225
N19	3" - 40S	135	113
N20	1" - 40S	15	113
N21	1" - 40S	15	113
N22	2" - 40S	135	113
N23	2" - 40S	135	113
N24	DELETED	DELETED	DELETED
N25	DELETED	DELETED	DELETED
N26	2" - 40S	-14.7	200
N27	2" - 40S	109	358
N28	2" - 40S	109	358
N29	DELETED	DELETED	DELETED
N30	DELETED	DELETED	DELETED
N31	2" - 40S	109	358
N32	2" - 40S	109	358
N33	2" - 40S	109	358
N34	2" - 40S	109	358
N35	2" - 40S	109	358
N36	1-1/2" - 40S	15	165
N37	1-1/2" - 40S	15	165
N38	2" - 40S	109	358
N39	2" - 40S	109	358
N40	1-1/2" - 40S	0/FV	113
N41	8" - 10S	50	200
N42	1-1/2" - 40S	0/FV	113
N43	2" - 40S	110	200
N44	1" - 40S	110	200
N45	DELETED	DELETED	DELETED
N46	DELETED	DELETED	DELETED
N47	1/2" - 80S	15	113
N48	1-1/2" - 80S	109	358



# EQUIPMENT QUALIFICATION DATASHEET (EQD)

24590-HLW-MVD-RLD-00005 Rev.: 7

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Equipment Identification			
Component Tag Number	24590-HLW-MV-RLD-VSL-00007	Safety Classification	<input type="checkbox"/> SC <input checked="" type="checkbox"/> SS <input type="checkbox"/> APC <input type="checkbox"/> SDC <input type="checkbox"/> SDS <input type="checkbox"/> RRC
Manufacturer / Supplier	Bendalls		
Requisition Number	24590-QL-MRG-MVA0-00002		
Model	N/A	Seismic Category	<input type="checkbox"/> SC-I <input checked="" type="checkbox"/> SC-II <input type="checkbox"/> SC-III <input type="checkbox"/> SC-IV
Description (Include descriptive text [e.g., location, elevation])	Radioactive Liquid Waste Disposal System (RLD) Acidic Waste Vessel located in Room H-B014, Elev. (-) 21'-00", Column lines J/11.5		
Safety Function(s)	The safety function of the vessel is to provide primary confinement of process fluids, reference SED 24590-WTP-SED-ENS-03-002-04, Rev 2b, Section 4.4.16		
Seismic Safety Function	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Room Number(s): H-B014	
Maintenance Accessible	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Method of Maintenance Access: <input type="checkbox"/> Remote <input type="checkbox"/> Hands On <input checked="" type="checkbox"/> None	
Seismic Operability Requirements:	<input checked="" type="checkbox"/> During Seismic Event <input checked="" type="checkbox"/> After Seismic Event		
ITS Equipment Type:	<input checked="" type="checkbox"/> Passive Mechanical <input type="checkbox"/> Active Mechanical <input type="checkbox"/> Electrical		

Equipment Environmental Qualification (EEQ)					
Environment <input type="checkbox"/> Mild <input checked="" type="checkbox"/> Harsh	Hi Rad Service <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Design Life (yrs) <input checked="" type="checkbox"/> 40 <input type="checkbox"/> Other _____			
Contamination Class: <u>C5</u>					
Radiation Class: <u>R5</u>					
Parameter Type/Units	Parameter Value	Time Duration (number)	Time Units	WTP Document Number (BUYER)	Submittal Number (SELLER)
<b>Normal</b>					
Normal High Temperature (°F)	113	40	yrs	24590-HLW-U0D-W16T-00001	Note 20
Normal Low Temperature (°F)	59	40	yrs	24590-HLW-U0D-W16T-00001	Note 20
Normal High Relative Humidity (%RH)	100	40	yrs	24590-HLW-U0D-W16T-00001	Note 20
Normal Low Relative Humidity (%RH)	5	40	yrs	24590-HLW-U0D-W16T-00001	Note 20
Normal High Pressure (in.-w.g.)	0 (Note 21)	40	yrs	24590-HLW-U0D-W16T-00001	Note 20
Normal Low Pressure (in.-w.g.)	- 1.1 (Note 21)	40	yrs	24590-HLW-U0D-W16T-00001	Note 20
Normal Radiation Dose Rate (mR/hr)	105000	40	yrs	24590-HLW-U0D-W16T-00001	Note 20
Vibration Magnitude (g)	N/A	N/A	N/A	N/A	N/A
Vibration Frequency (Hz)	N/A	N/A	N/A	N/A	N/A
Additional Normal Information:	N/A				



# EQUIPMENT QUALIFICATION DATASHEET (EQD)

24590-HLW-MVD-RLD-00005 Rev.: 7

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## Equipment Environmental Qualification (EEQ) (continued)

Parameter Type/Units	Parameter Value	Time Duration (number)	Time units	WTP Document Number (BUYER)	Submittal Number (SELLER)
<b>Abnormal</b>					
Abnormal High Temperature (°F)	125	8	hrs/yr	24590-HLW-UOD-W16T-00001	Note 20
Abnormal Low Temperature (°F)	40	8	hrs/yr	24590-HLW-UOD-W16T-00001	Note 20
Abnormal High Relative Humidity (%RH)	100	8	hrs/yr	24590-HLW-UOD-W16T-00001	Note 20
Abnormal Low Relative Humidity (%RH)	8	438	hrs/yr	24590-HLW-UOD-W16T-00001	Note 20
Abnormal High Pressure (in.-w.g.)	4 (Note 21)	8	hrs/yr	24590-HLW-UOD-W16T-00001	Note 20
Abnormal Low Pressure (in.-w.g.)	- 6.7 (Note 21)	8	hrs/yr	24590-HLW-UOD-W16T-00001	Note 20
Abnormal Radiation Dose Rate (mR/hr)	105000	0	N/A	24590-HLW-UOD-W16T-00001	Note 20
Wet Sprinkler System Present	No	N/A	N/A	24590-HLW-UOD-W16T-00001	N/A
Additional Abnormal Information	N/A				
<b>Design Basis Events (DBE)</b>					
DBE High Temperature (°F)	126	1000	hrs	24590-HLW-UOD-W16T-00001	Note 20
DBE Low Temperature (°F)	40	1000	hrs	24590-HLW-UOD-W16T-00001	Note 20
DBE High Relative Humidity (%RH)	100	482	hrs/yr	24590-HLW-UOD-W16T-00001	Note 20
DBE Low Relative Humidity (%RH)	8	1000	hrs/yr	24590-HLW-UOD-W16T-00001	Note 20
DBE High Pressure (in.-w.g.)	4 (Note 21)	1000	hrs	24590-HLW-UOD-W16T-00001	Note 20
DBE Low Pressure (in.-w.g.)	- 6.7 (Note 21)	1000	hrs	24590-HLW-UOD-W16T-00001	Note 20
DBE Radiation Dose Rate (mR/hr)	105000	0	N/A	24590-HLW-UOD-W16T-00001	Note 20
Flood Height (ft)	22	1000	hrs	24590-HLW-UOD-W16T-00001	Note 20
Submergence (ft)	1' - 1-1/2"	1000	hrs	24590-HLW-UOD-W16T-00001	Note 20
Chemical/Spray Exposure	Yes	1000	hrs	24590-HLW-UOD-W16T-00001	Note 20
Additional DBE Information	N/A				



# EQUIPMENT QUALIFICATION DATASHEET (EQD)

24590-HLW-MVD-RLD-00005 Rev.: 7

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### DBE Chemical Exposure Details

DBE Chemical Types/Concentrations	Nitric Acid (1M) Sodium Hydroxide (5M)
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### Interfaces (Electrical)

Power Supply Voltage (VAC, VDC)	N/A
Power Supply Frequency (Hz)	N/A
Power Connection Method	N/A
I/O Signals to/from Equipment	N/A
I/O Connection Method	N/A

### Interfaces (Mechanical)

Mounting Configuration (orientation)	Vertical Mounted , Skirt, Located at -21'-0" in the High Level Waste Facility Column Lines J/11.5
Mounting Method (bolts, welds, etc.)	Bolted Anchor Chairs
Auxiliary Devices	Charge Vessels RLD-VSL-00015A, RLD-VSL-00015B, Pulse Jet Mixers RLD-PJM-00005, RLD-PJM-00006, RLD-PJM-00007, RLD-PJM-00008, Reverse Flow Diverters RLD-RFD-00162A, RLD-RFD-00162B; all devices are internal to the parent vessel.

### Equipment Seismic Qualification (ESQ)

Parameter	Title	Reference/Document Number	Version / Revision	Remarks
WTP Seismic Design Specification (BUYER)	Engineering Specification for Seismic Qualification of Seismic Category I/II Equipment and Tanks, Engineering Specification for Seismic Qualification Criteria for Pressure Vessels	24590-WTP-3PS-SS90-T0001	Rev 2	N/A
		24590-WTP-3PS-MV00-T0002	Rev 2	N/A
Specified Seismic Load (BUYER)	HLW Vitrification Building Seismic Analysis, In-Structure Response Spectra (ISRS)	24590-HLW-S0C-S15T-00009	00E	CCN 138092
Design Seismic Load (SELLER)	N/A	N/A	N/A	BNI to issue seismic calculation.
Qualification Method (SELLER)	N/A	N/A	N/A	Dynamic analysis utilizing response spectra curves to be issued as a BNI calculation.
Qualification Report Number (SELLER)	N/A	N/A	N/A	BNI to provide calculation to Seller.
Submittal Number (BUYER)	TBD	TBD	TBD	BNI to provide calculation to Seller.



# EQUIPMENT QUALIFICATION DATASHEET (EQD)

24590-HLW-MVD-RLD-00005 Rev.: 7

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### Notes and Additional Information

Note 20: BNI (BUYER) shall perform Equipment Environmental Qualification in accordance with 24590-WTP-DC-ENG-06-001, Design Criteria for Equipment Seismic and Environmental Qualification.

Note 21: Where pressure is given in inches of water column (in-w.c.) in the source document, it is generally assumed that this is in reference to atmospheric pressure and is therefore equivalent to inches of water gage (in-w.g.)

Safety Screening / Evaluation Required? If yes per 24590-WTP-GPP-SREG-002, E&NS signature required below	<b>X</b>	<b>Yes</b>		<b>No</b>
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### Approval

Rev	Description	System Engineer	Vessel Engineer	Checked	Reviewed	E&NS	Approved	Date
0	Issued for Purchase	R. Rao	S.L. Lee	M.Wright/ C. Slater	N/A	N/A	M.Hoffmann	09/03/03
1	Added black cell requirement	M. Grindel	M. Bala	C. Slater/M. Wright	N/A	N/A	C. Morley	02/05/04
2	Revised as Noted, Re-issued for Purchase	M. Grindel	S.L. Lee	T. Galioto/ S. Atri/ C.Slater	N/A	N/A	M. Hoffmann	06/03/04
3	Revised as Noted & added notes 9 - 13	T. Galioto	S.L. Lee	D. Adler/ C. Slater	S. Cross / E. Isem	N/A	M. Hoffmann	09/23/04
4	Revised to delete note 9	T. Galioto	S.L. Lee	C. Slater	S. Cross / E. Isem	N/A	M. Hoffmann	11/18/04
5	Revised as Noted & added note 14	S. Cross	S.L. Lee	C. Slater / R. Peters	E. Isem / D Adler	N/A	M. Hoffmann	04/18/05
6	Revised per Note 15 on sheet 2	Rich Peters	S.L. Lee	Ray Peters P. Polani	D. Adler / C. Slater	N/A	J. Julyk	10/28/05
7	Revised per Note 19 on sheet 2	R. Gibbs <i>R. Gibbs</i>	R. Peters <i>R. Peters</i>	M. Seed <i>M. Seed</i>	C. Figley <i>C. Figley</i>	C. Meng <i>C. Meng</i>	J. Julyk <i>J. Julyk</i>	8/13/08



R10934763



**MECHANICAL SYSTEMS DATA SHEET: VESSEL**

PLANT ITEM No.  
**24590-HLW-MV-RLD-VSL-00008**

Project:	<b>RPP-WTP</b>	P&ID:	<b>24590-HLW-M6-RLD-00002</b>
Project No:	<b>24590</b>	Calculation:	<b>24590-HLW-M6C-RLD-00005; 24590-HLW-MVC-11-00001; 24590-HLW-MVC-30-00001</b>
Project Site:	<b>Hanford</b>	Vessel Drawing	<b>24590-HLW-MV-RLD-00004</b>
Description:	<b>Plant Wash and Drains Vessel RLD-VSL-00008</b>		

**Reference Data**

Charge Vessels (Tag Numbers)	<b>RLD-VSL-00016A, RLD-VSL-00016B</b>
Pulsejet Mixers / Agitators (Tag Numbers)	<b>RLD-PJM-00001, RLD-PJM-00002, RLD-PJM-00003, RLD-PJM-00004</b>
RFDs/Pumps (Tag Numbers)	<b>RLD-RFD-00163A, RLD-RFD-00163B</b>

**Design Data**

Quality Level	<b>Q (See Note 14) 7</b>	Fabrication Specs	<b>24590-WTP-3PS-MV00-T0001</b>		
Seismic Category	<b>SC-1</b>	Design Code	<b>ASME VIII Div 1</b>		
Service/Contents	<b>Radioactive Liquid</b>	Code Stamp	<b>Yes</b>		
Design Specific Gravity	<b>1.07 7</b>	NB Registration	<b>Yes</b>		
Maximum Operating Volume	gal <b>10,628 (Note 3)</b>	Weights (lbs)	<b>Empty</b>	<b>Operating</b>	<b>Test</b>
Total Volume	gal <b>13,774 (Note 3)</b>	Estimated	<b>43,000</b>	<b>150,800</b>	<b>158,600</b>
Environmental Qualification	<b>7 See attached EQ Section</b>				

Inside Diameter	Inch	<b>156</b>			Wind Design	<b>Not Required</b>
Length/Height (TL-TL)	Inch	<b>117</b>			Snow Design	<b>Not Required</b>
		Vessel Operating	Vessel Design	Coil/Jacket Design	Seismic Design	<b>24590-WTP-3PS-MV00-T0002 24590-WTP-3PS-SS90-T0001</b>
Internal Pressure	psig	<b>Atm</b>	<b>15</b>	<b>None</b>		
External Pressure	psig	<b>0.83 7</b>	<b>FV 7</b>	<b>None</b>	Postweld Heat Treat	<b>Not Required</b>
Temperature	°F	<b>200 7</b>	<b>225 7 (Note 13)</b>	<b>None</b>	Corrosion Allowance	Inch <b>0.04 (Note 10 &amp; 11) 7</b>
Min. Design Metal Temp.	°F	<b>40</b>				

**Materials of Construction**

Component	Material	Minimum Thickness / Size	Containment
Top Head	<b>SA 240 316 (Note 2)</b>	<b>See Drawing</b>	<b>Auxiliary (see note 4)</b>
Shell	<b>SA 240 316 (Note 2)</b>	<b>See Drawing</b>	<b>Primary (see note 4)</b>
Bottom Head	<b>SA 240 316 (Note 2)</b>	<b>See Drawing</b>	<b>Primary (see note 4)</b>
Support	<b>SA 240 304 (Note 2)</b>	<b>See Drawing</b>	<b>N/A</b>
Jacket/Coils/Half-Pipe Jacket	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
Internals	<b>SA 240 316 (Note 2)</b>	<b>See Drawing</b>	<b>Thermocouples Primary (see note 4)</b>
Pipe Seamless	<b>SA 312 TP316 (Note 2) / SB 622 N06022 (Note 8)</b>	<b>See Drawing</b>	<b>See Notes 1 and 4</b>
Forgings/ Bar stock	<b>SA 182 F316 (Note 2)</b>	<b>See Drawing</b>	<b>N/A</b>
Gaskets	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
Bolting	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>

**Miscellaneous Data**

Orientation	<b>Vertical</b>	Support Type	<b>Skirt</b>
Insulation Function	<b>Not Applicable</b>	Insulation Material	<b>Not Applicable</b>
Insulation Thickness (inch)	<b>Not Applicable</b>	Internal Finish	<b>Descaled as laid</b>
		External Finish	<b>Descaled as laid</b>

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.

**MECHANICAL SYSTEMS DATA SHEET: VESSEL**

PLANT ITEM No.

24590-HLW-MV-RLD-VSL-00008

**Notes/Remarks**

\* To be determined by the vendor.

**Note 1: Nozzle necks below the high operating liquid level are Primary, others Auxillary.**

**Note 2: Material shall have Carbon Content of 0.030% Max. Non-welded specialty items are excluded from this requirement.**

**Note 3: Vessel volumes are approximate and do not account for manufacturing tolerances, nozzles, and displacement of internals.**

**Note 4: All welds forming part of the primary and auxiliary containment including nozzle attachment welds shall be subjected to 100% volumetric examination.**

**Note 5: This vessel is located in a Black Cell.**

**Note 6: Contents of this document are Dangerous Waste Permit affecting.**

**Note 7: As a minimum, all welds on internal components and supports shall be dye-penetrant tested.**

**Note 8: Use SB 622 N06022 material for Ejectors (by others) and Ejector Piping.**

**Note 9: Deleted as per Report No. 24590-WTP-RPT-M-04-0007 Rev. 0 dated 29 Oct 2004.**

**Note 10: Seller shall ensure that an additional 0.10" is available for erosion in the bottom head and shall report the minimum thickness required for all specified loading conditions, exclusive of erosion and corrosion allowances.**

**Note 11: Seller shall ensure that an additional 0.05" is available for erosion in the interior conical surface of the pulse jet mixers.**

**Note 12: This revision of the data sheet incorporates SDDR No. 24590-WTP-SDDR-PROC-04-00670 by reference.**

**Note 13: Required data for thermal stress analysis for the nozzle exposed to higher temperatures.**

- Cell ambient temperature = 112 °F
- Headspace temperature = Operating temperature = 140 °F
- Ambient and headspace natural convection heat xfer coefficients = 1.63 BTU/h-ft<sup>2</sup>-°F
- Hot ejector transfer into vessel (Ejectors RLD-EJCTR-00007, RLD-EJCTR-00018A/B, & RLD-EJCTR-00038):
  - a. Only one of the hot ejectors will be used at a time during transfers.
  - b. Transfer frequency = 1 transfer/30 days for 3.6 hrs; steam mass flow rate = 1192 lb/hr

**Note 14: Vessel to be designed, fabricated, and tested to L-1 requirements defined in 24590-WTP-3PS-MV00-T0001.**

**Note 15: All hydrodynamic and overblow loads shall be included with the seismic analysis as per this data sheet.**

**Note 16: 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.**

**Note 17: The vessel design shall account for bouyancy effects due to the room flood height of 22 ft. assuming the vessel is empty (worst case).**

**Note 18: Revision 7 revises quality level, design specific gravity, operating & design temperature, operating external pressure, corrosion allowance, added Notes 14 - 18, revised cyclic data, notes under cyclic data for parent vessel, hydrodynamic info, added E&NS Safety Screen box, and added E&NS signature box. Added sections for MOB, revised Nozzle Loads, DOE Radioactive Materials Disclaimer (Note 16), Table of Nozzle Connections, and Equipment Qualification Datasheet.**

Seismic



Seismic Response Spectra curves: Figures 549, 550, and 552 from calculation 24590-HLW-S0C-S15T-00009 (See CCN 138092). Seismic analysis to be combined with operating conditions, single overblow, and any sloshing loads imposed. Sloshing loads on vessel internals are considered per ASCE 4-98. Analysis to consider worst case seismic loads on the vessel proper and on the vessel internals. The response curves and sloshing loads will be provided via the Material Requisition.



**MECHANICAL SYSTEMS DATA SHEET: VESSEL**

PLANT ITEM No.  
24590-HLW-MV-RLD-VSL-00008

**Equipment Cyclic Data Sheet**

Component Plant Item Number:	24590-HLW-MV-RLD-VSL-00008
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		See Calculation 24590-HLW-MVC-11-00001. 			
Load Type		Min	Max	Number of Cycles	Comment
Design Pressure	psig	FV	15	10	Nominal assumption
Operating Pressure	psig	-6.0 	0 	14,600	Maximum Operating Case 1 
		-0.83	-0.18	3.8E7 	Maximum Operating Case 2
Operating Temperature	°F	59	200 	14,600 	One cycle per day.
Contents Specific Gravity		0.965 	1.07 	14,600	
Contents Level	inch	Empty	Flooded	14,600 	One cycle per day
<b>Localized Features</b>					
Nozzles		Within 50°F of operating temperature range except as noted below		Normal operations will cause Superheated Steam at 358 °F design temperature to enter the vessel through the transfer ejectors (Nozzles N23, N24, N31, N41) once per day and through the emptying ejectors (Nozzles N14, N15, N21, N22) once per month.	
Air Inlet					
Delivery					
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.
- **Perform fatigue assessment/analysis** for N14, N15, N21, N22, N23, N24, N25, N31, N33, N35, N36, N37, N38, N41, N44, N50, N51, N59, N60 and associated piping over 40 years from 0 psig at 59 °F to the pressure and temperature indicated in the Table of Nozzle Connections, for 480 pressure/temperature cycles (pressure cycles shall coincide with temperature cycles). 



**MECHANICAL SYSTEMS DATA SHEET: VESSEL**

PLANT ITEM No.  
24590-HLW-MV-RLD-VSL-00008

**Hydrodynamic Loading - Pulse Jet Mixers (PJMs)**



Pulse Jet Mixers (PJMs) are designed to blow the fluid in the vessel in the form of a jet that induces agitation and mixing in the fluid. The mixing is required for various reasons: to enhance the heat transfer from the fluid to the cooling jackets and to release hydrogen from the fluid are examples. PJMs work on pressurized air to drive the fluid out of the PJM and into the vessel, this is called the "drive" phase. After the drive phase, the PJM is refilled with the vessel fluid via a suction applied to the PJM internals. The end of the drive phase is controlled such that the PJM does not empty completely. However, a condition can exist in which the PJM continues to blow during the drive phase, ejecting air after all the fluid is expelled. This condition is called a PJM overblow. This can occur with a single PJM overblowing or if more than one PJM overblows, it is called Multiple Overblow (MOB). Fluid motion during singleoverblow or MOB in a vessel causes hydrodynamic loads on the internal vessel components in the form of increased pressure. This fluid motion is cyclic based on the number of drive phases imposed by the PJMs. There are several types of hydrodynamic loads that the vessel internals will be designed for: 1) Normal operations, 2) Single Overblow, and 3) Multiple Overblow. The vessel internals shall be designed and supported for all three of these load conditions and this load combination is also to be assumed to act concurrently with seismic loads. The following tables and graphs indicate the required pressure/forces to apply to the vessel internals along with the number of cycles for each condition.

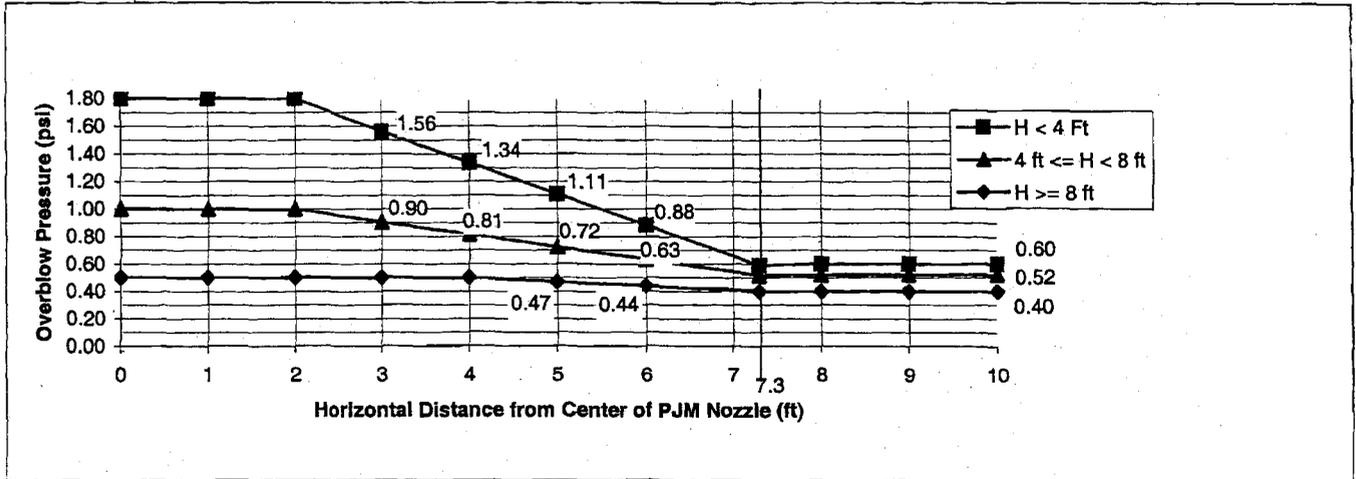
**Normal Operations Loading - PJMs**

Pulse jet mixers (PJM) impose a cyclical hydrodynamic load on all internal components. The components shall be designed and supported against these hydrodynamic loads due to normal operations. The following table indicates the hydrodynamic pressure for normal conditions at ranges of elevations in the vessel and the number of design cycles for this condition. The hydrodynamic forces cycle between the indicated pressure ranges applied across the projected area of the component. Positive hydrodynamic forces act in the radial, outward direction and the vertical, upward direction. Seller shall apply the radial load simultaneously in the radial direction and normal to the radial direction in the horizontal plane. This load combination acts concurrently with seismic loads for normal PJM operations.

Condition	Hydrodynamic Pressure Range, psi				Number of Cycles
	Between PJM Center and Vessel Wall		Between Vessel Center and PJM Center		
	Radial	Vertical	Radial	Vertical	
Normal Operation	-0.80 to 0.80	-0.80 to 0.40	-0.20 to 0.30	-0.20 to 0.25	4.1E7

**Single Overblow - PJMs**

Single Overblow loads vary as a function of the distance from the center of the overblowing pulse jet mixer nozzle and the elevation 'H' above the overblowing pulse jet mixer nozzle, up to the overflow level, as plotted in the form of overblow pressures:



For all vessel internal components other than the overblowing pulse jet mixer, the overblow forces shall be applied a) in the vertical upward direction, and b) in the horizontal direction, radiating from the centerline of the overblowing pulse jet mixer. For the overblowing pulse jet mixer, the force shall be applied in the vertical upward direction only. The overblow force on all components, including structures and supports, shall be calculated by applying the overblow pressure at the location of the nearest surface of the component and to the projected area of the component, facing the appropriate direction. The normal force component, specified for the normal pulse jet mixer operation condition, is not applicable to the overblow condition. Any single pulse jet mixer may overblow 1000 cycles. Reference CCN 125541 dated 07/27/05.

**Notes**

- Cycle increase: The Seller must increase the numbers of operational cycles given above by 10% to account for commissioning duty unless otherwise noted.



**MECHANICAL SYSTEMS DATA SHEET: VESSEL**

PLANT ITEM No.  
24590-HLW-MV-RLD-VSL-00008

**Multiple Overblow Loading- PJMs  $\triangle$**

Multiple PJM Overblow (MOB) loads vary as a function of the horizontal distance from the center of the overblowing pulse jet mixer nozzle and the elevation 'H' above the overblowing pulse jet mixer nozzle up to the overflow level as plotted in the form of overblow pressures. Multiple application of the Single Overblow loading forms the basis for the MOB loads. Usage of the above Single Overblow graph along with Report # 24590-WTP-RPT-M-06-003 (Summary Report: Hydrodynamic Loads for PJM Multiple Overblow Condition) is required to determine the forces on each vessel internal component (targets) due to MOB. (Note: this report will be provided in the Material Requisition Package). This load condition does not act concurrently with seismic loads, but will be included with other normal operating load conditions. The number of cycles applied to MOB is 400 cycles.

**Equipment Cyclic Data Sheet - Charge Vessels**

Component Plant Item Number:	RLD-VSL-00016A, RLD-VSL-00016B
Component Description	Charge Vessels

*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 component is part of a pumping system. It repeatedly floods and empties. The action is caused by vacuum or air pressure being presented to the top nozzle. The surrounding parent vessel may contain any level of the fluid between the maximum operating level and the heel level. The charge vessel is subjected to buoyancy forces when immersed in the parent vessel contents. The vessel is in cyclic duty.

Load Type	Min	Max	Number of Cycles	Comment
Design Pressure      psig	FV	135 $\triangle$	100 $\triangle$	Nominal assumption
Operating Pressure      psig	FV	See comment $\triangle$	14,600 $\triangle$	RLD-RFD-00163A maximum operating pressure is 60 psig & RLD-RFD-00163B maximum operating pressure is 65 psig $\triangle$
Operating Temperature      °F	59	200 $\triangle$	14,600 $\triangle$	
Contents Specific Gravity	0.965 $\triangle$	1.07 $\triangle$	14,600 $\triangle$	
Contents Level      inch	Empty	Flooded	14,600	Coincident with pressure cycles
<b>Localized Features</b>				
Nozzles	As above		As above	
Air Inlet	As above		As above	
Delivery				
Supports	As above		As above with contents level changing coincident with pressure cycles.	

**Notes**

- **Cycle Increase:** The Seller must increase the numbers of operational cycles given above by 10% to account for commissioning duty unless otherwise noted.
- CVs inside parent vessels shall have buoyancy effects considered. PJMs shall be similarly considered and also the liquid thrust effect.



**MECHANICAL SYSTEMS DATA SHEET: VESSEL**

PLANT ITEM No.  
24590-HLW-MV-RLD-VSL-00008

**Equipment Cyclic Data Sheet - PJMs**

Component Plant Item Number:	RLD-PJM-00001, RLD-PJM-00002, RLD-PJM-00003 & RLD-PJM-00004
Component Description	Pulse Jet Mixers

*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	<i>This component is part of a mixing system. It repeatedly floods and empties. The action is caused by vacuum or air pressure being presented to the top nozzle. The surrounding parent vessel may contain any level of the fluid between the maximum operating level and the heel level. The PJM is subjected to buoyancy forces when immersed in the parent vessel contents. The vessel is in cyclic duty.</i>

Load Type	Min	Max	Number of Cycles	Comment
Design Pressure    psig	FV	135	100	Nominal assumption
Operating Pressure    psig	FV	11	4.1E7	PJM continuous agitation with cycle time of 30 sec.
Operating Temperature    °F	59	200	NA	
Contents Specific Gravity	0.965	1.07	NA	
Contents Level    inch	Empty	Flooded	4.1E7	Coincident with pressure cycles
Thrust    lbf	-262	262	4.1E7	See Note below

**Localized Features**

Nozzles	As above	As above
Air Inlet	As above	As above including pressure cycles
Delivery		
Supports	As above	As above with contents level changing coincident with pressure cycles.

**Notes**

- **Cycle increase:** The Seller must increase the numbers of operational cycles given above by 10% to account for commissioning duty unless otherwise noted.
- **CVs inside parent vessels shall have buoyancy effects considered.** PJMs shall be similarly considered and also the liquid thrust effect.
- **The PJM supports shall be designed to cycle between fully buoyant (PJM empty and parent vessel full) and fully loaded (PJM full and parent vessel empty) states.** Thrust load shall be applied only to the fully buoyant state. Assume the parent vessel is full for 50% of the number of PJM cycles.



**MECHANICAL SYSTEMS DATA SHEET: VESSEL**

PLANT ITEM No.  
24590-HLW-MV-RLD-VSL-00008

Nozzle Loads  $\triangle$

Nozzle loads per 24590-WTP-3PS-MV00-T0001 Appendix A except for the following nozzles listed below per CCN 166594:

Nozzle Number	Nozzle Size (in)	Orientation (V* / H**)	Load Case	Design Loads (Force in lbs, Moment in ft-lb)					
				Fx	Fy	Fz	Mx	My	Mz
N08	8	H	Weight	310	500	310	490	615	615
			Seismic	325	325	325	790	1180	1180
			Thermal	728	530	595	1426	1920	1920
N10	3	V	Weight	224	70	70	155	100	100
			Seismic	70	106	106	207	310	310
			Thermal	248	113	113	165	333	368
N16	3	V	Weight	110	70	70	155	219	170
			Seismic	70	108	137	246	645	591
			Thermal	254	123	135	165	557	345
N17	4	V	Weight	212	115	115	285	180	425
			Seismic	120	183	183	390	587	587
			Thermal	175	195	569	1350	1095	630
N36	2	V	Weight	55	35	35	42	26	26
			Seismic	70	105	105	155	235	270
			Thermal	100	115	142	169	335	335
N37	2	V	Weight	69	35	35	42	26	26
			Seismic	70	105	105	155	235	235
			Thermal	100	115	115	278	335	335
N38	4	V	Weight	190	115	115	285	180	180
			Seismic	120	304	183	476	648	1118
			Thermal	303	195	195	478	630	675
N42	8	H	Weight	310	1100	310	490	615	1650
			Seismic	325	690	325	790	1180	1180
			Thermal	296	265	298	800	800	800
N43	3	V	Weight	110	70	70	155	104	100
			Seismic	70	108	125	207	310	310
			Thermal	113	113	113	165	333	333
N44	3	V	Weight	159	70	70	155	100	100
			Seismic	78	108	108	207	510	310
			Thermal	320	153	113	165	334	857
N49	3	V	Weight	224	70	70	155	100	100
			Seismic	72	108	108	207	310	310
			Thermal	552	113	136	165	748	333
N50	2	V	Weight	58	35	35	42	26	26
			Seismic	70	105	105	155	235	235
			Thermal	100	115	115	169	335	335



**MECHANICAL SYSTEMS DATA SHEET: VESSEL**

PLANT ITEM No.  
24590-HLW-MV-RLD-VSL-00008

Nozzle Number	Nozzle Size (in)	Orientation (V* / H**)	Load Case	Design Loads (Force in lbs, Moment in ft-lb)					
				Fx	Fy	Fz	Mx	My	Mz
N51	2	V	Weight	71	35	35	42	26	26
			Seismic	70	105	105	155	235	235
			Thermal	100	115	115	169	335	335
N53	4	V	Weight	185	115	115	285	180	180
			Seismic	120	183	183	441	587	587
			Thermal	175	195	195	315	630	630
N54	3	V	Weight	173	70	70	155	100	100
			Seismic	101	108	188	207	1156	310
			Thermal	116	131	113	322	333	683

**Notes for Nozzle Loads** 

\*V = vertical head nozzle - values are x = North/South, y = vertical, z = East/West (global coordinates), Vessel 0° defined as North  
 \*\*H = horizontal shell nozzle - values are per axes shown in 24590-WTP-3PS-MV00-T0001, Appendix A (local coordinates)  
 Nozzle loads shown in table above are to be used in place of those specified in 24590-WTP-3PS-MV00-T0001 – do not apply any thermal reduction factors.

**Table of Nozzle Connections** 

Internal vessel piping and nozzle design shall be compatible with the following external connection pipe size and pressure/temperature conditions outside the vessel:

Nozzle	Connecting Pipe Size	Design Pressure (psig)	Design Temperature (°F)
N01	2" - 40S	135/FV	113
N02	2" - 40S	135/FV	113
N03	2" - 40S	135/FV	113
N04	2" - 40S	135/FV	113
N05	1" - 40S	135/FV	113
N06	1" - 40S	135/FV	113
N07	2" - 40S	50	113
N08	8" - 10S	50	200
N09	DELETED	DELETED	DELETED
N10	3" - 40S	109	343
N11	CAPPED	N/A	N/A
N12	1-1/2" - 80S	109	358
N13	DELETED	DELETED	DELETED
N14	2" - 80S	109	358
N15	2" - 80S	109	358
N16	3" - 40S	50	225
N17	4" - 40S	50	225
N18	DELETED	DELETED	DELETED
N19	DELETED	DELETED	DELETED
N20	DELETED	DELETED	DELETED
N21	2" - 40S	109	358



**MECHANICAL SYSTEMS DATA SHEET: VESSEL**

**PLANT ITEM No.**

**24590-HLW-MV-RLD-VSL-00008**

N22	2" - 40S	109	358
N23	2" - 40S	109	358
N24	2" - 40S	109	358
N25	2" - 40S	109	358
N26	1" - 40S	110	200
N27	2" - 40S	110	200
N28	2" - 40S	135	113
N29	DELETED	DELETED	DELETED
N30	DELETED	DELETED	DELETED
N31	2" 80S	109	358
N32	1" - 40S	15	113
N33	1-1/2" - 80S	109	358
N34	DELETED	DELETED	DELETED
N35	2" - 40S	60	113
N36	2" - 80S	135	358
N37	2" - 80S	135	358
N38	4" - 40S	50	225
N39	2" - 40S	135	113
N40	DELETED	DELETED	DELETED
N41	2" - 80S	109	358
N42	8" - 10S	50	200
N43	3" - 40S	60	113
N44	3" - 40S	50	225
N45	2" - 40S	109	358
N46	2" - 40S	109	358
N47	1" - 40S	110	200
N48	2" - 40S	110	200
N49	3" - 40S	50	225
N50	2" - 80S	135	358
N51	2" - 80S	135	358
N52	2" - 40S	150	137
N53	4" - 40S	50	113
N54	3" - 40S	109	343
N55	1-1/2" - 40S	0/FV	113
N56	1-1/2" - 40S	0/FV	113
N57	2" - 40S	165	130
N58	2" - 40S	50	112
N59	1-1/2" - 80S	109	343
N60	1-1/2" - 80S	109	343
N61	DELETED	DELETED	DELETED
N62	DELETED	DELETED	DELETED
N63	1" - 40S	15	113
N64	1/2" - 40S	15	113



# EQUIPMENT QUALIFICATION DATASHEET (EQD)

24590-HLW-MVD-RLD-00007 Rev.: 7

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Equipment Identification			
Component Tag Number	24590-HLW-MV-RLD-VSL-00008	Safety Classification	<input checked="" type="checkbox"/> SC <input type="checkbox"/> SS <input checked="" type="checkbox"/> APC
Manufacturer / Supplier	Bendalls		<input type="checkbox"/> SDC <input type="checkbox"/> SDS <input type="checkbox"/> RRC
Requisition Number	24590-QL-MRG-MVA0-00002		
Model	custom	Seismic Category	<input checked="" type="checkbox"/> SC-I <input type="checkbox"/> SC-II <input type="checkbox"/> SC-III <input type="checkbox"/> SC-IV
Description (Include descriptive text [e.g., location, elevation])	Radioactive Liquid Waste Disposal System (RLD) Plant Wash and Drains Vessel located in Room H-B014, Elev. (-) 21'-00", Column lines H/11.5		
Safety Function(s)	Provide primary confinement (SC) of liquids, Reference Table 4A-1 of SED 24590-WTP-SED-ENS-03-002-04, Rev 2b. Pulse Jet Mixers (APC) to provide sufficient agitation to prevent hydrogen accumulation (Table 3A-9 of SED 24590-WTP-SED-ENS-03-002-04, Rev 2b).		
Seismic Safety Function	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Room Number(s):	H-B014
Maintenance Accessible	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Method of Maintenance Access:	<input type="checkbox"/> Remote <input type="checkbox"/> Hands On <input checked="" type="checkbox"/> None
Seismic Operability Requirements:	<input checked="" type="checkbox"/> During Seismic Event <input checked="" type="checkbox"/> After Seismic Event		
ITS Equipment Type:	<input checked="" type="checkbox"/> Passive Mechanical <input type="checkbox"/> Active Mechanical <input type="checkbox"/> Electrical		

Equipment Environmental Qualification (EEQ)					
Environment	<input type="checkbox"/> Mild <input checked="" type="checkbox"/> Harsh	Hi Rad Service	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Design Life (yrs)	<input checked="" type="checkbox"/> 40 <input type="checkbox"/> Other _____
Contamination Class:	C5				
Radiation Class:	R5				
Parameter Type/Units	Parameter Value	Time Duration (number)	Time Units	WTP Document Number (BUYER)	Submittal Number (SELLER)
<b>Normal</b>					
Normal High Temperature (°F)	113	40	yrs	24590-HLW-U0D-W16T-00001	Note 19
Normal Low Temperature (°F)	59	40	yrs	24590-HLW-U0D-W16T-00001	Note 19
Normal High Relative Humidity (%RH)	100	40	yrs	24590-HLW-U0D-W16T-00001	Note 19
Normal Low Relative Humidity (%RH)	5	40	yrs	24590-HLW-U0D-W16T-00001	Note 19
Normal High Pressure (in.-w.g.)	0 (Note 20)	40	yrs	24590-HLW-U0D-W16T-00001	Note 19
Normal Low Pressure (in.-w.g.)	- 1.1 (Note 20)	40	yrs	24590-HLW-U0D-W16T-00001	Note 19
Normal Radiation Dose Rate (mR/hr)	105000	40	yrs	24590-HLW-U0D-W16T-00001	Note 19
Vibration Magnitude (g)	N/A	N/A	N/A	N/A	N/A
Vibration Frequency (Hz)	N/A	N/A	N/A	N/A	N/A
Additional Normal Information:	N/A				



# EQUIPMENT QUALIFICATION DATASHEET (EQD)

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## Equipment Environmental Qualification (EEQ) (continued)

Parameter Type/Units	Parameter Value	Time Duration (number)	Time units	WTP Document Number (BUYER)	Submittal Number (SELLER)
<b>Abnormal</b>					
Abnormal High Temperature (°F)	125	8	hrs/yr	24590-HLW-U0D-W16T-00001	Note 19
Abnormal Low Temperature (°F)	40	8	hrs/yr	24590-HLW-U0D-W16T-00001	Note 19
Abnormal High Relative Humidity (%RH)	100	8	hrs/yr	24590-HLW-U0D-W16T-00001	Note 19
Abnormal Low Relative Humidity (%RH)	8	438	hrs/yr	24590-HLW-U0D-W16T-00001	Note 19
Abnormal High Pressure (in.-w.g.)	4 (Note 20)	8	hrs/yr	24590-HLW-U0D-W16T-00001	Note 19
Abnormal Low Pressure (in.-w.g.)	- 6.7 (Note 20)	8	hrs/yr	24590-HLW-U0D-W16T-00001	Note 19
Abnormal Radiation Dose Rate (mR/hr)	105000	0	N/A	24590-HLW-U0D-W16T-00001	Note 19
Wet Sprinkler System Present	No	N/A	N/A	24590-HLW-U0D-W16T-00001	N/A
Additional Abnormal Information	N/A				
<b>Design Basis Events (DBE)</b>					
DBE High Temperature (°F)	126	1000	hrs	24590-HLW-U0D-W16T-00001	Note 19
DBE Low Temperature (°F)	40	1000	hrs	24590-HLW-U0D-W16T-00001	Note 19
DBE High Relative Humidity (%RH)	100	482	hrs/yr	24590-HLW-U0D-W16T-00001	Note 19
DBE Low Relative Humidity (%RH)	8	1000	hrs/yr	24590-HLW-U0D-W16T-00001	Note 19
DBE High Pressure (in.-w.g.)	4 (Note 20)	1000	hrs	24590-HLW-U0D-W16T-00001	Note 19
DBE Low Pressure (in.-w.g.)	- 6.7 (Note 20)	1000	hrs	24590-HLW-U0D-W16T-00001	Note 19
DBE Radiation Dose Rate (mR/hr)	105000	0	N/A	24590-HLW-U0D-W16T-00001	Note 19
Flood Height (ft)	22	1000	hrs	24590-HLW-U0D-W16T-00001	Note 19
Submergence (ft)	3' - 9"	1000	hrs	24590-HLW-U0D-W16T-00001	Note 19
Chemical/Spray Exposure	Yes	1000	hrs	24590-HLW-U0D-W16T-00001	Note 19
Additional DBE Information	N/A				



# EQUIPMENT QUALIFICATION DATASHEET (EQD)

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### DBE Chemical Exposure Details

DBE Chemical Types/Concentrations	Nitric Acid (1M) Sodium Hydroxide (5M)
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### Interfaces (Electrical)

Power Supply Voltage (VAC, VDC)	N/A
Power Supply Frequency (Hz)	N/A
Power Connection Method	N/A
I/O Signals to/from Equipment	N/A
I/O Connection Method	N/A

### Interfaces (Mechanical)

Mounting Configuration (orientation)	Vertical Mounted , Skirt, Located at -21'-0" in the High Level Waste Facility Column Lines H/11.5
Mounting Method (bolts, welds, etc.)	Bolted Anchor Chairs
Auxiliary Devices	Charge Vessels RLD-VSL-00016A, RLD-VSL-00016B, Pulse Jet Mixers RLD-PJM-00001, RLD-PJM-00002, RLD-PJM-00003, RLD-PJM-00004, Reverse Flow Diverters RLD-RFD-00163A, RLD-RFD-00163B, all devices are internal to the parent vessel.

### Equipment Seismic Qualification (ESQ)

Parameter	Title	Reference/Document Number	Version / Revision	Remarks
WTP Seismic Design Specification (BUYER)	Engineering Specification for Seismic Qualification of Seismic Category I/II Equipment and Tanks, Engineering Specification for Seismic Qualification Criteria for Pressure Vessels	24590-WTP-3PS-SS90-T0001	Rev 2	N/A
		24590-WTP-3PS-MV00-T0002	Rev 2	N/A
Specified Seismic Load (BUYER)	HLW Vitrification Building Seismic Analysis, In-Structure Response Spectra (ISRS)	24590-HLW-S0C-S15T-00009	00E	CCN 138092
Design Seismic Load (SELLER)	N/A	N/A	N/A	BNI to issue seismic calculation.
Qualification Method (SELLER)	N/A	N/A	N/A	Dynamic analysis utilizing response spectra curves to be issued as a BNI calculation.
Qualification Report Number (SELLER)	N/A	N/A	N/A	BNI to provide calculation to Seller.
Submittal Number (BUYER)	TBD	TBD	TBD	BNI to provide calculation to Seller.



# EQUIPMENT QUALIFICATION DATASHEET (EQD)

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### Notes and Additional Information

Note 19: BNI (BUYER) shall perform Equipment Environmental Qualification in accordance with 24590-WTP-DC-ENG-06-001, Design Criteria for Equipment Seismic and Environmental Qualification.

Note 20: Where pressure is given in inches of water column (in-w.c.) in the source document, it is generally assumed that this is in reference to atmospheric pressure and is therefore equivalent to inches of water gage (in-w.g.)

Safety Screening / Evaluation Required? If yes per 24590-WTP-GPP-SREG-002, E&NS signature required below	<b>X</b>	<b>Yes</b>		<b>No</b>
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### Approval

Rev	Description	System Engineer	Vessel Engineer	Checked	Reviewed	E&NS	Approved	Date
0	Issued for Purchase	R. Rao	S.L. Lee	M.Wright/ C. Slater	N/A	N/A	M. Hoffmann	09/03/03
1	Added black cell requirement.	M. Grindel	M. Baia	C. Slater/ M. Wright	N/A	N/A	C. Morley	02/05/04
2	Revised as Noted, Re-issued for Purchase	M. Grindel	S.L. Lee	T.Galioto/ S. Atri/ C. Slater	N/A	N/A	M. Hoffmann	06/03/04
3	Revised as Noted & added notes 9 - 12	T.Galioto	S.L. Lee	D. Adler/ C. Slater	S. Cross / E. Isern	N/A	M. Hoffmann	09/23/04
4	Revised to delete note 9	T.Galioto	S.L. Lee	C. Slater	S. Cross / E. Isern	N/A	M. Hoffmann	11/18/04
5	Revised as Noted & added note 13	S. Cross	S.L. Lee	C. Slater / R. Peters	E. Isern / D Adler	N/A	M. Hoffmann	04/18/05
6	Revised per Note 14 on sheet 2	Rich Peters	S. L. Lee	P. Polani / Ray Peters	D. Adler / C. Slater	N/A	J. Julyk	10/28/05
7	Revised per Note 18 on sheet 2	R. Gibbs <i>R. Gibbs</i>	R. Peters <i>RAY PETERS</i>	M. Seed <i>M Seed</i>	C. Figley <i>C Figley</i>	C. Meng <i>C Meng</i>	J. Julyk <i>J Julyk</i>	8/13/08



# MECHANICAL SYSTEMS DATA SHEET: VESSEL

PLANT ITEM No.  
24590-HLW-MV-RLD-VSL-00002

R10845596

Project	<b>RPP-WTP</b>	P&ID	<b>24590-HLW-M6-RLD-00014</b>	<b>ISSUED BY</b> <b>RPP-WTP PDC</b>
Project No	<b>24590</b>	Process Data Sheet	<b>24590-HLW-MVD-RLD-00003</b>	
Project Site	<b>Hanford</b>	Vessel Drawing	<b>24590-HLW-MV-RLD-00002</b>	
		Calculation	<b>24590-HLW-M6C-RLD-00004</b>	
Description	<b>HLW Offgas Drains Collection Vessel RLD-VSL-00002</b>			

### Reference Data

Charge Vessels (Tag Numbers)	<b>None</b>
Pulsejet Mixers / Agitators (Tag Numbers)	<b>None</b>
RFDs/Pumps (Tag Numbers)	<b>None</b>

### Design Data

Quality Level	<b>CM</b>	Fabrication Specs	<b>24590-WTP-3PS-MV00-T0001</b>		
Seismic Category	<b>SC-III</b>	Design Code	<b>ASME VIII Div 1</b>		
Service/Contents	<b>Radioactive Liquid</b>	Code Stamp	<b>Yes</b>		
Design Specific Gravity	<b>1.0</b>	NB Registration	<b>Yes</b>		
Operating Volume	gal <b>260</b>	Weights (lbs)	Empty	Operating	Test
Total Volume	gal <b>334</b>	Estimated	<b>1,200</b>	<b>3,700</b>	<b>4,060</b>
Environmental Qualification	<b>NIA</b>				

Inside Diameter	inch	<b>42</b>	Wind Design	<b>Not Required</b>		
Length/Height (TL-TL)	inch	<b>48</b>	Snow Design	<b>Not Required</b>		
		Vessel Operating	Vessel Design	Coil/Jacket Design	Seismic Design	<b>24590-WTP-3PS-MV00-T0002</b> <b>24590-WTP-3PS-FB01-T0001</b>
Internal Pressure	psig	<b>0</b>	<b>15</b>		Mounting Elevation	<b>-21' (Relative to Grade)</b> <span style="float: right;">△ 4</span>
External Pressure	psig	<b>0</b>	<b>FV</b>		Postweld Heat Treat	<b>Not Required</b>
Temperature	°F	<b>141</b>	<b>167</b>		Corrosion Allowance	inch <b>0.04</b>
Min. Design Metal Temp.	°F	<b>40</b>				

### Materials of Construction

Component	Material	Minimum Thickness / Size	Containment
Top Head	<b>SA 240 316 Note 1</b>	<b>See Drawing</b>	<b>Auxiliary (see Note 2)</b>
Shell	<b>SA 240 316 Note 1</b>	<b>See Drawing</b>	<b>Primary (see Note 2)</b>
Bottom Head	<b>SA 240 316 Note 1</b>	<b>See Drawing</b>	<b>Primary (see Note 2)</b>
Support	<b>SA 240   SA 276 304 Note 1</b>	<b>See Drawing</b>	<b>NIA</b>
Jacket/Coils/Half-Pipe Jacket	<b>NIA</b>	<b>NIA</b>	<b>NIA</b>
Internals	<b>SA 240 316 Note 1</b>	<b>See Drawing</b>	<b>Thermocouples Primary (see Note 2)</b>
Pipe	<b>SA 312 TP316 Note 1</b>	<b>See Drawing</b>	<b>See Note 2</b>
Forgings/ Bar stock	<b>SA 182 F316 Note 1</b>	<b>See Drawing</b>	<b>NIA</b>
Gaskets	<b>NIA</b>	<b>NIA</b>	<b>NIA</b>
Bolting	<b>NIA</b>	<b>NIA</b>	<b>NIA</b>

### Miscellaneous Data

Orientation	<b>Vertical</b>	Support Type	<b>Legs</b> <span style="float: right;">△ 4</span>
Insulation Function	<b>Not Applicable</b>	Insulation Material	<b>Not Applicable</b>
Insulation Thickness (inch)	<b>Not Applicable</b>	Internal Finish	<b>Welds de-scaled as laid</b>
		External Finish	<b>Welds de-scaled as laid</b>

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.



**MECHANICAL SYSTEMS DATA SHEET: VESSEL**

PLANT ITEM No.  
24590-HLW-MV-RLD-VSL-00002

**Remarks**

**Note 1: Max. Carbon content 0.030% for welded components.**

**Note 2: All welds forming part of the primary and auxiliary containment including nozzle attachment welds shall be subjected to 100% volumetric examination.**

**Note 3: Tank volumes are approximates and do not account for manufacturing tolerances, nozzles, and displacement of internals.**

**Note 4: The vessel has 40 years life cycle.**

**Note 5: This vessel is in a Black Cell.**

**Note 6: Contents of this document are Dangerous Waste Permit affecting.**

**Note 7: Refer to 24590-WTP-3PS-MV00-T0001 (Pressure Vessel Design and Fabrication) - Appendix A, for nozzle loads.**



**MECHANICAL SYSTEMS DATA SHEET: VESSEL**

PLANT ITEM No.  
24590-HLW-MV-RLD-VSL-00002

**Equipment Cyclic Data Sheet**

Component Plant Item Number:	<b>24590-HLW-MV-RLD-VSL-00002</b>
Component Description	<b>HLW Offgas Drains Collection Vessel RLD-VSL-00002</b>

*The information below is provisional and envelopes operational duty for fatigue assessment. It is not to be used as operational data.*

Materials of Construction	<b>316 SST (see Materials of Construction table, page 1)</b>
Design Life	<b>40 Years</b>
Component Function and Life Cycle Description	<b>RLD-VSL-00002 is a condensate collection vessel. It collects non-routine low point drain condensate from the PJV header and the offgas piping downstream of the HEME. RLD-VSL-00002 maintains a vapor separation between the lines feeding it through use of dip-legs. The collected condensate is transferred out of RLD-VSL-00002 through use of steam ejectors as needed. Occasional internal washdown is provided through an internal wash ring located near the top of the vessel.</b>

Load Type	Min	Max	Number of Cycles	Comment
Design Pressure      psig	<b>FV</b>	<b>15</b>	<b>10</b>	
Operating Pressure    psig	<b>-0.05</b>	<b>0</b>	<b>480</b>	
Operating Temperature   °F	<b>59</b>	<b>141</b>	<b>NIA</b>	
Contents Specific Gravity	<b>1</b>	<b>1</b>	<b>480</b>	
Contents Level          inch	<b>6</b>	<b>40</b>	<b>480</b>	
<b>Localized Features</b>				
Nozzles	<b>N08</b>	<b>Design pressure for spray ring is 135 PSIG.</b>		
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.**
- **Cycles and loads per calculation 24590-HLW-MVC-30-00001.** 4

Safety Screening / Evaluation required? If yes per 24590-WTP-GPP-SREG-002, ENS signature required below.      Yes  No  4

**Approval**

Rev	Description	System Engr	Vessel Engr	Checked	MET	E&NS	Approved	Date
0	<b>Issued for Purchase</b>	M. Grindel	Mohan A	C. Slater	N/A	N/A	M. Hoffmann	1/28/04
1	<b>Added Black Cell Requirements</b>	M. Grindel	M. Balakrishnan	C. Slater	N/A	N/A	C. Morley for M. Hoffmann	2/5/04
2	<b>Revised operating temp. from 115 to 141</b>	M. Grindel	M. Balakrishnan	T. Galloto & D. Adler	N/A	N/A	M. Hoffmann	6/26/04
3	<b>Reissued for bid. Added cyclic data, Env. Qual. field, Note 7, updated vessel operating volume &amp; total vol.</b>	R.Tometczak	W. Wilcox	N. Johnson	D. Adler	C. Meng	J. Julyk	4/16/07
4	<b>Updated support type, Fixed Safety Screen, added elevation. Iss for procurement.</b>	R.Tometczak	W. Wilcox	S. Jain	D. Adler	RJT 10-26-07 B. Dubiet	J. Julyk	10/26/07

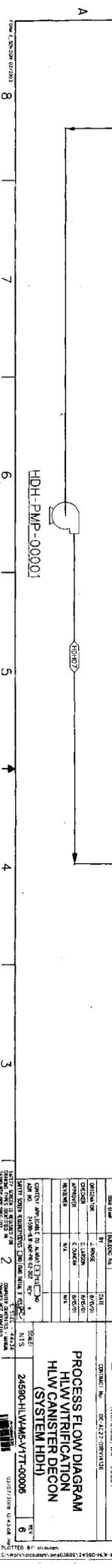
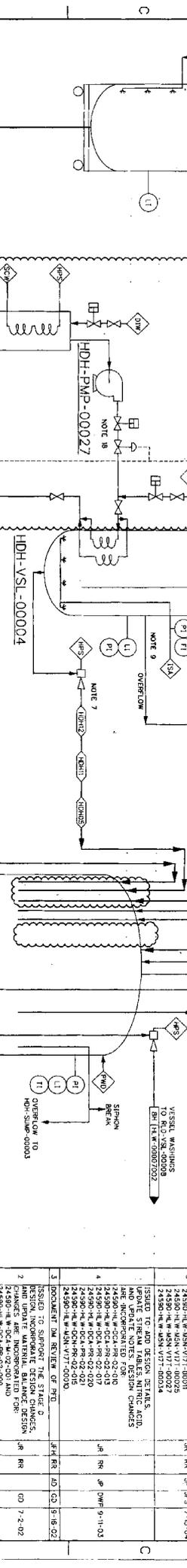
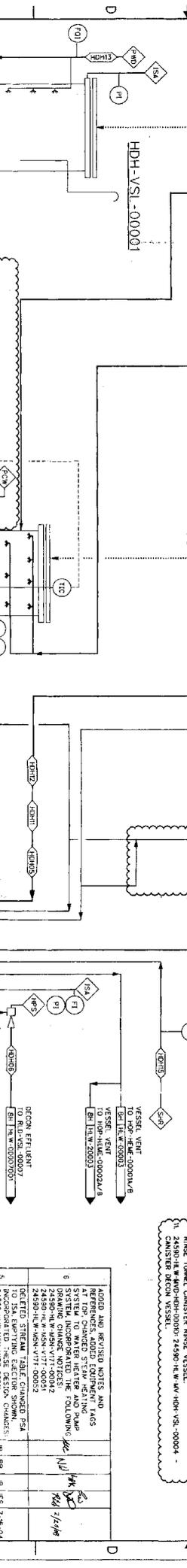
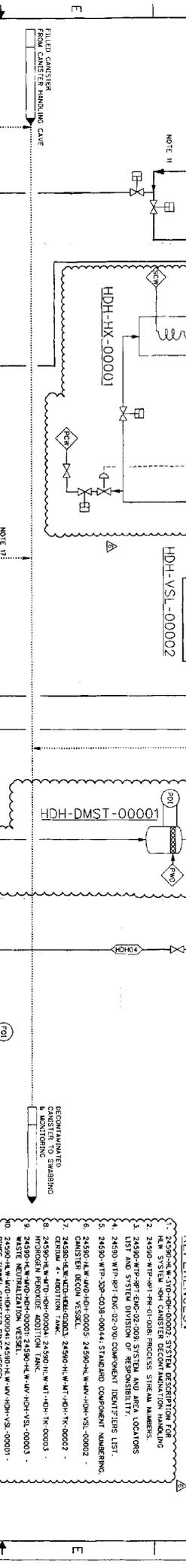
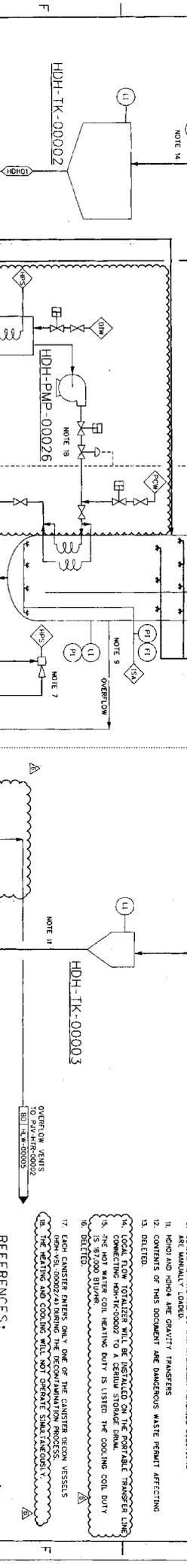
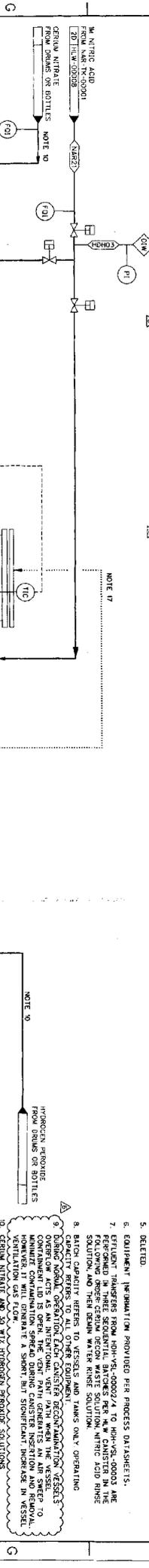


Quarter Ending 09/30/2009

24590-HLW-PCN-ENV-09-001

Hanford Facility RCRA Permit Modification Notification Form				
Unit: <b>Waste Treatment and Immobilization Plant</b>	Permit Part: <b>Part III, Operating Unit 10</b>			
<p><u>Description of Modification:</u>                      The purpose of this Class 1 modification is to update the Process Flow Diagram (PFD) HLW Vitrification HLW Canister Decon (System HDH) in Appendix 10.1 of the Dangerous Waste Permit. The following source PFD is submitted to replace the permitted PFD currently in Appendix 10.1:</p>				
Appendix 10.1				
Replace:	24590-HLW-M5-V17T-P0006 Rev 3	With:	24590-HLW-M5-V17T-00006 Rev 6	
<p>This modification requests Ecology approval and incorporation into the permit the specific changes to this PFD that are identified by Revision Note Description, clouds, and revision triangles since the last revision of the permitted drawing. Revision to this PFD is the result of ongoing design.</p> <p>The following identifies significant changes:</p> <ul style="list-style-type: none"> <li>• Added and revised notes and references</li> <li>• Added equipment tags at the top</li> <li>• Changed steam heating system to water heater and pump system per DCN 24590-HLW-M5N-V17T-00054 (provided to Ecology 5/23/2008, CCN 170767)</li> </ul> <p>The following is a list of outstanding change documents that have not been incorporated into this modification:                      24590-HLW-M5N-V17T-00054</p>				
WAC 173-303-830 Modification Class:	Class 1	Class 1 <sup>1</sup>	Class 2	Class 3
Please mark the Modification Class:	X			
Enter relevant WAC 173-303-830, Appendix I Modification citation number:		A.1 and A.3		
Enter wording of WAC 173-303-830, Appendix I Modification citation:				
A. General Permit Provisions				
1. Administrative and informational changes				
3. Equipment replacement or upgrading with functionally equivalent components (e.g., pipes, valves, pumps, conveyors, controls)				
Modification Approved/Concur:	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	Denied (state reason below)
Reason for denial:				Reviewed by Ecology:
				<div style="display: flex; justify-content: space-between;"> <div style="text-align: center;">                       Ed Fredenburg                      Kelly Elsethagen                 </div> <div style="text-align: center;">                     9-28-2009                      Date                 </div> </div>

PLANT ITEM NUMBER	NOTE 6	DESCRIPTION	UNIT	OPERATING DUTY	BATCH/OPERATING CAPACITY
HDH-VS-00001	HDH-VS-00001	DECON VESSEL 1	DECON VESSEL 1	N/A	360 GAL.
HDH-VS-00002	HDH-VS-00002	DECON VESSEL 2	DECON VESSEL 2	N/A	360 GAL.
HDH-VS-00003	HDH-VS-00003	DECON VESSEL 3	DECON VESSEL 3	N/A	360 GAL.
HDH-VS-00004	HDH-VS-00004	DECON VESSEL 4	DECON VESSEL 4	N/A	360 GAL.
HDH-VS-00005	HDH-VS-00005	DECON VESSEL 5	DECON VESSEL 5	N/A	360 GAL.
HDH-VS-00006	HDH-VS-00006	DECON VESSEL 6	DECON VESSEL 6	N/A	360 GAL.
HDH-VS-00007	HDH-VS-00007	DECON VESSEL 7	DECON VESSEL 7	N/A	360 GAL.
HDH-VS-00008	HDH-VS-00008	DECON VESSEL 8	DECON VESSEL 8	N/A	360 GAL.
HDH-VS-00009	HDH-VS-00009	DECON VESSEL 9	DECON VESSEL 9	N/A	360 GAL.
HDH-VS-00010	HDH-VS-00010	DECON VESSEL 10	DECON VESSEL 10	N/A	360 GAL.
HDH-VS-00011	HDH-VS-00011	DECON VESSEL 11	DECON VESSEL 11	N/A	360 GAL.
HDH-VS-00012	HDH-VS-00012	DECON VESSEL 12	DECON VESSEL 12	N/A	360 GAL.
HDH-VS-00013	HDH-VS-00013	DECON VESSEL 13	DECON VESSEL 13	N/A	360 GAL.
HDH-VS-00014	HDH-VS-00014	DECON VESSEL 14	DECON VESSEL 14	N/A	360 GAL.
HDH-VS-00015	HDH-VS-00015	DECON VESSEL 15	DECON VESSEL 15	N/A	360 GAL.
HDH-VS-00016	HDH-VS-00016	DECON VESSEL 16	DECON VESSEL 16	N/A	360 GAL.
HDH-VS-00017	HDH-VS-00017	DECON VESSEL 17	DECON VESSEL 17	N/A	360 GAL.
HDH-VS-00018	HDH-VS-00018	DECON VESSEL 18	DECON VESSEL 18	N/A	360 GAL.
HDH-VS-00019	HDH-VS-00019	DECON VESSEL 19	DECON VESSEL 19	N/A	360 GAL.
HDH-VS-00020	HDH-VS-00020	DECON VESSEL 20	DECON VESSEL 20	N/A	360 GAL.



**NOTES:**

- SEE DRAWING 24590-WP-VS-V17-00007 FOR LEGEND AND SYMBOL.
- WASTE INDICATION AND CONTROL INSTRUMENTATION ONLY SHOWN.
- VALVES SHOWN ONLY TO INDICATE PROCESS INTENT.
- DELETED.
- DELETED.
- EQUIPMENT INFORMATION PROVIDED PER PROCESS DATASHEETS.
- EQUIPMENT TRANSFERS FROM HDH-VS-00002/4 TO HDH-VS-00003 ARE FOLLOWING WASTE DECON WASTE SOLUTION.
- WASTE DECON WASTE SOLUTION.
- BATCH OPERATOR REFERS TO VESSELS AND TANKS ONLY OPERATING CAPACITY.
- OPERATING CAPACITY IS THE MAXIMUM VOLUME OF WASTE SOLUTION THAT CAN BE STORED IN THE VESSEL.
- OPERATING CAPACITY IS THE MAXIMUM VOLUME OF WASTE SOLUTION THAT CAN BE STORED IN THE VESSEL.
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- OPERATING CAPACITY IS THE MAXIMUM VOLUME OF WASTE SOLUTION THAT CAN BE STORED IN THE VESSEL.

**REFERENCES:**

- 24590-WP-VS-V17-00001 - SYSTEM DESIGN FOR WASTE SOLUTION HANDLING.
- 24590-WP-VS-V17-00002 - PROCESS STREAM NUMBER LIST AND SYSTEM DIVISION OF RESPONSIBILITY.
- 24590-WP-VS-V17-00003 - STANDARD COMPONENT IDENTIFIERS LIST.
- 24590-WP-VS-V17-00004 - STANDARD COMPONENT NUMBERING.
- 24590-WP-VS-V17-00005 - STANDARD COMPONENT NUMBERING.
- 24590-WP-VS-V17-00006 - STANDARD COMPONENT NUMBERING.
- 24590-WP-VS-V17-00007 - STANDARD COMPONENT NUMBERING.
- 24590-WP-VS-V17-00008 - STANDARD COMPONENT NUMBERING.
- 24590-WP-VS-V17-00009 - STANDARD COMPONENT NUMBERING.
- 24590-WP-VS-V17-00010 - STANDARD COMPONENT NUMBERING.
- 24590-WP-VS-V17-00011 - STANDARD COMPONENT NUMBERING.
- 24590-WP-VS-V17-00012 - STANDARD COMPONENT NUMBERING.
- 24590-WP-VS-V17-00013 - STANDARD COMPONENT NUMBERING.
- 24590-WP-VS-V17-00014 - STANDARD COMPONENT NUMBERING.
- 24590-WP-VS-V17-00015 - STANDARD COMPONENT NUMBERING.
- 24590-WP-VS-V17-00016 - STANDARD COMPONENT NUMBERING.
- 24590-WP-VS-V17-00017 - STANDARD COMPONENT NUMBERING.
- 24590-WP-VS-V17-00018 - STANDARD COMPONENT NUMBERING.
- 24590-WP-VS-V17-00019 - STANDARD COMPONENT NUMBERING.
- 24590-WP-VS-V17-00020 - STANDARD COMPONENT NUMBERING.

NO.	DATE	DESCRIPTION	BY	CHKD	APP'D
1	01-15-04	ISSUED TO SUPPORT THE STATE D DESIGN, INOPERABLE DESIGN CHANGES, AND UPDATE MATERIAL BALANCE DESIGN.	RR	RR	RR
2	01-15-04	ISSUED TO SUPPORT THE STATE D DESIGN, INOPERABLE DESIGN CHANGES, AND UPDATE MATERIAL BALANCE DESIGN.	RR	RR	RR
3	01-15-04	ISSUED TO SUPPORT THE STATE D DESIGN, INOPERABLE DESIGN CHANGES, AND UPDATE MATERIAL BALANCE DESIGN.	RR	RR	RR
4	01-15-04	ISSUED TO SUPPORT THE STATE D DESIGN, INOPERABLE DESIGN CHANGES, AND UPDATE MATERIAL BALANCE DESIGN.	RR	RR	RR
5	01-15-04	ISSUED TO SUPPORT THE STATE D DESIGN, INOPERABLE DESIGN CHANGES, AND UPDATE MATERIAL BALANCE DESIGN.	RR	RR	RR
6	01-15-04	ISSUED TO SUPPORT THE STATE D DESIGN, INOPERABLE DESIGN CHANGES, AND UPDATE MATERIAL BALANCE DESIGN.	RR	RR	RR
7	01-15-04	ISSUED TO SUPPORT THE STATE D DESIGN, INOPERABLE DESIGN CHANGES, AND UPDATE MATERIAL BALANCE DESIGN.	RR	RR	RR
8	01-15-04	ISSUED TO SUPPORT THE STATE D DESIGN, INOPERABLE DESIGN CHANGES, AND UPDATE MATERIAL BALANCE DESIGN.	RR	RR	RR
9	01-15-04	ISSUED TO SUPPORT THE STATE D DESIGN, INOPERABLE DESIGN CHANGES, AND UPDATE MATERIAL BALANCE DESIGN.	RR	RR	RR
10	01-15-04	ISSUED TO SUPPORT THE STATE D DESIGN, INOPERABLE DESIGN CHANGES, AND UPDATE MATERIAL BALANCE DESIGN.	RR	RR	RR

**PROCESS FLOW DIAGRAM**  
**HLW VITRIFICATION**  
**HLW CANISTER DECON**  
**(SYSTEM HDH)**

PROJECT NO. 24590  
 WASTE TREATMENT PLANT  
 RICHMOND, WA 98354

DATE: 01-15-04  
 BY: RR  
 CHKD: RR  
 APP'D: RR

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Quarter Ending June 30, 2009

24590-PTF-PCN-ENV-06-020

**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  
Replace Corrosion Evaluation for the PTF HLP System Cesium Concentrate Receipt Breakpots (HLP-  
BRKPT-00004 and HLP-BRKPT-00006) in Appendix 8.9 of the Dangerous Waste Permit.

Submitted by Co-Operator:

Reviewed by ORP Program Office:

Donna M. Busche 6/4/09  
D. M. Busche Date

S. J. Olinger 6/17/09  
S. J. Olinger Date

Quarter Ending June 30, 2009

24590-PTF-PCN-ENV-06-020

<b>Hanford Facility RCRA Permit Modification Notification Form</b>														
Unit: <b>Waste Treatment and Immobilization Plant</b>	Permit Part: <b>Part III, Operating Unit 10</b>													
<b>Description of Modification:</b> The purpose of this Class 1 modification is to update the Material Selection Data Sheet for the PTF HLP System Cesium Concentrate Receipt Breakpots (HLP-BRKPT-00004 and HLP-BRKPT-00006) in Appendix 8.9 of the Dangerous Waste Permit. The following source Corrosion Evaluation is submitted to replace the permitted Material Selection Data Sheet currently in Appendix 8.9:														
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td colspan="5" style="padding: 2px;">Appendix 8.9</td> </tr> <tr> <td style="width: 15%; padding: 2px;">Replace:</td> <td style="width: 30%; padding: 2px;">24590-PTF-N1D-HLP-P0001 Rev 0</td> <td style="width: 15%; padding: 2px;">With:</td> <td colspan="2" style="width: 40%; padding: 2px;">24590-PTF-N1D-HLP-00001 Rev 6</td> </tr> </table>					Appendix 8.9					Replace:	24590-PTF-N1D-HLP-P0001 Rev 0	With:	24590-PTF-N1D-HLP-00001 Rev 6	
Appendix 8.9														
Replace:	24590-PTF-N1D-HLP-P0001 Rev 0	With:	24590-PTF-N1D-HLP-00001 Rev 6											
This modification requests Ecology approval and incorporation into the permit the specific changes to the Corrosion Evaluation that are identified by revision notes 2 through 6 and revision bars shown on the document that have been issued since the last revision of the permitted version. Revisions are the result of ongoing design. The following identifies significant changes that have been revised on the attached data sheets:														
<ul style="list-style-type: none"> <li>• Updated Design Temperature from 368/40 to 383/59</li> <li>• Identified Design Pressure as internal/external</li> <li>• Updated table Materials Considered</li> <li>• Upgraded the Recommended Material from 6% Mo to Hastelloy</li> <li>• Clarified corrosion allowance</li> <li>• Added corrosion allowance for Deflector Assembly</li> <li>• Updated Process &amp; Operations Limitations section</li> <li>• Updated Corrosion Considerations sections: General Corrosion (a), Pitting Corrosion (b), Stress Corrosion Cracking (d), Corrosion at Welds (f), Vapor Phase Corrosion (i), Erosion (j) and added Inadvertent Nitric Acid Addition (p)</li> <li>• Updated Process Corrosion Data Sheet (pages 6 and 7)</li> <li>• Updated References and Bibliography</li> </ul>														
The following is a list of outstanding change documents that have not been incorporated into this modification: None														
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 45%; padding: 2px;">WAC 173-303-830 Modification Class:</td> <td style="width: 10%; padding: 2px;">Class 1</td> <td style="width: 10%; padding: 2px;">Class <sup>1</sup>1</td> <td style="width: 10%; padding: 2px;">Class 2</td> <td style="width: 15%; padding: 2px;">Class 3</td> </tr> <tr> <td style="padding: 2px;">Please mark the Modification Class:</td> <td style="text-align: center; padding: 2px;">X</td> <td></td> <td></td> <td></td> </tr> </table>					WAC 173-303-830 Modification Class:	Class 1	Class <sup>1</sup> 1	Class 2	Class 3	Please mark the Modification Class:	X			
WAC 173-303-830 Modification Class:	Class 1	Class <sup>1</sup> 1	Class 2	Class 3										
Please mark the Modification Class:	X													
Enter relevant WAC 173-303-830, Appendix I Modification citation number:      A.1. and A.3 Enter wording of WAC 173-303-830, Appendix I Modification citation: A. General Permit Provisions 1. Administrative and informational changes 3. Equipment replacement or upgrading with functionally equivalent components (e.g., pipes, valves, pumps, conveyors, controls)														
Modification Approved/Concur: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> Denied (state reason below) Reason for denial:			Reviewed by Ecology:  <div style="text-align: right;">                           -Ed-Fredenburg                          Kelly Elsethagen                     </div> <div style="text-align: right; margin-top: 10px;">                         9-22-2009                          Date                     </div>											

## CORROSION EVALUATION



## HLP-BRKPT-00004 &amp; HLP-BRKPT-00006 (PTF)

## Cs Concentrate Receipt Breakpots

- Design Temperature (°F) (max/min): 383/59
- Design Pressure (psig) (internal/external): 15/FV
- Location: incell; rooms P-0102 and P-0102A

ISSUED BY  
RPP-WTP PDC

Contents of this document are Dangerous Waste Permit affecting

Operating conditions are as stated on attached Process Corrosion Data Sheet

## Operating Modes Considered:

- While the breakpots are normally empty and at ambient temperatures, high-pressure steam is received in the breakpots; therefore, short-term operations at temperatures up to 212 °F are considered.

## Materials Considered:

Material (UNS No.)	Acceptable Material	Unacceptable Material
Carbon Steel		X
Type 304L (S30403)		X
Type 316L (S31603)		X
6% Mo (N08367/N08926)		X
Hastelloy® C-22® (N06022)	X	
Ti-2 (R50400)		X

Recommended Material: UNS N06022

## Recommended Corrosion Allowance:

Vessel – 0.040 inch (includes 0.024 inch corrosion allowance and 0.004 inch erosion allowance)

Deflector Assembly – 0.080 inch on each wetted surface (includes 0.024 inch corrosion allowance and 0.01 inch erosion allowance)

## Process &amp; Operations Limitations:

- Flush with water before acid washing.

Concurrence GJ  
C & T

6	5/20/09	Incorporate additional references for suitability of recommended mat'l	<i>[Signature]</i> DL Adler	<i>[Signature]</i> RBDavis	NA	<i>[Signature]</i> SWVail
REV	DATE	REASON FOR REVISION	PREPARER	CHECKER	MET	APPROVER

**CORROSION EVALUATION****REVISION HISTORY**

5	10/7/08	Incorporate revised PCDS Revise mat'l recommendation Specify internals corrosion allowance Add AEA note to page2	DLAdler	JRDivine	RBDavis	SWVail
4	3/28/06	Update wear allowance based on 24590-WTP-RPT-M-04-0008	DLAdler	HMKrafft	NA	SWVail
3	5/17/04	Addition of information regarding inadvertent nitric acid addition Append updated PCDS	DLAdler	APRangus	NA	SWVail
2	5/11/04	Incorporate new PCDS Change in mat'l recommendation due to new process data	DLAdler	JRDivine	APR	APRangus
1	9/30/03	Correct from BRKPT-00005 to BRKPT-00006 Update vessel description Update design temp/pressure Re-format references Append updated MSDS	DLAdler	JRDivine	NA	SWVail
0	9/12/02	Initial Issue	DLAdler	JRDivine	SS	SMKirk
<b>REV</b>	<b>DATE</b>	<b>REASON FOR REVISION</b>	<b>PREPARER</b>	<b>CHECKER</b>	<b>MET</b>	<b>APPROVER</b>

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.

This bound document contains a total of 7 sheets.

## CORROSION EVALUATION

### Corrosion Considerations:

Unneutralized Cs concentrate is transferred to HLP-VSL-00027A and HLP-VSL-00028 through HLP-BRKPT-00004 and HLP-BRKPT-00006.

#### a General Corrosion

Hamner (1981) lists a corrosion rate for type 304 (and type 304L) in 2 M HNO<sub>3</sub> of less than 2 mpy. Davis (1994) states the corrosion rate for 304L in 12% HNO<sub>3</sub> will be less than about 1 mpy up to about 212°F.

Hamner (1981) shows type 316 (and type 316L) has a rate of less than 2 mpy up to 122°F and 50% NaOH. Dillon (2000) and Sedriks (1996) both state that the 300 series alloys are acceptable in up to 50% NaOH at temperatures up to about 122°F or slightly above.

Even though significant quantities of Al<sup>3+</sup> are present, the fluoride concentration is sufficient to cause high uniform corrosion rates in the 300 series stainless steels; therefore, a high nickel alloy such as C-22® (N06022) will be required. C-22 has a corrosion rate of about 1 mpy in 5 % HNO<sub>3</sub> at boiling (Haynes, 2002). In these solutions with <5 % HNO<sub>3</sub> and <1 % HCl, the corrosion rate will be smaller.

#### Conclusion:

In the presence of expected levels of halides, the recommended material is C-22® (N06022) with a corrosion allowance of 0.04 inch. Because of localized effects at the inlet, a higher corrosion allowance is recommended for the internal deflector assembly. The each wetted surface of the deflector assembly should have a corrosion allowance of 0.080 inch.

#### b Pitting Corrosion

With C-22® (N06022), pitting is not expected to be a problem.

#### Conclusion:

No significant pitting is expected.

#### c End Grain Corrosion

Not believed to be applicable to this system.

#### Conclusion:

Not applicable to this system.

#### d Stress Corrosion Cracking

C-22® (N06022) is not susceptible to stress corrosion cracking under these conditions.

#### Conclusion:

Not anticipated.

#### e Crevice Corrosion

See Pitting.

#### Conclusion:

See Pitting

#### f Corrosion at Welds

Corrosion at welds is not considered a problem in the proposed environment.

#### Conclusion:

Weld corrosion is not considered a problem for this system.

#### g Microbiologically Induced Corrosion (MIC)

The proposed operating conditions are not suitable for MIC.

#### Conclusion:

MIC is not considered a problem.

## CORROSION EVALUATION

### **h Fatigue/Corrosion Fatigue**

Corrosion fatigue is not expected to be a concern.

#### *Conclusions*

Not believed to be a concern.

### **i Vapor Phase Corrosion**

Vapor phase corrosion is not expected to be a concern. Further, the presence of wash rings indicates deposits can be prevented.

#### *Conclusion:*

Not expected to be a concern

### **j Erosion**

There are no solids and velocities within the breakpots are expected to be low. Erosion allowance of 0.004 inch for components with solids content less than 2 wt% at velocities less than 4 mps is based on 24590-WTP-RPT-M-04-0008.

#### *Conclusion:*

Not considered to be a problem.

### **k Galling of Moving Surfaces**

Not applicable.

#### *Conclusion:*

Not applicable.

### **l Fretting/Wear**

No contacting surfaces expected.

#### *Conclusion:*

Not applicable.

### **m Galvanic Corrosion**

No dissimilar metals are present.

#### *Conclusion:*

None anticipated

### **n Cavitation**

None expected.

#### *Conclusion:*

Not believed to be of concern.

### **o Creep**

The temperatures are too low to be a concern.

#### *Conclusion:*

Not applicable.

### **p Inadvertent Nitric Acid Addition**

Breakpots normally operate at low pH.

#### *Conclusion:*

Not applicable.

## CORROSION EVALUATION

## References:

1. 24590-WTP-RPT-M-04-0008, Rev. 2, *Evaluation Of Stainless Steel Wear Rates In WTP Waste Streams At Low Velocities*
2. CCN 130173, Dillon, CP (Nickel Development Institute), Personal Communication to J R Divine (ChemMet, Ltd., PC), 3 Feb 2000.
3. CCN 167386, Memo from K Eager to D Adler, 1 February 2008, "Revised Process Corrosion Data Sheets For CNP VSL 00003 and CNP BRKPT 00001, CNP EVAP 00001 and CNP HX 00001, and HLP BRKPT 00004 and HLP BRKPT 00006"
4. Davis, JR (Ed), 1987, *ASM Handbook Volume 13: Corrosion*, ASM International, Metals Park, OH 44073
5. Davis, JR (Ed), 1994, *ASM Specialty Handbook: Stainless Steels*, ASM International, Metals Park, OH 44073
6. Hammer, NE, 1981, *Corrosion Data Survey*, Metals Section, 5th Ed, NACE International, Houston, TX
7. Haynes International, Inc., Hastelloy® C-22 Alloy®, 2002.
8. Sedriks, AJ, 1996, *Corrosion of Stainless Steels*, John Wiley & Sons, Inc., New York, NY 10158

## Bibliography:

1. 24590-PTF-MVD-HLP-00011, Rev. 6, *24590-PTF-MV-HLP-BRKPT-00006 - HLP System CS Concentrate Receipt Breakpot*
2. 24590-WTP-RPT-PR-04-0001, Rev. C, *WTP Process Corrosion Data*
3. CCN 130171, Ohl, PC to PG Johnson, Internal Memo, Westinghouse Hanford Co, *Technical Bases for Cl- and pH Limits for Liquid Waste Tank Cars*, MA: PCO:90/01, January 16, 1990.
4. CCN 130175, Boschen, Steve, <http://www.al6xn.com/images/stainlessguide.pdf>
5. Agarwal, DC, *Nickel and Nickel Alloys*, In: Revie, WW, 2000. *Uhlig's Corrosion Handbook*, 2nd Edition, Wiley-Interscience, New York, NY 10158
6. Jones, RH (Ed.), 1992, *Stress-Corrosion Cracking*, ASM International, Metals Park, OH 44073
7. Phull, BS, WL Mathay, & RW Ross, 2000, *Corrosion Resistance of Duplex and 4-6% Mo-Containing Stainless Steels in FGD Scrubber Absorber Slurry Environments*, Presented at Corrosion 2000, Orlando, FL, March 26-31, 2000, NACE International, Houston TX 77218.
8. Rebak, RB, 2006, *Industrial Experience on the Caustic Cracking of Stainless Steels and Nickel Alloys - A Review*, UCRL-PROC-216072, Presented at Corrosion/2006 Conference and Exposition, San Diego, CA, March 12-16, 2006, NACE International, Houston TX 77218.
9. Revie, WW, 2000. *Uhlig's Corrosion Handbook*, 2nd Edition, Wiley-Interscience, New York, NY 10158
10. Van Delinder, LS (Ed), 1984, *Corrosion Basics*, NACE International, Houston, TX 77084
11. Uhlig, HH, 1948, *Corrosion Handbook*, John Wiley & Sons, New York, NY 10158
12. Wilding, MW and BE Paige, 1976, *Survey on Corrosion of Metals and Alloys in Solutions Containing Nitric Acid*, ICP-1107, Idaho Chemical Programs, Idaho National Engineering Laboratory, Idaho Falls, ID,

## CORROSION EVALUATION

Attachment to CCN 167386  
 Replaces Page A-21  
 24590-WTP-RPT-PR-04-0001, Rev. C  
 WTP Process Corrosion Data

## PROCESS CORROSION DATA SHEET

Component(s) (Name/ID #) Cs concentrate receipt breakpot (HLP-BRKPT-00004, HLP-BRKPT-00006)

Facility PTF

In Black Cell? Yes

Chemicals	Unit <sup>1</sup>	Contract Max <sup>2</sup>		Non-Routine		Notes
		Leach	No leach	Leach	No Leach	
Aluminum	g/L	1.38E+01	1.29E+01			Assumption 1
Chloride	g/L	5.29E+00	5.89E+00			Assumption 1
Fluoride	g/L	6.28E+00	7.02E+00			Assumption 1
Iron	g/L	1.01E+00	1.05E+00			Assumption 1
Nitrate	g/L	5.78E+02	5.80E+02			Assumption 1
Nitrite	g/L	2.93E+01	3.25E+01			Assumption 1
Phosphate	g/L	2.11E+01	2.30E+01			Assumption 1
Sulfate	g/L	1.12E+01	1.25E+01			Assumption 1
Mercury	g/L	1.72E-02	7.88E-03			Assumption 1
Carbonate	g/L	3.95E+01	4.03E+01			Assumption 1
Undissolved solids	wt%					
Other (NaMnO <sub>4</sub> , Pb,...)	g/L					
Other	g/L					
pH	N/A					Assumption 2
Temperature	°F					Note 3
<b>List of Organic Species:</b>						
<b>References</b>						
System Description: 24590-PTF-3YD-HLP-00001						
Mass Balance Document: 24590-WTP-MBC-V11T-00005, Rev A						
Normal Input Stream #: CNP12, CNP17 (Cs Conc from CNP-VSL-00003; same as CNP12)						
Off Normal Input Stream # (e.g., overflow from other vessels): N/A						
P&ID: N/A						
PFD: 24590-PTF-MS-V17T-00008						
Technical Reports: N/A						
<b>Notes:</b>						
1. Concentrations less than 1x 10 <sup>-4</sup> g/L do not need to be reported; list concentration values to three significant digits max.						
2. Data developed from a mass balance model which has constituents in the plant feed which are important to corrosion, adjusted to contract maximum values.						
3. Steam is used for transfer. The breakpot is normally empty and at ambient temperature most of the time.						
<b>Assumptions:</b>						
1. Compositions are assumed the same as that of unneutralized cesium concentrate in CNP-EVAP-00001.						
Cesium concentrate is normally transferred in an acidic (un-neutralized) state (page 1 of TN-24590-06-02962).						
2. pH approx -0.7 consistent with 5-8 M HNO <sub>3</sub> .						
Minimum pH -0.9, consistent with 8 M nitric acid.						
Maximum pH approx 14, consistent with the non-routine neutralization of Cs concentrate.						

**CORROSION EVALUATION**

**Attachment to CCN 167386  
Replaces section 4.6.1 of  
24590-WTP-RPT-PR-04-0001, Rev. C  
WTP Process Corrosion Data**

**4.6.1 Cs Concentrate Receipt Breakpots (HLP-BRKPT-00004/6)****Routine Operations**

Vessels HLP-VSL-000027A and HLP-VSL-00028 receive acidic Cs concentrate through breakpots HLP-BRKPT-00004 and HLP-BRKPT-00006.

**Non-Routine Operations that Could Affect Corrosion or Erosion**

Cs concentrate can also be received in a neutralized (alkaline) state.

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Quarter Ending June 30, 2009

24590-PTF-PCN-ENV-09-002

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**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  
Update PTF Spent Resin Dewatering Disposal Transfer Cask (RDP-CASK-00001) Piping and  
Instrumentation Diagram in Appendix 8.2 of the Dangerous Waste Permit.

Submitted by Co-Operator:

Donna Busche  
D. M. Busche

5/16/09  
Date

Reviewed by ORP Program Office:

S. G. Olinger  
S. G. Olinger

5/28/09  
Date

Quarter Ending June 30, 2009

24590-PTF-PCN-ENV-09-002

**Hanford Facility RCRA Permit Modification Notification Form**

Unit: <b>Waste Treatment and Immobilization Plant</b>	Permit Part: <b>Part III, Operating Unit 10</b>
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Description of Modification:

The purpose of this Class 1 prime modification is to update the Piping and Instrumentation Diagram (P&ID) for the PTF Spent Resin Dewatering Disposal Transfer Cask (RDP-CASK-00001). This cask was previously shown on the PTF Ion Exchange Spent Resin Collection and Dewatering P&ID 24590-PTF-M6-RDP-P0002 incorporated in Appendix 8.2 of the permit. The following source P&ID is submitted for inclusion in Appendix 8.2:

Appendix 8.2	
Add:	24590-PTF-M6-RDP-00007 Rev 2

The PTF Spent Resin Dewatering Disposal Transfer Cask design details have been relocated from P&ID 24590-PTF-M6-RDP-P0002 to P&ID 24590-PTF-M6-RDP-00007. The updated RDP P&ID showing the removal of the PTF Spent Resin Dewatering Disposal Transfer Cask has been submitted with a separate permit modification notice (24590-PTF-PCN-ENV-08-002).

This modification incorporates changes provided in applicable document change forms (e.g., DCNs) and changes associated with the vendor design submittals since the issuance of the last revision of the permitted RDP drawings. This modification requests Ecology approval and incorporation into the permit of the RDP system P&IDs showing the design consistent with the permit Process Flow Diagram (24590-PTF-M5-V17T-P0020). The following identifies the significant types of design changes on the attached drawing:

- Modified, deleted, and added notes and references
- RDP-HOSE-00001, RDP-HOSE-00003, and RDP-HOSE-00005 connections changed from screwed caps to flanges

The following is a list of outstanding change documents that have not been incorporated into this modification:

- 24590-PTF-M6N-RDP-00029

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

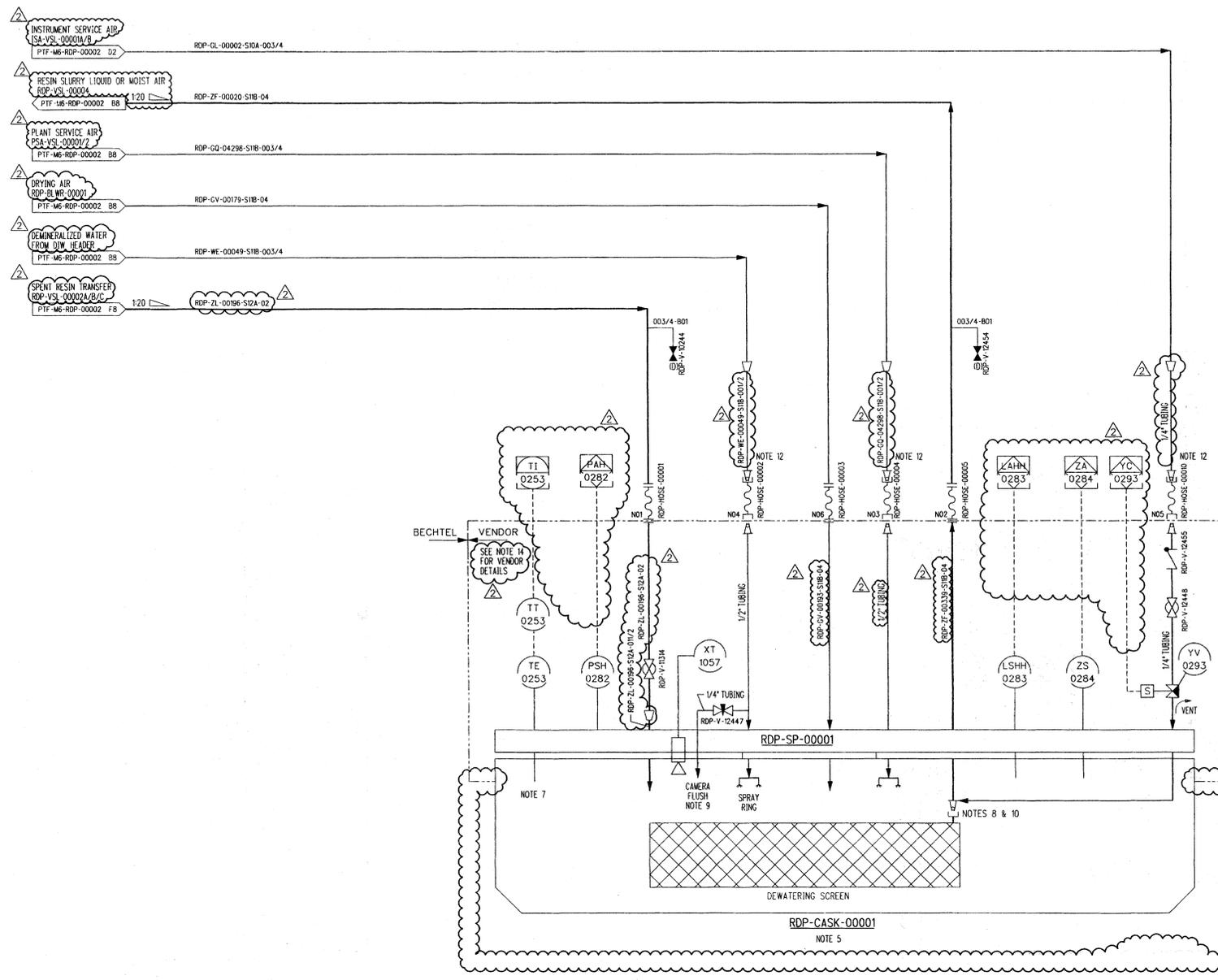
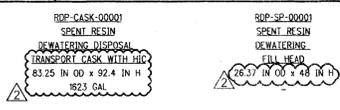
Enter relevant WAC 173-303-830, Appendix I Modification citation number:

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 <sup>1</sup>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: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> Denied (state reason below) Reason for denial:	Reviewed by Ecology:  Kelly Elsethagen Date: 9-4-2009
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<sup>1</sup> Class 1 modifications requiring prior Agency approval.  
<sup>2</sup> If the proposed modification does not match any modification listed in WAC 173-303-830 Appendix I, then the proposed modification should automatically be given a Class 3 status. This status may be maintained by the Department of Ecology, or down graded to a Class <sup>1</sup>1, if applicable.



NOTES:

- SEE DRAWINGS 24590-WTP-M6-50-00001 THROUGH 24590-WTP-M6-50-00008 FOR GENERAL NOTES, SYMBOLS AND LEGEND AND GENERAL SLOPE REQUIREMENTS.
- THE PRESSURE BOUNDARY FOR ALL SYSTEMS, STRUCTURES AND COMPONENTS SHOWN ON THIS DRAWING ARE IDENTIFIED AS QUALITY LEVEL CM AND SEISMIC CATEGORY SC-IV, UNLESS OTHERWISE NOTED.
- CONTENTS OF THIS DRAWING ARE DANGEROUS WASTE PERMIT AFFECTING.
- ALL INTERNAL SUPPORTS AND WELDS THAT INTERACT WITH THE PRIMARY CONFINEMENT BARRIER (VESSEL) SHALL MAINTAIN EQUAL QUALITY AND SEISMIC CATEGORY AS THE PARENT.
- ROOM IS DESIGNATED R5/C5 WHILE DEWATERING SEQUENCE IS IN PROGRESS. FOR STAGING, CONNECTION AND DISCONNECTION OF THE SPENT RESIN DEWATERING FILL HEAD, ROOM IS DESIGNATED R3/C3.
- DELETED
- TEMPERATURE ELEMENT MOUNTED INTEGRAL TO SPENT RESIN DEWATERING FILL HEAD.
- QUICK DISCONNECT HAS INFLATABLE SEAL.
- OPERATOR LEVEL DETECTION PERFORMED VIA REMOTE CAMERA.
- INSTRUMENT SERVICE AIR FOR AIR OPERATED VALVES ON RDP-SKID-00001 AND QUICK DISCONNECT ON RDP-SP-00001.
- DELETED
- HOSES WILL MATE TO MNPT END CONNECTION.
- REVISION 1: INCORPORATED 24590-PTF-M6N-RDP-00020 AND RECENT VENDOR INFORMATION. REVISED NOTES 2 AND 12. ADDED NOTE 13.
- 24590-CM-POA-MWDD-00005-02-49 REV. G WAS SUPERSEDED AND THE CONTENTS WERE INCORPORATED INTO THIS DRAWING AND 24590-PTF-M6-RDP-00002.
- REVISION 2: INCORPORATED 24590-PTF-M6N-M80T-00037, 24590-PTF-M6N-M80T-00038, AND SUPERSEDES 24590-CM-POA-MWDD-00005-02-49 REV. G. ADDED/REVISED/DELETED NOTES AND REFERENCES.

HOLD/OPEN ITEMS:

NONE

REFERENCES:

- THE REQUIRED BATCH SEQUENCES, PERMISSIVES, INTERLOCKS, ALARMS, AND OPERATOR INTERFACE POINTS ARE FULLY DESCRIBED IN THE SOFTWARE FUNCTIONAL SPECIFICATION FOR PTF-SPENT RESIN COLLECTION AND DEWATERING PROCESS (RDP) SYSTEM, 24590-PTF-3PS-RDP-10001.

BECHTEL VENDOR SEE NOTE 14 FOR VENDOR DETAILS

RDP-CASK-00001 NOTE 5

NOTE 7 CAMERA FLUSH NOTE 9 SPRAY RING NOTES 8 & 10

Please note the source, special number, and product materials. As defined in the Atomic Energy Act of 1954 (AEA) are required at the U. S. Department of Energy (DOE) facilities regulated by DOE under license to the AEA. DOE requires that contractors to AEA, if they use and produce, possess, and control or require the production, repair, and treatment materials at DOE-owned nuclear facilities. Information contained herein on individuals is provided for process description purposes only.

REV	DESCRIPTION	ORG	CHKD	RVWD	APVD	DATE
2	REVISED PER NOTE 15	SC	AKR	EL-3	RP	10/24/07
1	REVISED PER NOTE 13	JH	RAV	JJ	KK	1/19/06
0	ISSUED FOR CONSTRUCTION	KE	KRS	RES	RV	12/16/04

**CM**  
QUALITY DESIGNATOR

**REVISION HISTORY**

PROJECT No.	24590
SITE	HANF ORD
AREA	200E
BUILDING No.	10
CONTRACT No.	DE-AC27-01RV14136

**RIVER PROTECTION PROJECT  
WASTE TREATMENT PLANT  
2435 STEVENS CENTER PLACE  
RICHLAND, WA 99354**

**R8ID - PTF  
SPENT RESIN COLLECTION  
AND DEWATERING PROCESS  
SYSTEM  
RESIN COLLECTION**

24590-PTF-M6-RDP-00007

ORIGINATOR	KM EAGER	DATE	12/15/04
CHECKER	KR SADLER	DATE	12/15/04
APPROVER	R VOKE	DATE	12/16/04
REVIEWER	RE STEVENS	DATE	12/15/04

CONTENT APPLICABLE TO ALARA?  YES  NO  
ADR NO. 24590-PTF-ADR-M-03-007 REV: 3  
SAFETY SCREEN REQUIRED?  YES  NO (EWS INITIAL IF YES)

SCALE: NONE

REV 2

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Quarter Ending June 30, 2009

24590-PTF-PCN-ENV-09-004

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

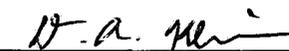
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Index

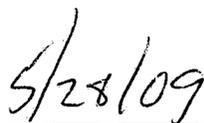
Page 2 of 4: Hanford Facility RCRA Permit, Part III, Operating Unit 10, Waste Treatment and Immobilization Plant  
Update Piping and Instrumentation Diagrams (P&ID) for the Pretreatment Facility (PTF) Ultrafiltration Process  
System in Appendix 8.2 of the Dangerous Waste Permit.

Submitted by Co-Operator:

Reviewed by ORP Program Office:







\_\_\_\_\_  
D. A. Klein

\_\_\_\_\_  
Date

\_\_\_\_\_  
S. J. Olinger

\_\_\_\_\_  
Date

Quarter Ending June 30, 2009

24590-PTF-PCN-ENV-09-004

### 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 prime modification is to update the Piping and Instrumentation Diagrams (P&ID) for the PTF Ultrafiltration Process System, in Appendix 8.2 of the Dangerous Waste Permit. The permit P&IDs currently incorporated into the DWP are being replaced with source P&IDs as indicated in the table below.

**Appendix 8.2**

Replace:	With:
24590-PTF-M6-UFP-P0002, Rev 0	24590-PTF-M6-UFP-00002001, Rev 0
	24590-PTF-M6-UFP-00002002, Rev 0
	24590-PTF-M6-UFP-00002003, Rev 0
	24590-PTF-M6-UFP-00002004, Rev 0
	24590-PTF-M6-UFP-00002005, Rev 0
	24590-PTF-M6-UFP-00002006, Rev 0
	24590-PTF-M6-UFP-00002007, Rev 0
	24590-PTF-M6-UFP-00002008, Rev 0
24590-PTF-M6-UFP-P0003, Rev. 0	24590-PTF-M6-UFP-00003001, Rev 0
	24590-PTF-M6-UFP-00003002, Rev 0
	24590-PTF-M6-UFP-00003003, Rev 0
	24590-PTF-M6-UFP-00003004, Rev 0
	24590-PTF-M6-UFP-00003005, Rev 0
	24590-PTF-M6-UFP-00003006, Rev 0
	24590-PTF-M6-UFP-00003007, Rev 0
	24590-PTF-M6-UFP-00003008, Rev 0
24590-PTF-M6-UFP-P0004, Rev 1	24590-PTF-M6-UFP-00004001, Rev 0
	24590-PTF-M6-UFP-00004002, Rev 0
	24590-PTF-M6-UFP-00004003, Rev 0
24590-PTF-M6-UFP-P0005, Rev 0	24590-PTF-M6-UFP-00005001, Rev 0
	24590-PTF-M6-UFP-00005002, Rev 0
	24590-PTF-M6-UFP-00005003, Rev 0
	24590-PTF-M6-UFP-00005004, Rev 0
	24590-PTF-M6-UFP-00005005, Rev 0
	24590-PTF-M6-UFP-00005006, Rev 0
	24590-PTF-M6-UFP-00005007, Rev 0
24590-PTF-M6-UFP-P0006, Rev 0	24590-PTF-M6-UFP-00006001, Rev 0
	24590-PTF-M6-UFP-00006002, Rev 0
	24590-PTF-M6-UFP-00006003, Rev 0
	24590-PTF-M6-UFP-00006004, Rev 0
	24590-PTF-M6-UFP-00006005, Rev 0
	24590-PTF-M6-UFP-00006006, Rev 0
	24590-PTF-M6-UFP-00006007, Rev 0
24590-PTF-M6-UFP-P0007, Rev 0	24590-PTF-M6-UFP-00007001, Rev 0
	24590-PTF-M6-UFP-00007002, Rev 0

Quarter Ending June 30, 2009

24590-PTF-PCN-ENV-09-004

	24590-PTF-M6-UFP-00007003, Rev 0
	24590-PTF-M6-UFP-00007004, Rev 0
	24590-PTF-M6-UFP-00007005, Rev 0
	24590-PTF-M6-UFP-00007006, Rev 0
	24590-PTF-M6-UFP-00007007, Rev 0
	24590-PTF-M6-UFP-00008001, Rev 0
	24590-PTF-M6-UFP-00008002, Rev 0
	24590-PTF-M6-UFP-00008003, Rev 0
	24590-PTF-M6-UFP-00008004, Rev 0
	24590-PTF-M6-UFP-00008005, Rev 0
	24590-PTF-M6-UFP-00008006, Rev 0
	24590-PTF-M6-UFP-00008007, Rev 0
	24590-PTF-M6-UFP-00009001, Rev 0
	24590-PTF-M6-UFP-00009002, Rev 0
	24590-PTF-M6-UFP-00009003, Rev 0
	24590-PTF-M6-UFP-00009004, Rev 0
	24590-PTF-M6-UFP-00009005, Rev 0
	24590-PTF-M6-UFP-00009006, Rev 0
	24590-PTF-M6-UFP-00010001, Rev 0
	24590-PTF-M6-UFP-00010002, Rev 0
	24590-PTF-M6-UFP-00010003, Rev 0
	24590-PTF-M6-UFP-00010004, Rev 0
	24590-PTF-M6-UFP-00010005, Rev 0
	24590-PTF-M6-UFP-00010006, Rev 0
	24590-PTF-M6-UFP-00010007, Rev 0
	24590-PTF-M6-UFP-00011001, Rev 0
	24590-PTF-M6-UFP-00011002, Rev 0
	24590-PTF-M6-UFP-00011003, Rev 0
	24590-PTF-M6-UFP-00011004, Rev 0
	24590-PTF-M6-UFP-00011005, Rev 0
	24590-PTF-M6-UFP-00015001, Rev 0
	24590-PTF-M6-UFP-00015002, Rev 0
	24590-PTF-M6-UFP-00015003, Rev 0

This modification requests Ecology approval and incorporation into the permit, the changes provided in applicable document change forms (e.g., DCNs) and changes associated with the resolution to comments on change documents since the issuance of the last revision of the permitted drawing. Revisions are the result of ongoing design changes.

The following identifies the significant changes to the drawings:

- Modified, deleted, and added notes, holds, and references
- Modified, identified, and added support/utility system lines, valves, in-line components, instruments and logic controls
- Incorporated changes from change documents identified in the final note on each P&ID
- Drawings converted from a single sheet to multi-sheet drawings
- Revised, identified, and added slope symbols and/or the slope requirement
- Replaced steam ejector with steam heating sparger on drawings 24590-PTF-M6-UFP-00002001, Revision 0 and 24590-PTF-M6-UFP-00003001, Revision 0

Quarter Ending June 30, 2009

24590-PTF-PCN-ENV-09-004

- Ultrafilter (UFP-FILT-00004A) added to drawing 24590-PTF-M6-UFP-00002004 as part of External Flow Sheet Review Team (EFRT) recommendation
- Ultrafilter (UFP-FILT-00005A) added to drawing 24590-PTF-M6-UFP-00002005 as part of EFRT recommendation
- Added in-line component heat exchanger UFP-HX-00001A to drawing 24590-PTF-M6-UFP-00002005
- Ultrafilter (UFP-FILT-00004B) added to drawing 24590-PTF-M6-UFP-00003004 as part of EFRT recommendation
- Ultrafilter (UFP-FILT-00005B) added to drawing 24590-PTF-M6-UFP-00003005 as part of EFRT recommendation
- Added in-line component heat exchanger UFP-HX-00001B to drawing 24590-PTF-M6-UFP-00003005

Outstanding change document 24590-PTF-M6PR-10-00001 has not been incorporated into this modification and applies to the following P&ID:

- 24590-PTF-M6-UFP-00010001, Revision 0 through 24590-PTF-M6-UFP-00010001, Revision 0

Outstanding change document 24590-PTF-M6PR-10-00002 has not been incorporated into this modification and applies to the following P&IDs:

- 24590-PTF-M6-UFP-00007007, Revision 0
- 24590-PTF-M6-UFP-00010007, Revision 0
- 24590-PTF-M6-UFP-00011005, Revision 0

Outstanding change document 24590-PTF-M6PR-UFP-00001 has not been incorporated into this modification and applies to the following P&IDs:

- 24590-PTF-M6-UFP-00007001, Revision 0 through 24590-PTF-M6-UFP-00007006, Revision 0
- 24590-PTF-M6-UFP-00008001, Revision 0 through 24590-PTF-M6-UFP-00008006, Revision 0
- 24590-PTF-M6-UFP-00010001, Revision 0 through 24590-PTF-M6-UFP-00010006, Revision 0

Outstanding change document 24590-PTF-M6PR-UFP-00002 has not been incorporated into this modification and applies to the following P&ID:

- 24590-PTF-M6-UFP-00010002, Revision 0 through 24590-PTF-M6-UFP-00010007, Revision 0

Outstanding change document 24590-PTF-M6PN-UFP-00002 has not been incorporated into this modification and applies to the following P&IDs:

- 24590-PTF-M6-UFP-00006007, Revision 0
- 24590-PTF-M6-UFP-00010007, Revision 0

Outstanding change document 24590-PTF-M6N-10-00004 has not been incorporated into this modification and applies to the following P&IDs:

- 24590-PTF-M6-UFP-00007007, Revision 0
- 24590-PTF-M6-UFP-00010007, Revision 0
- 24590-PTF-M6-UFP-00011005, Revision 0

Outstanding change document 24590-PTF-M6N-10-00005 has not been incorporated into this modification and applies to the following P&IDs:

- 24590-PTF-M6-UFP-00005001, Revision 0
- 24590-PTF-M6-UFP-00005005, Revision 0
- 24590-PTF-M6-UFP-00009002, Revision 0
- 24590-PTF-M6-UFP-00009004, Revision 0 through 24590-PTF-M6-UFP-00009006, Revision 0
- 24590-PTF-M6-UFP-00011004, Revision 0

Outstanding change document 24590-PTF-M6N-10-00007 has not been incorporated into this modification and applies to the following P&IDs:

- 24590-PTF-M6-UFP-00005001, Revision 0 through 24590-PTF-M6-UFP-00005007, Revision 0
- 24590-PTF-M6-UFP-00009002, Revision 0
- 24590-PTF-M6-UFP-00009004, Revision 0
- 24590-PTF-M6-UFP-00011004, Revision 0

Quarter Ending June 30, 2009

24590-PTF-PCN-ENV-09-004

Outstanding change document 24590-PTF-M6N-M80T-00055 has not been incorporated into this modification and applies to the following P&IDs:

- 24590-PTF-M6-UFP-00007007, Revision 0
- 24590-PTF-M6-UFP-00010007, Revision 0
- 24590-PTF-M6-UFP-00011005, Revision 0

Outstanding change document 24590-PTF-M6N-M80T-00057 has not been incorporated into this modification and applies to the following P&IDs:

- 24590-PTF-M6-UFP-00005001, Revision 0
- 24590-PTF-M6-UFP-00006001, Revision 0
- 24590-PTF-M6-UFP-00007001, Revision 0
- 24590-PTF-M6-UFP-00008001, Revision 0
- 24590-PTF-M6-UFP-00009001, Revision 0
- 24590-PTF-M6-UFP-00010001, Revision 0
- 24590-PTF-M6-UFP-00011001, Revision 0

Outstanding change document 24590-PTF-M6N-M80T-00059 has not been incorporated into this modification and applies to the following P&ID:

- 24590-PTF-M6-UFP-00015001, Revision 0 and 24590-PTF-M6-UFP-00015002, Revision 0

Outstanding change document 24590-PTF-M6N-M80T-00060 has not been incorporated into this modification and applies to the following P&IDs:

- 24590-PTF-M6-UFP-00005001, Revision 0
- 24590-PTF-M6-UFP-00005004, Revision 0
- 24590-PTF-M6-UFP-00008001, Revision 0
- 24590-PTF-M6-UFP-00009002, Revision 0
- 24590-PTF-M6-UFP-00010005, Revision 0

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

Enter relevant WAC 173-303-830, Appendix I Modification citation number: NA

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 <sup>1</sup>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."

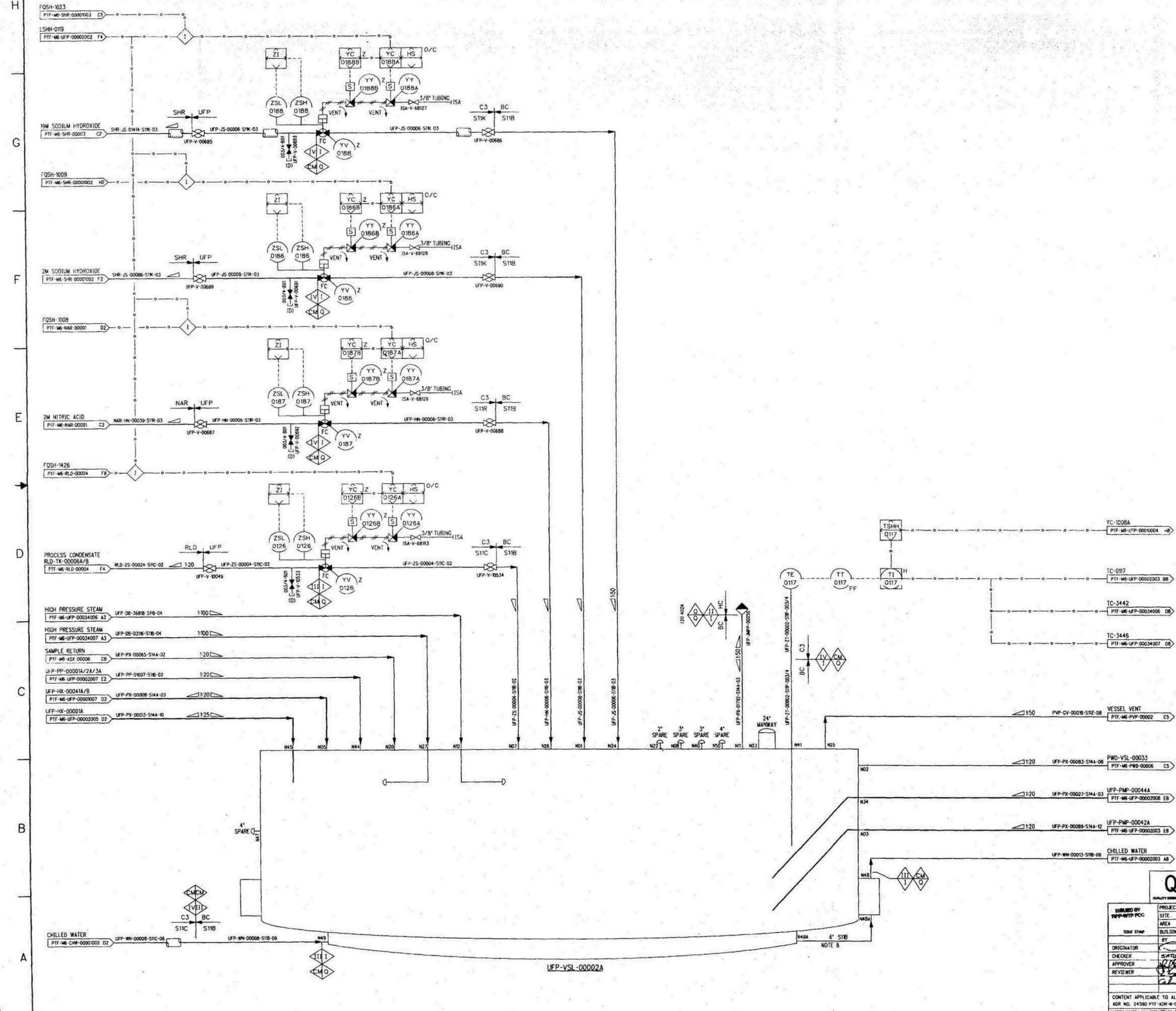
Modification Approved/Concur: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> Denied (state reason below) Reason for denial:	Reviewed by Ecology:  <i>E. Fredenburg</i> Ed Fredenburg
	8/19/2009 Date

UFP-VSL-00002A  
ULTRAFILTRATION  
FEED VESSEL  
35,400 GAL. MAX OPER VOL.  
H FT ID x 30 FT 9 IN T-T

- NOTES:**
- SEE DRAWINGS 24590-WTP-M6-50-00001 THROUGH 24590-WTP-M6-50-00008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL REQUIREMENTS.
  - CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
  - THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-1, UNLESS OTHERWISE NOTED TO PROTECT HOT CELL SC-1 COMPONENTS. ALL PIPING, JUMPERS, AND EQUIPMENT LOCATED IN THE HOT CELL TO BE A MINIMUM OF SC-II, WHICH TAKES PRECEDENCE OVER FLAGS SHOWN ON THIS DRAWING.
  - ALL LINES SHOWN ON THIS DRAWING SHALL BE FREE DRAINING, EXCEPT BLACK CELL LINES WHICH ARE SELF-DRAINING, UNLESS OTHERWISE NOTED.
  - FOR VESSEL WASH REPRESENTATION SEE PLANT WASH DRAWING 24590-PTF-M6-HLP-00010003.
  - FOR PULSE JET MIXERS REPRESENTATION SEE DRAWINGS 24590-PTF-M6-UFP-00010001 THROUGH -00010007.
  - FOR AIR SPARGER REPRESENTATION, SEE DRAWINGS 24590-PTF-M6-UFP-00021001 THROUGH -00021002, AND 24590-PTF-M6-UFP-00025001.
  - VENDOR SUPPLIED PIPING.
  - THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTI-SHEET DRAWINGS AND IN PART SUPERSEDES 24590-PTF-M6-UFP-00002 REV 2 AND 24590-PTF-M6-UFP-00026 REV 1. THIS IS A MAJOR REVISION. NO REVISION CLOUDS ARE SHOWN. THIS DRAWING MAY INCLUDE INFORMATION FROM 24590-PTF-M6N-M80T-00017, -00037, -00038, 24590-PTF-M6N-UFP-00043, -00060, -00065, -00068, -00086, -00087 AND -00104. REPLACED STEAM EJECTOR WITH STEAM HEATING SPARGER.

**HOLD/OPEN ITEMS:**  
NONE

- REFERENCES:**
- THE REQUIRED OPERATIONAL SEQUENCES, PERMISSIVES, INTERLOCKS, ALARMS AND OPERATOR INTERFACE POINTS ARE FULLY DESCRIBED IN THE UFP SYSTEM LOGIC DIAGRAMS (FUTURE) AND THE UFP SYSTEM DESCRIPTION (FUTURE REVISION).



Please note that revised, updated, and deleted symbols, as shown in the Revision History, are not to be used in any drawings created after the effective date of this revision. The symbols shown in this drawing are the symbols in effect at the time of the revision. Symbols shown in this drawing are the symbols in effect at the time of the revision. Symbols shown in this drawing are the symbols in effect at the time of the revision.

DWG NO	TITLE
24590-PTF-M6-UFP-00002001	ULTRAFILTRATION PROCESS SYSTEM UFP-VSL-00002A
24590-PTF-M6-UFP-00002002	ULTRAFILTRATION PROCESS SYSTEM BUBBLERS
24590-PTF-M6-UFP-00002003	UFP-PMP-00042A/43A
24590-PTF-M6-UFP-00002004	UFP-FILT-00001A/2A/3A/4A
24590-PTF-M6-UFP-00002005	UFP-FILT-00005A UFP-HX-00001A
24590-PTF-M6-UFP-00002006	UFP-PP-00001A/2A
24590-PTF-M6-UFP-00002007	UFP-PP-00003A
24590-PTF-M6-UFP-00002008	UFP-PMP-00044A

REV	DESCRIPTION	ORG	CHKD	RVWD	APVD	DATE
0	ISSUED FOR CONSTRUCTION SEE NOTE 9	W	S	E	L	11/14/08

**REVISION HISTORY**

ISSUED BY	PROJECT No.	24590
UFP-WTP PDC	SITE	HANFORD
AREA	200C	
BUILDING No.	10	
BY	DATE	
ORIGINATOR	DATE	
CHECKER	DATE	
APPROVER	DATE	
REVIEWER	DATE	

**QUALITY OBSERVATION**

ISSUED BY	PROJECT No.	24590
UFP-WTP PDC	SITE	HANFORD
AREA	200C	
BUILDING No.	10	
BY	DATE	
ORIGINATOR	DATE	
CHECKER	DATE	
APPROVER	DATE	
REVIEWER	DATE	

**CONTRACT No. DE-AC27-01RV14136**

**RIVER PROTECTION PROJECT  
WASTE TREATMENT PLANT  
2435 STEVENS CENTER PLACE  
RICHLAND, WA 99354**

**P&ID - PTF  
ULTRAFILTRATION PROCESS  
SYSTEM  
FEED VESSEL  
UFP-VSL-00002A**

SCALE: NONE

24590-PTF-M6-UFP-00002001

FORM E, SON DGN, 01/2003

**TABLE 1**

INSTRUMENT TAG	DRAWING NUMBER	GRID
UFP-YC-0188A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0186A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0187A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0186A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0185A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0184A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0183A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0182A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0181A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0180A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0179A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0178A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0177A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0176A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0175A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0174A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0173A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0172A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0171A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0170A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0169A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0168A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0167A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0166A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0165A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0164A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0163A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0162A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0161A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0160A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0159A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0158A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0157A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0156A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0155A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0154A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0153A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0152A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0151A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0150A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0149A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0148A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0147A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0146A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0145A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0144A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0143A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0142A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0141A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0140A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0139A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0138A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0137A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0136A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0135A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0134A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0133A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0132A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0131A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0130A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0129A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0128A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0127A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0126A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0125A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0124A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0123A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0122A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0121A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0120A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0119A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0118A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0117A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0116A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0115A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0114A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0113A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0112A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0111A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0110A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0109A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0108A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0107A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0106A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0105A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0104A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0103A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0102A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0101A	24590-PTF-M6-UFP-00002001	H6
UFP-YC-0100A	24590-PTF-M6-UFP-00002001	H6

**TABLE 2**

INSTRUMENT TAG	DRAWING NUMBER	GRID
HLP-YC-0107B	24590-PTF-M6-UFP-00030008	H6
HLP-YC-0127B	24590-PTF-M6-UFP-00030008	H5
HLP-YC-0242B	24590-PTF-M6-UFP-00030008	H3
HLP-YC-0297B	24590-PTF-M6-UFP-00030008	D6
UFP-YC-0224B	24590-PTF-M6-UFP-00030009	G5
UFP-YC-0292B	24590-PTF-M6-UFP-00030009	G4

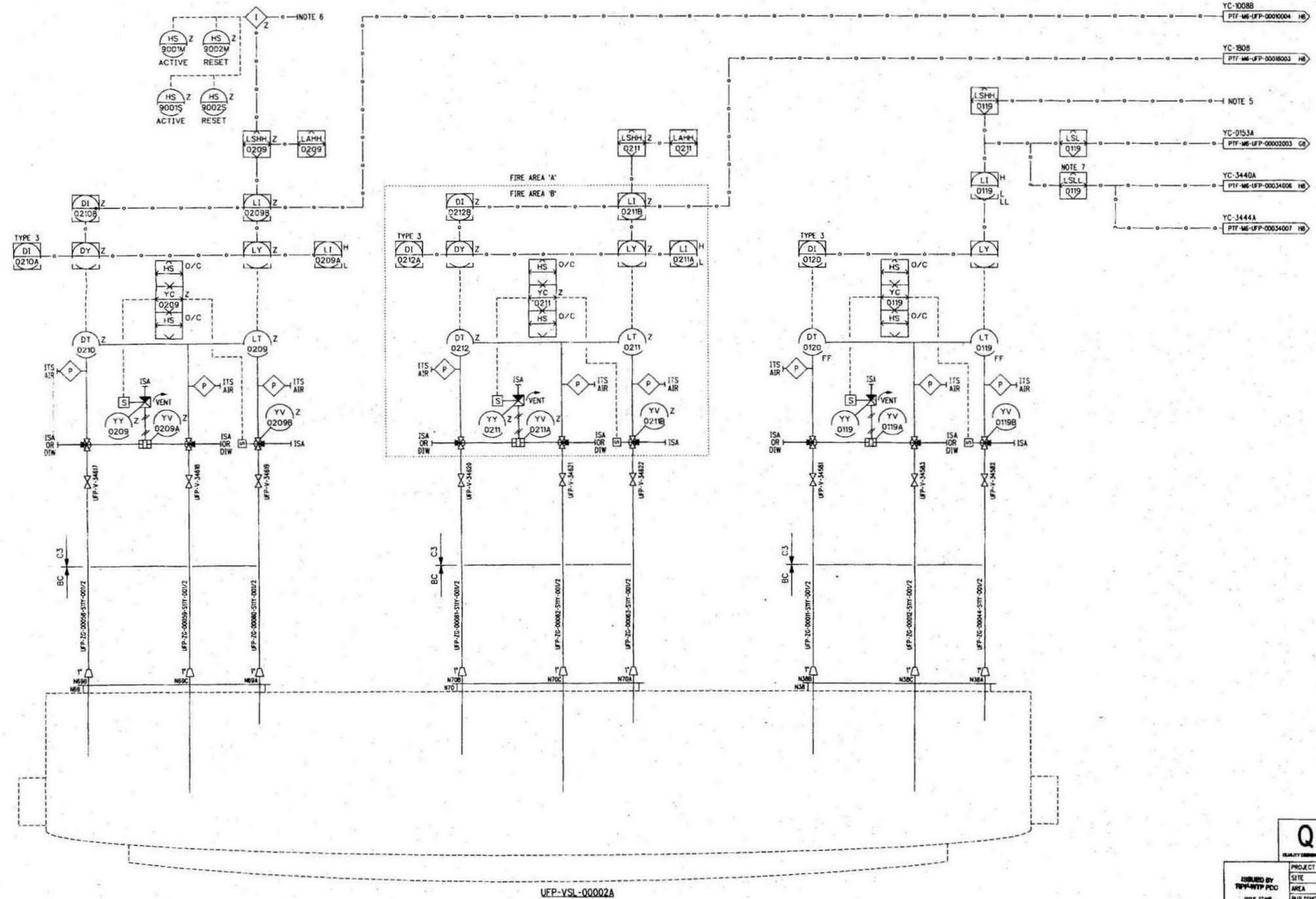
- NOTES:**
- SEE DRAWINGS 24590-WTP-M6-50-00001 THROUGH 24590-WTP-M6-50-00008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
  - CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
  - THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-1, UNLESS OTHERWISE NOTED.
  - ALL LINES SHOWN ON THIS DRAWING SHALL BE FREE DRAINING, EXCEPT BLACK CELL LINES WHICH ARE SELF-DRAINING, UNLESS OTHERWISE NOTED.
  - ON HIGH HIGH LEVEL DETECTION UFP-LSHH-0119, VALVES LISTED IN TABLE 2 WILL CLOSE.
  - ON HIGH HIGH LEVEL DETECTION UFP-LSHH-0209, VALVES LISTED IN TABLE 2 WILL CLOSE.
  - ON LOW LOW LEVEL DETECTION (UFP-LSL-0119), STEAM VALVES YV-3440 AND YV-3444 WILL CLOSE.
  - SEE DRAWINGS 24590-PTF-M6-ISA-00010, -00011, 24590-PTF-M6-PSA-00046001 AND -00046002 FOR BUBBLER RACK AND SYSTEM CONNECTION.
  - THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTI-SHEET DRAWINGS AND IN PART SUPERSEDES 24590-PTF-M6-UFP-00002 REV 2 AND 24590-PTF-M6-UFP-00026 REV 1. THIS IS A MAJOR REVISION, NO REVISION CLOUDS ARE SHOWN. THIS DRAWING MAY INCLUDE INFORMATION FROM 24590-PTF-M6N-M601-00017, -000337, -000338, 24590-PTF-M6N-UFP-00043, -00060, -00065, -00068, -00086, -00087 AND -00104.

**HOLD/OPEN ITEMS:**

NONE

**REFERENCES:**

- THE REQUIRED OPERATIONAL SEQUENCES, PERMISSIVES, INTERLOCKS, ALARMS AND OPERATOR INTERFACE POINTS ARE FULLY DESCRIBED IN THE UFP SYSTEM LOGIC DIAGRAMS (FUTURE) AND THE UFP SYSTEM DESCRIPTION (FUTURE REVISION).



UFP-VSL-00002A

REV	DESCRIPTION	ORIG	CHKD	RVWD/APVD	DATE
0	ISSUED FOR CONSTRUCTION SEE NOTE 9				

REVISION HISTORY	
PROJECT No.	24590
SITE	WAMFORD
AREA	200C
BUILDING No.	10
CONTRACT No.	DE-AC27-01RV1436
<b>P&amp;ID - PTF ULTRAFILTRATION PROCESS SYSTEM BUBBLERS UFP-VSL-00002A</b>	
ORIGINATOR	DATE
CHECKER	DATE
APPROVER	DATE
REVIEWER	DATE
CONTENT APPLICABLE TO ALARA?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
SAFETY SCREEN REQUIRED?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
SCALE	NONE
REV	0

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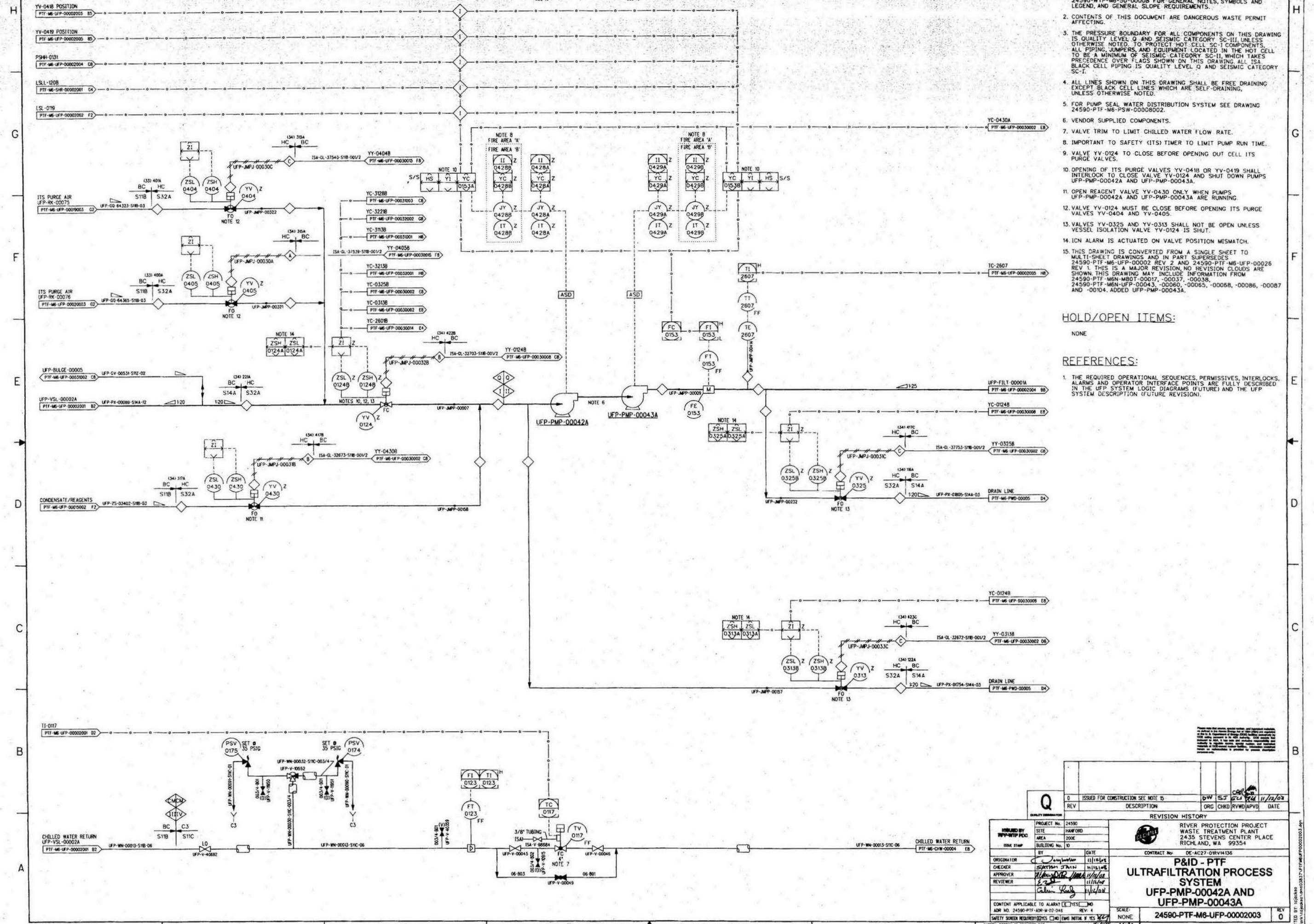
UFP-PMP-00042A  
ULTRAFILTRATION  
RECIRCULATION PUMP  
2200 GPM @ 164 FT TDH  
300 HP

UFP-PMP-00043A  
ULTRAFILTRATION  
RECIRCULATION PUMP  
2200 GPM @ 164 FT TDH  
300 HP

- NOTES:**
- SEE DRAWINGS 24590-WTP-M6-50-00001 THROUGH 24590-WTP-M6-50-00008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
  - CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
  - THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-III, UNLESS OTHERWISE NOTED. TO PROTECT HOT CELL SC-I COMPONENTS ALL PIPING, JUMPERS, AND EQUIPMENT LOCATED IN THE HOT CELL TO BE A MINIMUM OF SEISMIC CATEGORY SC-II, WHICH TAKES PRECEDENCE OVER FLAGS SHOWN ON THIS DRAWING. ALL ISA BLACK CELL PIPING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-I.
  - ALL LINES SHOWN ON THIS DRAWING SHALL BE FREE DRAINING EXCEPT BLACK CELL LINES WHICH ARE SELF-DRAINING, UNLESS OTHERWISE NOTED.
  - FOR PUMP SEAL WATER DISTRIBUTION SYSTEM SEE DRAWING 24590-PTF-M6-PSW-00008002.
  - VENDOR SUPPLIED COMPONENTS.
  - VALVE TRIM TO LIMIT CHILLED WATER FLOW RATE.
  - IMPORTANT TO SAFETY (ITS) TIMER TO LIMIT PUMP RUN TIME.
  - VALVE YV-0124 TO CLOSE BEFORE OPENING OUT CELL ITS PURGE VALVES.
  - OPENING OF ITS PURGE VALVES YV-0418 OR YV-0419 SHALL INTERLOCK TO CLOSE VALVE YV-0124 AND SHUT DOWN PUMPS UFP-PMP-00042A AND UFP-PMP-00043A.
  - OPEN REAGENT VALVE YV-0430 ONLY WHEN PUMPS UFP-PMP-00042A AND UFP-PMP-00043A ARE RUNNING.
  - VALVE YV-0124 MUST BE CLOSE BEFORE OPENING ITS PURGE VALVES YV-0404 AND YV-0405.
  - VALVES YV-0325 AND YV-0313 SHALL NOT BE OPEN UNLESS VESSEL ISOLATION VALVE YV-0124 IS SHUT.
  - ICN ALARM IS ACTUATED ON VALVE POSITION MISMATCH.
  - THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTI-SHEET DRAWINGS AND IN PART SUPERSEDES 24590-PTF-M6-UFP-00002 REV 2 AND 24590-PTF-M6-UFP-00026 REV 1. THIS IS A MAJOR REVISION, NO REVISION CLOUDS ARE SHOWN. THIS DRAWING MAY INCLUDE INFORMATION FROM 24590-PTF-M6N-M6BT-00017, -00037, -00038, 24590-PTF-M6N-UFP-00043, -00060, -00065, -00068, -00086, -00087 AND -00104. ADDED UFP-PMP-00043A.

**HOLD/OPEN ITEMS:**  
NONE

- REFERENCES:**
- THE REQUIRED OPERATIONAL SEQUENCES, PERMISSIVES, INTERLOCKS, ALARMS AND OPERATOR INTERFACE POINTS ARE FULLY DESCRIBED IN THE UFP SYSTEM LOGIC DIAGRAMS (FUTURE) AND THE UFP SYSTEM DESCRIPTION (FUTURE REVISION).



ISSUED FOR CONSTRUCTION SEE NOTE 15		DATE	11/12/08
REV	DESCRIPTION	ORG	CHKD
0		ORG	CHKD

PROJECT No.	24590
SITE	HANFORD
AREA	200E
BUILDING No.	10

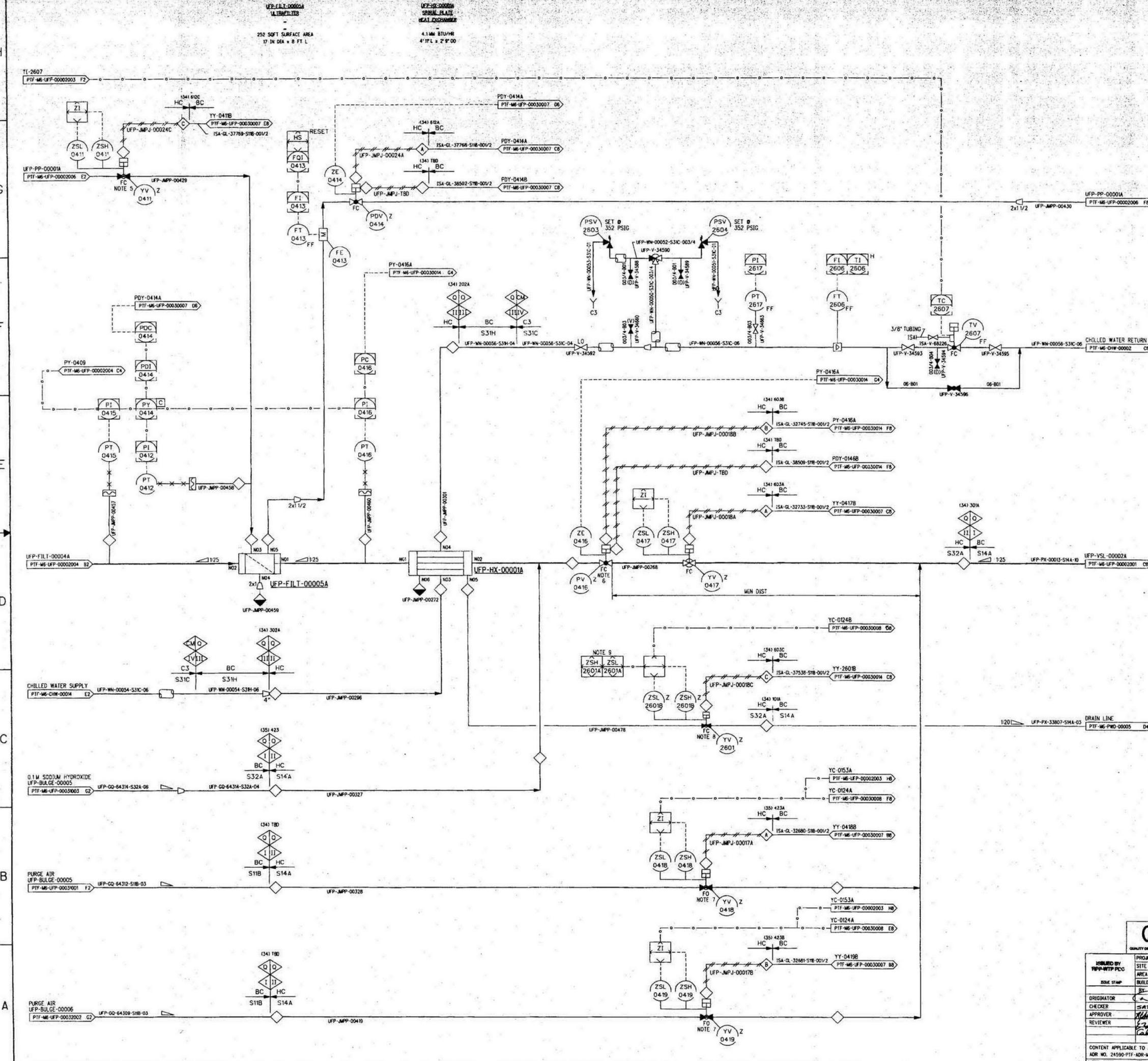
ORIGINATOR	DATE
CHECKER	11/12/08
APPROVER	11/12/08
REVIEWER	11/12/08

CONTRACT No.	DE-AC27-08R14136
RIVER PROTECTION PROJECT WASTE TREATMENT PLANT 2435 STEVENS CENTER PLACE RICHLAND, WA 99354	

<b>P&amp;ID - PTF ULTRAFILTRATION PROCESS SYSTEM</b>	
<b>UFP-PMP-00042A AND UFP-PMP-00043A</b>	
CONTENT APPLICABLE TO ALARMS	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
SAFETY SCREEN REQUIRED FOR DRAWING TYPES IDENTIFIED IN 24590-WTP-OPF-SPEC-002	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO

SCALE	NONE
REV	0





- NOTES:**
- SEE DRAWINGS 24590-WTP-M6-50-00001 THROUGH 24590-WTP-M6-50-00008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
  - CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
  - THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-III, UNLESS OTHERWISE NOTED. TO PROTECT HOT CELL SC-I COMPONENTS, ALL PIPING, JUMPERS, AND EQUIPMENT LOCATED IN THE HOT CELL TO BE A MINIMUM OF SC-II, WHICH TAKES PRECEDENCE OVER FLAGS SHOWN ON THIS DRAWING. ALL ISA BLACK CELL PIPING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-I.
  - ALL PIPE LINES SHOWN ON THIS DRAWING SHALL BE FREE DRAINING, EXCEPT BLACK CELL LINES WHICH ARE SELF-DRAINING, UNLESS OTHERWISE NOTED.
  - FAST ACTING VALVE REQUIRED FOR ULTRAFILTRATION BACK PULSING ON A 4 INCH JUMPER.
  - ANGLE GLOBE VALVE.
  - OPENING OF ITS PURGE VALVE YV-0418 OR YV-0419 SHALL BE INTERLOCKED TO CLOSE VALVE YV-0124 AND SHUT DOWN PUMPS UFP-PMP-00042A AND UFP-PMP-00043A (PTF-M6-UFP-00002003).
  - VALVES YV-2601 SHALL NOT BE OPEN UNLESS VESSEL ISOLATION VALVE YV-0124 (24590-PTF-M6-UFP-00002003) IS SHUT.
  - ICN ALARM IS ACTUATED ON VALVE POSITION MISMATCH.
  - THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTI-SHEET DRAWINGS AND IN PART SUPERSEDES 24590-PTF-M6-UFP-00002 REV 2 AND 24590-PTF-M6-UFP-00026 REV 1. THIS IS A MAJOR REVISION, NO REVISION CLOUDS ARE SHOWN. THIS DRAWING MAY INCLUDE INFORMATION FROM 24590-PTF-M6N-M6DT-00017, -00037, -00038, 24590-PTF-M6N-UFP-00043, -00060, -00065, -00066, -00086, -00087 AND -00104. ADDED UFP-FILT-00005A.

- HOLD/OPEN ITEMS:**  
NONE
- REFERENCES:**
- THE REQUIRED OPERATIONAL SEQUENCES, PERMISSIVES, INTERLOCKS, ALARMS AND OPERATOR INTERFACE POINTS ARE FULLY DESCRIBED IN THE UFP SYSTEM LOGIC DIAGRAMS (FUTURE) AND THE UFP SYSTEM DESCRIPTION (FUTURE REVISION).

<b>Q</b> ISSUED FOR CONSTRUCTION SEE NOTE 10 REV 0 DESCRIPTION ORG CHKD RWD APVD DATE		RIVER PROTECTION PROJECT WASTE TREATMENT PLANT 2435 STEVENS CENTER PLACE RICHLAND, WA 99354 CONTRACT NO: DE-AC27-01RW14136	
PROJECT No: 24590 SITE: HANFORD AREA: 200E BUILDING No: 10		RIVER PROTECTION PROJECT WASTE TREATMENT PLANT 2435 STEVENS CENTER PLACE RICHLAND, WA 99354 CONTRACT NO: DE-AC27-01RW14136	
ORIGINATOR: [Signature] CHECKER: [Signature] APPROVER: [Signature] REVIEWER: [Signature]		P&ID - PTF ULTRAFILTRATION PROCESS SYSTEM UFP-FILT-00005A UFP-HX-00001A	
CONTENT APPLICABLE TO ALARA? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO ADR NO. 24590-PTF-ADR-W-02-046 REV: 4 SAFETY SCREEN REQUIRED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		SCALE: NONE 24590-PTF-M6-UFP-00002005 REV: 0	

H

G

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E

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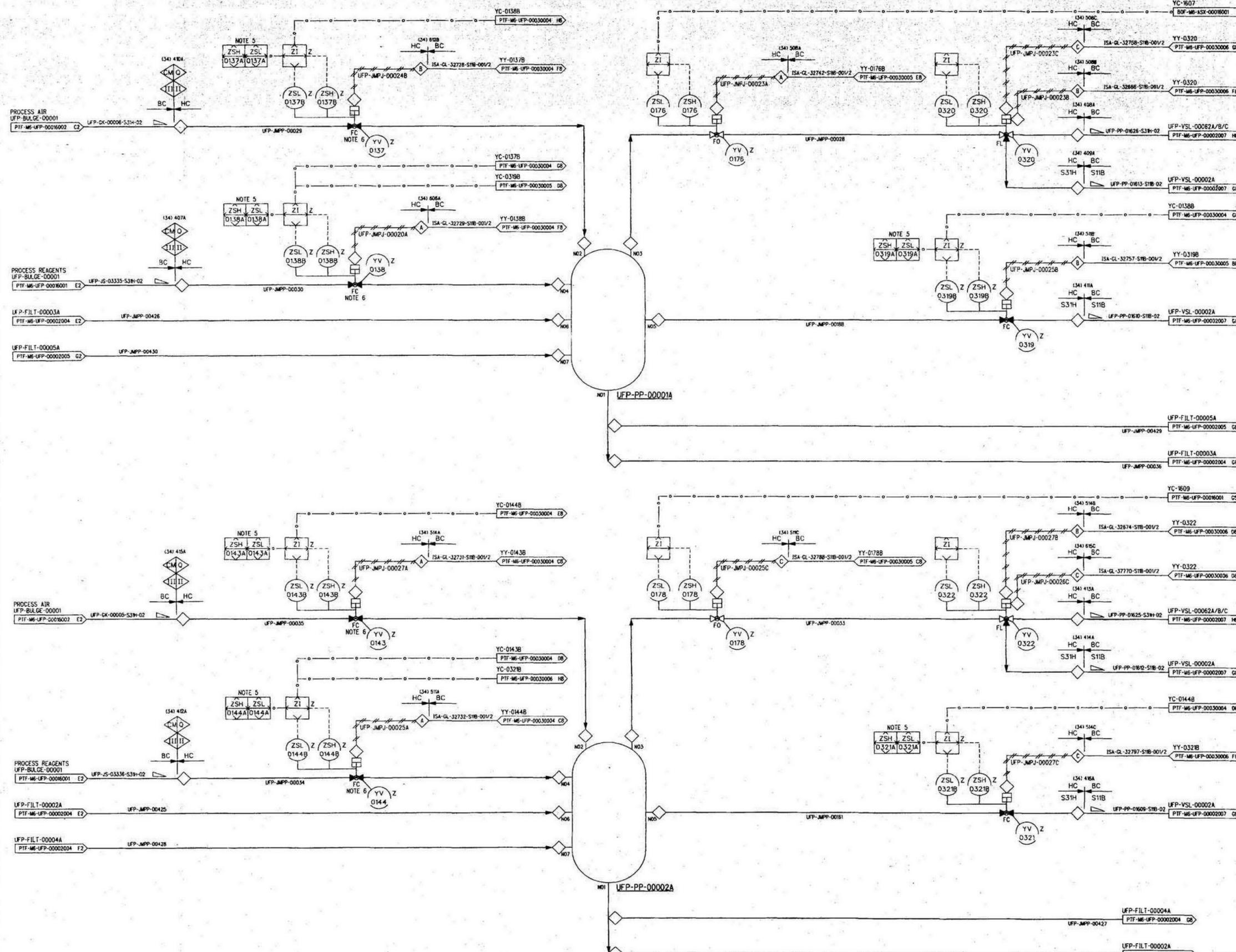
C

B

A

UFP-PP-00001A  
ULTRAFILTRATION  
PULSE PLOT  
90 GAL TOTAL VOL  
3 FT 4 IN ID x 8.5 IN T-T

UFP-PP-00002A  
ULTRAFILTRATION  
PULSE PLOT  
90 GAL TOTAL VOL  
3 FT 4 IN ID x 8.5 IN T-T



- NOTES:**
- SEE DRAWINGS 24590-WTP-M6-50-00001 THROUGH 24590-WTP-M6-50-00008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
  - CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
  - THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-III UNLESS OTHERWISE NOTED. TO PROTECT HOT CELL SC-I COMPONENTS, ALL PIPING, JUMPERS, AND EQUIPMENT LOCATED IN THE HOT CELL TO BE A MINIMUM OF SC-II, WHICH TAKES PRECEDENCE OVER FLAGS SHOWN ON THIS DRAWING. ALL ISA BLACK CELL PIPING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-I.
  - ALL LINES SHOWN ON THIS DRAWING SHALL BE FREE DRAINING, EXCEPT BLACK CELL LINES WHICH ARE SELF-DRAINING, UNLESS OTHERWISE NOTED.
  - ICN ALARM IS ACTUATED ON VALVE POSITION MISMATCH.
  - TIMER TO LIMIT VALVE RUN TIME.
  - THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTI-SHEET DRAWINGS AND IN PART SUPERSEDES 24590-PTF-M6-UFP-00002 REV 2 AND 24590-PTF-M6-UFP-000026 REV 1. THIS IS A MAJOR REVISION, NO REVISION CLOUDS ARE SHOWN. THIS DRAWING MAY INCLUDE INFORMATION FROM 24590-PTF-M6N-MBOT-00017, -00037, -00038, 24590-PTF-M6N-MBOT-00043, -00060, -00065, -00068, -00086, -00087 AND -00104.

**HOLD/OPEN ITEMS:**  
NONE

- REFERENCES:**
- THE REQUIRED OPERATIONAL SEQUENCES, PERMISSIVES, INTERLOCKS, ALARMS AND OPERATOR INTERFACE POINTS ARE FULLY DESCRIBED IN THE UFP SYSTEM LOGIC DIAGRAMS (FUTURE) AND THE UFP SYSTEM DESCRIPTION (FUTURE REVISION).

Q	ISSUED FOR CONSTRUCTION SEE NOTE 7	11/12/08
REV	DESCRIPTION	DATE

REVISION HISTORY	
ORIGINATOR	DATE
CHECKER	DATE
APPROVER	DATE
REVIEWER	DATE

PROJECT No.	24590
SITE	HANFORD
AREA	200E
BUILDING No.	10
CONTRACT No.	DE-AC27-01RV14136
<b>P&amp;ID - PTF ULTRAFILTRATION PROCESS SYSTEM UFP-PP-00001A UFP-PP-00002A</b>	
SCALE:	NONE
24590-PTF-M6-UFP-00002006	REV 0

UFP-PP-00003A  
ULTRAFILTRATION  
PROCESS UNIT  
90 GAL TOTAL VOL  
3 FT 4 IN ID x 8.5 IN T-T

NOTES:

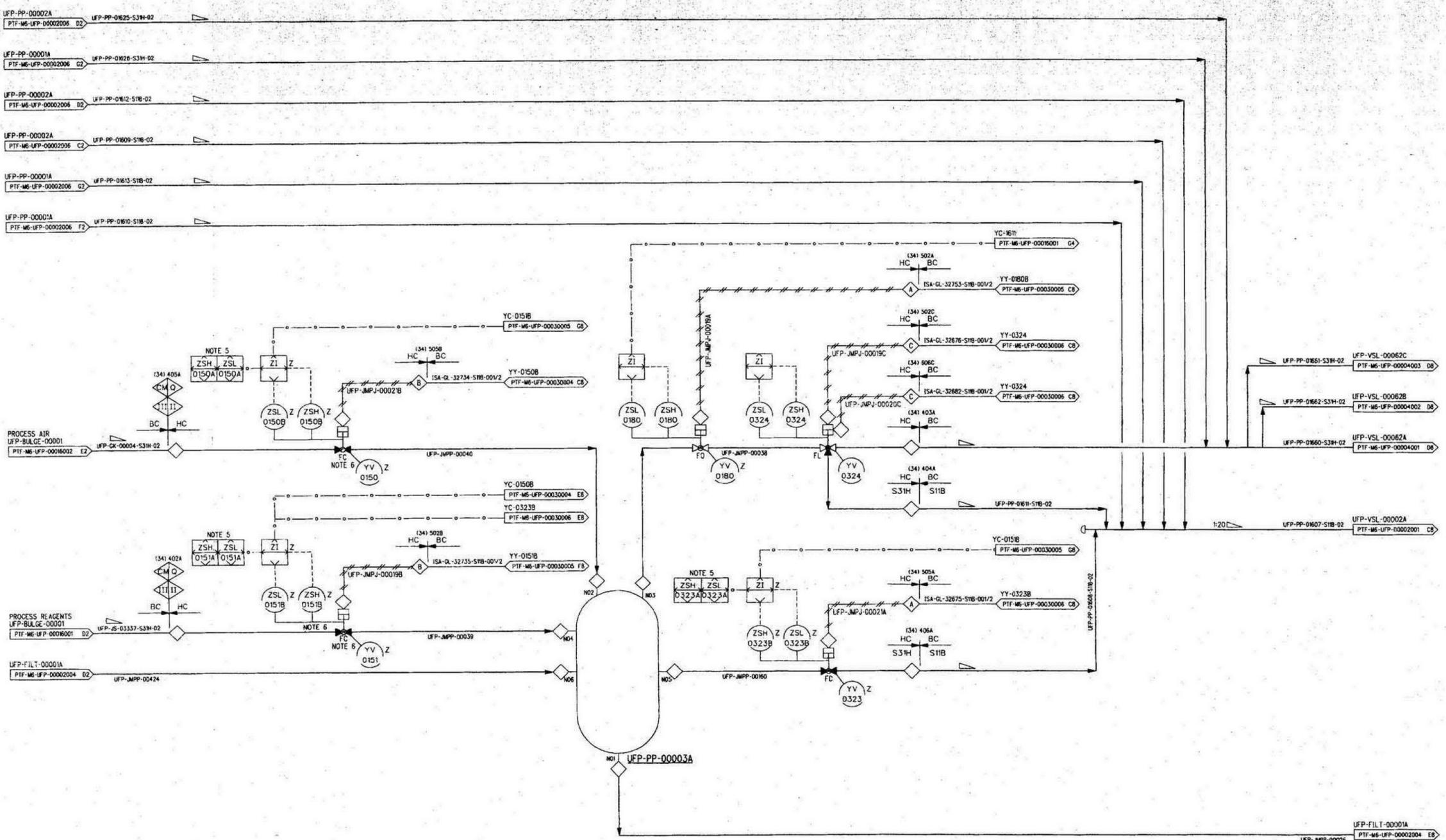
- SEE DRAWINGS 24590-WTP-M6-50-00001 THROUGH 24590-WTP-M6-50-00008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
- CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
- THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-III, UNLESS OTHERWISE NOTED. TO PROTECT HOT CELL SC-I COMPONENTS, ALL PIPING, JUMPERS, AND EQUIPMENT LOCATED IN THE HOT CELL TO BE A MINIMUM OF SC-II, WHICH TAKES PRECEDENCE OVER FLAGS SHOWN ON THIS DRAWING. ALL ISA BLACK CELL PIPING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-I.
- ALL LINES SHOWN ON THIS DRAWING SHALL BE FREE DRAINING, EXCEPT BLACK CELL LINES WHICH ARE SELF-DRAINING, UNLESS OTHERWISE NOTED.
- ICN ALARM IS ACTUATED ON VALVE POSITION MISMATCH.
- TIMER TO LIMIT VALVE RUN TIME.
- THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTI-SHEET DRAWINGS AND IN PART SUPERSEDES 24590-PTF-M6-UFP-00002 REV 2 AND 24590-PTF-M6-UFP-00026 REV 1. THIS IS A MAJOR REVISION. NO REVISION CLOUDS ARE SHOWN. THIS DRAWING MAY INCLUDE INFORMATION FROM 24590-PTF-M6N-M6OT-00017, -00037, -00038, 24590-PTF-M6N-UFP-00043, -00060, -00065, -00068, -00086, -00087 AND -00104.

HOLD/OPEN ITEMS:

NONE

REFERENCES:

- THE REQUIRED OPERATIONAL SEQUENCES, PERMISSIVES, INTERLOCKS, ALARMS AND OPERATOR INTERFACE POINTS ARE FULLY DESCRIBED IN THE UFP SYSTEM LOGIC DIAGRAMS (FUTURE) AND THE UFP SYSTEM DESCRIPTION (FUTURE REVISION).



Process flow diagram, control system, and equipment symbols are shown in the drawing. All piping, equipment, and control system symbols are shown in the drawing. All piping, equipment, and control system symbols are shown in the drawing.

Q QUALITY DESIGNATOR	0	ISSUED FOR CONSTRUCTION SEE NOTE 7	DN	ST	11/11/08	
	REV	DESCRIPTION	ORG	CHKD	RVND	APVD
REVISION HISTORY						
ISSUED BY	PROJECT No.	24590				
CHECKER	SITE	HANFORD				
ISSUE STAMP	AREA	2006				
	BUILDING No.	10				
ORIGINATOR	DATE	11/11/08				
CHECKER	DATE	11/11/08				
APPROVER	DATE	11/11/08				
REVIEWER	DATE	11/11/08				
CONTENT APPLICABLE TO ALARA? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO						
SAFETY SCREENING REQUIRED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO						
SCALE: NONE						
24590-PTF-M6-UFP-0002007						

CONTRACT No. DE-AC27-08R14136  
**P&ID - PTF  
 ULTRAFILTRATION PROCESS  
 SYSTEM  
 UFP-PP-00003A**

UFP-PMP-00044A  
PROGRESSIVE  
CAVITY PUMP  
55 GPM @ 122 FT TDH  
25 HP

NOTES:

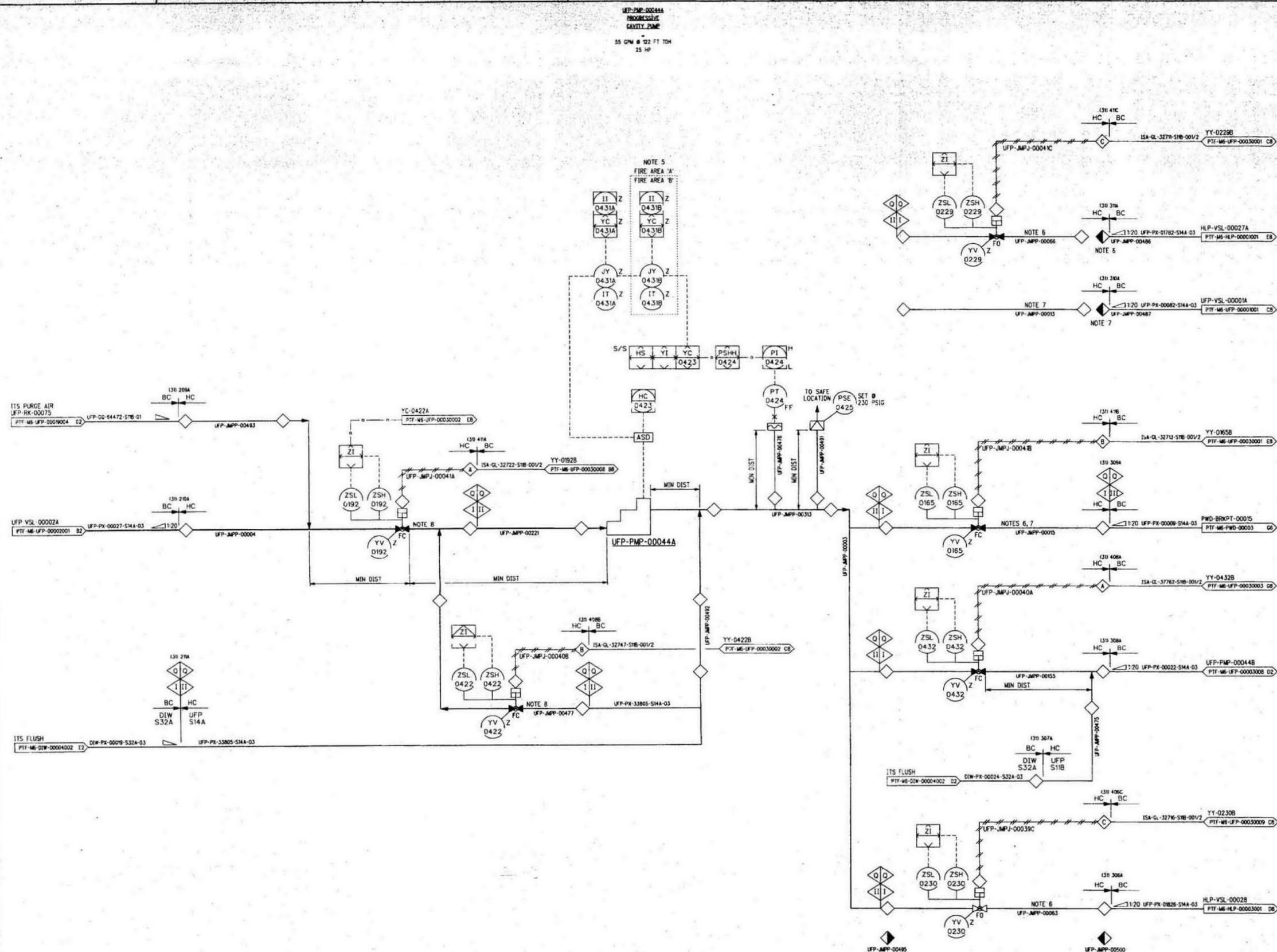
- SEE DRAWINGS 24590-WTP-M6-50-00001 THROUGH 24590-WTP-M6-50-00008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
- CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
- THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-III UNLESS OTHERWISE NOTED. TO PROTECT HOT CELL SC-I COMPONENTS, ALL PIPING, JUMPERS, AND EQUIPMENT LOCATED IN THE HOT CELL TO BE A MINIMUM OF SC-II, WHICH TAKES PRECEDENCE OVER FLAGS SHOWN ON THIS DRAWING. ALL ISA BLACK CELL PIPING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-I.
- ALL LINES SHOWN ON THIS DRAWING SHALL BE FREE DRAINING, EXCEPT BLACK CELL LINES WHICH ARE SELF-DRAINING, UNLESS OTHERWISE NOTED.
- ITS TIMER TO LIMIT PUMP RUN TIME.
- JUMPERS UFP-JMPP-00015, UFP-JMPP-00486, UFP-JMPP-00063 ARE NORMALLY INSTALLED. JUMPERS UFP-JMPP-00066, UFP-JMPP-00495, UFP-JMPP-00500 ARE TO BE FABRICATED BUT NOT NORMALLY INSTALLED. DURING OFF NORMAL OPERATION, JUMPER UFP-JMPP-00015 AND UFP-JMPP-00486 ARE TO BE REMOVED AND REPLACED BY JUMPER UFP-JMPP-00066 AND JUMPER UFP-JMPP-00063 IS TO BE REMOVED AND REPLACED BY UFP-JMPP-00495, AND UFP-JMPP-00500 ON AS NEEDED BASIS.
- DURING OFF NORMAL OPERATION, JUMPER UFP-JMPP-00015 AND UFP-JMPP-00487 ARE TO BE REMOVED AND REPLACED BY JUMPER UFP-JMPP-00013.
- VALVE YV-0192 MUST BE CLOSED BEFORE OPENING FLUSH VALVE YV-0422.
- THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTI-SHEET DRAWINGS AND IN PART SUPERSEDES 24590-PTF-M6-UFP-00002 REV 2 AND 24590-PTF-M6-00026 REV 1. THIS IS A MAJOR REVISION, NO REVISION CLOUDS ARE SHOWN. THIS DRAWING MAY INCLUDE INFORMATION FROM 24590-PTF-M6-MBT-00017, -00037, -00038, 24590-PTF-M6-UFP-00043, -00060, -00065, -00068, -00086, -00087 AND -00104. REPLACED STEAM TRANSFER EJECTOR UFP-EJCTR-00130 WITH PROGRESSIVE CAVITY PUMP UFP-PMP-00044A.

HOLD/OPEN ITEMS

NONE

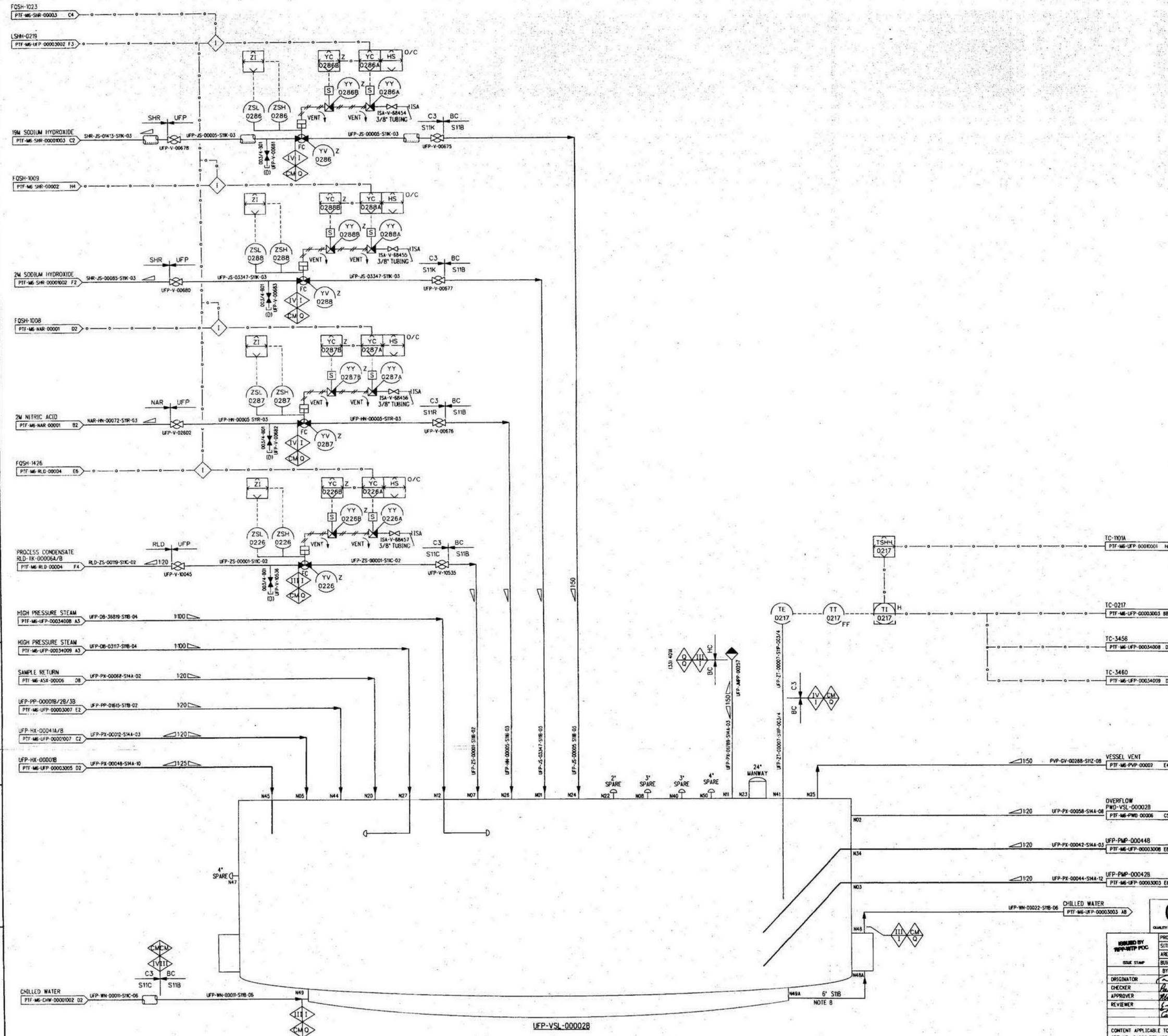
REFERENCES:

- THE REQUIRED OPERATIONAL SEQUENCES, PERMISSIVES, INTERLOCKS, ALARMS AND OPERATOR INTERFACE POINTS ARE FULLY DESCRIBED IN THE UFP SYSTEM LOGIC DIAGRAMS (FUTURE) AND THE UFP SYSTEM DESCRIPTION (FUTURE REVISION).



ISSUED FOR CONSTRUCTION SEE NOTE 9		DWV	STJ	ELR	11/12/08
REV	DESCRIPTION	ORC	CHKD	RYWD	APVD
REVISION HISTORY					
PROJECT No: 24590		RIVER PROTECTION PROJECT			
SITE: HANFORD		WASTE TREATMENT PLANT			
AREA: 2006		2435 STEVENS CENTER PLACE			
BUILDING No: 10		RICHLAND, WA 99354			
BY: [Signature]		CONTRACT No: DE-AC27-DR1V14136			
DATE: 11/11/08		P&ID - PTF			
CHECKER: [Signature]		ULTRAFILTRATION PROCESS			
APPROVER: [Signature]		SYSTEM			
REVIEWER: [Signature]		UFP-PMP-00044A			
CONTENT APPLICABLE TO ALARA? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		SCALE: NONE			
ADR No. 24590-PTF-ADR-N-02-046		24590-PTF-M6-UFP-00002008			
SAFETY SCREEN REQUIRED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		REV: 0			
SAFETY SCREEN REQUIRED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		11/11/2008 03:43:05 PM			

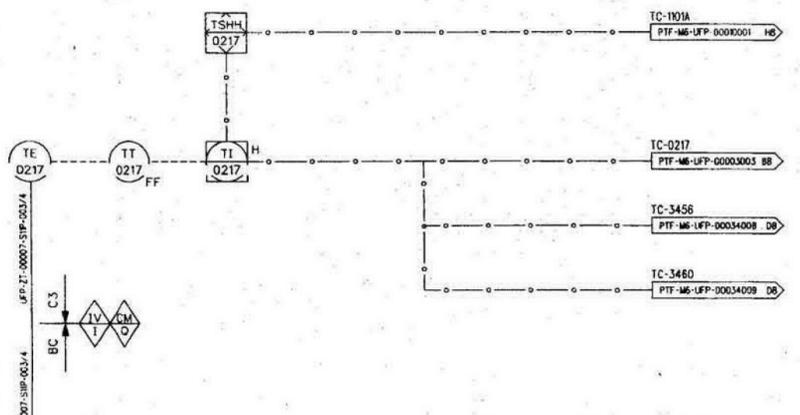
UFP-VSL-000028  
ULTRAFILTRATION  
FEED VESSEL  
35,400 GAL MAX OPER VOL  
14 FT ID x 30 FT 9 IN T-1



- NOTES:**
- SEE DRAWINGS 24590-WTP-M6-50-0001 THROUGH 24590-WTP-M6-50-0008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
  - CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
  - THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL O AND SEISMIC CATEGORY SC-I, UNLESS OTHERWISE NOTED. TO PROTECT HOT CELL SC-I COMPONENTS, ALL PIPING, JUMPERS, AND EQUIPMENT LOCATED IN THE HOT CELL TO BE A MINIMUM OF SC-II, WHICH TAKES PRECEDENCE OVER FLAGS SHOWN ON THIS DRAWING.
  - ALL LINES SHOWN ON THIS DRAWING SHALL BE FREE DRAINING, EXCEPT BLACK CELL LINES WHICH ARE SELF-DRAINING, UNLESS OTHERWISE NOTED.
  - FOR VESSEL WASH REPRESENTATION, SEE PLANT WASH DRAWING 24590-PTF-M6-HLP-00010002.
  - FOR PULSE JET MIXERS REPRESENTATION, SEE DRAWINGS: 24590-PTF-M6-UFP-00010001 THROUGH -00010007.
  - FOR AIR SPARGER REPRESENTATION, SEE DRAWINGS: 24590-PTF-M6-UFP-00021001 THROUGH -00021002, AND 24590-PTF-M6-UFP-00025001.
  - VENDOR SUPPLIED PIPING.
  - THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTI-SHEET DRAWINGS AND IN PART SUPERSEDES 24590-PTF-M6-UFP-00003 REV 2 AND 24590-PTF-M6-UFP-00026 REV 1. THIS IS A MAJOR REVISION, NO REVISION CLOUDS ARE SHOWN. THIS DRAWING MAY INCLUDE INFORMATION FROM 24590-PTF-M6N-MB0T-00017, -00037, -00038, 24590-PTF-M6N-UFP-00044, -00056, -00060, -00066, -00069, -00087, -00093, AND -00104. REPLACED STEAM EJECTOR WITH STEAM HEATING SPARGER.

**HOLD/OPEN ITEMS:**  
NONE

- REFERENCES:**
- THE REQUIRED OPERATIONAL SEQUENCES, PERMISSIVES, INTERLOCKS, ALARMS AND OPERATOR INTERFACE POINTS ARE FULLY DESCRIBED IN THE UFP SYSTEM LOGIC DIAGRAMS (FUTURE) AND THE UFP SYSTEM DESCRIPTION (FUTURE REVISION).



**DRAWING INDEX**

DWG NO	TITLE
24590-PTF-M6-UFP-00003001	ULTRAFILTRATION PROCESS SYSTEM UFP-VSL-000028
24590-PTF-M6-UFP-00003002	ULTRAFILTRATION PROCESS SYSTEM BUBBLERS
24590-PTF-M6-UFP-00003003	UFP-PMP-00042B/43B
24590-PTF-M6-UFP-00003004	UFP-FILT-00001B/2B/3B/4B
24590-PTF-M6-UFP-00003005	UFP-FILT-00005A UFP-HX-00001B
24590-PTF-M6-UFP-00003006	UFP-PP-00001B/2B
24590-PTF-M6-UFP-00003007	UFP-PP-00003B
24590-PTF-M6-UFP-00003008	UFP-PMP-00044B

**REVISION HISTORY**

REV	DESCRIPTION	ORG	CHKD	RWMD	APVD	DATE
0	ISSUED FOR CONSTRUCTION SEE NOTE 9					11/15/08

**QUALITY CONTROL**

ISSUED BY	PROJECT No.	24590
DATE	SITE	HANFORD
AREA	AREA	2006
BUILDING No.	DATE	
ORIGINATOR	BY	
CHECKER	DATE	
APPROVER	DATE	
REVIEWER	DATE	

**REVISION HISTORY**

CONTRACT No.	DE-AC27-01R014136
PROJECT	RIVER PROTECTION PROJECT
SITE	WASTE TREATMENT PLANT
AREA	2435 STEVENS CENTER PLACE
BUILDING No.	99354

**P&ID - PTF  
ULTRAFILTRATION PROCESS  
SYSTEM  
VESSEL  
UFP-VSL-000028**

DWG NO: 24590-PTF-M6-UFP-00003001 REV: 0

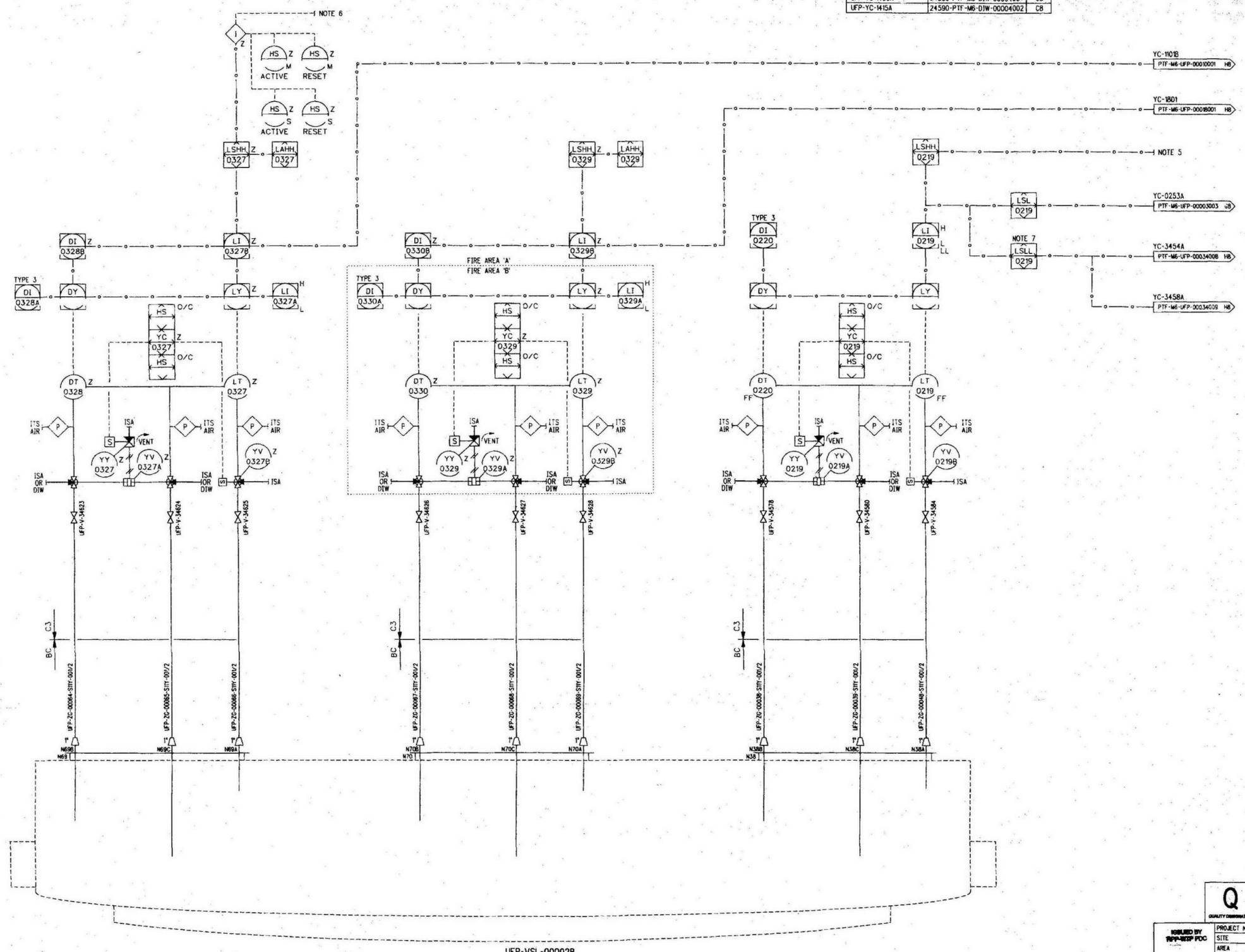
**TABLE 2**

INSTRUMENT TAG	DRAWING NUMBER	GRID
HLP-YC-0107B	24590-PTF-M6-UFP-0003000B	H6
HLP-YC-0127B	24590-PTF-M6-UFP-0003000B	H5
HLP-YC-0242B	24590-PTF-M6-UFP-0003000B	H3
HLP-YC-0297B	24590-PTF-M6-UFP-0003000B	D6
UFP-YC-0124B	24590-PTF-M6-UFP-0003000B	D4
UFP-YC-0192B	24590-PTF-M6-UFP-0003000B	D3

**TABLE 1**

INSTRUMENT TAG	DRAWING NUMBER	GRID
UFP-YC-0286A	24590-PTF-M6-UFP-0003001	H6
UFP-YC-0287A	24590-PTF-M6-UFP-0003001	G6
UFP-YC-0226A	24590-PTF-M6-UFP-0003001	E6
UFP-YC-3454A	24590-PTF-M6-UFP-0003400B	G6
UFP-YC-3458A	24590-PTF-M6-UFP-0003400B	G6
UFP-YC-0276A	24590-PTF-M6-UFP-0003001	D8
UFP-YC-0307A	24590-PTF-M6-UFP-0003001	D8
UFP-YC-0278A	24590-PTF-M6-UFP-0003001	D8
UFP-YC-0309A	24590-PTF-M6-UFP-0003002	H8
UFP-YC-0280A	24590-PTF-M6-UFP-0003001	D8
UFP-YC-0311A	24590-PTF-M6-UFP-0003002	H8
UFP-YC-0110A	24590-PTF-M6-UFP-0003001	G8
UFP-YC-0440A	24590-PTF-M6-UFP-0003003	E8
UFP-YC-3227A	24590-PTF-M6-UFP-00032002	D8
UFP-YC-1406A	24590-PTF-M6-D1W-00004001	C8
UFP-YC-1415A	24590-PTF-M6-D1W-00004002	C8

- NOTES:**
- SEE DRAWINGS 24590-WTP-M6-50-00001 THROUGH 24590-WTP-M6-50-00008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
  - CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
  - THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-I, UNLESS OTHERWISE NOTED.
  - ALL LINES SHOWN ON THIS DRAWING SHALL BE FREE DRAINING, EXCEPT BLACK CELL LINES WHICH ARE SELF-DRAINING, UNLESS OTHERWISE NOTED.
  - ON HIGH HIGH LEVEL DETECTION (UFP-LSHH-0219), VALVES LISTED IN TABLE 1 CLOSE.
  - ON HIGH HIGH LEVEL DETECTION (UFP-LSHH-0327), VALVES LISTED IN TABLE 2 CLOSE.
  - ON LOW LOW LEVEL DETECTION (UFP-LSL-0219), STEAM VALVES YV-3454 AND YV-3458 WILL CLOSE.
  - SEE DRAWING 24590-PTF-M6-ISA-00010, -00011, 24590-PTF-M6-PSA-00046001 AND -00046002 FOR BUBBLER RACK AND SYSTEM CONNECTION.
  - THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTI-SHEET DRAWINGS AND IN PART SUPERSEDES 24590-PTF-M6-UFP-00003 REV 2 AND 24590-PTF-M6-UFP-00026 REV 1. THIS IS A MAJOR REVISION, NO REVISION CLOUDS ARE SHOWN. THIS DRAWING MAY INCLUDE INFORMATION FROM 24590-PTF-M6N-M80T-00017, -00037, -00038, 24590-PTF-M6N-UFP-00044, -00056, -00060, -00066, -00069, -00087, -00093, AND -00104.



- HOLD/OPEN ITEMS:**
- NONE
- REFERENCES:**
- THE REQUIRED OPERATIONAL SEQUENCES, PERMISSIVES, INTERLOCKS, ALARMS AND OPERATOR INTERFACE POINTS ARE FULLY DESCRIBED IN THE UFP SYSTEM LOGIC DIAGRAMS (FUTURE) AND THE UFP SYSTEM DESCRIPTION (FUTURE REVISION).

<p>PROJECT No. 24590 SITE HANFORD AREA 200E BUILDING No. 10</p>		<p>ISSUED FOR CONSTRUCTION SEE NOTE 9 REV 0 DESCRIPTION ORG CHKD RVWD/AVD DATE</p>	
<p>ORIGINATOR CHECKER APPROVER REVIEWER</p>		<p>REVISION HISTORY</p>	
<p>CONTRACT No. DE-AC27-01RV4136</p>		<p>RIVER PROTECTION PROJECT WASTE TREATMENT PLANT 2435 STEVENS CENTER PLACE RICHLAND, WA 99354</p>	
<p>CONTENT APPLICABLE TO ALABAMA? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO SAFETY SCREEN REQUIRED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO DRAWING TYPES IDENTIFIED IN 24590-WTP-OPP-SPEC-002</p>		<p>SCALE: NONE 24590-PTF-M6-UFP-00003002 REV 0</p>	



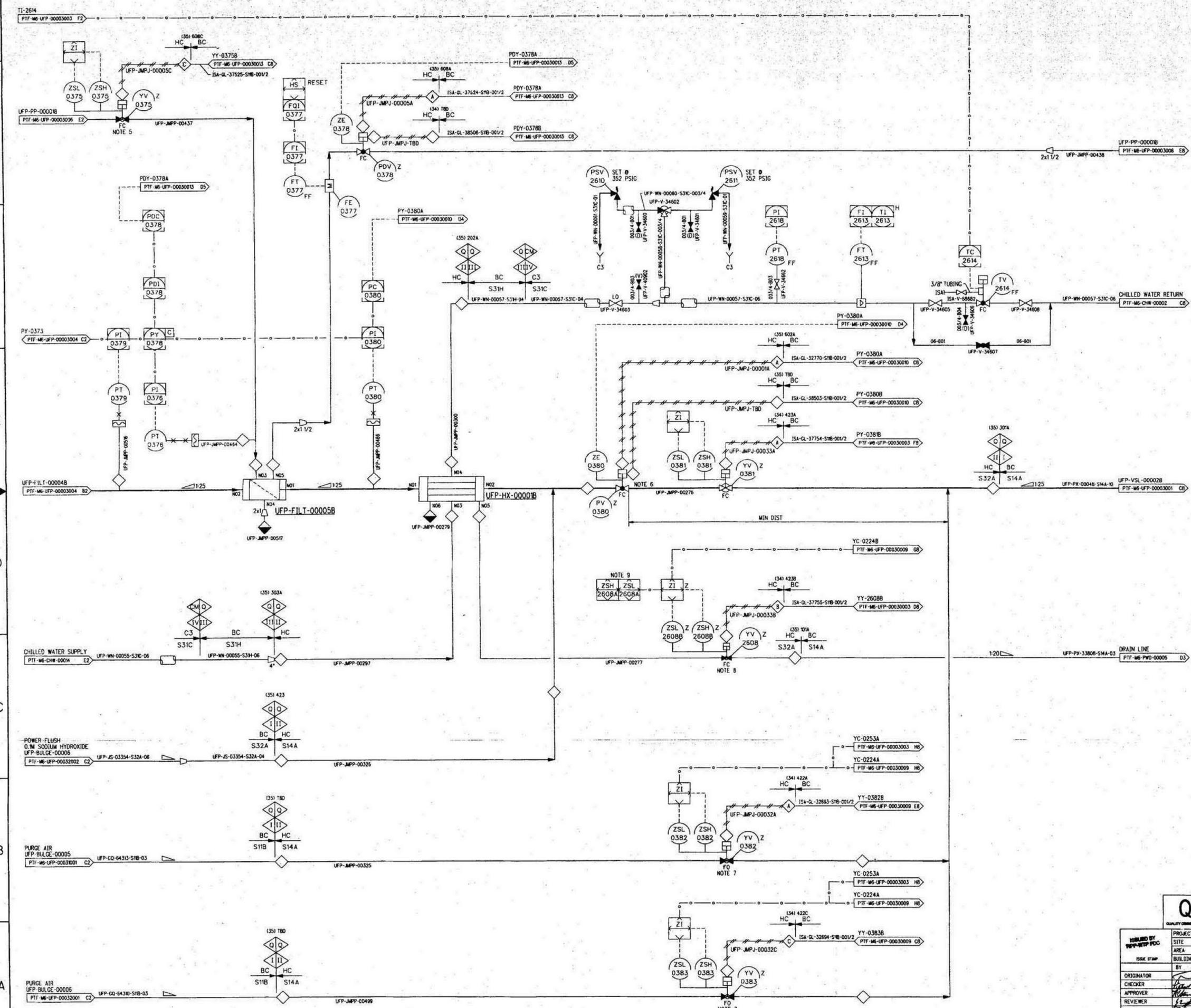


UFP-FILT-00005B  
ULTRAFILTRATION  
252 SQFT SURFACE AREA  
17 IN DIA x 8 FT L

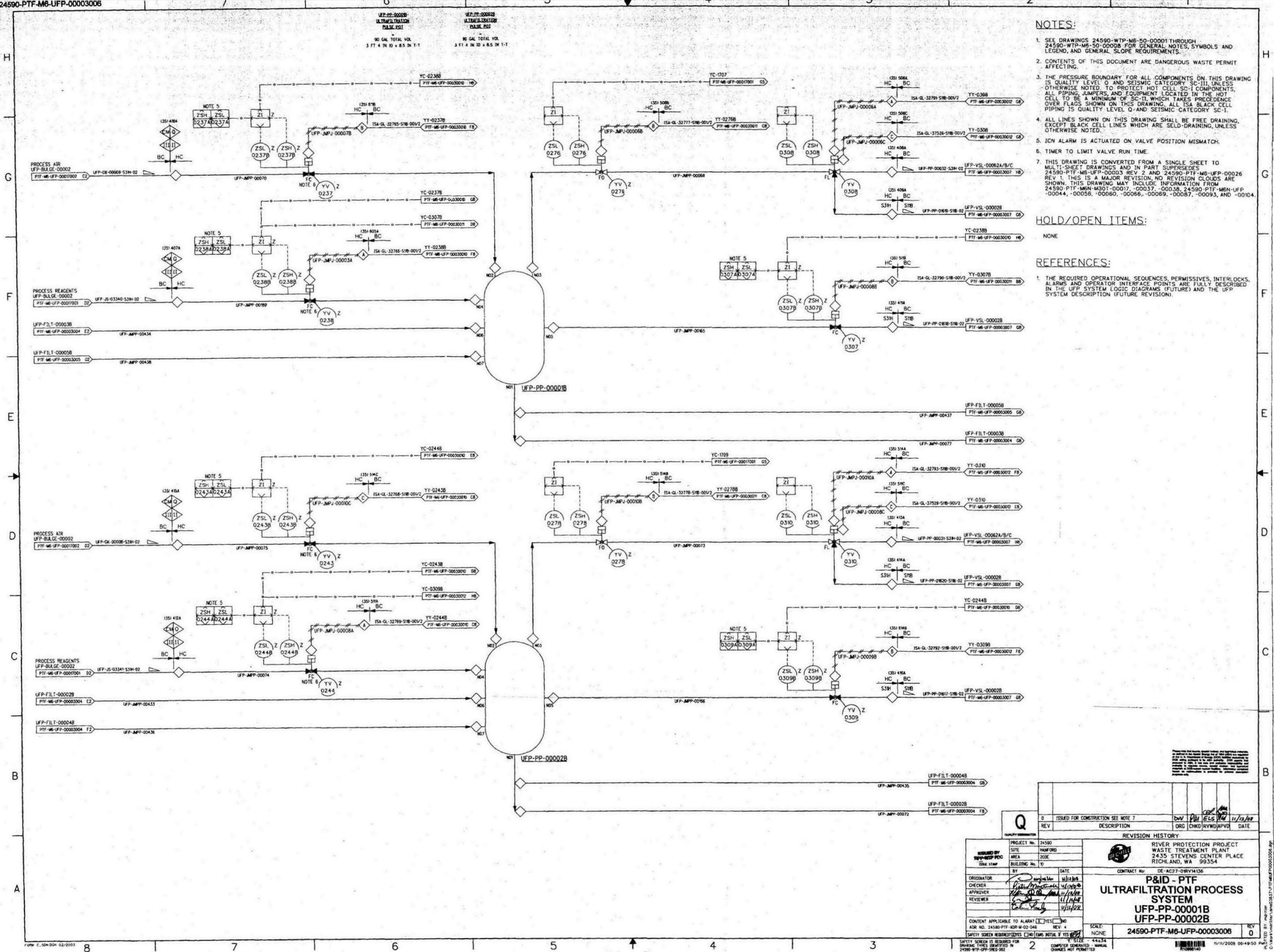
UFP-HX-00001B  
SIGNAL FLAT  
HEAT EXCHANGER  
4.1 MM BTU/HR  
4" T L x 2" F OD

- NOTES:**
- SEE DRAWINGS 24590-WTP-M6-50-00001 THROUGH 24590-WTP-M6-50-00008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
  - CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
  - THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-III UNLESS OTHERWISE NOTED. TO PROTECT HOT CELL SC-I COMPONENTS, ALL PIPING, JUMPERS, AND EQUIPMENT LOCATED IN THE HOT CELL TO BE A MINIMUM OF SC-II WHICH TAKES PRECEDENCE OVER FLAGS SHOWN ON THIS DRAWING. ALL ISA BLACK CELL PIPING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-I.
  - ALL PIPE LINES SHOWN ON THIS DRAWING SHALL BE FREE DRAINING, EXCEPT BLACK CELL LINES WHICH ARE SELF-DRAINING, UNLESS OTHERWISE NOTED.
  - FAST ACTING VALVE REQUIRED FOR ULTRAFILTRATION BACK PULSING ON A 4 INCH JUMPER.
  - ANGLE GLOBE VALVE.
  - OPENING OF ITS PURGE VALVE YV-0382 OR YV-0383 SHALL BE INTERLOCKED TO CLOSE VALVE YV-0224 AND SHUT DOWN PUMPS UFP-PMP-00042B AND UFP-PMP-00043B (PTF-M6-UFP-00003003).
  - VALVE YC-2608 SHALL NOT BE OPEN UNLESS VESSEL ISOLATION VALVE YV-0224 (24590-PTF-M6-UFP-00003003) IS SHUT.
  - ICN ALARM IS ACTUATED ON VALVE POSITION MISMATCH.
  - THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTI-SHEET DRAWINGS AND IN PART SUPERSEDES 24590-PTF-M6-UFP-00003 REV 2 AND 24590-PTF-M6-UFP-00026 REV 1. THIS IS A MAJOR REVISION, NO REVISION CLOUDS ARE SHOWN. THIS DRAWING MAY INCLUDE INFORMATION FROM 24590-PTF-MEN-MB01-00017, -00037, -00038, 24590-PTF-MEN-MB01-00044, -00056, -00060, -00066, -00069, -00087, -00093 AND -00104. ADDED UFP-FILT-00005B.

- HOLD/OPEN ITEMS:**  
NONE
- REFERENCES:**
- THE REQUIRED OPERATIONAL SEQUENCES, PERMISSIVES, INTERLOCKS, ALARMS AND OPERATOR INTERFACE POINTS ARE FULLY DESCRIBED IN THE UFP SYSTEM LOGIC DIAGRAMS (FUTURE) AND THE UFP SYSTEM DESCRIPTION (FUTURE REVISION).



<b>Q</b> QUALITY CONTROL ISSUED FOR CONSTRUCTION SEE NOTE 10 REV 0 DESCRIPTION DRG CHD/RVWD/APPV DATE		PROJECT No. 24590 SITE HANFORD AREA 700E BUILDING No. 10		RIVER PROTECTION PROJECT WASTE TREATMENT PLANT 2435 STEVENS CENTER PLACE RICHLAND, WA 99354	
ORIGINATOR CHECKER APPROVER REVIEWER		BY DATE		CONTRACT No. DE-AC27-D1RV1436	
CONTENT APPLICABLE TO ALARA? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO ADR NO. 24590-PTF-ADR-M-02-048 SAFETY SCREEN REQUIRED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> N/A		SCALE NONE		P&ID - PTF ULTRAFILTRATION PROCESS SYSTEM UFP-FILT-00005B UFP-HX-00001B 24590-PTF-M6-UFP-00003005	
FORM E, SON/DON 02/2003		8		11/12/2008 09:16:06 AM	



- NOTES:**
- SEE DRAWINGS 24590-WTP-M6-50-00001 THROUGH 24590-WTP-M6-50-00008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
  - CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
  - THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-III, UNLESS OTHERWISE NOTED. TO PROTECT HOT CELL SC-I COMPONENTS, ALL PIPING, JUMPERS, AND EQUIPMENT LOCATED IN THE HOT CELL TO BE A MINIMUM OF SC-II, WHICH TAKES PRECEDENCE OVER FLAGS SHOWN ON THIS DRAWING. ALL ISA BLACK CELL PIPING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-I.
  - ALL LINES SHOWN ON THIS DRAWING SHALL BE FREE DRAINING, EXCEPT BLACK CELL LINES WHICH ARE SLOPE DRAINING, UNLESS OTHERWISE NOTED.
  - ICN ALARM IS ACTUATED ON VALVE POSITION MISMATCH.
  - TIMER TO LIMIT VALVE RUN TIME.
  - THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTI-SHEET DRAWINGS AND IN PART SUPERSEDES 24590-PTF-M6-UFP-00003 REV 2 AND 24590-PTF-M6-UFP-00026 REV 1. THIS IS A MAJOR REVISION, NO REVISION CLOUDS ARE SHOWN. THIS DRAWING MAY INCLUDE INFORMATION FROM 24590-PTF-M6N-M301-00017, -00037, -00038, 24590-PTF-M6N-UFP-00044, -00058, -00060, -00066, -00069, -00087, -00093, AND -00104.

**HOLD/OPEN ITEMS:**  
NONE

- REFERENCES:**
- THE REQUIRED OPERATIONAL SEQUENCES, PERMISSIVES, INTERLOCKS, ALARMS AND OPERATOR INTERFACE POINTS ARE FULLY DESCRIBED IN THE UFP SYSTEM LOGIC DIAGRAMS (FUTURE) AND THE UFP SYSTEM DESCRIPTION (FUTURE REVISION).

<p>ISSUED FOR CONSTRUCTION SEE NOTE 7</p> <p>REV DESCRIPTION ORG CHKD IRVWD APVD DATE</p>		<p>11/13/02</p>
<p>REVISION HISTORY</p>		
<p>PROJECT No. 24590</p> <p>SITE HANFORD</p> <p>AREA 200E</p> <p>BUILDING No. 10</p>	<p>DATE</p> <p>BY</p> <p>CHECKER</p> <p>APPROVER</p> <p>REVIEWER</p>	<p>CONTRACT No. DE-AC27-01RV1436</p> <p>RIVER PROTECTION PROJECT WASTE TREATMENT PLANT 2435 STEVENS CENTER PLACE RICHLAND, WA 99354</p>
<p>ORIGINATOR</p> <p>CHECKER</p> <p>APPROVER</p> <p>REVIEWER</p>		<p>CONTRACT No. DE-AC27-01RV1436</p> <p><b>P&amp;ID - PTF ULTRAFILTRATION PROCESS SYSTEM</b></p> <p><b>UFP-PP-00001B UFP-PP-00002B</b></p>
<p>CONTENT APPLICABLE TO ALARMS <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p> <p>ADR NO. 24590-PTF-ADR-M-02-046 REV 4</p> <p>SAFETY SCREEN REQUIREMENTS <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p>		<p>SCALE NONE</p> <p>24590-PTF-M6-UFP-00003006</p> <p>REV 0</p>

UFP-PP-00003B  
ULTRAFILTRATION  
CASE P01  
NO GA. TOTAL VOL.  
3 FT 4 IN ID x 8.5 IN T-T

NOTES:

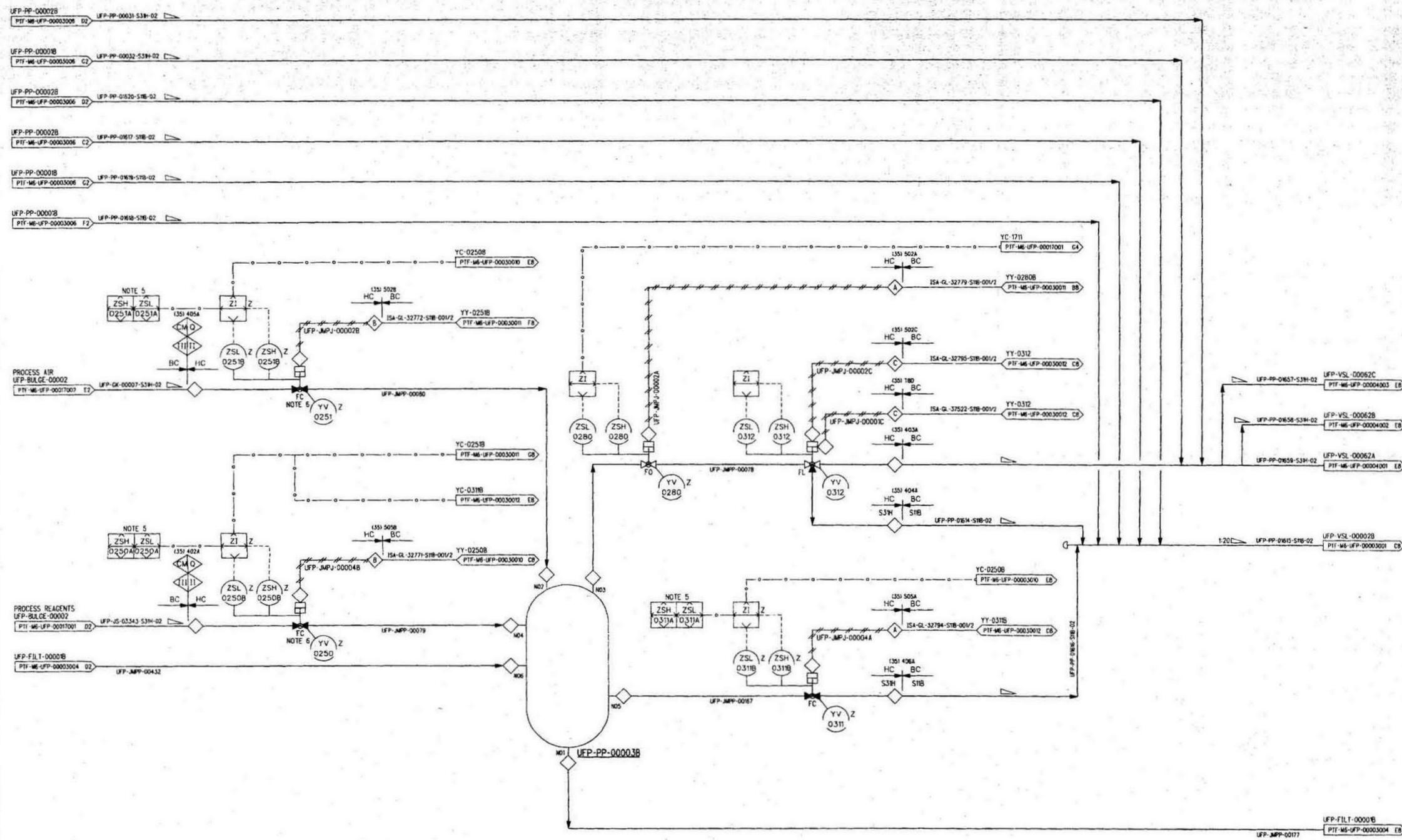
- SEE DRAWINGS 24590-WTP-M6-50-00001 THROUGH 24590-WTP-M6-50-00008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
- CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
- THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-III, UNLESS OTHERWISE NOTED. TO PROTECT HOT CELL SC-I COMPONENTS, ALL PIPING, JUMPERS, AND EQUIPMENT LOCATED IN THE HOT CELL TO BE A MINIMUM OF SC-II, WHICH TAKES PRECEDENCE OVER FLAGS SHOWN ON THIS DRAWING. ALL ISA BLACK CELL PIPING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-I.
- ALL LINES ON THIS DRAWING SHALL BE FREE DRAINING, EXCEPT BLACK CELL LINES WHICH ARE SELF-DRAINING, UNLESS OTHERWISE NOTED.
- ICN ALARM IS ACTUATED ON VALVE POSITION MISMATCH.
- TIMER TO LIMIT IS CONVERTED FROM A SINGLE SHEET TO MULTI-SHEET DRAWINGS AND IN PART SUPERSEDES 24590-PTF-M6-UFP-00003 REV. 2 AND 24590-PTF-M6-UFP-00026 REV. 1. THIS IS A MAJOR REVISION. NO REVISION CLOUDS ARE SHOWN. THIS DRAWING MAY INCLUDE INFORMATION FROM 24590-PTF-M6N-MBOT-00017, -00037, -00038, 24590-PTF-M6N-UFP-00044, -00056, -00060, -00066, -00069, -00087 AND -00104.

HOLD/OPEN ITEMS:

NONE

REFERENCES:

- THE REQUIRED OPERATIONAL SEQUENCES, PERMISSIVES, INTERLOCKS, ALARMS AND OPERATOR INTERFACE POINTS ARE FULLY DESCRIBED IN THE UFP SYSTEM LOGIC DIAGRAMS (FUTURE) AND THE UFP SYSTEM DESCRIPTION (FUTURE REVISION).



THIS DRAWING IS THE PROPERTY OF THE U.S. ENVIRONMENTAL PROTECTION AGENCY. IT IS LOANED TO YOU AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM. ANY UNAUTHORIZED REPRODUCTION OR TRANSMISSION OF THIS DRAWING IS PROHIBITED. THE U.S. ENVIRONMENTAL PROTECTION AGENCY ACCEPTS NO LIABILITY FOR ANY DAMAGE OR INJURY TO PERSONS OR PROPERTY ARISING FROM THE USE OF THIS DRAWING.

Q	ISSUED FOR CONSTRUCTION SEE NOTE 7	DW	11/14/02
	DESCRIPTION	ORG	CHKD

REVISION HISTORY	
PROJECT No.	24590
SITE	HAWK CREEK
AREA	200E
BUILDING No. ID	
ORIGINATOR	DATE
CHECKER	DATE
APPROVER	DATE
REVIEWER	DATE

**P&ID - PTF**  
**ULTRAFILTRATION PROCESS SYSTEM**  
**UFP-PP-00003B**

CONTENT APPLICABLE TO ALABAMA? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	SCALE: NONE
SAFETY SHEETS REQUIRED/ISSUES <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	24590-PTF-M6-UFP-00003007

UFP-PMP-000448  
PROGRESSIVE  
CAVITY PUMP  
55 GPM @ 122 FT TDH  
25 HP

NOTES:

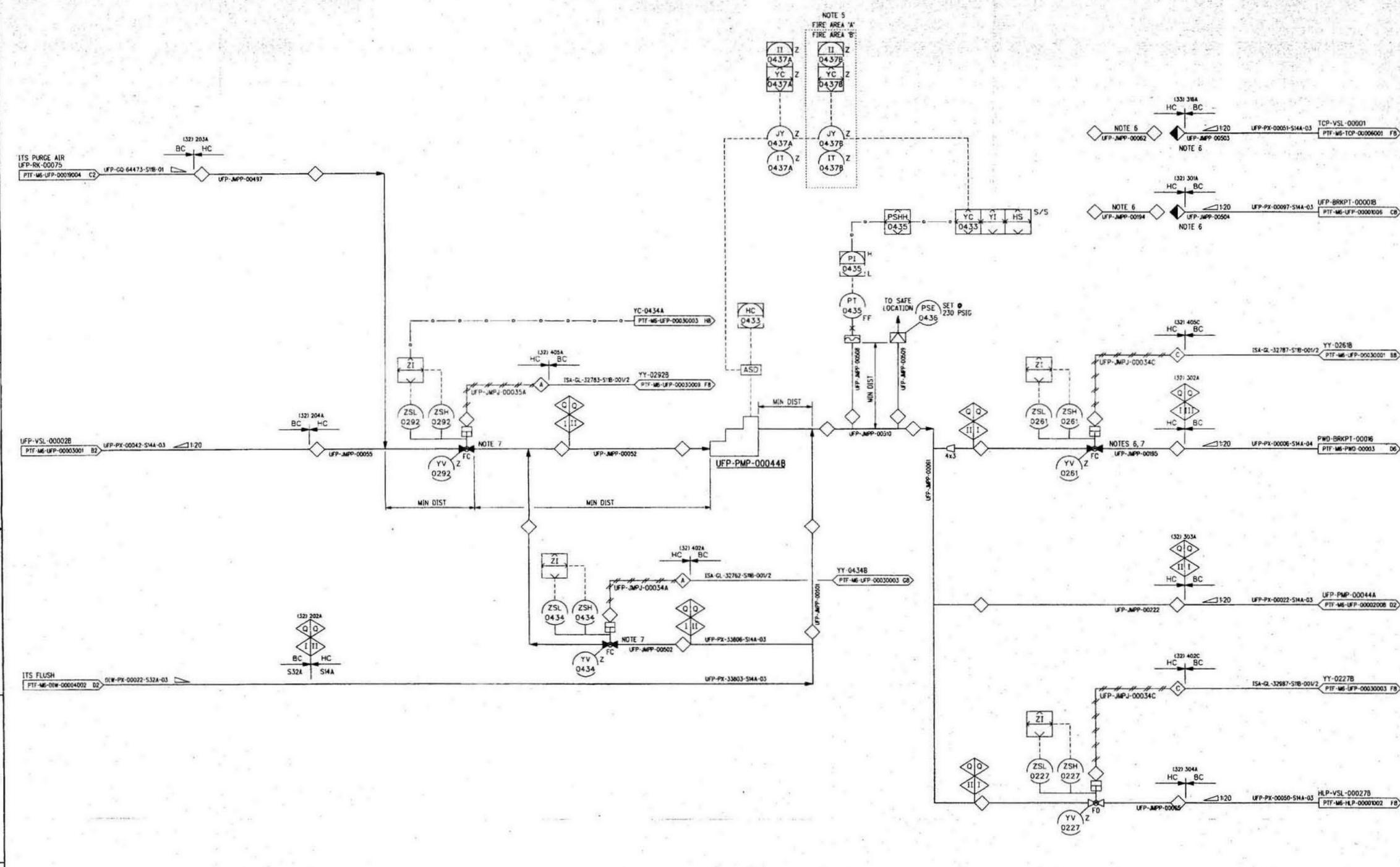
- SEE DRAWINGS 24590-WTP-M6-50-00001 THROUGH 24590-WTP-M6-50-00008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
- CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
- THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-III UNLESS OTHERWISE NOTED. TO PROTECT HOT CELL SC-1 COMPONENTS, ALL PIPING, JUMPERS, AND EQUIPMENT LOCATED IN THE HOT CELL TO BE A MINIMUM OF SC-II WHICH TAKES PRECEDENCE OVER FLAGS SHOWN ON THIS DRAWING. ALL ISA BLACK CELL PIPING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-1.
- ALL LINES SHOWN ON THIS DRAWING SHALL BE FREE DRAINING, EXCEPT BLACK CELL LINES WHICH ARE SELF-DRAINING, UNLESS OTHERWISE NOTED.
- ITS TIMER TO LIMIT PUMP RUN TIME.
- JUMPERS UFP-JMPP-00195, UFP-JMPP-00503, AND UFP-JMPP-00504 ARE NORMALLY INSTALLED. JUMPERS UFP-PMP-00062, UFP-JMPP-00194 ARE TO BE FABRICATED BUT NOT NORMALLY INSTALLED. DURING OFF NORMAL OPERATION, JUMPERS UFP-JMPP-00195 AND UFP-JMPP-503 OR UFP-JMPP-00504 ARE TO BE REMOVED AND REPLACED BY EITHER UFP-JMPP-00194 OR JUMPER UFP-JMPP-00062 ON AS NEEDED BASIS.
- VALVE YV-0292 MUST BE CLOSED BEFORE OPEN FLUSH VALVE YV-0434.
- THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTI-SHEET DRAWINGS AND IN PART SUPERSEDES 24590-PTF-M6-UFP-00003 REV 2 AND 24590-PTF-M6-UFP-00026 REV 1. THIS IS A MAJOR REVISION, NO REVISION CLOUDS ARE SHOWN. THIS DRAWING MAY INCLUDE INFORMATION FROM 24590-PTF-M6N-MROT-00017, -00037, -00038, 24590-PTF-M6N-UFP-00044, -00056, -00060, -00066, -00069, -00087, -00093, AND -00104. REPLACED STEAM TRANSFER EJECTOR UFP-EJCTR-00133 WITH PROGRESSIVE CAVITY PUMP UFP-PMP-000448.

HOLD/OPEN ITEMS

NONE

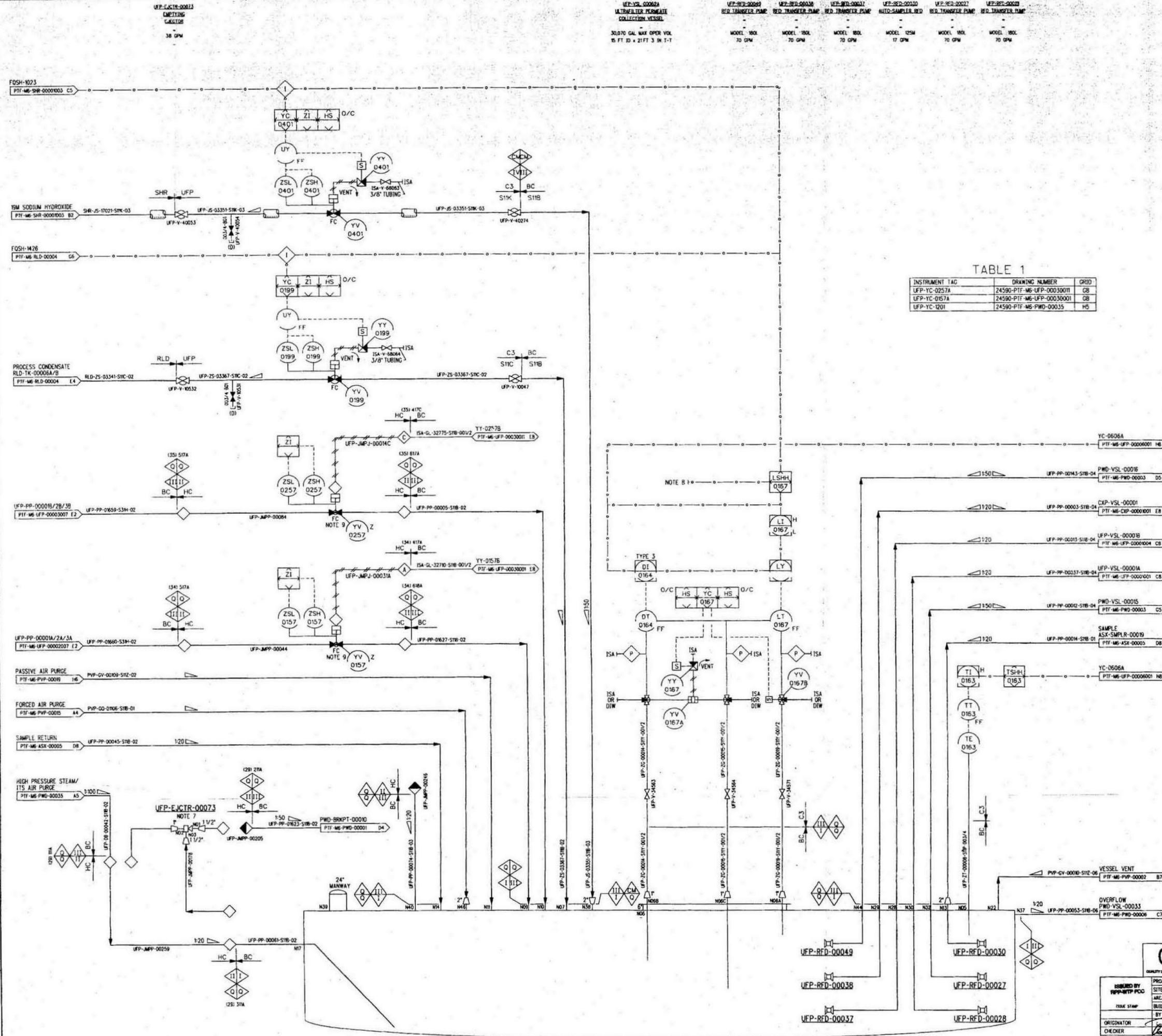
REFERENCES:

- THE REQUIRED OPERATIONAL SEQUENCES, PERMISSIVES, INTERLOCKS, ALARMS AND OPERATOR INTERFACE POINTS ARE FULLY DESCRIBED IN THE UFP SYSTEM LOGIC DIAGRAMS (FUTURE) AND THE UFP SYSTEM DESCRIPTION (FUTURE REVISION).



THIS DRAWING IS THE PROPERTY OF RIVER PROTECTION PROJECT. IT IS TO BE USED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREIN. IT IS NOT TO BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF RIVER PROTECTION PROJECT. ANY UNAUTHORIZED REPRODUCTION OR USE OF THIS DRAWING IS PROHIBITED AND WILL BE PROSECUTED TO THE FULL EXTENT OF THE LAW.

PROJECT No. 24590		RIVER PROTECTION PROJECT WASTE TREATMENT PLANT 2435 STEVENS CENTER PLACE RICHLAND, WA 99354	
SITE HANFORD		CONTRACT No. DE-AC27-01REV14136	
AREA 700E		P&ID - PTF ULTRAFILTRATION PROCESS SYSTEM UFP-PMP-000448	
BUILDING No. 10		24590-PTF-M6-UFP-00003008	
ORIGINATOR	BY	DATE	SCALE: NONE
CHECKER	DATE	11/12/08	REV 0
APPROVER	DATE	11/12/08	
REVIEWER	DATE	11/12/08	
CONTENT APPLICABLE TO ALARA? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		SAFETY SCREEN REQUIRED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
ADR NO. 24590-PTF-ADR-M-02-046		REVISION HISTORY	
SAFETY SCREEN REQUIRED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		REV 0 ISSUED FOR CONSTRUCTION SEE NOTE B	
COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED		REV 1	



- NOTES:
- SEE DRAWINGS 24590-WTP-M6-S0-00001 THROUGH 24590-WTP-M6-S0-00008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
  - CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
  - THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-I, UNLESS OTHERWISE NOTED. TO PROTECT HOT CELL SC-I COMPONENTS, ALL PIPING, JUMPERS, AND EQUIPMENT LOCATED IN THE HOT CELL TO BE A MINIMUM OF SC-II, WHICH TAKES PRECEDENCE OVER FLAGS SHOWN ON THIS DRAWING. ALL ISA BLACK CELL PIPING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-I.
  - ALL LINES SHOWN ON THIS DRAWING SHALL BE FREE DRAINING, EXCEPT BLACK CELL LINES WHICH ARE SELF-DRAINING, UNLESS OTHERWISE NOTED.
  - FOR VESSEL WASH REPRESENTATION SEE PLANT WASH DRAWING 24590-PTF-M6-UFP-00015001.
  - FOR REVERSE FLOW DIVERTER/PULSE JET MIXERS REPRESENTATION SEE DRAWINGS: 24590-PTF-M6-UFP-00005001 THROUGH -00005007 AND 24590-PTF-M6-UFP-00006001 THROUGH -00006007.
  - JUMPERS UFP-JMPP-00205 AND UFP-JMPP-00259 ARE NORMALLY INSTALLED. JUMPER UFP-JMPP-00178 IS TO BE FABRICATED BUT NOT NORMALLY INSTALLED. DURING VESSEL EMPTYING OPERATIONS, JUMPERS UFP-JMPP-00205 AND UFP-JMPP-00259 ARE TO BE REMOVED AND REPLACED BY JUMPER UFP-JMPP-00178 WHICH WILL ALSO BE USED FOR EMPTYING VESSELS PWD-VSL-00016, PWD-VSL-00015, CXP-VSL-00004, CNP-VSL-00004, AND CNP-EVAP-00001.
  - ON HIGH HIGH LEVEL DETECTION (UFP-LSHH-0167), VALVES LISTED IN TABLE 1 WILL CLOSE.
  - TIMER TO LIMIT VALVE RUN TIME.
  - SEE DRAWING 24590-PTF-M6-ISA-00011 FOR BUBBLER RACK AND SYSTEM CONNECTION.
  - THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTI-SHEET DRAWINGS AND IN PART SUPERSEDES 24590-PTF-M6-UFP-00004 REV 2. THIS IS A MAJOR REVISION, NO REVISION CLOUDS ARE SHOWN. THIS DRAWING MAY INCLUDE INFORMATION FROM 24590-PTF-M6N-M80T-00017, -00037, -00038, 24590-PTF-M6N-UFP-00045, -00064, AND -00078.

HOLD/OPEN ITEMS:

NONE

REFERENCES:

- THE REQUIRED OPERATIONAL SEQUENCES, PERMISSIVES, INTERLOCKS, ALARMS AND OPERATOR INTERFACE POINTS ARE FULLY DESCRIBED IN THE UFP SYSTEM LOGIC DIAGRAMS (FUTURE) AND THE UFP SYSTEM DESCRIPTION (FUTURE REVISION).

DRAWING INDEX

DWG NO	TITLE
24590-PTF-M6-UFP-00004001	ULTRAFILTRATION PROCESS SYSTEM UFP-VSL-00062A
24590-PTF-M6-UFP-00004002	ULTRAFILTRATION PROCESS SYSTEM UFP-VSL-00062B
24590-PTF-M6-UFP-00004003	ULTRAFILTRATION PROCESS SYSTEM UFP-VSL-00062C

REVISION HISTORY

REV	DESCRIPTION	BY	CHKD	RVWD	APVD	DATE
0	ISSUED FOR CONSTRUCTION SEE NOTE 11					11/13/08

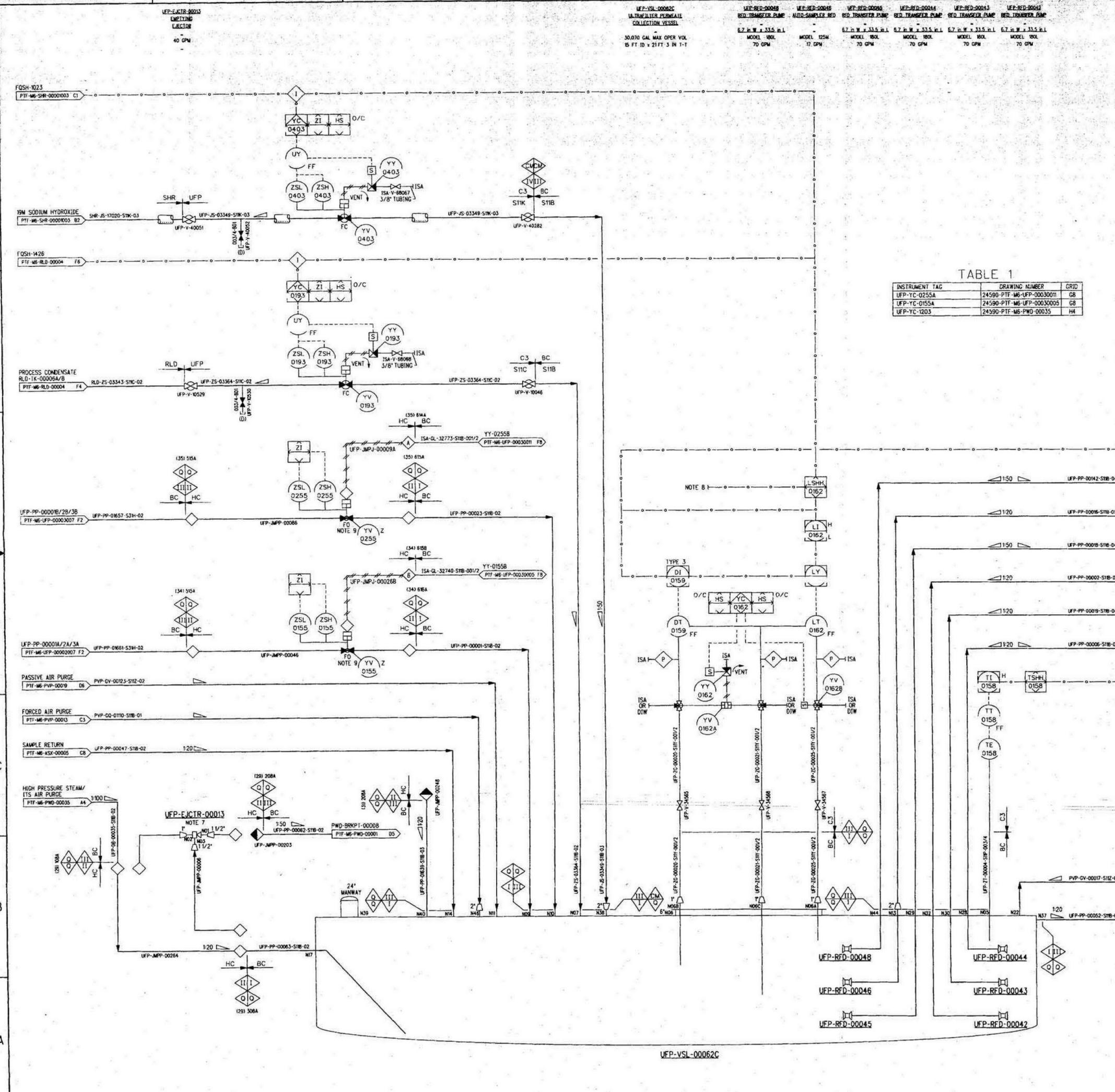
PROJECT INFORMATION

PROJECT No.	24590
SITE	HANFORD
AREA	230E
BUILDING No.	10
CONTRACT No.	DE-AC27-01RVN136
PROJECT TITLE	RIVER PROTECTION PROJECT WASTE TREATMENT PLANT 2435 STEVENS CENTER PLACE RICHLAND, WA 99354
DWG TITLE	P&ID - PTF ULTRAFILTRATION PROCESS SYSTEM PERMEATE COLLECTION UFP-VSL-00062A

QUALITY CONTROL

ISSUED BY	PPF-WTP-PCC
CHECKER	
APPROVER	
REVIEWER	
DATE	11/11/08
SCALE	NONE
REV	0





- ### NOTES:
- SEE DRAWINGS 24590-WTP-M6-50-00001 THROUGH 24590-WTP-M6-50-00008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
  - CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
  - THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-I, UNLESS OTHERWISE NOTED. TO PROTECT HOT CELL SC-I COMPONENTS, ALL PIPING, JUMPERS, AND EQUIPMENT LOCATED IN THE HOT CELL TO BE A MINIMUM OF SC-II, WHICH TAKES PRECEDENCE OVER FLAGS SHOWN ON THIS DRAWING. ALL ISA BLACK CELL LINES ARE QUALITY LEVEL Q AND SEISMIC CATEGORY SC-I.
  - ALL LINES SHOWN ON THIS DRAWING SHALL BE FREE DRAINING, EXCEPT BLACK CELL LINES WHICH ARE SELF-DRAINING, UNLESS OTHERWISE NOTED.
  - FOR VESSEL WASH REPRESENTATION SEE PLANT WASH DRAWING 24590-PTF-M6-PWD-00046.
  - FOR REVERSE FLOW DIVERTER/PULSE JET MIXERS REPRESENTATION SEE DRAWINGS: 24590-PTF-M6-UFP-00009001 THROUGH -00009007 AND 24590-PTF-M6-UFP-00010001 THROUGH -00010005.
  - JUMPERS UFP-JMPP-00203 AND UFP-JMPP-00264 ARE NORMALLY INSTALLED. JUMPER UFP-JMPP-00006 IS TO BE FABRICATED BUT NOT NORMALLY INSTALLED. DURING VESSEL EMPTYING OPERATIONS, JUMPERS UFP-JMPP-00203 AND UFP-JMPP-00264 ARE TO BE REMOVED AND REPLACED BY JUMPER UFP-JMPP-00006, WHICH WILL ALSO BE USED FOR EMPTYING VESSELS PWD-VSL-00016, PWD-VSL-00015, CXP-VSL-00004, CNP-VSL-00004, AND CNP-EVAP-00001.
  - ON HIGH HIGH LEVEL DETECTION (UFP-LSHH-0162), VALVES LISTED IN TABLE 1 WILL CLOSE.
  - TIMER TO LIMIT VALVE RUN TIME.
  - SEE DRAWING 24590-PTF-M6-ISA-00011 FOR BUBBLER RACK AND SYSTEM CONNECTION.
  - THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTI-SHEET DRAWINGS AND, IN PART, SUPERSEDES 24590-PTF-M6-UFP-00004, REV 2. THIS IS A MAJOR REVISION, NO REVISION CLOUDS ARE SHOWN. THIS DRAWING MAY INCLUDE INFORMATION FROM 24590-PTF-M6N-MB01-00017, -00037, -00038, 24590-PTF-M6N-UFP-00045, -00064, AND -00078.

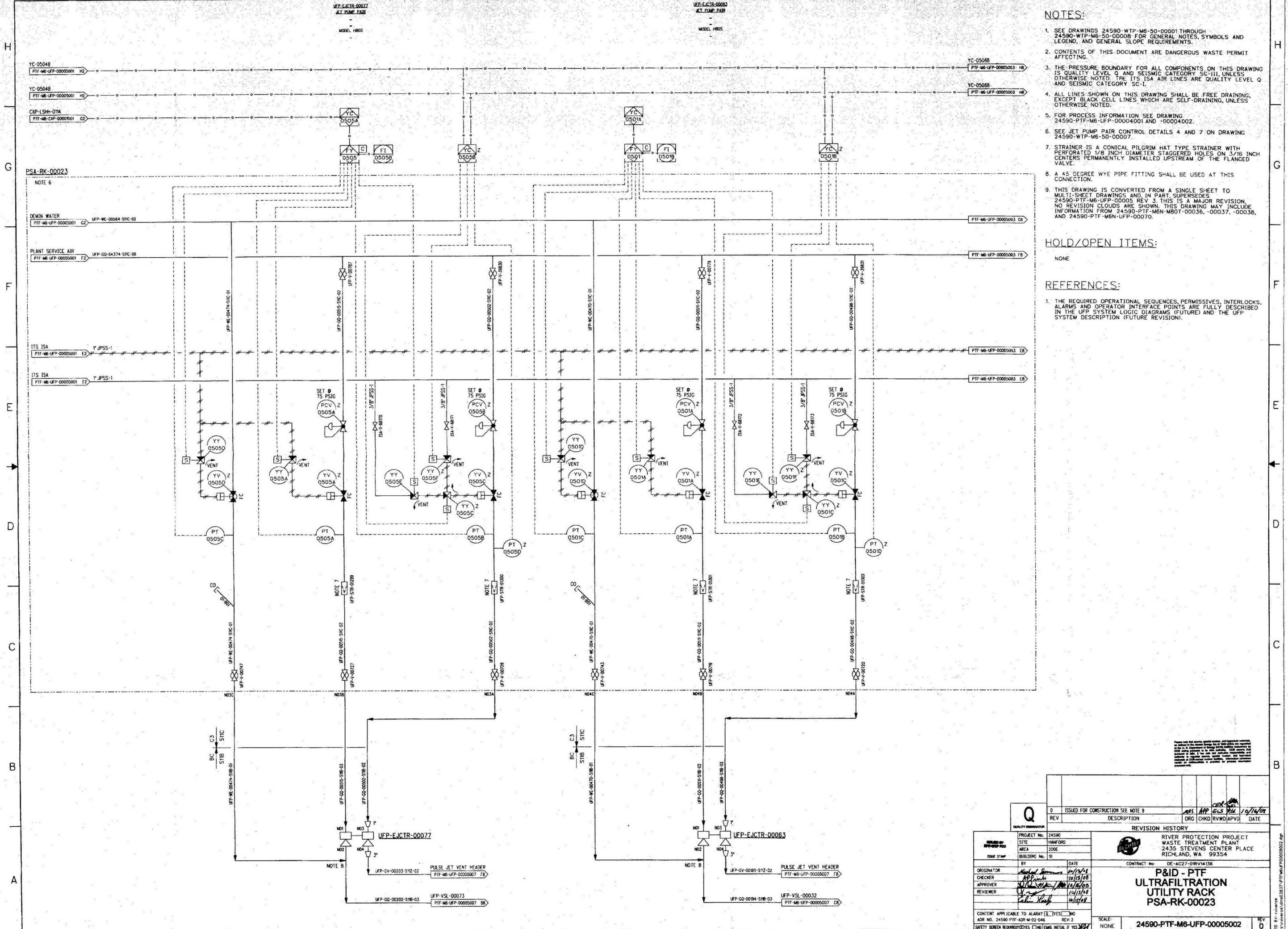
TABLE 1

INSTRUMENT TAG	DRAWING NUMBER	GRID
UFP-YC-0255A	24590-PTF-M6-UFP-00030011	G8
UFP-YC-0155A	24590-PTF-M6-UFP-00030005	G8
UFP-YC-1203	24590-PTF-M6-PWD-00035	H4

- ### HOLD/OPEN ITEMS:
- NONE
- ### REFERENCES:
- THE REQUIRED OPERATIONAL SEQUENCES, PERMISSIVES, INTERLOCKS, ALARMS AND OPERATOR INTERFACE POINTS ARE FULLY DESCRIBED IN THE UFP SYSTEM LOGIC DIAGRAMS (FUTURE) AND THE UFP SYSTEM DESCRIPTION (FUTURE REVISION).

ISSUED FOR CONSTRUCTION SEE NOTE 11		DATE	11/12/09
REV	DESCRIPTION	ORG	CHKD
0			
REVISION HISTORY			
PROJECT No.	24590	RIVER PROTECTION PROJECT	
SITE	HANFORD	WASTE TREATMENT PLANT	
AREA	200E	2435 STEVENS CENTER PLACE	
BUILDING No.	10	RICHLAND, WA 99354	
BY	DATE	CONTRACT No. DE-AC27-D18V1436	
ORIGINATOR	11/10/09	P&ID - PTF	
CHECKER	11/10/09	ULTRAFILTRATION PROCESS	
APPROVER	11/12/09	SYSTEM	
REVIEWER	11/12/09	PERMEATE COLLECTION	
		UFP-VSL-00062C	
CONTENT APPLICABLE TO ALARMS? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		SCALE	4x4.34
ADR NO. 24590-PTF-ADR-M-02-046		SCALE	NONE
SAFETY SCREEN REQUIRED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		24590-PTF-M6-UFP-00004003	
REVISION		REV 0	





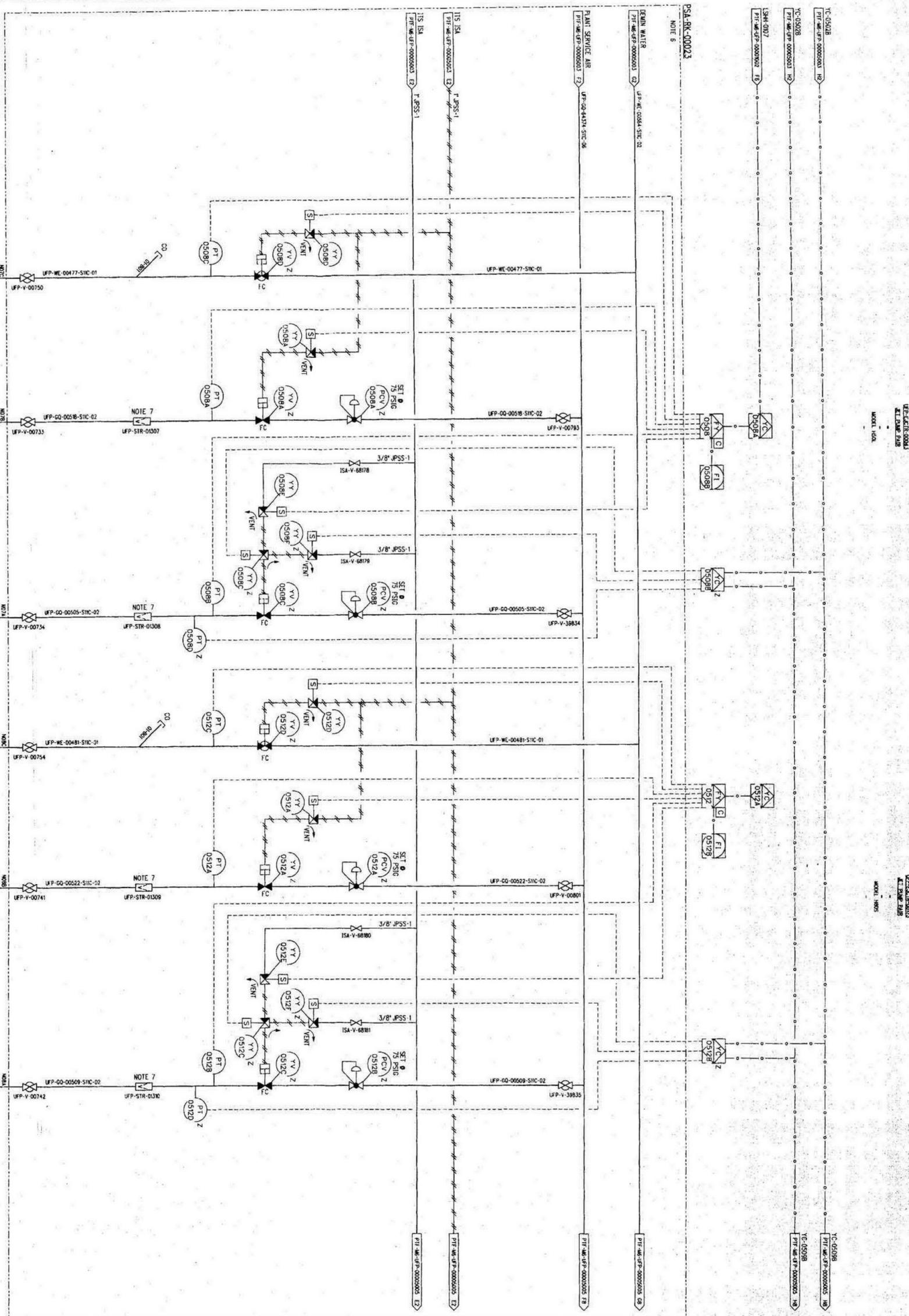
- NOTES:**
- SEE DRAWINGS 24590-WTP-M6-50-00001 THROUGH 24590-WTP-M6-50-00008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
  - CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
  - THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-III, UNLESS OTHERWISE NOTED. THE ITS ISA AIR LINES ARE QUALITY LEVEL Q AND SEISMIC CATEGORY SC-I.
  - ALL LINES SHOWN ON THIS DRAWING SHALL BE FREE DRAINING, EXCEPT BLACK CELL LINES WHICH ARE SELF-DRAINING, UNLESS OTHERWISE NOTED.
  - FOR PROCESS INFORMATION SEE DRAWING 24590-PTF-M6-UFP-00004001 AND -00004002.
  - SEE JET PUMP PAIR CONTROL DETAILS 4 AND 7 ON DRAWING 24590-WTP-M6-50-00007.
  - STRAINER IS A CONICAL PILGRIM HAT TYPE STRAINER WITH PERFORATED 1/8 INCH DIAMETER STAGGERED HOLES ON 3/16 INCH CENTERS PERMANENTLY INSTALLED UPSTREAM OF THE FLANGED VALVE.
  - A 45 DEGREE WYE PIPE FITTING SHALL BE USED AT THIS CONNECTION.
  - THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTI-SHEET DRAWINGS AND, IN PART, SUPERSEDES 24590-PTF-M6-UFP-00005 REV 3. THIS IS A MAJOR REVISION. NO REVISION CLOUDS ARE SHOWN. THIS DRAWING MAY INCLUDE INFORMATION FROM 24590-PTF-M6N-M60T-00036, -00037, -00038, AND 24590-PTF-M6N-UFP-00070.

**HOLD/OPEN ITEMS:**  
NONE

- REFERENCES:**
- THE REQUIRED OPERATIONAL SEQUENCES, PERMISSIVES, INTERLOCKS, ALARMS AND OPERATOR INTERFACE POINTS ARE FULLY DESCRIBED IN THE UFP SYSTEM LOGIC DIAGRAMS (FUTURE) AND THE UFP SYSTEM DESCRIPTION (FUTURE REVISION).

<p><b>Q</b> QUALITY ASSURANCE</p>		<p>0 ISSUED FOR CONSTRUCTION SEE NOTE 9 REV DESCRIPTION</p>	<p>MS APP ELS RLL 10/14/08 ORG CHKD [RVWD] APVD DATE</p>
<p>PROJECT No. 24590 SITE HANFORD AREA 200E BUILDING No. 10</p>		<p>REVISION HISTORY</p>	
<p>ORIGINATOR <i>Michael Semmes</i> 10/12/08 CHECKER <i>APP</i> 10/15/08 APPROVER <i>MS</i> 10/16/08 REVIEWER <i>MS</i> 10/17/08</p>		<p>CONTRACT No. DE-AC27-07RV14136</p>	
<p>CONTENT APPLICABLE TO ALARMS <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO ADR No. 24590-PTF-ADR-M-02-046 REV 3 SAFETY SCREEN REQUIREMENTS <input type="checkbox"/> NO <input checked="" type="checkbox"/> YES INITIAL IF YES <i>MS</i></p>		<p>SCALE: NONE 24590-PTF-M6-UFP-00005002</p>	
<p>FORM E... 02/2003</p>		<p>10/10/2008 08:56:43 AM RTR071112</p>	





VECTRA-3000  
 MODEL 104

VECTRA-3000  
 MODEL 104

VECTRA-3000  
 MODEL 104

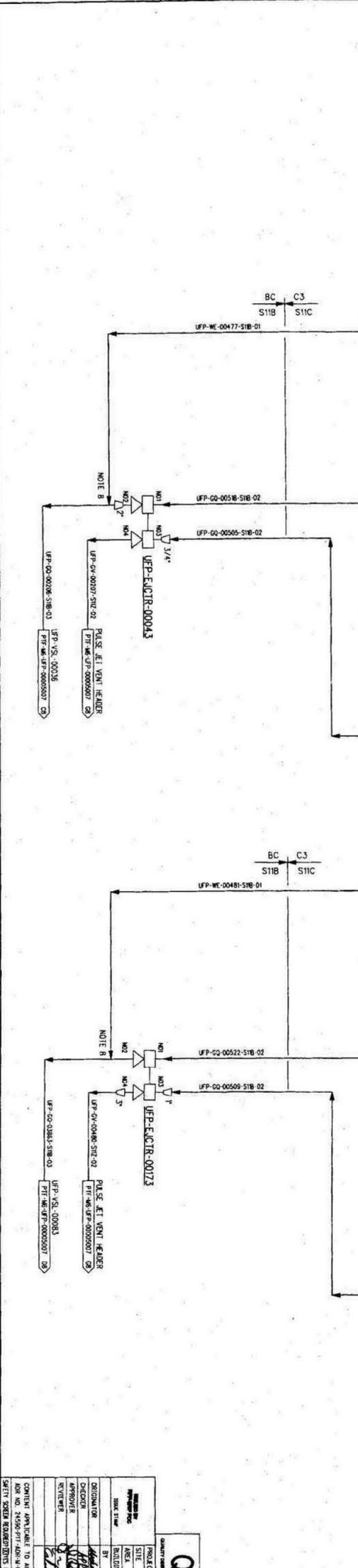
**NOTES:**

- SEE DRAWINGS 24590-WFP-M6-50-00001 THROUGH 24590-WFP-M6-50-00008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SCOPE REQUIREMENTS.
- CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
- THE PRESERVE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL 0 AND SENSING CATEGORIES ARE QUALITY LEVEL 0 AND SENSING CATEGORY SC-1.
- ALL LINES SHOWN ON THIS DRAWING SHALL BE FREE DRAINING EXCEPT BLACK CELL LINES WHICH ARE SELF-DRAINING, UNLESS OTHERWISE NOTED.
- FOR PROCESS INFORMATION SEE DRAWING 24590-PFM-M6-UFP-00004001 AND -00004002.
- 24590-WFP-M6-50-00007
- STRAINER IS A CONICAL FILTERING TYPE STRAINER WITH 1/2" SCREEN PERMANENTLY INSTALLED UPSTREAM OF THE FLANGED VALVE.
- A 45 DEGREE WYE PIPE FITTING SHALL BE USED AT THIS CONNECTION.
- THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO A MULTISHEET DRAWING. THIS IS A MAJOR REVISION. NO REVISION CLOUDS ARE SHOWN. THIS DRAWING MAY INCLUDE INFORMATION FROM 24590-PFM-M6-50-00005, -000057, -000038, AND 24590-PFM-M6-UFP-000070.

**HOLD/OPEN ITEMS:**  
 NONE

**REFERENCES:**

- THE REQUIRED OPERATIONAL SEQUENCES, PERMISSIVES, INTERLOCKS, ALARMS AND OPERATOR INTERFACE POINTS ARE FULLY DESCRIBED IN THE UFP SYSTEM LOGIC DIAGRAMS (FUTURE) AND THE UFP SYSTEM DESCRIPTION (FUTURE REVISION).



REV	DESCRIPTION	DATE
0	ISSUED FOR CONSTRUCTION SEE NOTE 9	10/15/18

**REVISION HISTORY**

REV	DESCRIPTION	DATE
0	ISSUED FOR CONSTRUCTION SEE NOTE 9	10/15/18

**QUALITY CONTROL**

ROLE	NAME	DATE
DESIGNER	W. J. ...	10/15/18
CHECKER	...	10/15/18
APPROVER	...	10/15/18
REVIEWER	...	10/15/18

**PROJECT INFORMATION**

PROJECT NO: 24590  
 SITE: HAWKWOOD  
 ZONE: 0  
 BUILDING NO: 0

**CONTRACTOR**

CONTRACT NO: DE-027-ORV-135

**CLIENT**

RIVER PROTECTION PROJECT  
 WASTE TREATMENT PLANT  
 2435 STEVENS CENTER PLACE  
 RICHMOND, WA 99354

**SCALE:** AS SHOWN

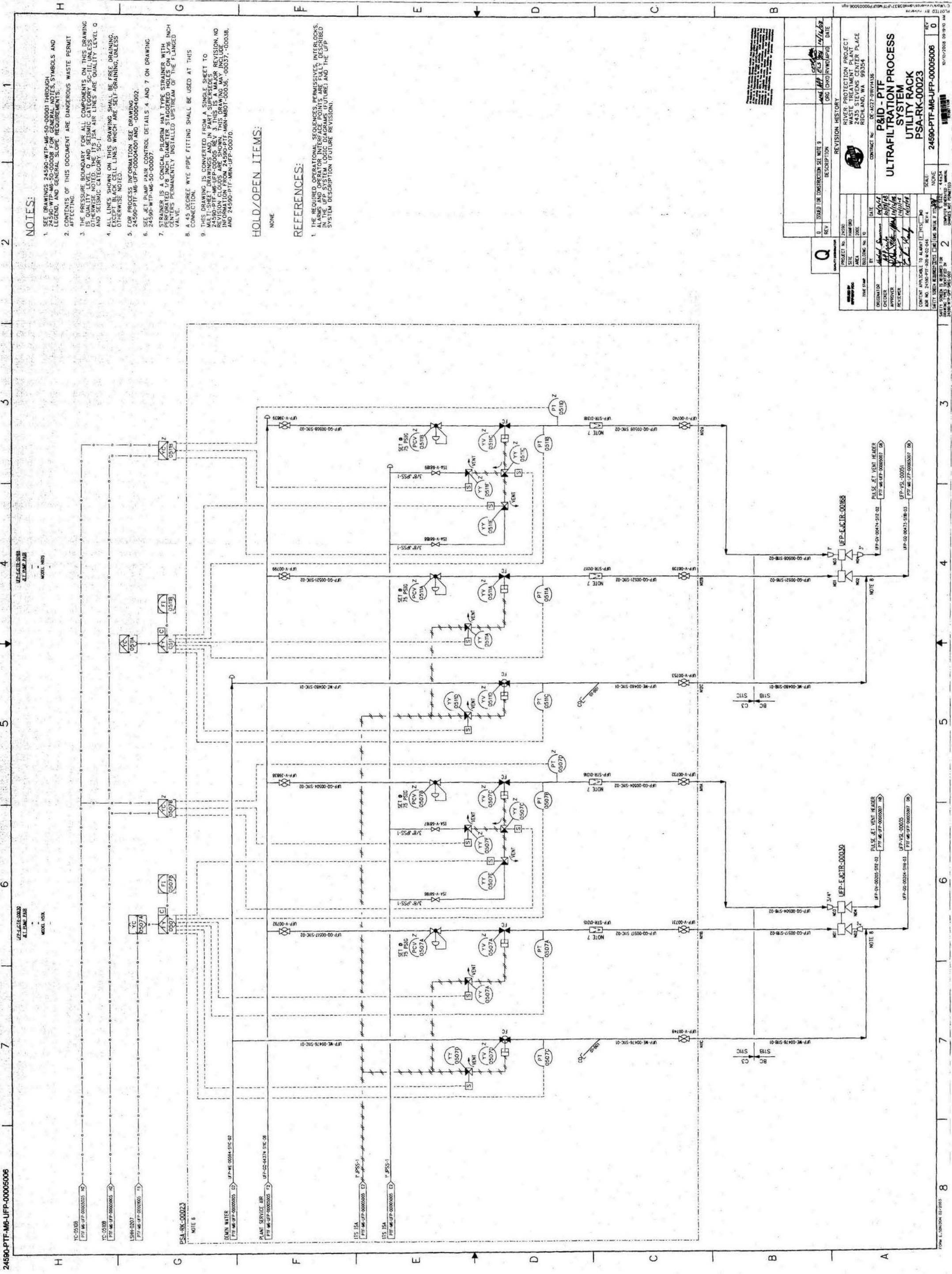
**DATE:** 10/15/18

**PROJECT TITLE:** ULTRAFILTRATION PROCESS UTILITY RACK

**DRAWING NO:** 24590-PTF-M6-UFP-00005004

**REV:** 0





**NOTES:**

- SEE DRAWINGS 24590-WTP-M6-50-0001 THROUGH 24590-WTP-M6-50-0008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
- CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
- THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL Q, AND SEISMIC CATEGORY SC-III, UNLESS OTHERWISE NOTED. ALL ISA AIR LINES ARE QUALITY LEVEL Q AND SEISMIC CATEGORY SC-I.
- ALL LINES SHOWN ON THIS DRAWING SHALL BE FREE DRAINING, UNLESS OTHERWISE NOTED.
- FOR PROCESS INFORMATION SEE DRAWING 24590-PTF-M6-UFP-00000001 AND -00000002.
- SEE JET PUMP PAIR CONTROL DETAILS 4 AND 7 ON DRAWING 24590-WTP-M6-50-00007.
- STRAINER IS A CONICAL PILGRIM HAT TYPE STRAINER WITH PERFORATED 1/8 INCH DIAMETER STAGGERED HOLES ON 3/16 INCH CENTERS PERMANENTLY INSTALLED UPSTREAM OF THE FLANGED VALVE.
- A 45 DEGREE WYE PIPE FITTING SHALL BE USED AT THIS CONNECTION.
- THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTI-SHEET DRAWINGS AND, IN PART, SUPERSEDES THE DRAWING 24590-PTF-M6-UFP-00000001. THIS IS A MAJOR REVISION. NO REVISION CLOUDS OR CHANGES TO THE DRAWING SHALL BE MADE WITHOUT THE INFORMATION FROM 24590-PTF-M6N-MB01-000046, -00037, -000038, AND 24590-PTF-M6N-UFP-00070.

**HOLD/OPEN ITEMS:**

NONE

**REFERENCES:**

- THE REQUIRED OPERATIONAL SEQUENCES, PERMISSIVES, INTERLOCKS, ALARMS, OPERATIONAL LOGIC, AND LOGIC DIAGRAMS ARE FULLY DESCRIBED IN THE UFP SYSTEM LOGIC DIAGRAMS (FUTURE) AND THE UFP SYSTEM DESCRIPTION (FUTURE REVISION).

PROJECT NO.	24590	DATE	04/14/03
SITE	AREA 2000	DATE	04/14/03
BUILDING NO.	0	DATE	04/14/03
DATE	04/14/03	DATE	04/14/03
DATE	04/14/03	DATE	04/14/03
DATE	04/14/03	DATE	04/14/03

**REVISION HISTORY**

REV	DESCRIPTION	DATE
0	ISSUED FOR CONSTRUCTION SEE NOTE 9	04/14/03

**PROJECT INFORMATION**

PROJECT: RIVER PROTECTION PROJECT  
 SITE: WASTE TREATMENT PLANT  
 AREA: 2435 STEVENS CENTER PLACE  
 BUILDING: RICHLAND, WA 99354

**CONTRACT INFORMATION**

CONTRACT NO: DE-A227-00R14135

**UTILITY RACK**

P&ID - PTF  
 ULTRAFILTRATION PROCESS  
 SYSTEM  
 UTILITY RACK  
 PSA-RK-00023

SCALE: NONE  
 SHEET NO: 24590-PTF-M6-UFP-00000006  
 REV: 0

UFP-VSL-00034 RED CHARGE VESSEL MODEL SPECIAL 89 GAL 18" ID x 41" T-1	UFP-VSL-00032 RED CHARGE VESSEL MODEL S 275 GAL 28" ID x 68" T-1	UFP-VSL-00033 RED CHARGE VESSEL MODEL SPECIAL 784 GAL 30" ID x 149" T-1	UFP-VSL-00032 RED CHARGE VESSEL MODEL SPECIAL 784 GAL 30" ID x 149" T-1	UFP-VSL-00032 RED CHARGE VESSEL MODEL SPECIAL 784 GAL 30" ID x 149" T-1	UFP-VSL-00033 RED CHARGE VESSEL MODEL S 275 GAL 28" ID x 68" T-1	UFP-VSL-00033 RED CHARGE VESSEL MODEL S 275 GAL 28" ID x 68" T-1	UFP-VSL-00033 RED CHARGE VESSEL MODEL SPECIAL 784 GAL 30" ID x 149" T-1	UFP-VSL-00033 RED CHARGE VESSEL MODEL SPECIAL 784 GAL 30" ID x 149" T-1	UFP-VSL-00033 RED CHARGE VESSEL MODEL SPECIAL 784 GAL 30" ID x 149" T-1	UFP-VSL-00037 RED CHARGE VESSEL MODEL SPECIAL 169 GAL 18" ID x 41" T-1	UFP-VSL-00035 RED CHARGE VESSEL MODEL S 275 GAL 28" ID x 68" T-1	UFP-VSL-00035 RED CHARGE VESSEL MODEL SPECIAL 784 GAL 30" ID x 149" T-1
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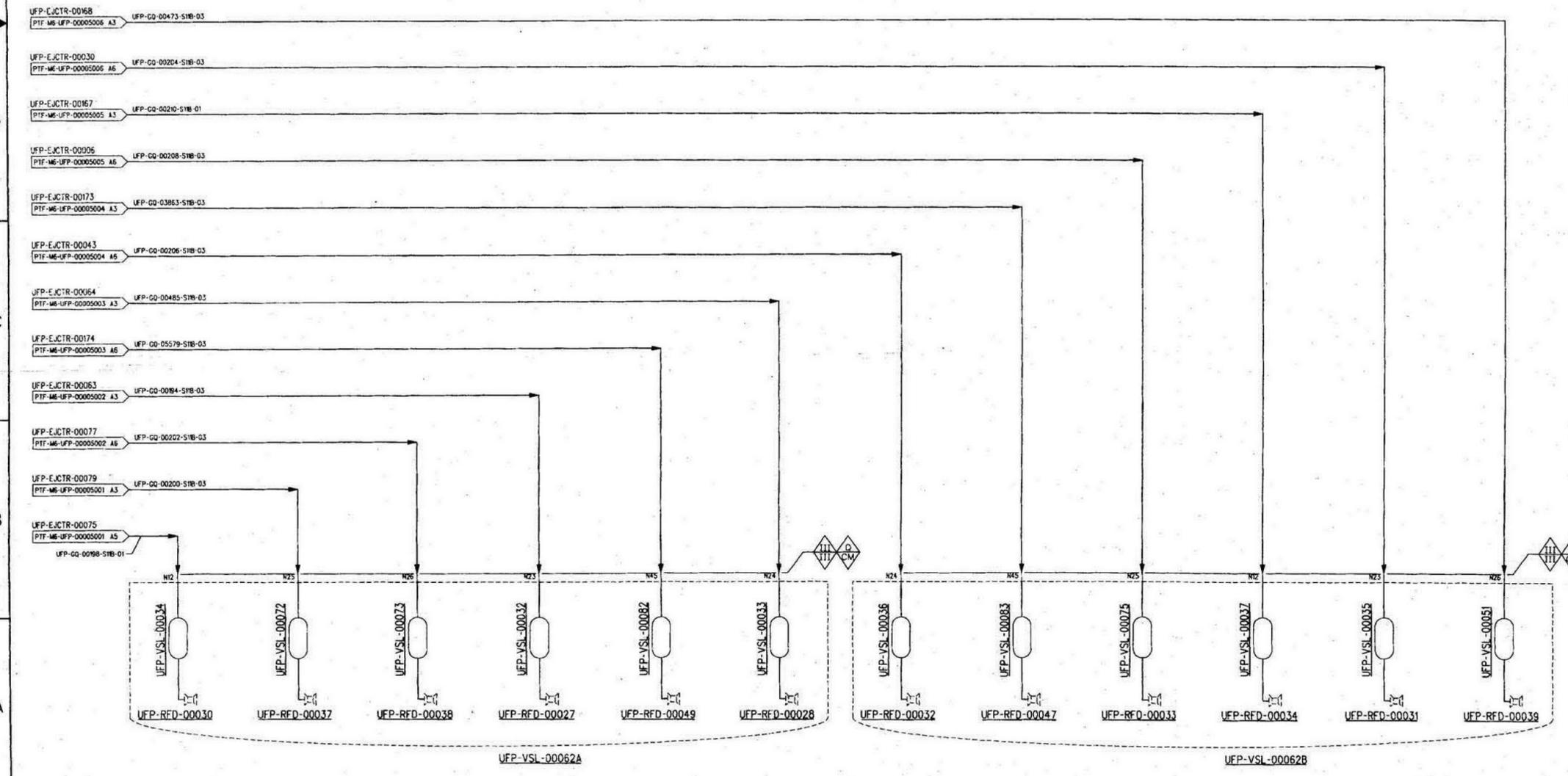
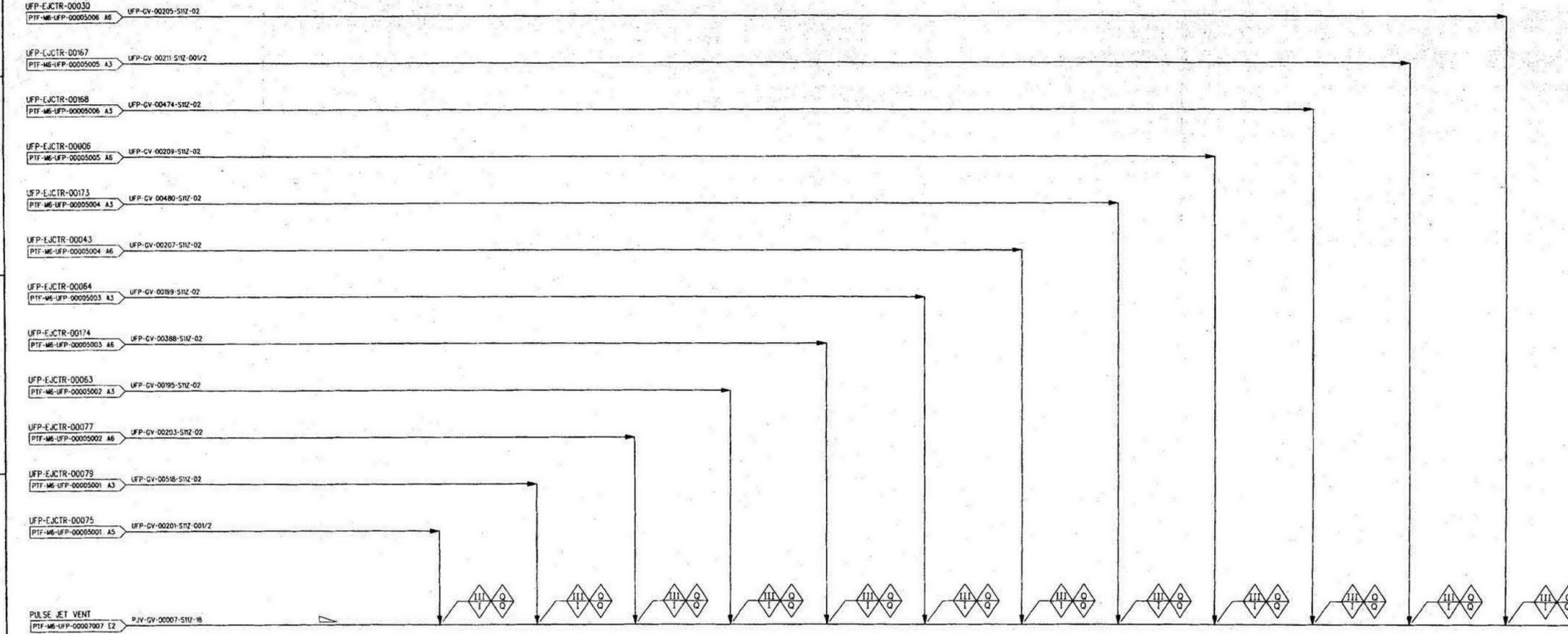
- NOTES:**
- SEE DRAWINGS 24590-WTP-M6-50-00001 THROUGH 24590-WTP-M6-50-00008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
  - CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
  - THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-III, UNLESS OTHERWISE NOTED.
  - ALL LINES ON THIS DRAWING ARE LOCATED IN THE BLACK CELL AND SHALL BE SELF-DRAINING.
  - FOR PROCESS INFORMATION SEE DRAWING 24590-PTF-M6-UFP-00004001 AND -00004002.
  - THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTI-SHEET DRAWINGS AND, IN PART, SUPERSEDES 24590-PTF-M6-UFP-00005 REV 3. THIS IS A MAJOR REVISION, NO REVISION CLOUDS ARE SHOWN. THIS DRAWING MAY INCLUDE INFORMATION FROM 24590-PTF-M6N-MBOT-00036, -00037, -00038, AND 24590-PTF-M6N-UFP-00070.

HOLD/OPEN ITEMS:

NONE

REFERENCES:

NONE



PROJECT No. 24590  
SITE HANFORD  
AREA 200E  
BUILDING No. 10

ORIGINATOR: *Michael Summers* 10/26/08  
CHECKER: *AP/PL* 10/13/08  
APPROVER: *John V. [Signature]* 10/14/08  
REVIEWER: *John [Signature]* 10/14/08

REVISION HISTORY

REV	DESCRIPTION	ORIG	CHKD	RVWD	APVD	DATE
0	ISSUED FOR CONSTRUCTION SEE NOTE 6					11/14/08

CONTRACT No. DE-AC27-08RV14136

**P&ID - PTF  
ULTRAFILTRATION PROCESS  
SYSTEM  
VESSEL RFD  
UFP-VSL-00062A/B**

24590-PTF-M6-UFP-00005007

SCALE: NONE

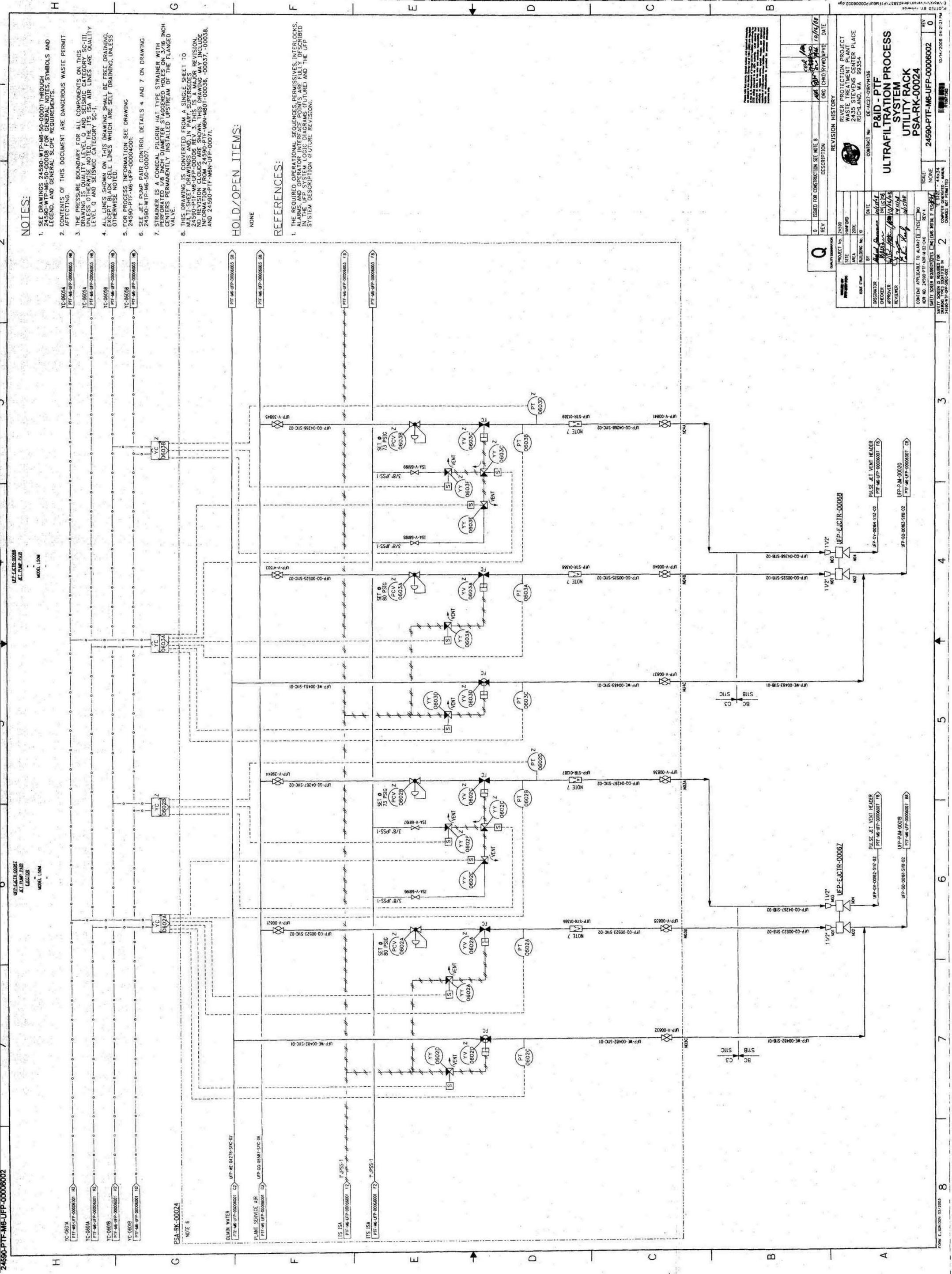
REVISION: 0

SAFETY SCREEN REQUIRED:  YES  NO

FORM E-S04 D04 02/2003

REVISION HISTORY





- NOTES:**
- SEE DRAWINGS 24590-WTP-M6-50-00001 THROUGH 24590-WTP-M6-50-00008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
  - CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
  - THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-III, UNLESS OTHERWISE NOTED. THE ITS ISA AIR LINES ARE QUALITY LEVEL Q AND SEISMIC CATEGORY SC-I.
  - ALL LINES SHOWN ON THIS DRAWING SHALL BE FREE DRAINING EXCEPT BLACK CELL LINES WHICH ARE SELF DRAINING, UNLESS OTHERWISE NOTED.
  - FOR PROCESS INFORMATION SEE DRAWING 24590-WTP-M6-50-00001.
  - SEE JET PUMP PAIR CONTROL DETAILS 4 AND 7 ON DRAWING 24590-WTP-M6-50-00007.
  - STRAINER IS A CONICAL PLUNGER MAT TYPE STRAINER WITH 1/8" PERFORATED 7/8" INCH DIAMETER STAGGERED 1/8" INCH CENTERS PERMANENTLY INSTALLED UPSTREAM OF THE FLANGED VALVE.
  - THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTI-SHEET DRAWINGS, AND IN PART, SUPERSEDES 24590-WTP-M6-50-00006 REV. 3. THIS IS A MAJOR REVISION, AND INFORMATION FROM 24590-WTP-M6-50-00006, 00007, 00008, AND 24590-WTP-M6-50-00001.

**HOLD/OPEN ITEMS:**

NONE

**REFERENCES:**

- THE REQUIRED OPERATIONAL SEQUENCES, PERMISSIVES, INTERLOCKS, AND SAFETY INTERLOCKS ARE FULLY DESCRIBED IN THE UFP SYSTEM LOGIC DIAGRAMS (LURE) AND THE UFP SYSTEM DESCRIPTION (FUTURE REVISION).

REV	ISSUED FOR CONSTRUCTION	DESCRIPTION	DATE
0	ISSUED FOR CONSTRUCTION	SEE NOTE 8	10/14/08

PROJECT No.	24590
SITE	HANFORD
AREA	200E
BUILDING No.	10
DATE	10/14/08
ORIGINATOR	Michael J. ...
DESIGNER	Michael J. ...
APPROVER	Michael J. ...
REVIEWER	Michael J. ...

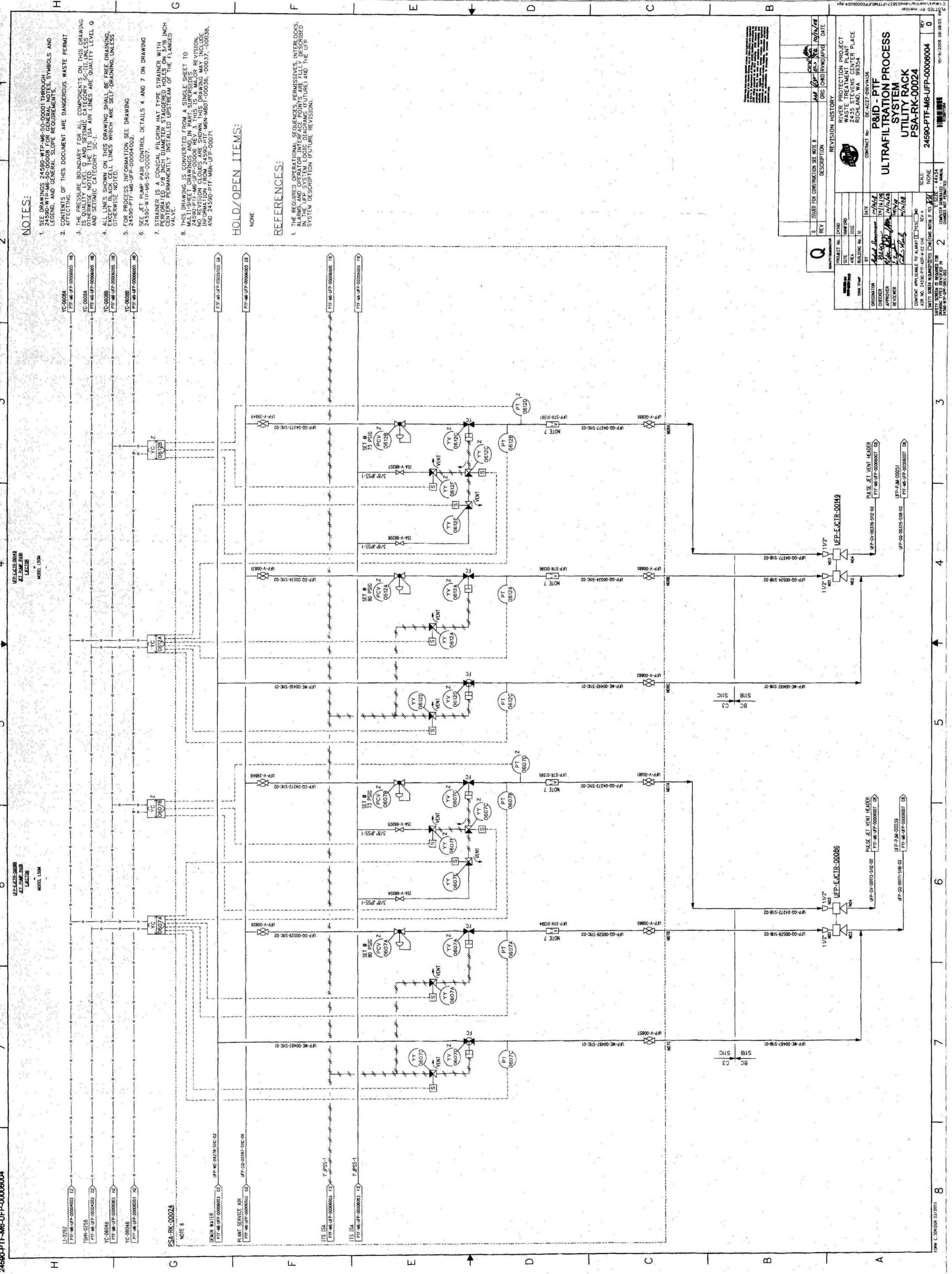
  

REVISION HISTORY
RIVER PROTECTION PROJECT WASTE TREATMENT PLANT 2125B SUESS CENTER PLACE RUGBYLAND, MA 01930-01
CONTRACT No. DE-A227-08VH407
<b>P&amp;ID - PTF</b> <b>ULTRAFILTRATION PROCESS</b> <b>UTILITY RACK</b> <b>PSA-RK-00024</b>

CONTENTS APPLICABLE TO ALTERNATE SHEETS	NO.	DATE
UFP-M6-50-00001	1	10/14/08
UFP-M6-50-00002	2	10/14/08
UFP-M6-50-00003	3	10/14/08
UFP-M6-50-00004	4	10/14/08
UFP-M6-50-00005	5	10/14/08
UFP-M6-50-00006	6	10/14/08
UFP-M6-50-00007	7	10/14/08
UFP-M6-50-00008	8	10/14/08





- NOTES:**
- SEE DRAWINGS 24590-WTP-M6-50-0001 THROUGH 24590-WTP-M6-50-0008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
  - CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
  - THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-1. ALL OTHERS OTHERWISE NOTED. THE TTS ISA AIR LINES ARE QUALITY LEVEL Q AND SEISMIC CATEGORY SC-1.
  - ALL LINES SHOWN ON THIS DRAWING SHALL BE FREE DRAINING, EXCEPT BLACK CELL LINES WHICH ARE SELF-DRAINING, UNLESS OTHERWISE NOTED.
  - FOR PROCESS INFORMATION SEE DRAWING 24590-PTF-M6-UF-00004002.
  - SEE LEFT PUMP PAIR CONTROL DETAILS 4 AND 7 ON DRAWING 24590-WTP-M6-50-00007.
  - STRAINERS IS A CONICAL FILTER MAY BE STRAINER WITH PERFORATED 7/8" DIA. DISK. DISK IS INSTALLED UPSTREAM OF 1/2" INCH CENTERS PERMANENTLY INSTALLED UPSTREAM OF THE FLANGED VALVE.
  - THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO A MULTI-SHEET DRAWING AND IN PART SUPERSEDES 24590-PTF-M6-UF-00006 REV. 3. THIS IS A MAJOR REVISION. INFORMATION FROM 24590-PTF-M6-UF-00006, 00007, 00008, 00009, 00010, 00011, 00012, 00013, 00014, 00015, 00016, 00017, 00018, 00019, 00020, 00021, 00022, 00023, 00024, 00025, 00026, 00027, 00028, 00029, 00030, 00031, 00032, 00033, 00034, 00035, 00036, 00037, 00038, 00039, 00040, 00041, 00042, 00043, 00044, 00045, 00046, 00047, 00048, 00049, 00050, 00051, 00052, 00053, 00054, 00055, 00056, 00057, 00058, 00059, 00060, 00061, 00062, 00063, 00064, 00065, 00066, 00067, 00068, 00069, 00070, 00071, 00072, 00073, 00074, 00075, 00076, 00077, 00078, 00079, 00080, 00081, 00082, 00083, 00084, 00085, 00086, 00087, 00088, 00089, 00090, 00091, 00092, 00093, 00094, 00095, 00096, 00097, 00098, 00099, 00100, 00101, 00102, 00103, 00104, 00105, 00106, 00107, 00108, 00109, 00110, 00111, 00112, 00113, 00114, 00115, 00116, 00117, 00118, 00119, 00120, 00121, 00122, 00123, 00124, 00125, 00126, 00127, 00128, 00129, 00130, 00131, 00132, 00133, 00134, 00135, 00136, 00137, 00138, 00139, 00140, 00141, 00142, 00143, 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**HOLD/OPEN ITEMS:**

NONE

**REFERENCES:**

- THE REQUIRED OPERATIONAL SEQUENCES, PERMISSIVES, INTERLOCKS, AND LOGIC FOR THE UTILITY RACK ARE FULLY DESCRIBED IN THE UPP SYSTEM LOGIC DIAGRAM (FUTURE REVISION) AND THE UPP SYSTEM DESCRIPTION (FUTURE REVISION).

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PTF-M6-UF-00006001 01  
YC-0604B  
PTF-M6-UF-00006002 02  
PTF-M6-UF-00006003 03  
PTF-M6-UF-00006004 04  
PTF-M6-UF-00006005 05  
PTF-M6-UF-00006006 06  
PTF-M6-UF-00006007 07  
PTF-M6-UF-00006008 08  
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PTF-M6-UF-00006002 02

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T\_PSS-1

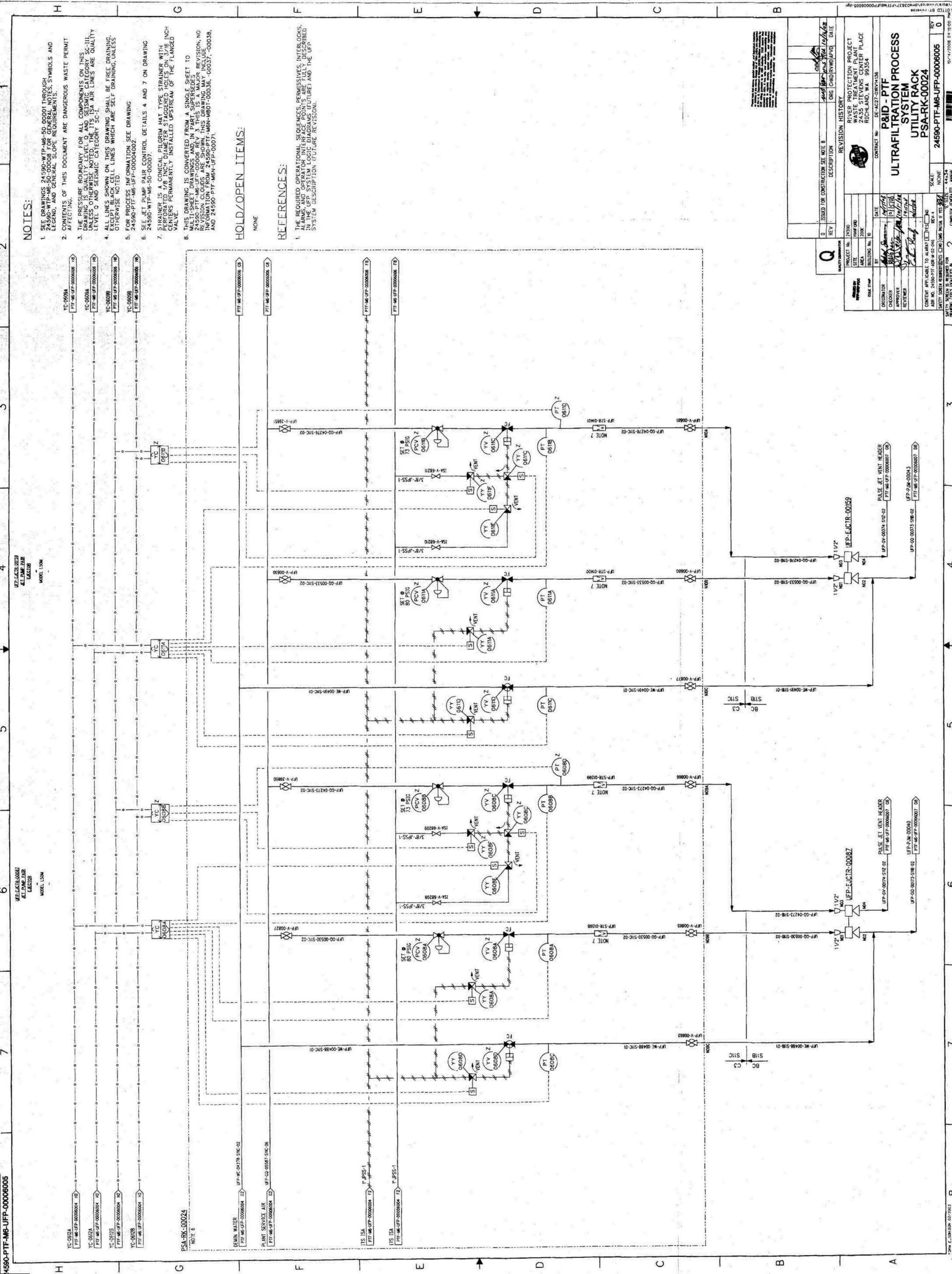
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PTF-M



**NOTES:**

- SEE DRAWINGS 24590-WTP-M6-60-0001 THROUGH 24590-WTP-M6-50-0008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
- CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
- THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS A CONICAL PILGRIM HAT TYPE STRAINER WITH PERFORATED 1/8 INCH DIAMETER STAGGERED HOLES ON 3/16 INCH VALVE PERMANENTLY INSTALLED UPSTREAM OF THE FLANGED VALVE.
- ALL LINES SHOWN ON THIS DRAWING SHALL BE FREE DRAINING, EXCEPT BLACK CELL LINES WHICH ARE SELF DRAINING, UNLESS OTHERWISE NOTED.
- FOR PROCESS INFORMATION SEE DRAWING 24590-PTF-M6-UFP-00004002.
- SEE JET PUMP PAIR CONTROL DETAILS 4 AND 7 ON DRAWING 24590-WTP-M6-50-0007.
- STRAINER IS A CONICAL PILGRIM HAT TYPE STRAINER WITH PERFORATED 1/8 INCH DIAMETER STAGGERED HOLES ON 3/16 INCH VALVE PERMANENTLY INSTALLED UPSTREAM OF THE FLANGED VALVE.
- THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTIPLE SHEETS FOR EASE OF USE. THIS IS A MAJOR REVISION, NO REVISION CLOUDS ARE SHOWN. THIS DRAWING MAY INCLUDE INFORMATION FROM 24590-PTF-M6-UFP-000036, -00037, -00038, AND 24590-PTF-M6-UFP-000071.

**HOLD/OPEN ITEMS:**

NONE

**REFERENCES:**

- THE REQUIRED OPERATIONAL SEQUENCES, PERMISSIVES, INTERLOCKS, ALARMS AND OPERATOR INTERFACE POINTS ARE FULLY DESCRIBED IN THE UFP SYSTEM LOGIC DIAGRAMS (FUTURE) AND THE UFP SYSTEM DESCRIPTION (FUTURE REVISION).

UFP-ELECTR-00087  
JET PUMP PAIR  
ELECTR-00087  
MODEL LOW

UFP-ELECTR-00159  
JET PUMP PAIR  
ELECTR-00159  
MODEL LOW

UFP-ELECTR-00087  
JET PUMP PAIR  
ELECTR-00087  
MODEL LOW

UFP-ELECTR-00159  
JET PUMP PAIR  
ELECTR-00159  
MODEL LOW

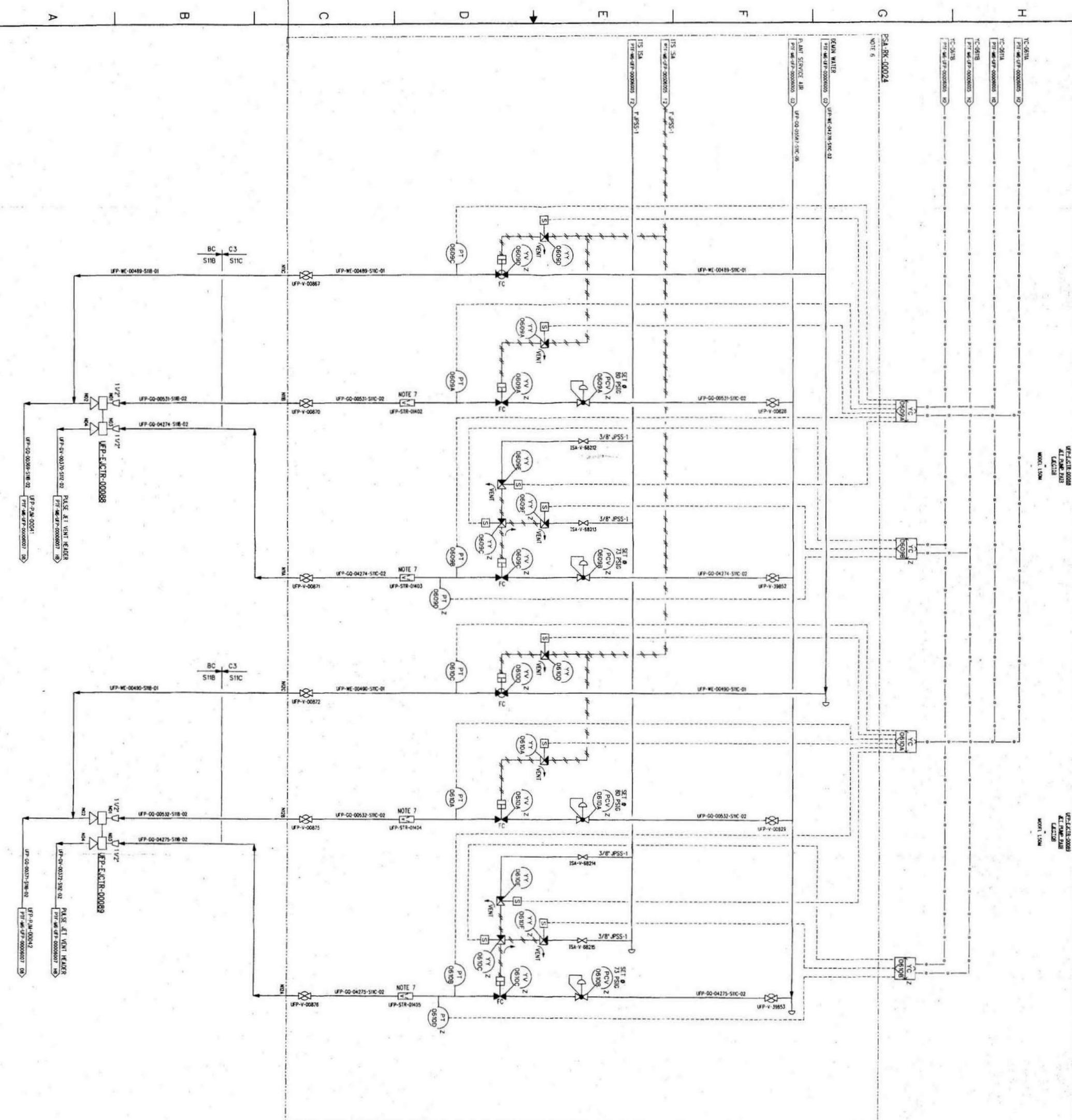
REV	DESCRIPTION	DATE
0	ISSUED FOR CONSTRUCTION SEE NOTE 8	08/14/2008

PROJECT No.	24590
SITE	HANFORD
AREA	200F
BUILDING No.	0
DATE	08/14/2008
DESIGNED BY	[Signature]
CHECKED BY	[Signature]
APPROVED BY	[Signature]
REVIEWER	[Signature]

REVISION HISTORY
RIVER PROTECTION PROJECT WASTE TREATMENT PLANT 2435 STEVENS CENTER PLACE RICHLAND, WA 99354
CONTRACT No. DE-AC27-08R11436
<b>P&amp;ID - PTF</b>
<b>ULTRAFILTRATION PROCESS</b>
<b>SYSTEM</b>
<b>UTILITY RACK</b>
<b>PSA-RK-00024</b>
24590-PTF-M6-UFP-00000005
REV 0



**HOLD/OPEN ITEMS:**  
NONE

**REFERENCES:**  
NONE

1. THE REQUIRED OPERATIONAL, SAFETY, PERMISSIVES, INTERLOCKS, ALARMS AND OPERATIONAL LOGIC DIAGRAMS (FUTURE) AND THE UFP SYSTEM DESCRIPTION (FUTURE REVISION).

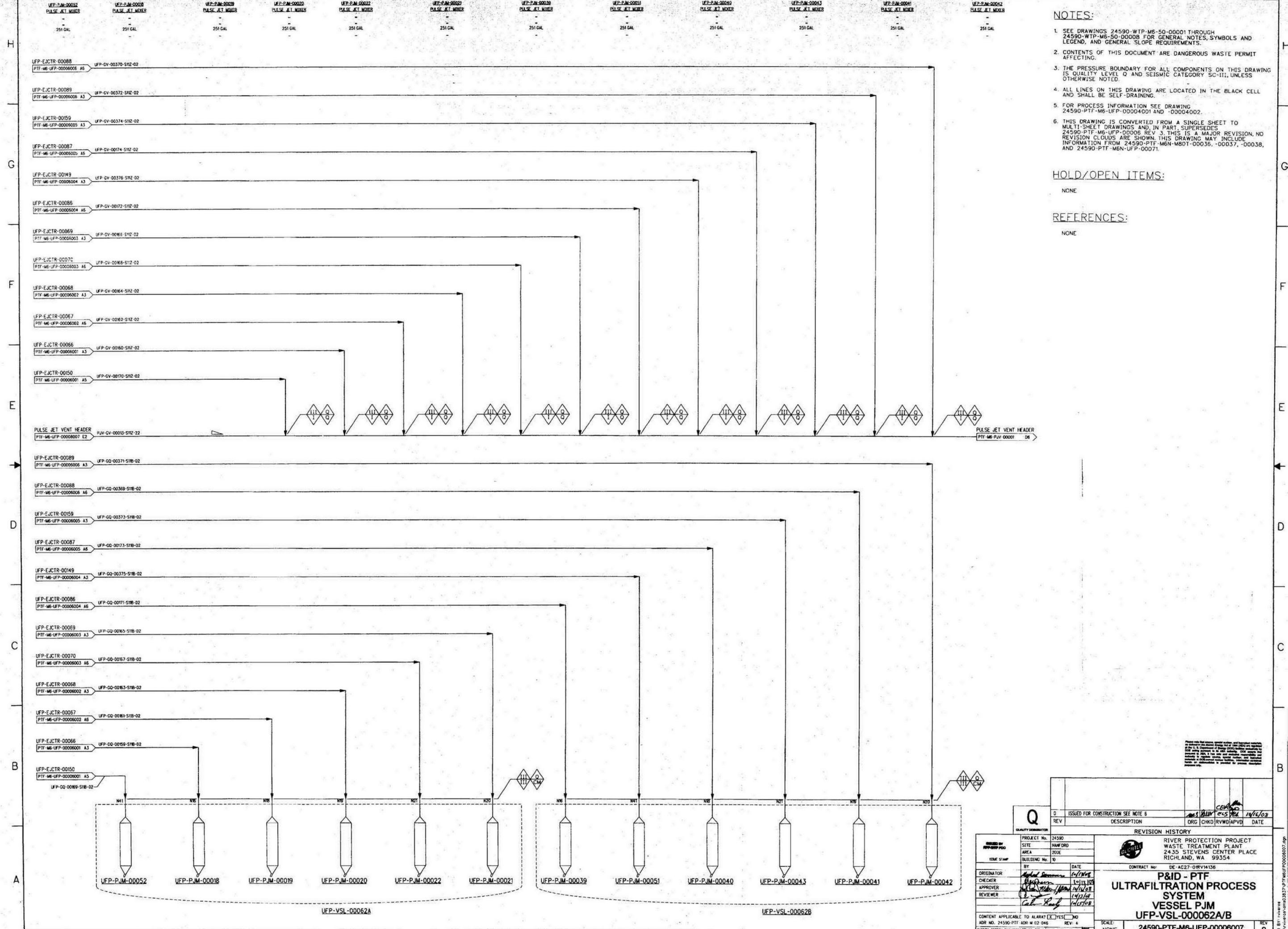
REV	DESCRIPTION	DATE
0	ISSUED FOR CONSTRUCTION SEE NOTE 8	06/16/08

PROJECT No.	24590
SITE	HAWGRO
AREA	206
BUILDING No. 51	
DATE	06/16/08
ORIGINATOR	W. J. ...
CHECKER	...
APPROVER	...
REVISION HISTORY	...

CONTRACT No.	BE-4227-08RYA35
PROJECT	RIVER PROTECTION PROJECT
ADDRESS	2435 STEVENS CENTER PLACE
CITY	RICHLAND, WA 99354
SCALE	NONE
DATE	06/16/08
PROJECT No.	24590-PTF-M6-UFP-00000006
PROJECT TITLE	ULTRAFILTRATION PROCESS UTILITY RACK
PROJECT No.	PSA-RK-00024



- NOTES:**
- SEE DRAWINGS 24590-WTP-M6-50-00001 THROUGH 24590-WTP-M6-50-00008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
  - CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
  - THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-III, UNLESS OTHERWISE NOTED.
  - ALL LINES ON THIS DRAWING ARE LOCATED IN THE BLACK CELL AND SHALL BE SELF-DRAINING.
  - FOR PROCESS INFORMATION SEE DRAWING 24590-PTF-M6-UFP-00004001 AND -00004002.
  - THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTI-SHEET DRAWINGS AND, IN PART, SUPERSEDES 24590-PTF-M6-UFP-00006 REV 3. THIS IS A MAJOR REVISION, NO REVISION CLOUDS ARE SHOWN. THIS DRAWING MAY INCLUDE INFORMATION FROM 24590-PTF-M6-M6B01-00036, -00037, -00038, AND 24590-PTF-M6N-UFP-00071.

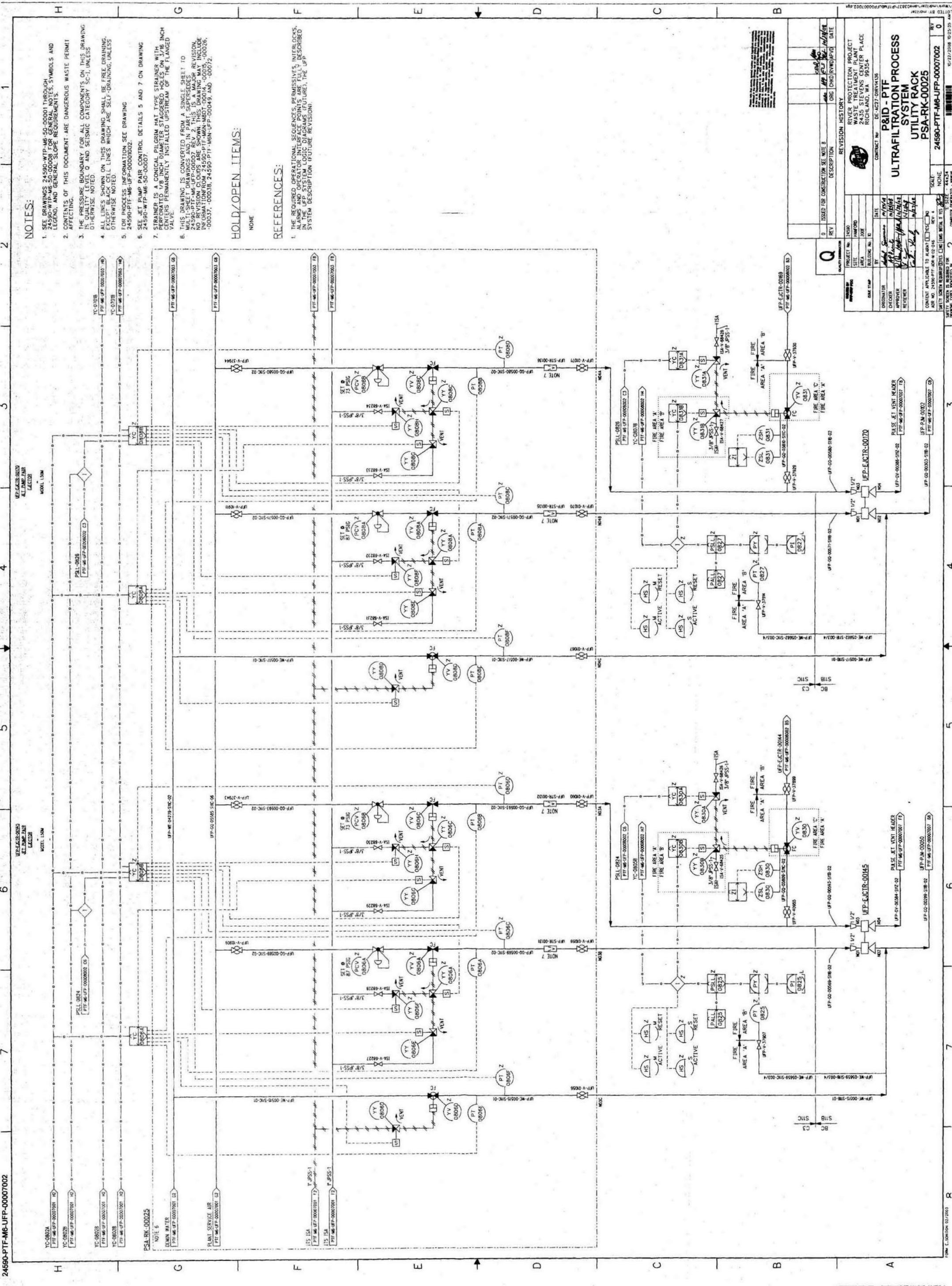
**HOLD/OPEN ITEMS:**  
NONE

**REFERENCES:**  
NONE

Please note that vessels, pumps, motors, and electrical connections, as well as the construction of piping and electrical wiring are regulated by applicable codes and standards. The user is responsible for ensuring that all applicable codes and standards are followed. The user is also responsible for ensuring that all applicable codes and standards are followed. The user is also responsible for ensuring that all applicable codes and standards are followed.

<b>Q</b> QUALITY SUBMITTAL ISSUED FOR CONSTRUCTION SEE NOTE 6 REV: 4 DATE: 10/16/09	PROJECT No. 24590 SITE NAME/ORD AREA 200E BUILDING No. 10	RIVER PROTECTION PLANT WASTE TREATMENT PROJECT 2435 STEVENS CENTER PLACE RICHLAND, WA 99354
	ORIGINATOR: Applied Sciences 6/1/08 CHECKER: [Signature] 10/13/09 APPROVER: [Signature] 10/13/09 REVIEWER: [Signature] 10/13/09	REVISION HISTORY ORG   CHKD   RVWD   APVD   DATE
CONTENT APPLICABLE TO ALAR? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO ADR No. 24590-PTF-ADR-M-02-046 SAFETY SCREEN REQUIRED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	SCALE: NONE 24590-PTF-M6-UFP-0006007	REV: 0





**NOTES:**

- SEE DRAWINGS 24590-WTP-M6-S0-0001 THROUGH 24590-WTP-M6-S0-0007 FOR PUMP SCHEDULES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
- CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
- THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-1, UNLESS OTHERWISE NOTED.
- ALL LINES SHOWN ON THIS DRAWING SHALL BE FREE DRAINING, EXCEPT BLACK CELL LINES WHICH ARE SELF-DRAINING, UNLESS OTHERWISE NOTED.
- FOR PROCESS INFORMATION SEE DRAWING 24590-PTF-M6-UFP-0000002.
- SEE JET PUMP PAIR CONTROL DETAILS 5 AND 7 ON DRAWING 24590-WTP-M6-S0-0007.
- STRAINER IS A CONICAL PILGRIM MAT TYPE STRAINER WITH PERFORATED 1/8 INCH DIAMETER STAGGERED HOLES ON 1/16 INCH CENTERS PERMANENTLY INSTALLED UPSTREAM OF THE FLANGED VALVE.
- THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTI-SHEET DRAWINGS AND IN PART SUPERSEDES DRAWINGS 24590-WTP-M6-S0-0000 REVISION 1. THIS IS A MAJOR REVISION AND REVISIONS TO THIS DRAWING SHALL BE INDICATED BY A REVISION CLOUD. INFORMATION FROM 24590-PTF-M6-UFP-0000002, 24590-WTP-M6-S0-0000, 24590-WTP-M6-S0-0001, 24590-WTP-M6-S0-0002, 24590-WTP-M6-S0-0003, 24590-WTP-M6-S0-0004, 24590-WTP-M6-S0-0005, 24590-WTP-M6-S0-0006, 24590-WTP-M6-S0-0007, 24590-PTF-M6-UFP-0000002, 24590-PTF-M6-UFP-0000003, AND 24590-PTF-M6-UFP-0000004.

**HOLD/OPEN ITEMS:**

NONE

**REFERENCES:**

- THE REQUIRED OPERATIONAL SEQUENCES, PERMISSIVES, INTERLOCKS, AND LOGIC TO BE USED FOR THE UTILITY RACK SHALL BE DESCRIBED IN THE UFP SYSTEM LOGIC DIAGRAMS (FUTURE), THE UFP SYSTEM DESCRIPTION (FUTURE REVISION).

REV	ISSUED FOR CONSTRUCTION	DESCRIPTION	DATE
0	ISSUED FOR CONSTRUCTION	SEE NOTE 8	08/14/2008

PROJECT NO.	SITE	BUILDING NO.	DATE
24590	HAMFORD	7006	08/14/2008

ORIGINATOR	CHECKER	APPROVER	REVIEWER
ADRIAN GONZALEZ	ADRIAN GONZALEZ	ADRIAN GONZALEZ	ADRIAN GONZALEZ

REVISION HISTORY
PROJECT NO. 24590
SITE HAMFORD
BUILDING NO. 7006
DATE 08/14/2008
BY ADRIAN GONZALEZ
DATE 08/14/2008
BY ADRIAN GONZALEZ
DATE 08/14/2008
BY ADRIAN GONZALEZ
DATE 08/14/2008
BY ADRIAN GONZALEZ
DATE 08/14/2008

CONTRACT NO.	SCALE	REV
DE-AC27-08R14136	NONE	0

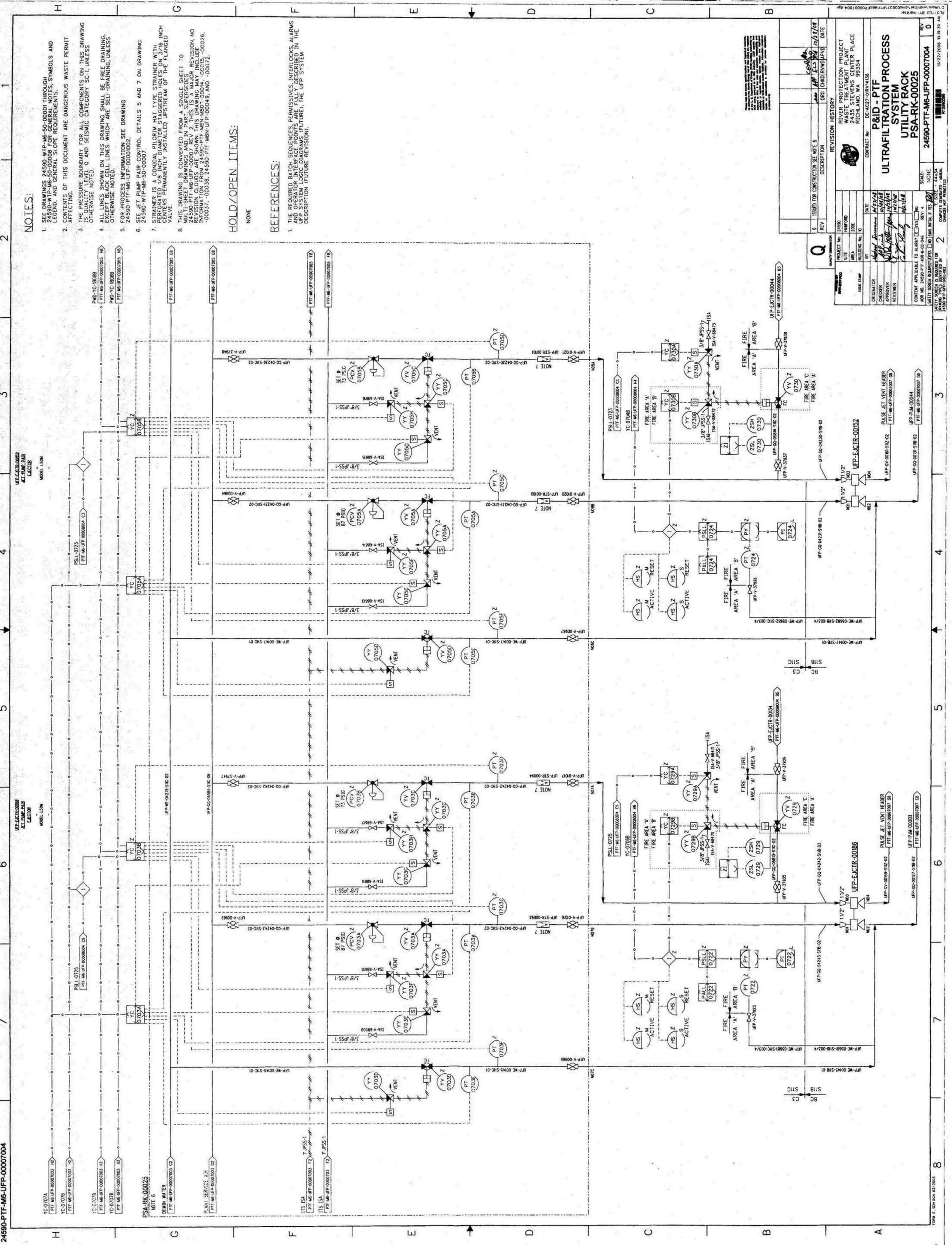
  

**P&ID - PTF**  
**UTILITY RACK**  
**PSA-RK-00025**

RIVER PROTECTION PROJECT  
WASTE TREATMENT PLANT  
2435 STEVENS CENTER PLACE  
RICHLAND, WA 99354

CONTENT APPLICABLE TO ALARM:  YES  NO  
ADR NO. 24590-PTF-M6-UFP-0000002 REV. 1  
SAFETY SCREEN IS REQUIRED FOR:  YES  NO





**NOTES:**

1. SEE DRAWINGS 24590-WTP-M6-50-0001 THROUGH 24590-WTP-M6-50-0008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
2. CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
3. THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-1, UNLESS OTHERWISE NOTED.
4. ALL LINES SHOWN ON THIS DRAWING SHALL BE FREE DRAINING, EXCEPT BLACK CELL LINES WHICH ARE SELF-DRAINING, UNLESS OTHERWISE NOTED.
5. FOR PROCESS INFORMATION SEE DRAWING 24590-PTF-M6-50-0001002.
6. SEE JET PUMP PAIR CONTROL DETAILS 5 AND 7 ON DRAWING 24590-WTP-M6-50-00007.
7. STRAINERS IS A CONICAL, 316SS, HAT TYPE STRAINERS WITH PERFORATED 7/8" INCH DIAMETER STAGGERED HOLES ON 3/16" INCH CENTERS PERMANENTLY INSTALLED UPSTREAM OF THE FLANGED VALVE.
8. THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTI SHEET DRAWINGS AND IN PART, SUPERSEDES 24590-PTF-M6-50-00007 REV. 2. THIS IS A MAJOR REVISION, NO INFORMATION FROM 24590-PTF-M6-50-00007 IS TO BE INCLUDED IN THIS INFORMATION FROM 24590-PTF-M6-50-00007, AND -00037, -00038, 24590-PTF-M6N-UFP-00049, AND -00072.

**HOLD/OPEN ITEMS:**

NONE

**REFERENCES:**

1. THE REQUIRED BATCH SEQUENCES, PERMISSIVES, INTERLOCKS, ALARMS AND OPERATOR INTERFACE POINTS ARE FULLY DESCRIBED IN THE DESCRIPTION (FUTURE REVISION).

REV	ISSUED FOR CONSTRUCTION	DESCRIPTION	DATE
0	ISSUED FOR CONSTRUCTION	REVISED PROJECT	06/23/08

PROJECT NO.	SITE	AREA	ZONE
24590	HANFORD	2435 STEVENS CENTER PLACE	99354

REVISION HISTORY	DATE	BY
REVISED PROJECT	06/23/08	...

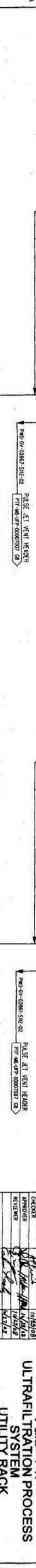
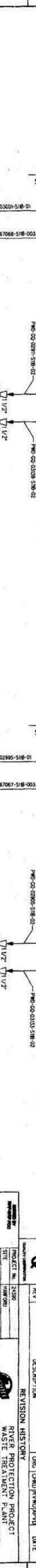
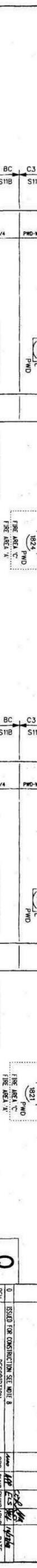
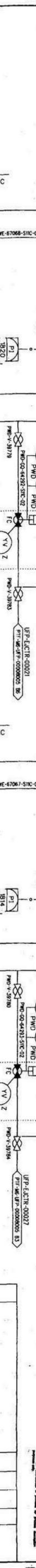
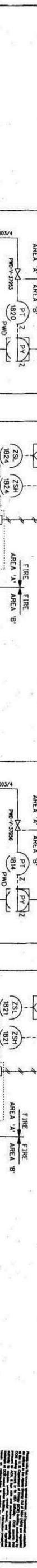
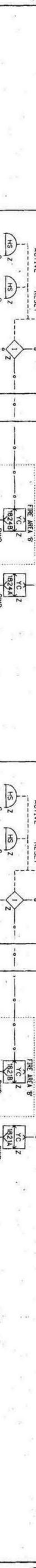
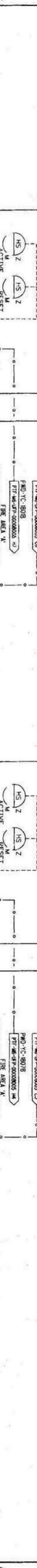
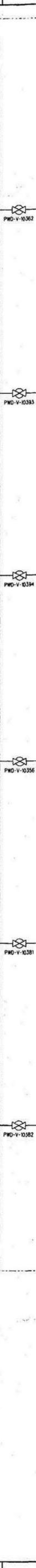
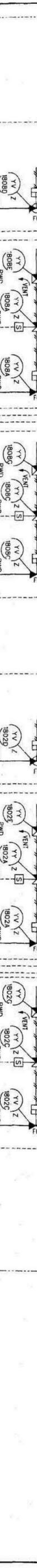
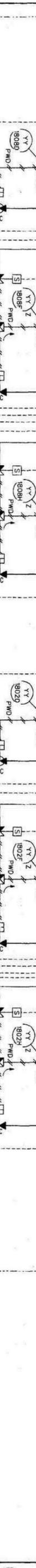
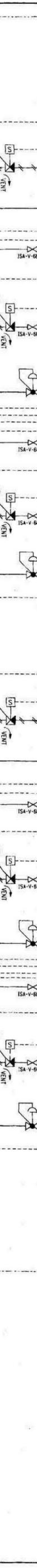
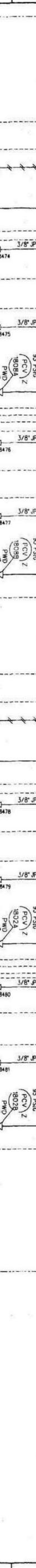
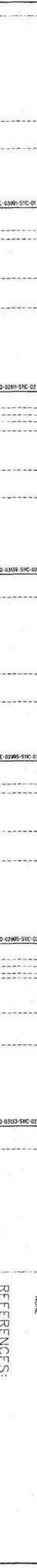
CONTRACT NO.	DESCRIPTION
DE-AC27-08RV-4135	ULTRAFILTRATION PROCESS UTILITY RACK

DESIGNER	CHECKER	APPROVER	REVIEWER
...	...	...	...

CONTENTS APPLICABLE TO ALARM	REV
...	4



**NOTES:**

1. SEE DRAWINGS 24590-WP-M6-50-00001 THROUGH 24590-WP-M6-50-00008 FOR GENERAL NOTES, SYMBOLS AND LEGEND AND GENERAL SLOPE REQUIREMENTS.
2. CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
3. THE PROCESS BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY CONTROL AND SETTING CATEGORY SC-1, UNLESS OTHERWISE NOTED.
4. ALL LINES SHOWN ON THIS DRAWING SHALL BE FREE DRAINING, EXCEPT BACK CELL LINES WHICH ARE SELF-DRAINING, UNLESS OTHERWISE NOTED.
5. FOR PROCESS INFORMATION, SEE DRAWING 24590-PTF-M6-PMD-00002001.
6. SEE JET PUMP PAIR CONTROL DETAILS 5 AND 7 ON DRAWING 24590-WP-M6-50-00007.
7. STRAINER IS A CONICAL PILGRIM HAT TYPE STRAINER WITH PERFORATED 1/8 INCH DIAMETER STAGGERED HOLES ON 3/16 INCH VALVE.
8. THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO 24590-PTF-M6-UFP-00007005 IN 2 PARTS, REVISION NO. 00001. REVISIONS ARE SHOWN IN THIS DRAWING. REVISION NO. INFORMATION FROM 24590-PTF-M6-UFP-000049, AND 000026, 000037, 000038, 24590-PTF-M6-UFP-000049, AND 000027.

**HOLD/OPEN ITEMS:**

NONE

**REFERENCES:**

1. THE REQUIRED OPERATIONAL, SCHEDULES, REQUIREMENTS, INTERLOCKS, ALARMS AND OPERATOR INTERFACE POINTS ARE FULLY DESCRIBED IN THE UFP SYSTEM LOGIC DIAGRAMS (TUBER), THE UFP SYSTEM DESCRIPTION (GUIDE REVISION).

REV	DESCRIPTION	DATE
0	ISSUED FOR CONSTRUCTION SEE NOTE 8	12/22/2008

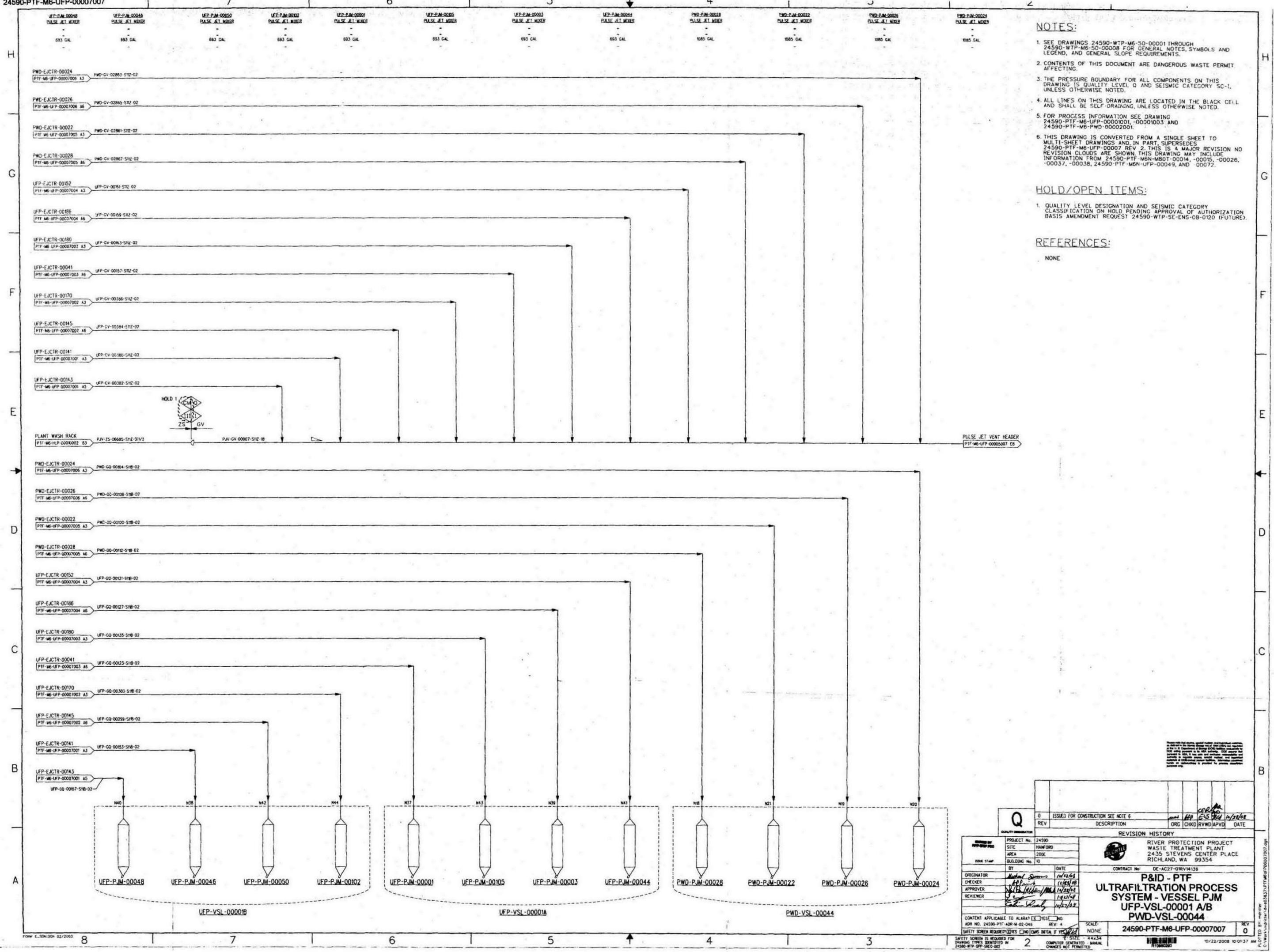
  

DATE	BY	DESCRIPTION
12/22/08	W. J. ...	DESIGN
12/22/08	W. J. ...	CHECK
12/22/08	W. J. ...	APPROVE
12/22/08	W. J. ...	REVIEW

NO.	DATE	DESCRIPTION
1	12/22/08	ISSUED FOR CONSTRUCTION





- NOTES:**
- SEE DRAWINGS 24590-WTP-M6-50-00001 THROUGH 24590-WTP-M6-50-00008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
  - CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
  - THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-1, UNLESS OTHERWISE NOTED.
  - ALL LINES ON THIS DRAWING ARE LOCATED IN THE BLACK CELL AND SHALL BE SELF-DRAINING, UNLESS OTHERWISE NOTED.
  - FOR PROCESS INFORMATION SEE DRAWING 24590-PTF-M6-UFP-00001001, -00001003 AND 24590-PTF-M6-PWD-00002001.
  - THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTI-SHEET DRAWINGS AND, IN PART, SUPERSEDES 24590-PTF-M6-UFP-00007 REV 2. THIS IS A MAJOR REVISION NO REVISION CLOUDS ARE SHOWN. THIS DRAWING MAY INCLUDE INFORMATION FROM 24590-PTF-M6N-MB0T-00014, -00015, -00026, -00037, -00038, 24590-PTF-M6N-UFP-00049, AND -00072.

- HOLD/OPEN ITEMS:**
- QUALITY LEVEL DESIGNATION AND SEISMIC CATEGORY CLASSIFICATION ON HOLD PENDING APPROVAL OF AUTHORIZATION BASIS AMENDMENT REQUEST 24590-WTP-SE-ENS-08-0120 (FUTURE).

**REFERENCES:**  
NONE

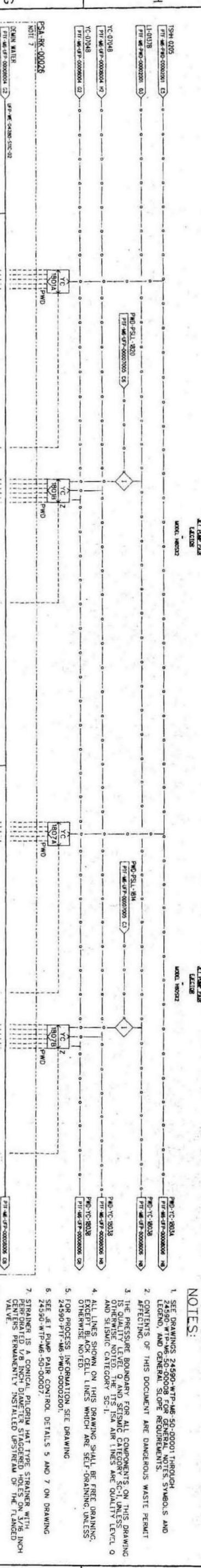
<p>PROJECT No. 24590 SITE HANFORD AREA 200E BUILDING No. 10</p>		<p>ISSUED FOR CONSTRUCTION SEE NOTE 6 REV 0 DESCRIPTION ORG (CHKD/RVWD/APVD) DATE</p>	
<p>ORIGINATOR CHECKER APPROVER REVIEWER</p>		<p>CONTRACT No. DE-AC27-08WV14138 P&amp;ID - PTF <b>ULTRAFILTRATION PROCESS SYSTEM - VESSEL P/JM</b> UFP-VSL-00001 A/B PWD-VSL-00044</p>	
<p>CONTENT APPLICABLE TO ALARAY <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO ADR NO. 24590-PTF-ADR-M-02-046 SAFETY SCREEN IS REQUIRED FOR DRAWING TYPES IDENTIFIED IN 24590-WTP-APP-SEC-002</p>		<p>SCALE: NONE DATE: 10/22/2008 10:01:37 AM COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED</p>	









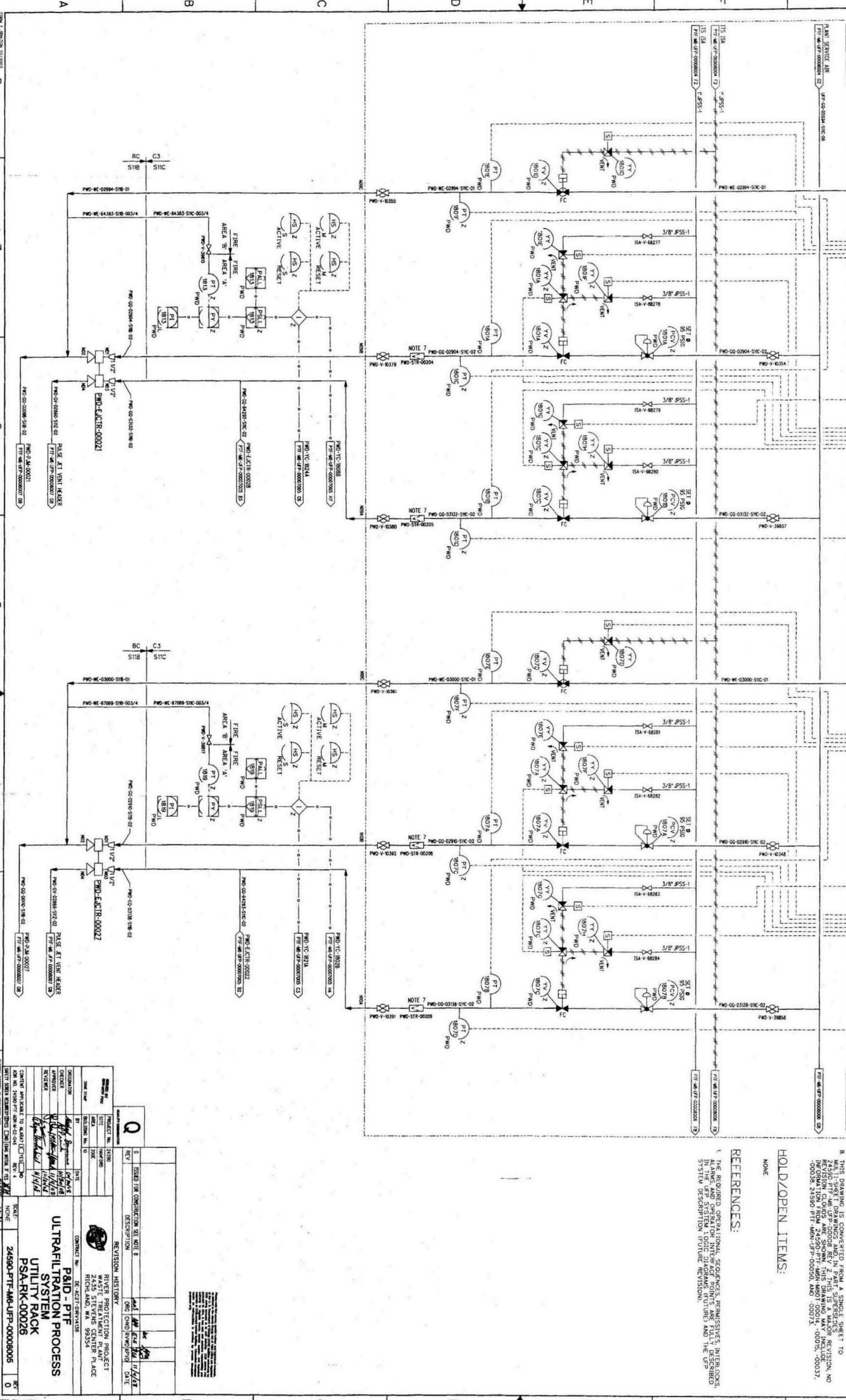


- NOTES:**
- SEE DRAWINGS 24590-WTF-M6-50-00001 THROUGH 24590-WTF-M6-50-00008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
  - CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFIDAVIT.
  - THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL 9. ALL OTHER QUALITY LEVELS ARE OTHERWISE NOTED. THE ITS ISA AIR LINES ARE QUALITY LEVEL 9 AND SEISMIC CATEGORY SC-1.
  - ALL LINES SHOWN ON THIS DRAWING SHALL BE FIRE DRAINING, EXCEPT BLACK CELL LINES WHICH ARE SELF-DRAINING, UNLESS OTHERWISE NOTED.
  - FOR PROCESS INFORMATION, SEE DRAWING 24590-WTF-M6-50-00020.
  - SEE AT PUMP PAIR CONTROL DETAILS 5 AND 7 ON DRAWING 24590-WTF-M6-50-00007.
  - STRAINER IS A CONICAL FILTERING HAT TYPE STRAINER WITH MULTIPLE SCREENS AND IS STAGGERED HOLES ON 3/16 INCH CENTERS. PERMANENTLY INSTALLED UPSTREAM OF THE FLANGED VALVE.
  - THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTI-SHEET DRAWINGS AND IN PART SUPERSEDES DRAWING 24590-WTF-M6-50-00008 REV 2. THIS IS A MAJOR REVISION, NO REVISION CLOUDS ARE SHOWN. THIS DRAWING MAY INCLUDE REVISIONS FROM DRAWING 24590-WTF-M6-50-00001, -00005, -00037, -00038, 24590-WTF-M6-50-00001 AND -00073.

**HOLD/OPEN ITEMS:**  
 NONE

**REFERENCES:**

- THE REQUIRED OPERATIONAL SEQUENCES, PERMISSIVES, INTERLOCKS, ALARMS, AND OPERATOR INTERFACE POINTS ARE FULLY DESCRIBED IN THE UFP AND SYSTEM LOGIC DIAGRAMS (FUNCTION AND THE UFP SYSTEM DESCRIPTION (FUTURE REVISION).



REV	DESCRIPTION	DATE	BY	CHKD
0	ISSUED FOR CONSTRUCTION SEE NOTE 8	11/14/18	WJ	WJ

NO.	DATE	BY	CHKD
1	11/14/18	WJ	WJ
2	11/14/18	WJ	WJ
3	11/14/18	WJ	WJ
4	11/14/18	WJ	WJ
5	11/14/18	WJ	WJ
6	11/14/18	WJ	WJ
7	11/14/18	WJ	WJ
8	11/14/18	WJ	WJ

**REVISION HISTORY**

PROJECT NO. 24590  
 RIVER PROTECTION PROJECT  
 2455 STEVENS CENTER PLACE  
 RICHMOND, VA 99354

CONTRACT NO. DC-127-08V-138

SCALE: NONE

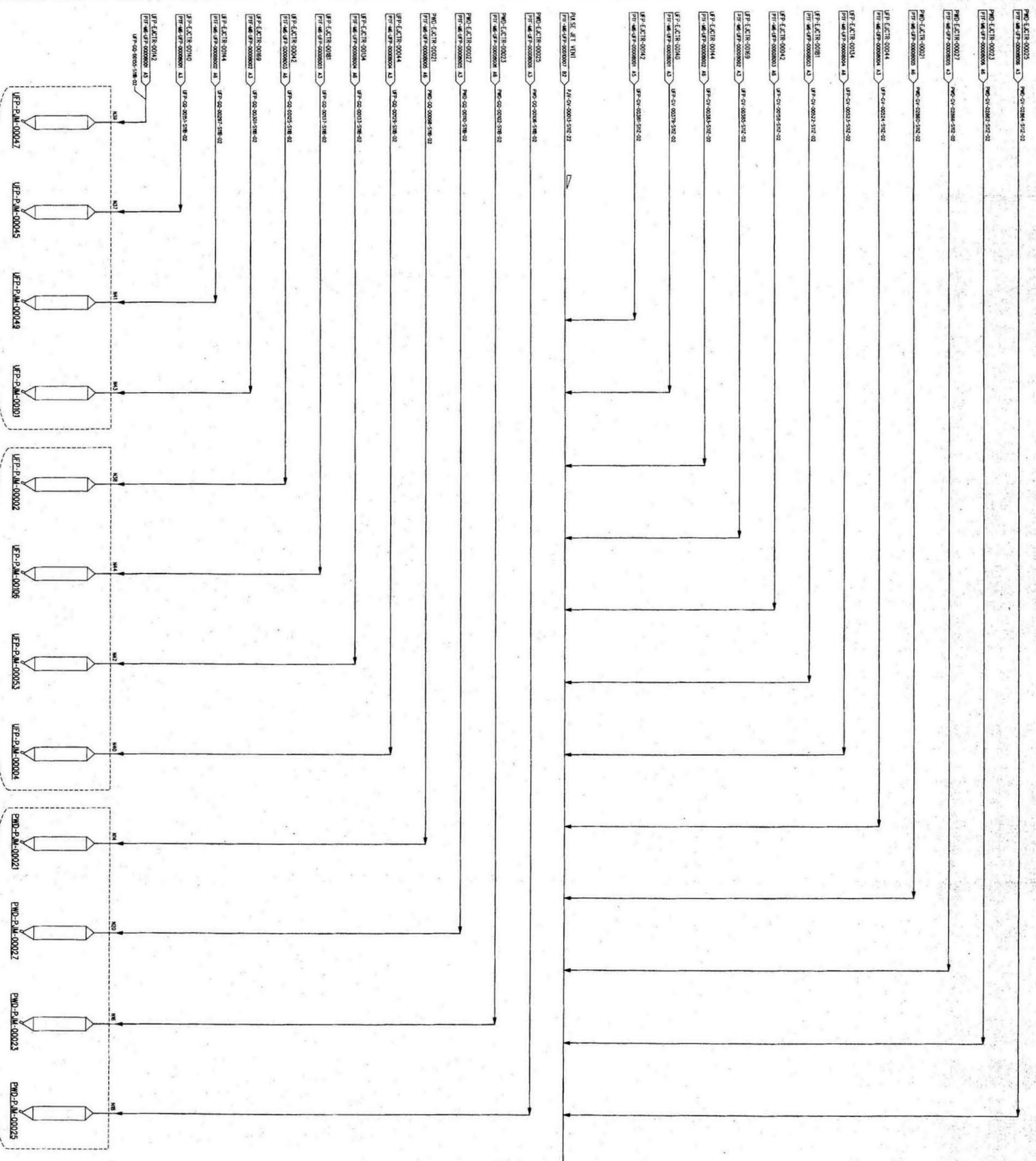
DATE: 11/14/18

PLOTTED BY: mdr/llr

DATE: 11/14/18



UFP-P-M-00002	UFP-P-M-00003	UFP-P-M-00004	UFP-P-M-00005	UFP-P-M-00006	UFP-P-M-00007	UFP-P-M-00008	UFP-P-M-00009	UFP-P-M-00010	UFP-P-M-00011	UFP-P-M-00012	UFP-P-M-00013	UFP-P-M-00014	UFP-P-M-00015	UFP-P-M-00016	UFP-P-M-00017	UFP-P-M-00018	UFP-P-M-00019	UFP-P-M-00020	UFP-P-M-00021	UFP-P-M-00022	UFP-P-M-00023	UFP-P-M-00024	UFP-P-M-00025
UFP-P-M-00002	UFP-P-M-00003	UFP-P-M-00004	UFP-P-M-00005	UFP-P-M-00006	UFP-P-M-00007	UFP-P-M-00008	UFP-P-M-00009	UFP-P-M-00010	UFP-P-M-00011	UFP-P-M-00012	UFP-P-M-00013	UFP-P-M-00014	UFP-P-M-00015	UFP-P-M-00016	UFP-P-M-00017	UFP-P-M-00018	UFP-P-M-00019	UFP-P-M-00020	UFP-P-M-00021	UFP-P-M-00022	UFP-P-M-00023	UFP-P-M-00024	UFP-P-M-00025



- NOTES:**
1. SEE DRAWINGS 24590-WTP-M6-50-00001 THROUGH 24590-WTP-M6-50-00008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
  2. CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT APPLICATING.
  3. THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL 0 AND SEISMIC CATEGORY SC-I, UNLESS OTHERWISE NOTED.
  4. ALL LINES SHOWN ON THIS DRAWING ARE LOCATED IN THE BLACK CELL AND SHALL BE SELF-DRAINING, UNLESS OTHERWISE NOTED.
  5. FOR PROCESS INFORMATION, SEE DRAWING 24590-PTF-M6-UFP-00001001, 00001004, AND 24590-PTF-M6-PWD-00002001.
  6. THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTI-SHEET DRAWINGS AND, IN PART, SUPERSEDES 24590-PTF-M6-UFP-00008 REV. 2. THIS IS A MAJOR REVISION, NO INFORMATION FROM 24590-PTF-M6-UFP-00008, 00009, 00007, 00008, 24590-PTF-M6-UFP-00050, AND 00073.
- HOLD/OPEN ITEMS:**
- NONE
- REFERENCES:**
- NONE

PROJECT No.	24590
SITE	WASTED
AREA	2002
BUILDING No.	0
DATE	11/14/04
DESIGNER	Adrian
CHECKER	John
APPROVER	John
REVISIONS	

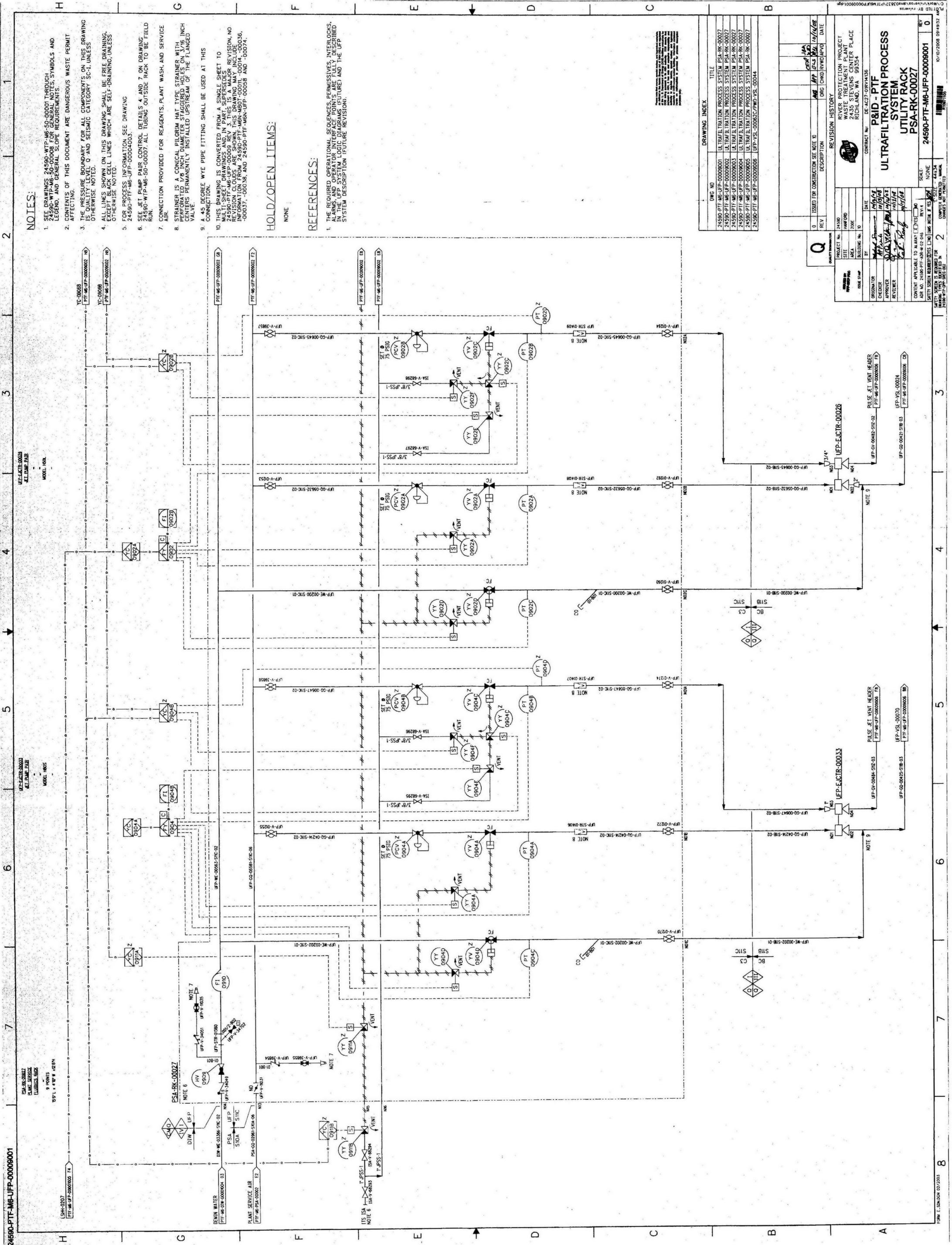
CONTRACT No. DC-4237-01R1A138

**RIVER PROTECTION PROJECT**  
WASTE TREATMENT PLANT  
2435 STEVENS CENTER PLACE  
RICHMOND, WA 98354

**P&ID - PTF**  
**ULTRAFILTRATION PROCESS**  
**SYSTEM**  
**VESSEL PUM UFP-VSL-00001A/B**  
**PWD-VSL-00004**

SCALE: NONE  
DATE: 11/14/04

CONTROL APPLICABLE TO ALARM:  YES  NO  
REV. 4  
SAFETY SYMBOLS AS REQUIRED FOR



**NOTES:**

- SEE DRAWINGS 24590-WTP-M6-50-0001 THROUGH 24590-WTP-M6-50-0008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
- CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
- THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-1, UNLESS OTHERWISE NOTED.
- ALL LINES SHOWN ON THIS DRAWING SHALL BE FREE DRAINING, EXCEPT BLACK CELL LINES WHICH ARE SELF-DRAINING, UNLESS OTHERWISE NOTED.
- FOR PROCESS INFORMATION SEE DRAWING 24590-PTF-M6-UFP-00004003.
- SEE JET PUMP PAIR CONTROL DETAILS 4 AND 7 ON DRAWING 24590-WTP-M6-50-00007. ALL TUBING OUTSIDE RACK TO BE FIELD RUN.
- CONNECTION PROVIDED FOR REAGENTS, PLANT WASH, AND SERVICE AIR.
- STRAINER IS A CONICAL PILGRIM HAT TYPE STRAINER WITH 1/2 INCH SCREENS PERMANENTLY INSTALLED UPSTREAM OF THE FLANGED VALVE.
- A 45 DEGREE WYE PIPE FITTING SHALL BE USED AT THIS CONNECTION.
- THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTIPLE SHEETS FOR EASIER REFERENCE. THIS IS A MAJOR REVISION, NO REVISION CLOUDS ARE SHOWN. THIS DRAWING MAY INCLUDE INFORMATION FROM 24590-PTF-M6-UFP-000011-00014, -000036, -000037, -000038, AND 24590-PTF-M6-UFP-000038 AND -000074.

**HOLD/OPEN ITEMS:**

NONE

**REFERENCES:**

- THE REQUIRED OPERATIONAL SEQUENCES, PERMISSIVES, INTERLOCKS, ALARMS, AND OPERATOR INTERFACE POINTS ARE FULLY DESCRIBED IN THE UFP SYSTEM LOGIC DIAGRAMS (FUTURE) AND THE UFP SYSTEM DESCRIPTION (FUTURE REVISION).

DWG NO	TITLE
24590-PTF-M6-UFP-00000001	ULTRAFILTRATION PROCESS SYSTEM PSA-RK-00027
24590-PTF-M6-UFP-00000002	ULTRAFILTRATION PROCESS SYSTEM PSA-RK-00027
24590-PTF-M6-UFP-00000003	ULTRAFILTRATION PROCESS SYSTEM PSA-RK-00027
24590-PTF-M6-UFP-00000004	ULTRAFILTRATION PROCESS SYSTEM PSA-RK-00027
24590-PTF-M6-UFP-00000005	ULTRAFILTRATION PROCESS SYSTEM PSA-RK-00027
24590-PTF-M6-UFP-00000006	ULTRAFILTRATION PROCESS SYSTEM PSA-RK-00027

REV	DESCRIPTION	DATE
0	ISSUED FOR CONSTRUCTION SEE NOTE 10	10/10/2008

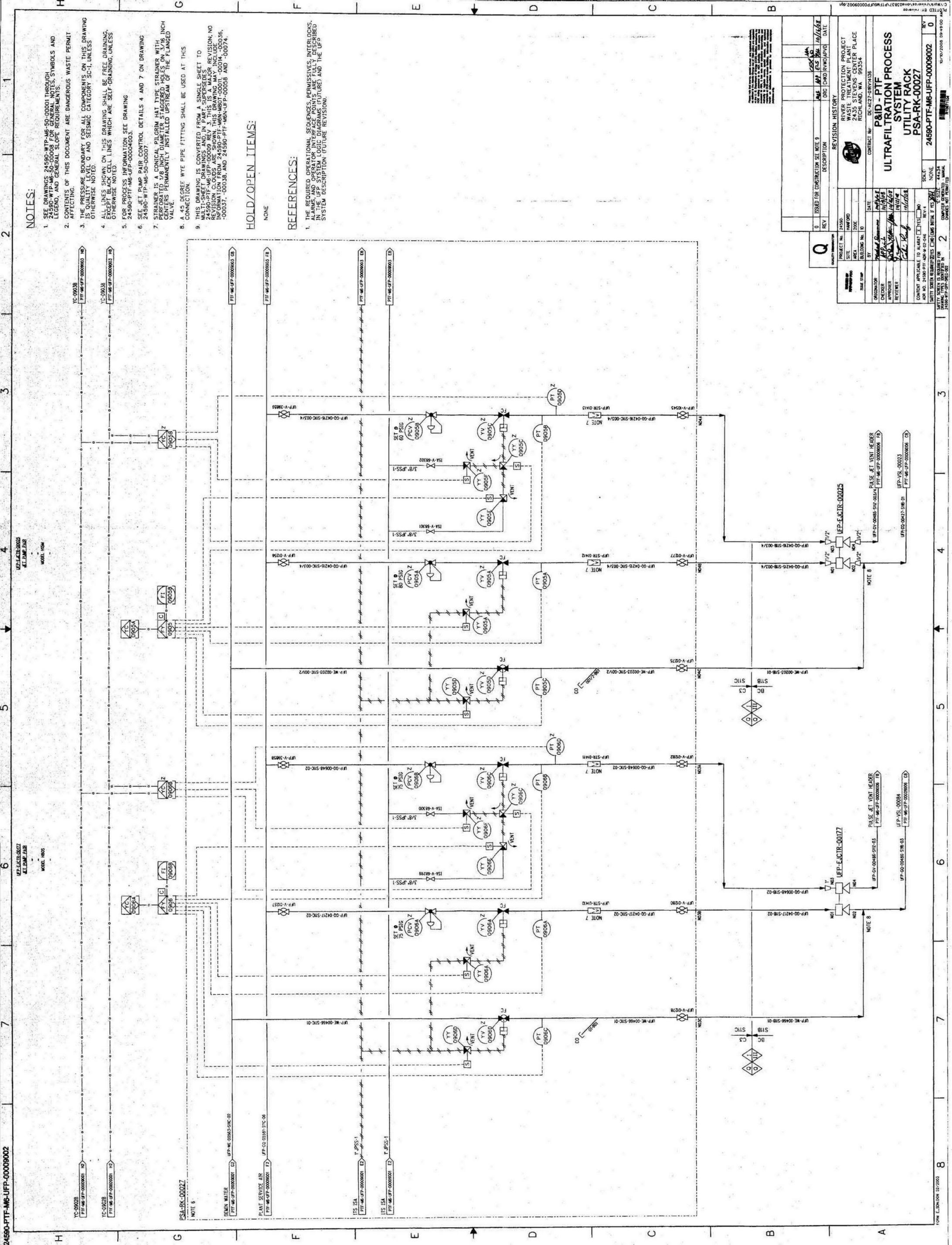
**REVISION HISTORY**

PROJECT No. 24590  
 SITE NAME F00  
 AREA 200E  
 BUILDING No. 10  
 DATE 10/10/08  
 BY [Signature]  
 CHECKED [Signature]  
 APPROVED [Signature]  
 REVIEWER [Signature]

CONTRACT No. DE-AC27-03RV4136

**P&ID - PTF  
 ULTRAFILTRATION PROCESS  
 SYSTEM  
 UTILITY RACK  
 PSA-RK-00027**

SCALE NONE  
 4x11.4  
 24590-PTF-M6-UFP-00000001  
 0



**NOTES:**

- SEE DRAWINGS 24590-WTP-M6-S0-0001 THROUGH 24590-WTP-M6-S0-0008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
- CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
- THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-1, UNLESS OTHERWISE NOTED.
- ALL LINES SHOWN ON THIS DRAWING SHALL BE FREE DRAINING, EXCEPT BLACK CELL LINES WHICH ARE SELF DRAINING, UNLESS OTHERWISE NOTED.
- FOR PROCESS INFORMATION SEE DRAWING 24590-WTP-M6-UFP-00004003.
- SEE SET PUMP PUMP CONTROL DETAILS 4 AND 7 ON DRAWING 24590-WTP-M6-S0-00007.
- STRAINER IS A CONICAL PILGRIM HAT TYPE STRAINER WITH 3/16 INCH CENTERS PERMANENTLY INSTALLED UPSTREAM OF THE FLANGED VALVE.
- A 45 DEGREE WYE PIPE FITTING SHALL BE USED AT THIS CONNECTION.
- THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO A MULTISHEET DRAWING. THE SUPERSEDED REVISION, NO. 24590-WTP-M6-UFP-00009 REVISION 3, THIS DRAWING MAY INCLUDE REVISIONS. THIS DRAWING MAY INCLUDE REVISIONS. INFORMATION FROM 24590-WTP-M6-MB0T-00014, -00036, -00037, -00038, AND 24590-WTP-M6-UFP-00058 AND -00074.

**HOLD/OPEN ITEMS:**

NONE

**REFERENCES:**

- THE REQUIRED OPERATIONAL SEQUENCES, PERMISSIVES, INTERLOCKS, ALARMS AND OPERATOR INTERFACE POINTS ARE FULLY DESCRIBED IN THE UFP SYSTEM LOGIC DIAGRAMS (FUTURE) AND THE UFP SYSTEM DESCRIPTION (FUTURE REVISION).

REV	DESCRIPTION	DATE
0	ISSUED FOR CONSTRUCTION SEE NOTE 9	10/14/02

PROJECT No.	24590
SITE	WASTEWATER TREATMENT PLANT
AREA	ULTRAFILTRATION PROCESS UTILITY RACK
BUILDING No.	24590-00000
DATE	10/14/02
BY	[Signature]
CHECKED	[Signature]
APPROVED	[Signature]
REVIEWER	[Signature]

REVISION HISTORY
DE-AC27-001435B
CONTRACT No.
PSA-RK-00027

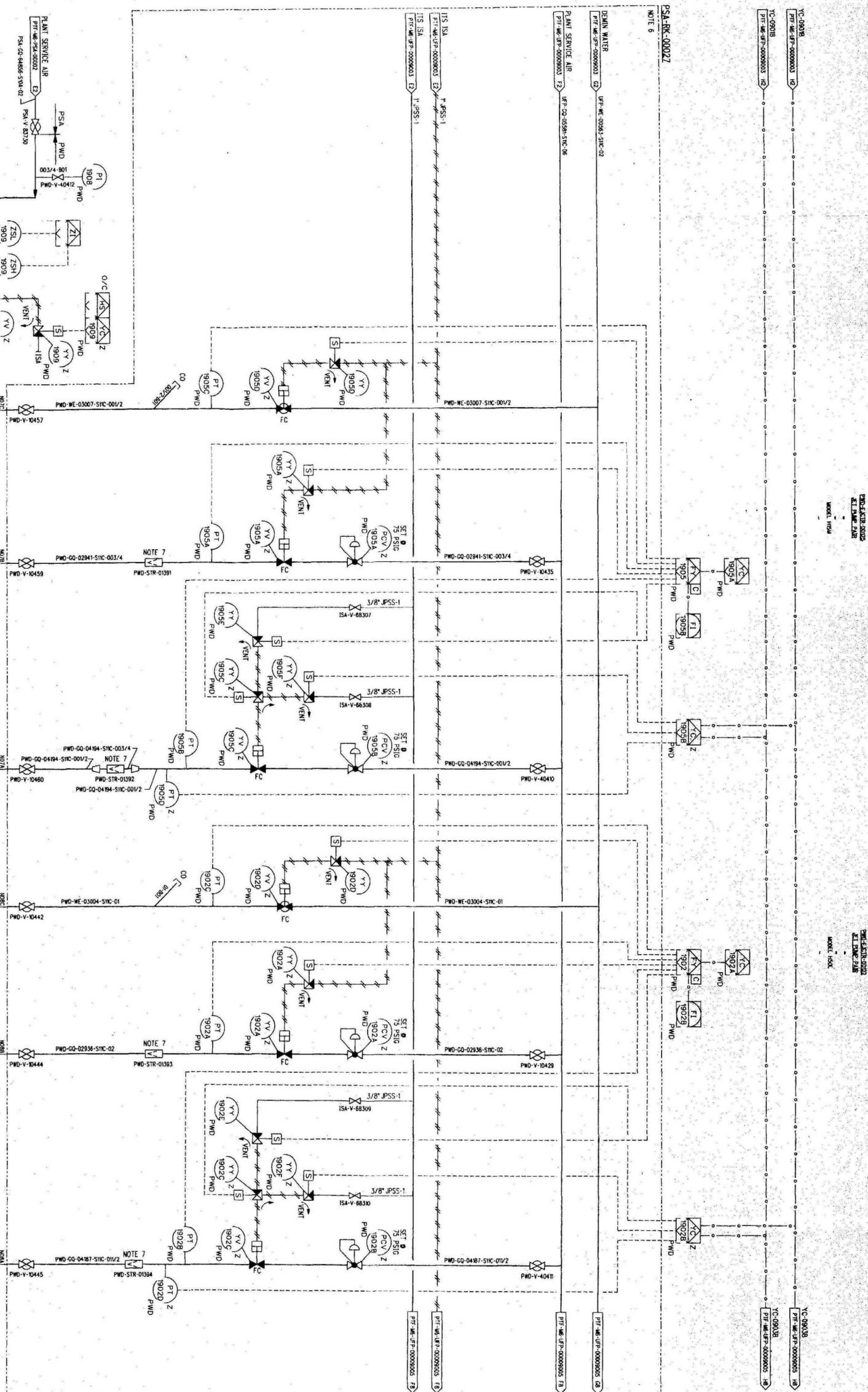
  

PROJECT No.	24590
SITE	WASTEWATER TREATMENT PLANT
AREA	ULTRAFILTRATION PROCESS UTILITY RACK
BUILDING No.	24590-00000
DATE	10/14/02
BY	[Signature]
CHECKED	[Signature]
APPROVED	[Signature]
REVIEWER	[Signature]

PROJECT No.	24590
SITE	WASTEWATER TREATMENT PLANT
AREA	ULTRAFILTRATION PROCESS UTILITY RACK
BUILDING No.	24590-00000
DATE	10/14/02
BY	[Signature]
CHECKED	[Signature]
APPROVED	[Signature]
REVIEWER	[Signature]



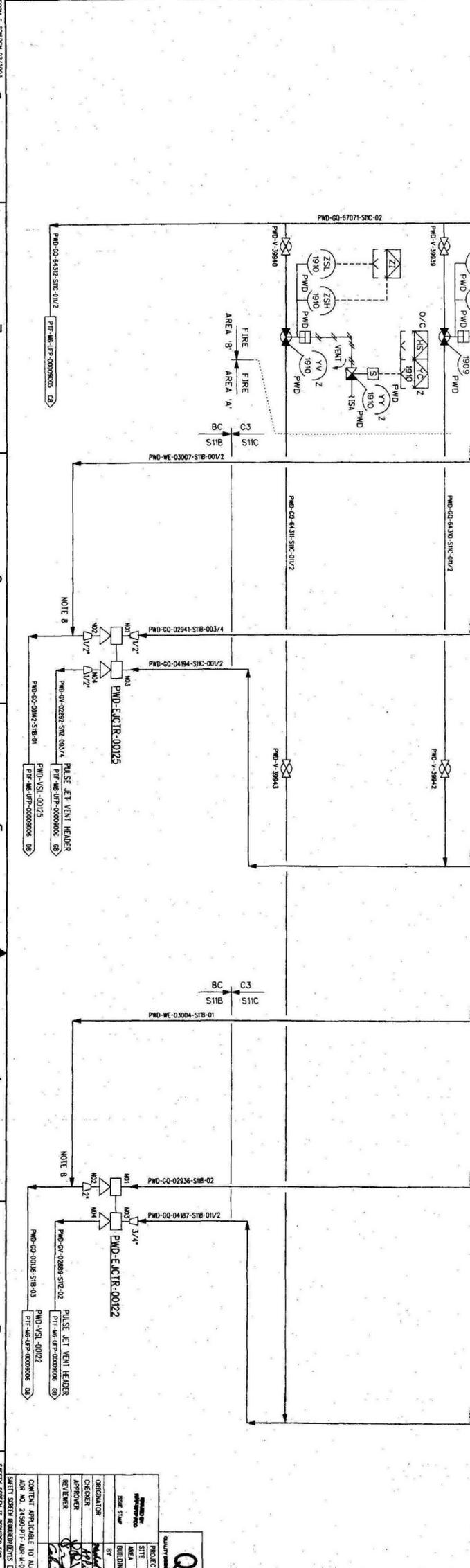


- NOTES:**
- SEE DRAWINGS 24590-WTF-M6-SO-00001 THROUGH 24590-WTF-M6-SO-00008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
  - CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFIDAVIT.
  - THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-1, UNLESS OTHERWISE NOTED.
  - ALL LINES SHOWN ON THIS DRAWING SHALL BE FREE DRAINING. EXCEPT BACK CELL LINES WHICH ARE SELF-DRAINING, UNLESS OTHERWISE NOTED.
  - FOR PROCESS INFORMATION SEE DRAWING 24590-WTF-M6-UFP-00004003.
  - SEE JET PUMP PAIR CONTROL DETAILS 4 AND 7 ON DRAWING 24590-WTF-M6-SO-00007.
  - STRAINER IS A CONICAL, PLUGGEM HAT TYPE STRAINER WITH PERFORATED 1/8 INCH DIAMETER STAGGERED HOLES ON 3/16 INCH VALVE.
  - A 45 DEGREE WYE PIPE FITTING SHALL BE USED AT THIS CONNECTION.
  - REVISION 0: MAJOR REVISION. NO REVISION, CLOUDS REQUIRED. THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTIPLE SHEET DRAWINGS AND IN PART SUPERSEDES REVISION 0. REVISIONS ARE SHOWN IN THIS DRAWING. REVISION INFORMATION FROM 24590-WTF-M6-SO-00004, -00005, -00006, -00007, -00008 AND 24590-WTF-M6-UFP-00005 AND -00007.
  - REVISION 0: MAJOR REVISION. NO REVISION, CLOUDS REQUIRED. THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTIPLE SHEET DRAWINGS AND IN PART SUPERSEDES REVISION 0. REVISIONS ARE SHOWN IN THIS DRAWING. REVISION INFORMATION FROM 24590-WTF-M6-SO-00004, -00005, -00006, -00007, -00008 AND 24590-WTF-M6-UFP-00005 AND -00007.

**HOLD/OPEN ITEMS:**  
 NONE

**REFERENCES:**

- THE REQUIRED OPERATIONAL SEQUENCES PERMISSIVES, INTERLOCKS, ALARMS AND OPERATOR INTERFACE POINTS ARE FULLY DESCRIBED IN THE UFP SYSTEM LOGIC DIAGRAMS (FUTURE) AND THE UFP SYSTEM DESCRIPTION (FUTURE REVISION).



REV	DESCRIPTION	DATE
0	ISSUED FOR CONSTRUCTION SET NOTE 9	11/14/24

ORIGINATOR	CHECKER	APPROVER	DATE
MECA	MECA	MECA	11/14/24

REVISION HISTORY
<p>24590-PTF-M6-UFP-00009004</p> <p>ULTRAFILTRATION PROCESS UTILITY RACK</p> <p>PSA-RK-00027</p>



UFP-VSL-00070 RED CHARGE VESSEL 784 GAL 30" ID x 13'4" T-T	UFP-VSL-00024 RED CHARGE VESSEL 275 GAL 24" ID x 8'9" T-T	UFP-VSL-00084 RED CHARGE VESSEL 784 GAL 30" ID x 13'4" T-T	UFP-VSL-00023 RED CHARGE VESSEL 83 GAL 18" ID x 4'3" T-T	UFP-VSL-00089 RED CHARGE VESSEL 784 GAL 30" ID x 13'4" T-T	UFP-VSL-00025 RED CHARGE VESSEL 275 GAL 24" ID x 8'9" T-T	UFP-VSL-00026 RED CHARGE VESSEL 127 GAL 18" ID x 4'3" T-T	UFP-VSL-00022 RED CHARGE VESSEL 525 GAL 40" ID x 4'3" T-T	UFP-VSL-00023 RED CHARGE VESSEL 525 GAL 40" ID x 4'3" T-T
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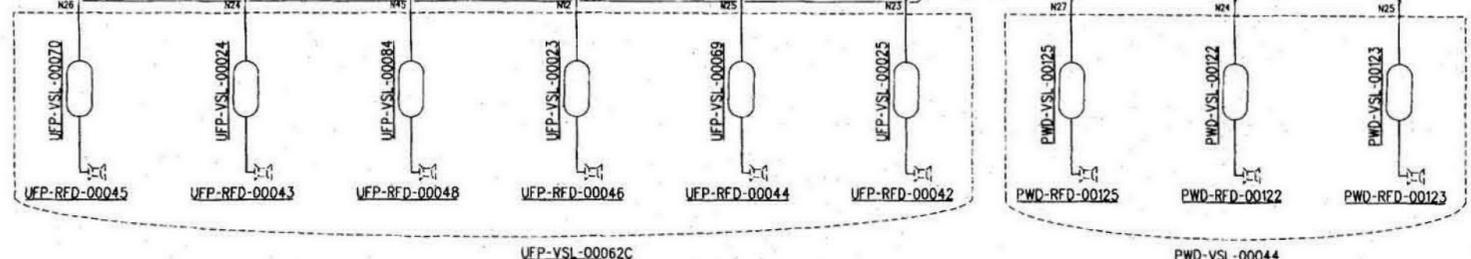
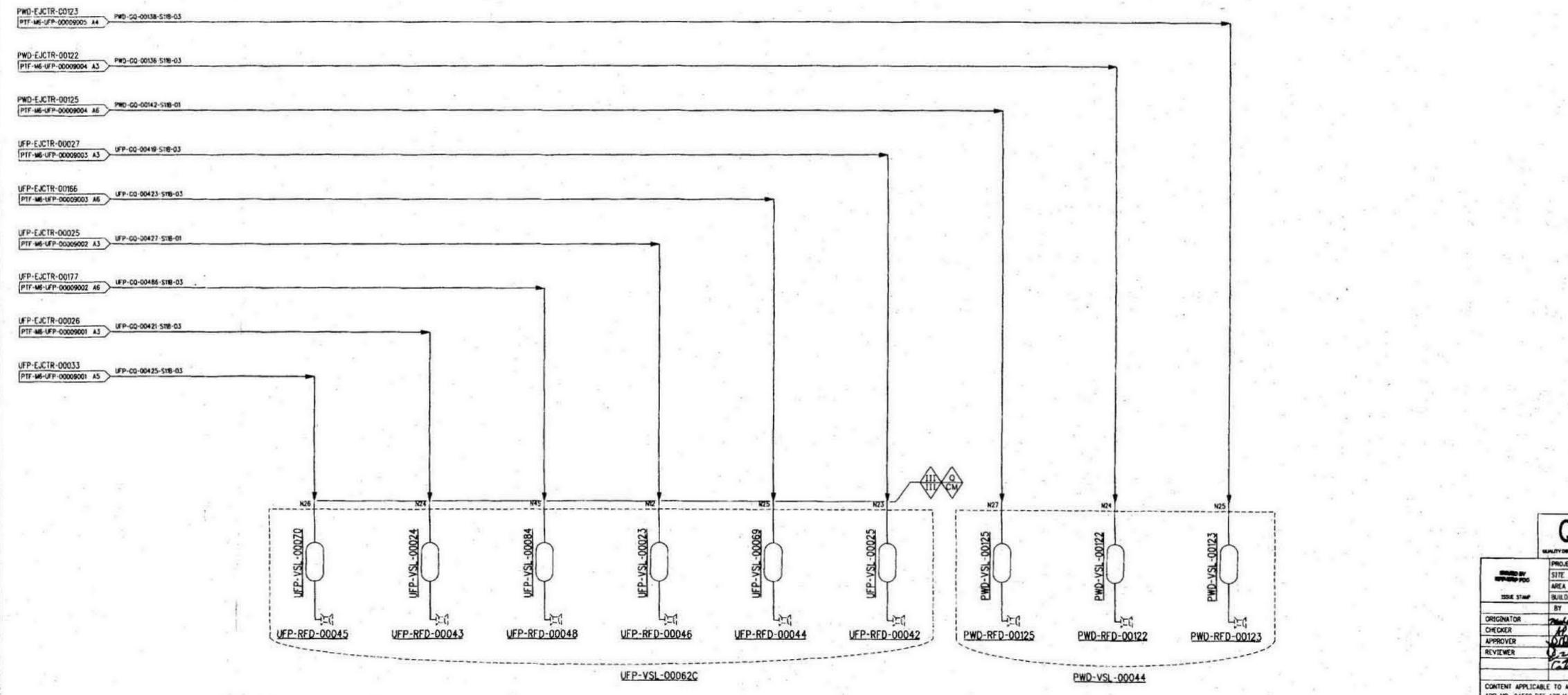
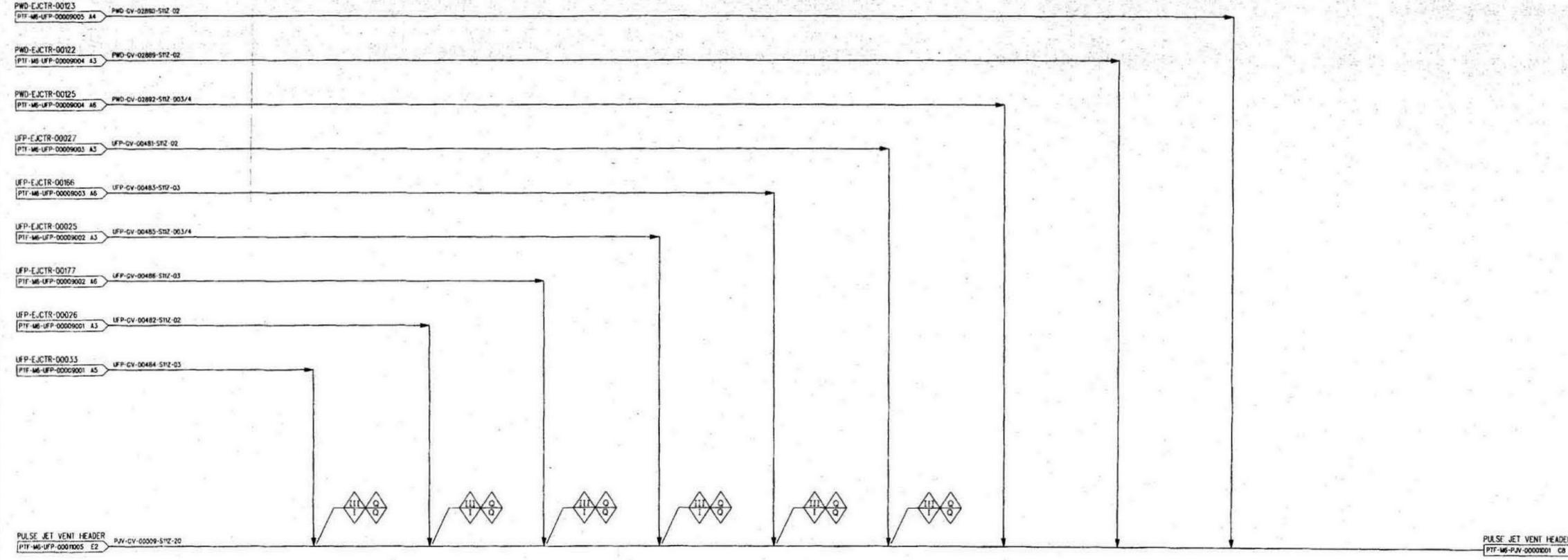
- NOTES:**
- SEE DRAWINGS 24590-WTP-M6-50-00001 THROUGH 24590-WTP-M6-50-00008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
  - CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
  - THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-1, UNLESS OTHERWISE NOTED.
  - ALL LINES ON THIS DRAWING ARE LOCATED IN THE BLACKCELL AND SHALL BE SELF-DRAINING.
  - FOR PROCESS INFORMATION SEE DRAWINGS 24590-PTF-M6-UFP-00004003 AND 24590-PTF-M6-PWD-00002001.
  - THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTI-SHEET DRAWINGS AND, IN PART, SUPERSEDES 24590-PTF-M6-UFP-00009 REV 3. THIS IS A MAJOR REVISION, NO REVISION CLOUDS ARE SHOWN. THIS DRAWING MAY INCLUDE INFORMATION FROM 24590-PTF-M6N-M601-00014, 00016, 00036, 00037, 00038, AND 24590-PTF-M6N-UFP-00058 AND 00074.

**HOLD/OPEN ITEMS:**

NONE

**REFERENCES:**

NONE

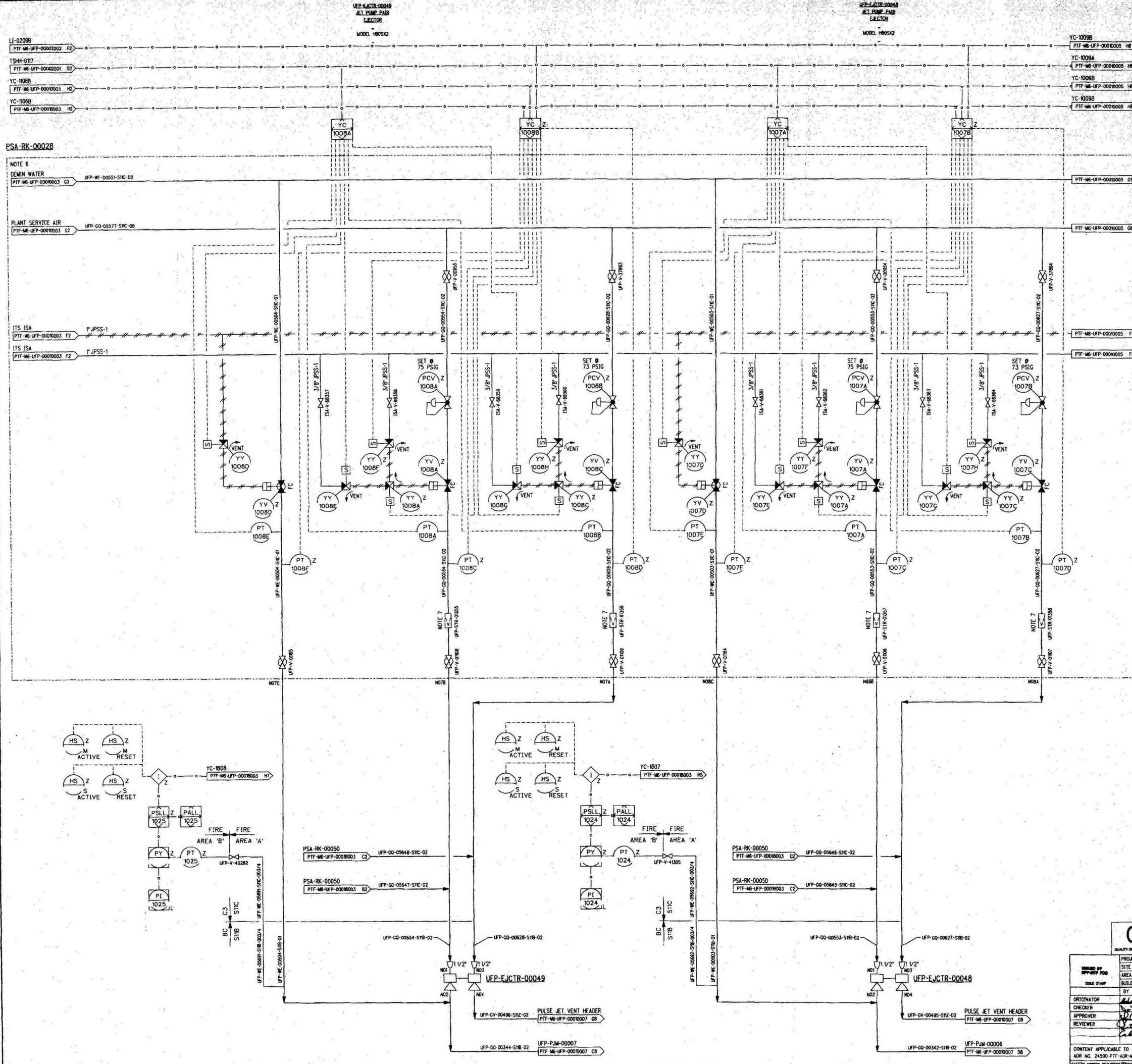


<b>Q</b> QUALITY DETERMINATION 0 ISSUED FOR CONSTRUCTION SEE NOTE 6 REV DESCRIPTION ORG CHKD/RVWD/APVD/ DATE	PROJECT No: 24590 SITE: HAMFORD AREA: 200E BUILDING No: 10	RIVER PROTECTION PROJECT WASTE TREATMENT PLANT 2435 STEVENS CENTER PLACE RICHLAND, WA 99354
	CONTRACT No: DE-AC27-08RY14136 <b>P&amp;ID - PTF</b> <b>ULTRAFILTRATION PROCESS</b> <b>SYSTEM</b> <b>VESSEL RFD</b> <b>UFP-VSL-00062C/PWD-VSL-00044</b>	SCALE: NONE 24590-PTF-M6-UFP-00009006
ORIGINATOR: [Signature] CHECKER: [Signature] APPROVER: [Signature] REVIEWER: [Signature]	DATE: 10/10/08 REV: 4	SAFETY SCREEN REQUIRED? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO DRAWING TYPES IDENTIFIED IN: 2 COMPUTER GENERATED - MANUAL FUNDED BY: [Signature]





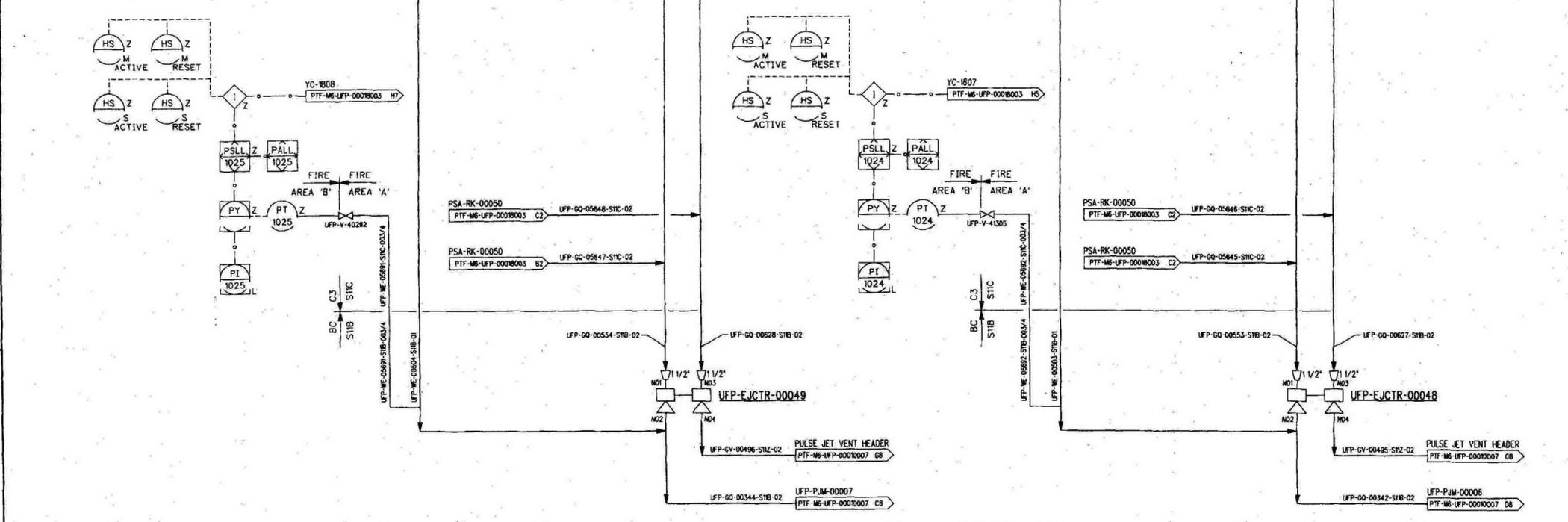




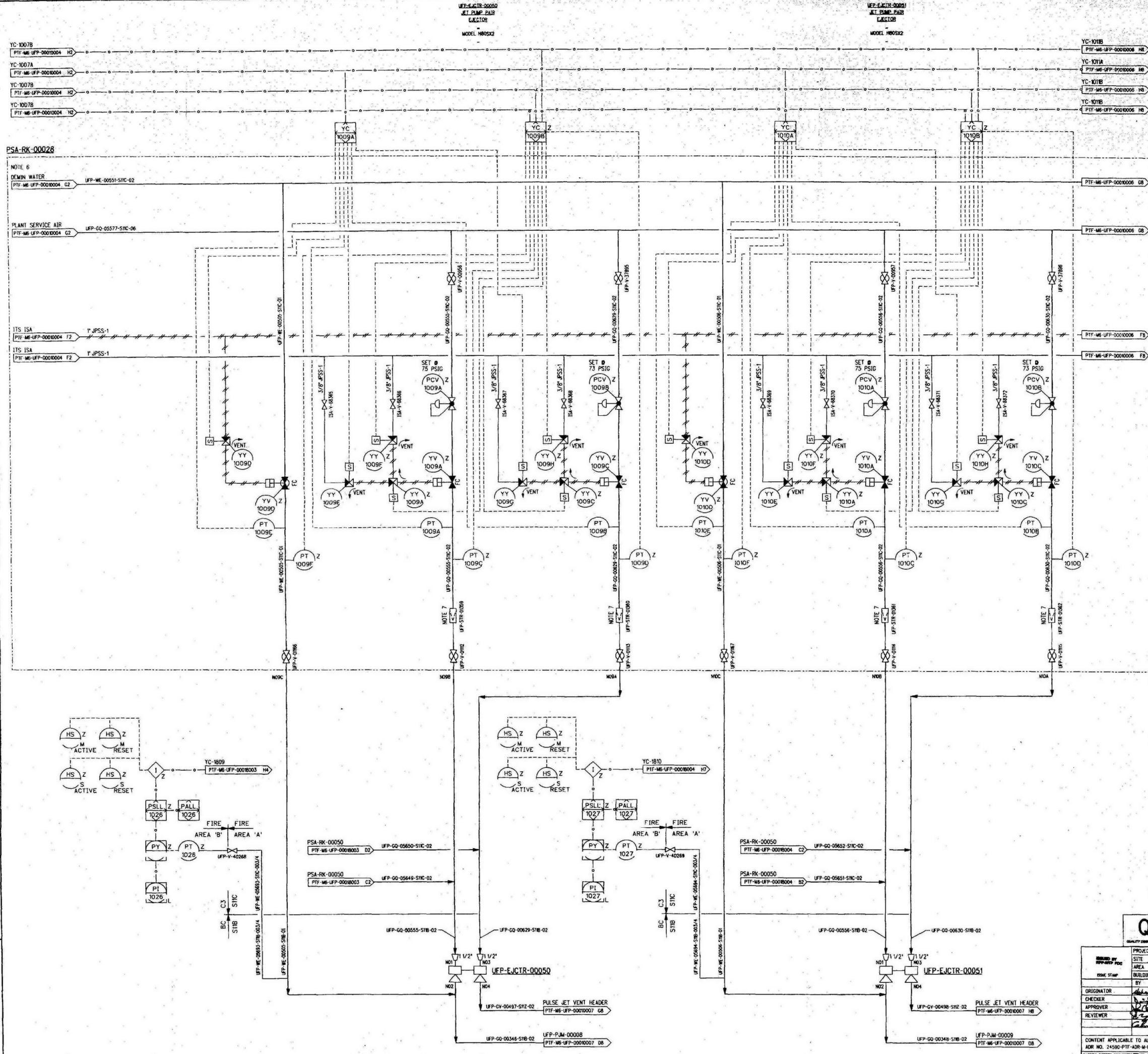
- NOTES:**
- SEE DRAWINGS 24590-WTP-M6-50-00001 THROUGH 24590-WTP-M6-50-00008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
  - CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
  - THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-1, UNLESS OTHERWISE NOTED. THE ITS ISA AIR LINES ARE QUALITY LEVEL Q AND SEISMIC CATEGORY SC-1.
  - ALL LINES SHOWN ON THIS DRAWING SHALL BE FREE DRAINING, EXCEPT BLACK CELL LINES WHICH ARE SELF-DRAINING, UNLESS OTHERWISE NOTED.
  - FOR PROCESS INFORMATION SEE DRAWING 24590-PTF-M6-UFP-00003001.
  - SEE JET PUMP PAIR CONTROL DETAILS 6 AND 7 ON DRAWING 24590-WTP-M6-50-00007.
  - STRAINER IS A CONICAL PILGRIM HAT TYPE STRAINER WITH PERFORATED 1/8 INCH DIAMETER STAGGERED HOLES ON 3/16 INCH CENTERS PERMANENTLY INSTALLED UPSTREAM OF THE FLANGED VALVE.
  - THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTI-SHEET DRAWINGS AND, IN PART, SUPERSEDES 24590-PTF-M6-UFP-00010 REV 2. THIS IS A MAJOR REVISION, NO REVISION CLOUDS ARE SHOWN. THIS DRAWING MAY INCLUDE INFORMATION FROM 24590-PTF-M6N-M601-00014, -00015, -00037, -00038, 24590-PTF-M6N-UFP-00041, AND -00075.

**HOLD/OPEN ITEMS:**  
NONE

- REFERENCES:**
- THE REQUIRED OPERATIONAL SEQUENCES, PERMISSIVES, INTERLOCKS, ALARMS, AND OPERATOR INTERFACE POINTS ARE FULLY DESCRIBED IN THE UFP SYSTEM LOGIC DIAGRAMS (FUTURE) AND THE UFP SYSTEM DESCRIPTION (FUTURE REVISION).



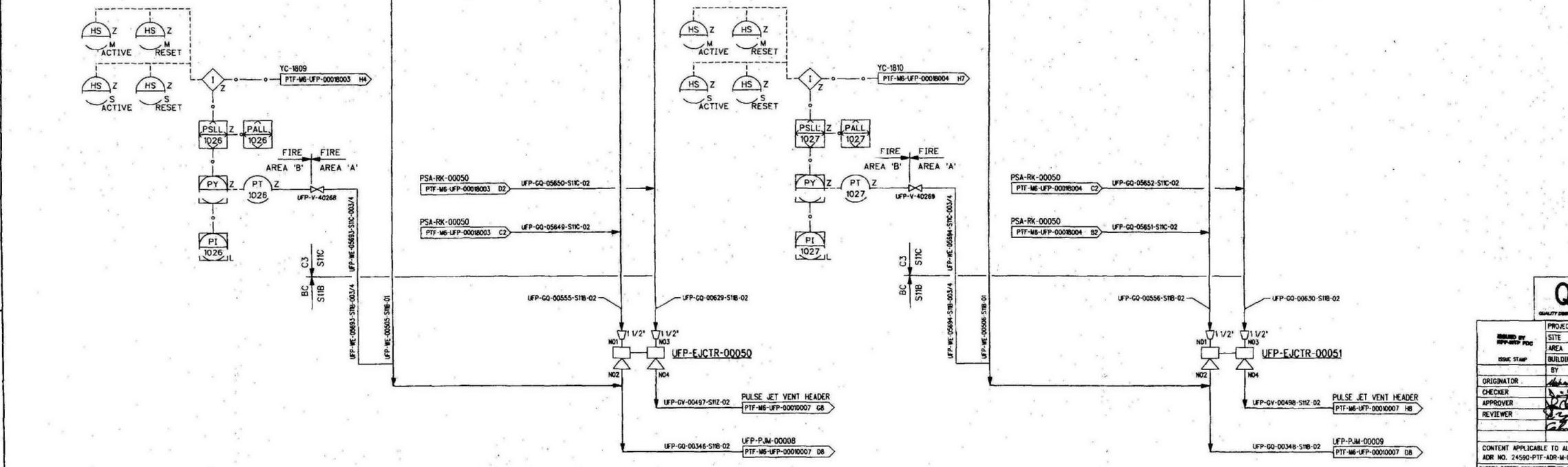
PROJECT No. 24590		SITE HANFORD	
AREA 200E		BUILDING No. 10	
ISSUE STAMP		DATE	
ORIGINATOR	BY	DATE	CONTRACT No. DE-AC27-07V14136
CHECKER	APPROVER	REVIEWER	<b>P&amp;ID - PTF ULTRAFILTRATION PROCESS SYSTEM UTILITY RACK PSA-RK-00028</b>
CONTENT APPLICABLE TO ALARA? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	SAFETY SCREEN REQUIRED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	EMG INITIAL IF YES <input type="checkbox"/> NO	
PROJECT No. 24590		24590-PTF-M6-UFP-00010004	
REV 0		REV 0	



- NOTES:**
- SEE DRAWINGS 24590-WTP-M6-50-00001 THROUGH 24590-WTP-M6-50-00008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
  - CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
  - THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-1, UNLESS OTHERWISE NOTED. THE ITS ISA AIR LINES ARE QUALITY LEVEL Q AND SEISMIC CATEGORY SC-1.
  - ALL LINES SHOWN ON THIS DRAWING SHALL BE FREE DRAINING, EXCEPT BLACK CELL LINES WHICH ARE SELF-DRAINING, UNLESS OTHERWISE NOTED.
  - FOR PROCESS INFORMATION SEE DRAWING 24590-PTF-M6-UFP-00003001.
  - SEE JET PUMP PAIR CONTROL DETAILS 6 AND 7 ON DRAWING 24590-WTP-M6-50-00007.
  - STRAINER IS A CONICAL PILGRIM HAT TYPE STRAINER WITH PERFORATED 1/8 INCH DIAMETER STAGGERED HOLES ON 3/16 INCH CENTERS PERMANENTLY INSTALLED UPSTREAM OF THE FLANGED VALVE.
  - THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTI-SHEET DRAWINGS AND, IN PART, SUPERSEDES 24590-PTF-M6-UFP-00010 REV 2. THIS IS A MAJOR REVISION, NO REVISION CLOUDS ARE SHOWN. THIS DRAWING MAY INCLUDE INFORMATION FROM 24590-PTF-M6N-M801-00014, -00015, -00037, -00038, 24590-PTF-M6N-UFP-00041, AND -00075.

**HOLD/OPEN ITEMS:**  
NONE

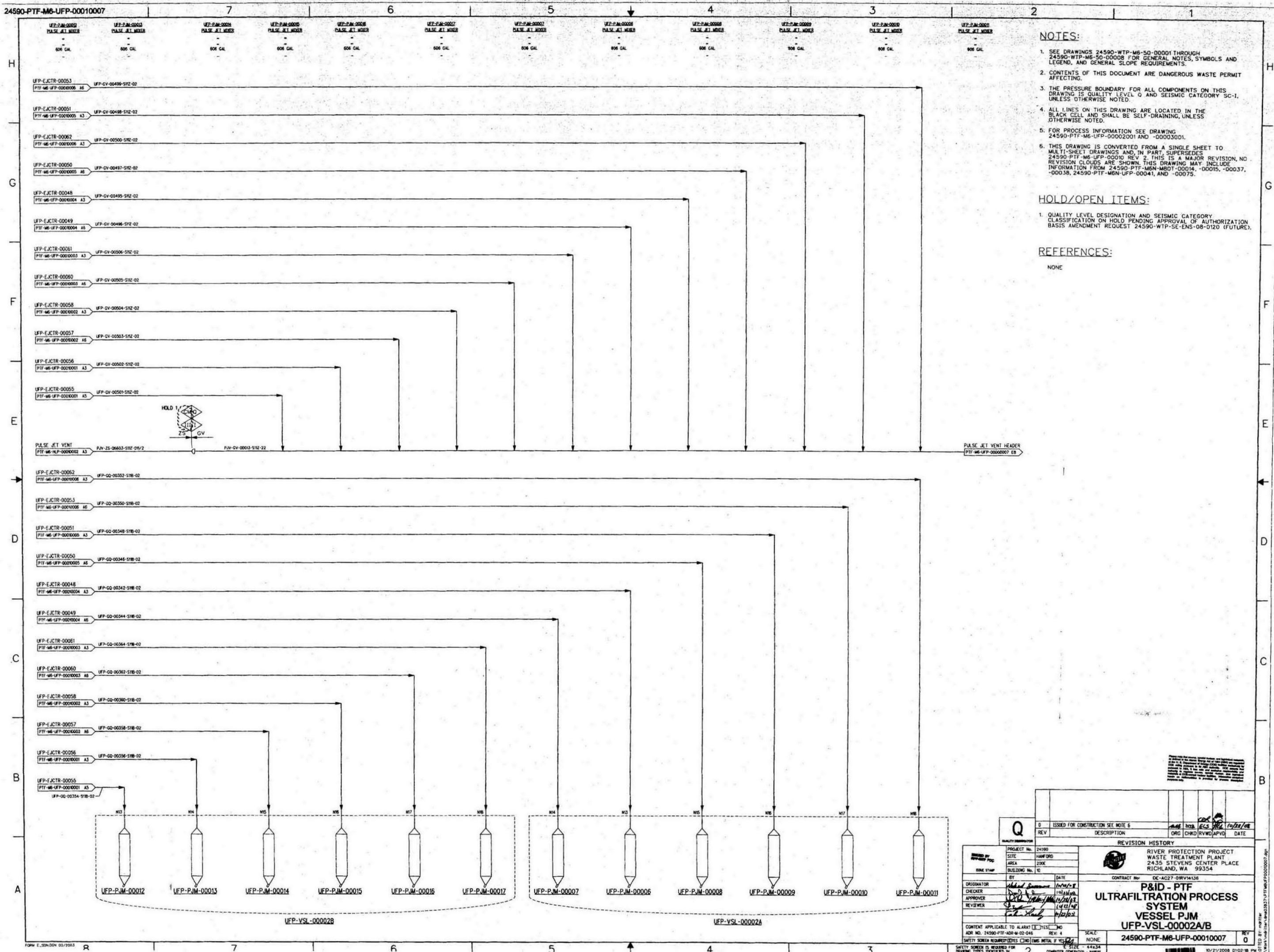
- REFERENCES:**
- THE REQUIRED OPERATIONAL SEQUENCES, PERMISSIVES, INTERLOCKS, ALARMS, AND OPERATOR INTERFACE POINTS ARE FULLY DESCRIBED IN THE UFP SYSTEM LOGIC DIAGRAMS (FUTURE) AND THE UFP SYSTEM DESCRIPTION (FUTURE REVISION).



Q		REVISION HISTORY				
REV	DESCRIPTION	ORG	CHKD	RVWD	APVD	DATE
0	ISSUED FOR CONSTRUCTION SEE NOTE 8					10/23/08

PROJECT NO.	24590	CONTRACT NO.	DE-AC27-01RV136
SITE	HANFORD	AREA	200E
BUILDING NO.	10	SCALE	NONE
ORIGINATOR	DATE	CHECKER	DATE
APPROVER	DATE	REVIEWER	DATE
CONTENT APPLICABLE TO ALARA? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		SAFETY SCREEN REQUIRED FOR DRAWING TYPES IDENTIFIED IN: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
PROJECT NO. 24590		SCALE: NONE	
AREA 200E		REV: 0	
BUILDING NO. 10		24590-PTF-M6-UFP-00010005	
ORIGINATOR: [Signature]		DATE: 10/23/08	
CHECKER: [Signature]		DATE: 10/23/08	
APPROVER: [Signature]		DATE: 10/23/08	
REVIEWER: [Signature]		DATE: 10/23/08	
CONTRACT NO. DE-AC27-01RV136		RIVER PROTECTION PROJECT WASTE TREATMENT PLANT 2435 STEVENS CENTER PLACE RICHLAND, WA 99354	
<b>P&amp;ID - PTF ULTRAFILTRATION SYSTEM UTILITY RACK PSA-RK-00028</b>			





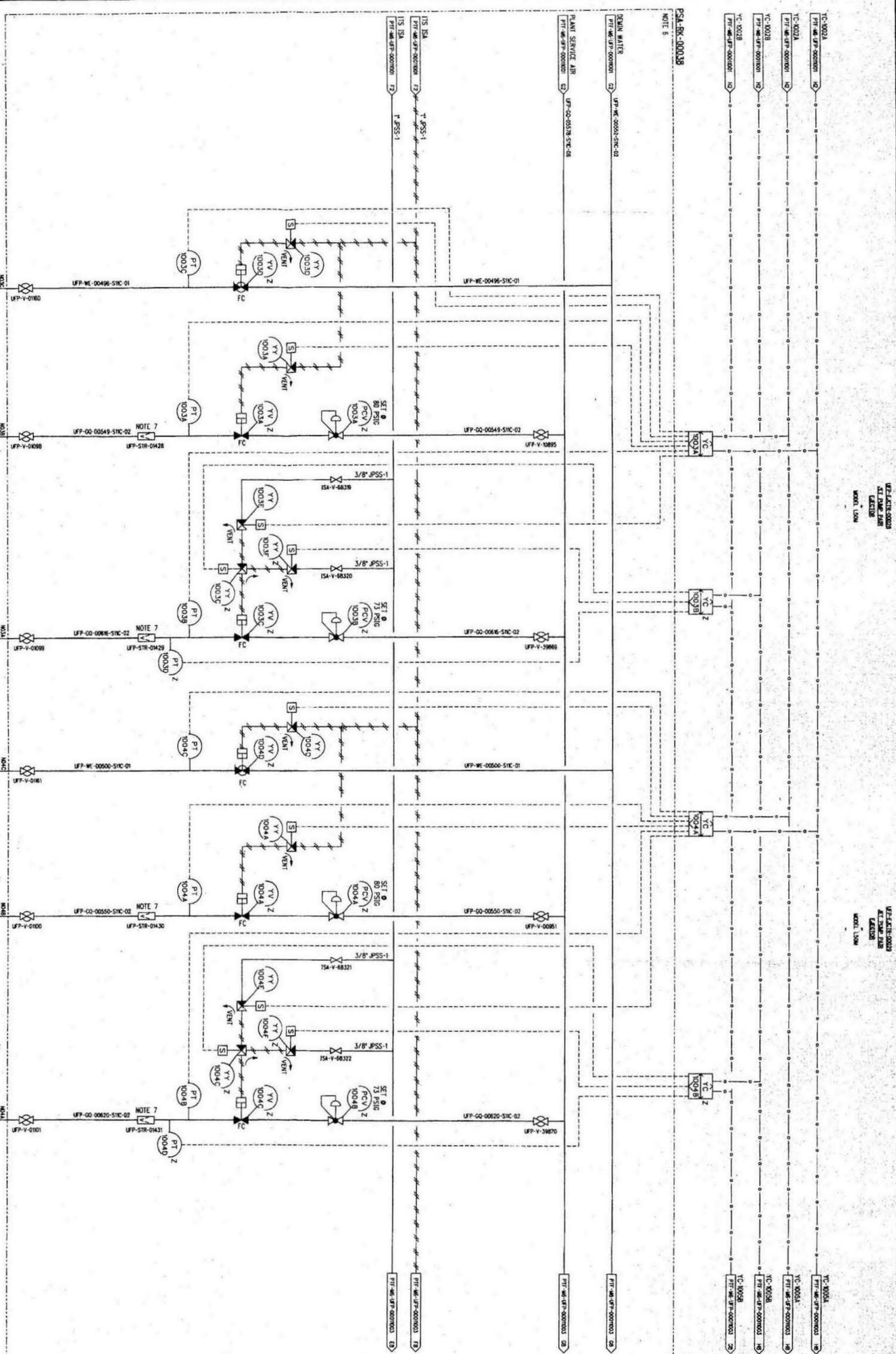
- NOTES:**
- SEE DRAWINGS 24590-WTP-M6-50-00001 THROUGH 24590-WTP-M6-50-00008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
  - CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
  - THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-1, UNLESS OTHERWISE NOTED.
  - ALL LINES ON THIS DRAWING ARE LOCATED IN THE BLACK CELL AND SHALL BE SELF-DRAINING, UNLESS OTHERWISE NOTED.
  - FOR PROCESS INFORMATION SEE DRAWING 24590-PTF-M6-UFP-00002001 AND -00003001.
  - THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTI-SHEET DRAWINGS AND, IN PART, SUPERSEDES 24590-PTF-M6-UFP-00010 REV 2. THIS IS A MAJOR REVISION, NO REVISION CLOUDS ARE SHOWN. THIS DRAWING MAY INCLUDE INFORMATION FROM 24590-PTF-M6N-MBDT-00014, -00015, -00037, -00038, 24590-PTF-M6N-UFP-00041, AND -00075.

- HOLD/OPEN ITEMS:**
- QUALITY LEVEL DESIGNATION AND SEISMIC CATEGORY CLASSIFICATION ON HOLD PENDING APPROVAL OF AUTHORIZATION BASIS AMENDMENT REQUEST 24590-WTP-SE-ENS-08-0120 (FUTURE).

**REFERENCES:**  
NONE

<b>Q</b> ISSUED FOR CONSTRUCTION SEE NOTE 6 REV: 4 DATE: 10/28/08 ORG: CH2M HILL DESIGNED BY: ELS CHECKED BY: JLS APPROVED BY: JLS DATE: 10/28/08		<b>REVISION HISTORY</b> RIVER PROTECTION PROJECT WASTE TREATMENT PLANT 2435 STEVENS CENTER PLACE RICHLAND, WA 99354 CONTRACT No: DE-AC27-08RV14136	
<b>ISSUED BY:</b> ELS <b>DATE:</b> 10/28/08 <b>PROJECT No:</b> 24590 <b>SITE:</b> HANFORD <b>AREA:</b> 200K <b>BUILDING No.:</b> 10		<b>P&amp;ID - PTF</b> <b>ULTRAFILTRATION PROCESS SYSTEM</b> <b>VESSEL PJM</b> <b>UFP-VSL-00002A/B</b> SCALE: NONE 24590-PTF-M6-UFP-00010007 REV: 4	
<b>ORIGINATOR:</b> ELS <b>CHECKER:</b> JLS <b>APPROVER:</b> JLS <b>REVIEWER:</b> JLS		CONTENT APPLICABLE TO ALARAY: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO SAFETY SCREEN REQUIRED: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO SAFETY SCREEN REQUIRED FOR: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO SAFETY SCREEN REQUIRED FOR: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	





**HOLD/OPEN ITEMS:**

NONE

**REFERENCES:**

- THE REQUIRED OPERATIONAL SEQUENCES, PERMISSIVES, INTERLOCKS, ALARMS, AND OPERATOR INTERFACE POINTS ARE FULLY DESCRIBED IN THE OPERATIONAL PROCEDURES (FUTURE REVISION) AND THE UFP SYSTEM DESCRIPTION (FUTURE REVISION).

**REVISION HISTORY**

REV	ISSUED FOR CONSTRUCTION SEE NOTE 8	DESCRIPTION	DATE
0			

**PROJECT INFORMATION**

PROJECT NO. 24590  
 SITE AREA  
 ZONE  
 BUILDING NO. 200  
 DATE

**DESIGNER**  
 NAME: [Signature]  
 TITLE: [Title]

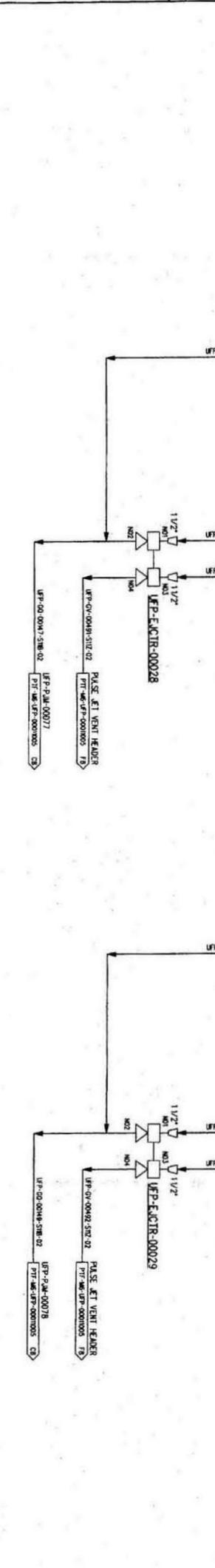
**CHECKER**  
 NAME: [Signature]  
 TITLE: [Title]

**APPROVER**  
 NAME: [Signature]  
 TITLE: [Title]

**REVIEWER**  
 NAME: [Signature]  
 TITLE: [Title]

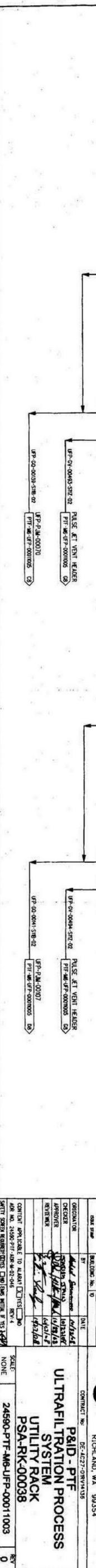
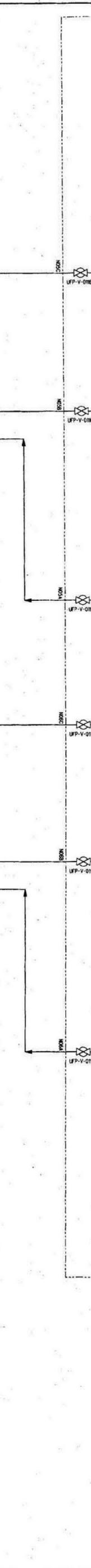
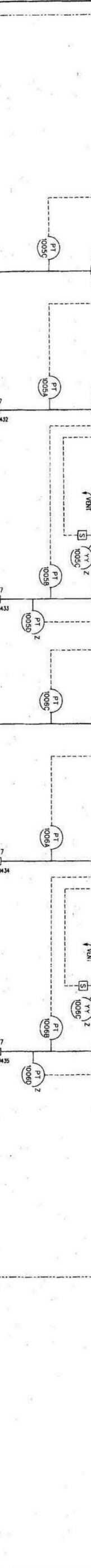
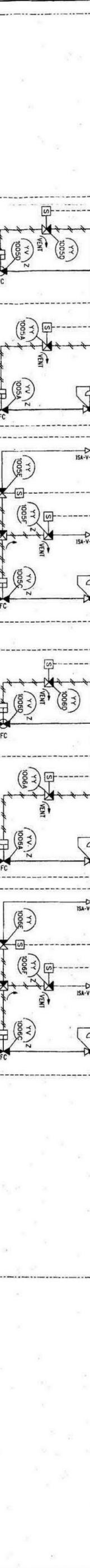
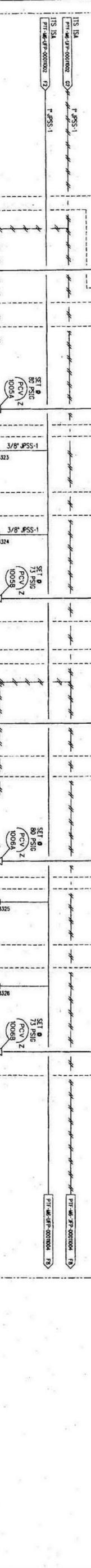
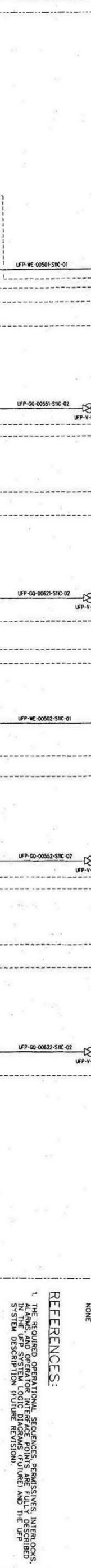
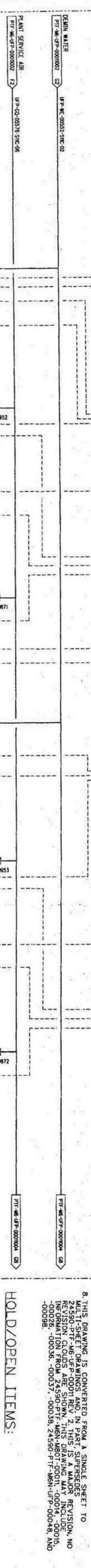
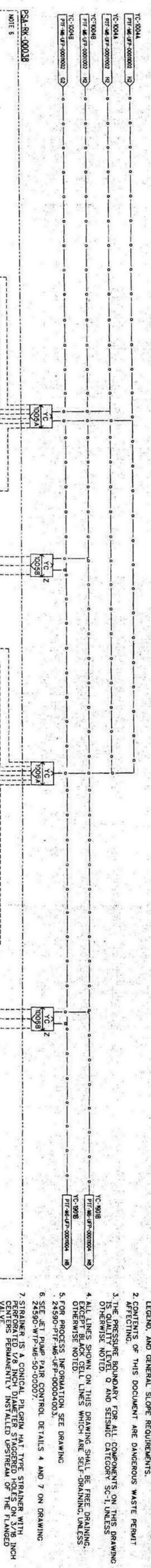
**SCALE:** NONE

**24590-PTF-M6-UFP-00011002**



ULTRAFILTRATION  
 FACILITY  
 MODEL L00A

ULTRAFILTRATION  
 FACILITY  
 MODEL L00A



**NOTES:**

1. SEE DRAWINGS 24590-WTF-M6-S0-00001 THROUGH 24590-WTF-M6-S0-00004 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS AFFECTING.
2. COMPONENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
3. THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS INDICATED BY A DASHED LINE. SEE GENERAL NOTE 1 FOR DETAILS.
4. ALL LINES SHOWN ON THIS DRAWING SHALL BE FREE DRAINING, UNLESS OTHERWISE NOTED.
5. FOR PROCESS INFORMATION SEE DRAWING 24590-WTF-M6-S0-00003.
6. SEE JET PUMP PAIR CONTROL DETAILS 4 AND 7 ON DRAWING 24590-WTF-M6-S0-00007.
7. STRAINER IS A CONICAL, PILGRIM HAT TYPE STRAINER WITH PERFORATED 1/8 INCH DIAMETER STAGGERED HOLES ON 3/16 INCH CENTERS PERMANENTLY INSTALLED UPSTREAM OF THE FLANGED VALVE.
8. THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTISHEET DRAWING AND, IN PART, SUPERSEDES DRAWING 24590-WTF-M6-S0-00001. THIS DRAWING IS A REVISION OF DRAWING 24590-WTF-M6-S0-00001. REVISIONS ARE SHOWN IN THIS DRAWING UNLESS OTHERWISE NOTED.
9. DIMENSIONS FROM 24590-PTF-M6-M01-00011, 00014, 00015, 00026, 00036, 00037, 00038, 24590-PTF-M6-UFP-00048, AND 00098.

**HOLD/OPEN ITEMS:**

NONE

**REFERENCES:**

1. THE REQUIRED OPERATIONAL SEQUENCES, PERMISSIVES, INTERLOCKS, ALARMS, AND OPERATOR INTERFACE POINTS ARE FULLY DESCRIBED IN THE UFP SYSTEM LOGIC DIAGRAMS (FUTURE) AND THE UFP SYSTEM DESCRIPTION (FUTURE REVISION).

<p>PROJECT NO. 24590                  SITE 300X                  BUILDING NO. 0</p>							
<p>REVISION HISTORY</p> <table border="1"> <thead> <tr> <th>REV</th> <th>DESCRIPTION</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>ISSUED FOR CONSTRUCTION SEE NOTE 8</td> <td>12/14/07</td> </tr> </tbody> </table>		REV	DESCRIPTION	DATE	0	ISSUED FOR CONSTRUCTION SEE NOTE 8	12/14/07
REV	DESCRIPTION	DATE					
0	ISSUED FOR CONSTRUCTION SEE NOTE 8	12/14/07					
<p>ORGANIZATION</p> <p>PAID - PTF                  ULTRAFILTRATION PROCESS                  UTILITY RACK                  PSA-RK-00038</p>							
<p>CONTRACT NO. DE-1227-08VAY35</p> <p>PROJECT RIVER PROTECTION PLAN                  2435 STEVENS CENTER PLACE                  RICHMOND, VA 99354</p>							
<p>SCALE: NONE</p> <p>DATE: 12/14/07</p> <p>24590-PTF-M6-UFP-00011003</p>							

PROJECT NO. 24590  
 E.I. DAVE DUB  
 LEAD ENGINEER  
 MODEL 1004

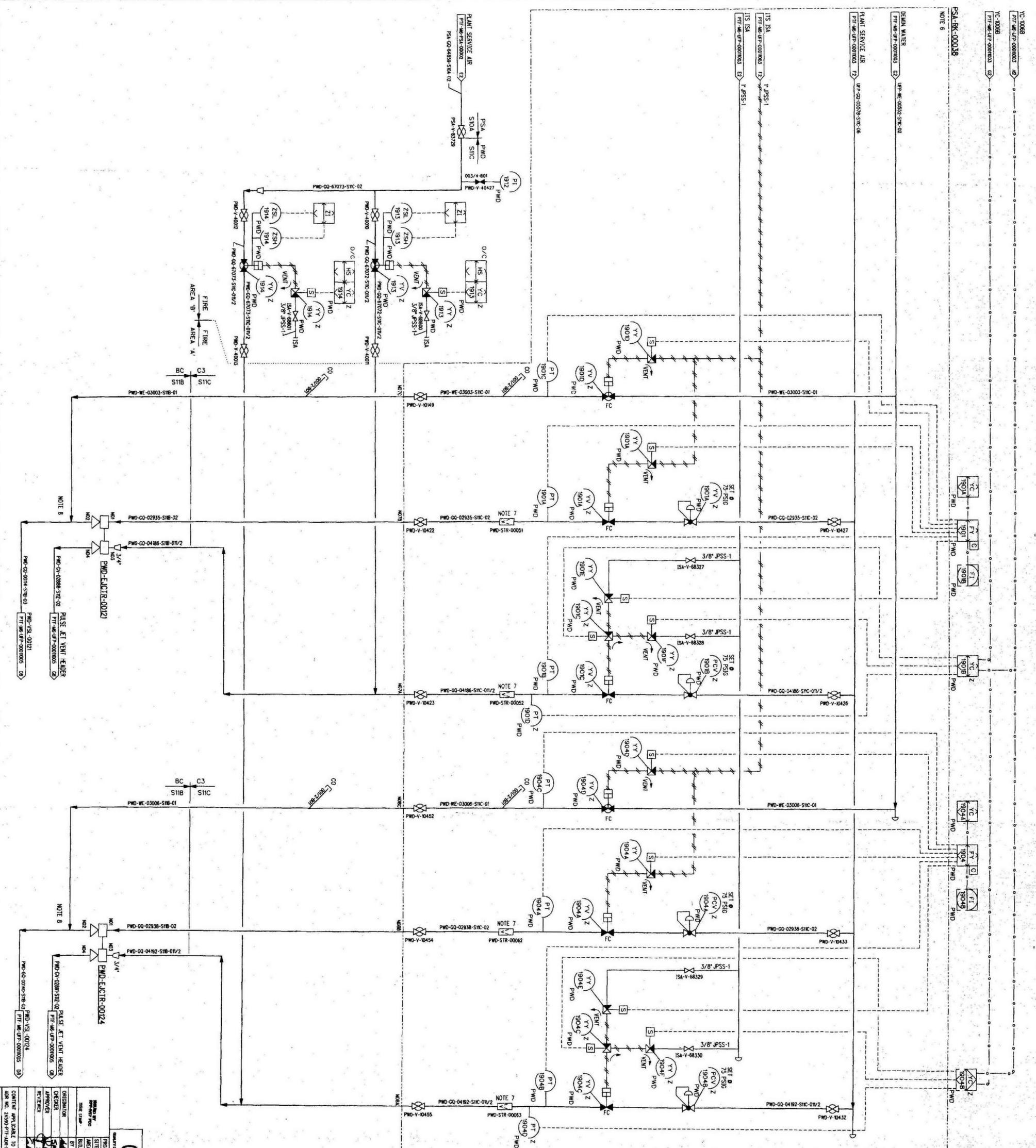
PROJECT NO. 24590  
 E.I. DAVE DUB  
 LEAD ENGINEER  
 MODEL 1004

- NOTES:**
1. SEE DRAWINGS 24590-WTP-M6-SO-00001 THROUGH 24590-WTP-M6-SO-00008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
  2. CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
  3. THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVY 9 AND STRAIN GATEWAY 30-1, UNLESS OTHERWISE NOTED.
  4. EXCEPT BLACK CELL LINES WHICH ARE SELF-DRAINING, UNLESS OTHERWISE NOTED.
  5. FOR PROCESS INFORMATION, SEE DRAWING 24590-PTF-M6-PMD-00002001.
  6. SEE JET PUMP PAIR CONTROL DETAILS 4 AND 7 ON DRAWING 24590-WTP-M6-SO-00007.
  7. STRAINER IS A CONICAL PLENUM HAT TYPE STRAINER WITH DEGENERATED 1/8 INCH DIAMETER STAGGERED HOLES ON 3/16 INCH VALVE PERMANENTLY INSTALLED UPSTREAM OF THE FLANGED CONNECTION.
  8. A 45 DEGREE WYE PIPE FITTING SHALL BE USED AT THIS CONNECTION.
  9. THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTISHEET DRAWINGS AND IN PART SUPERSEDES REVISIONS 1 THROUGH 4. THIS DRAWING IS THE MAJOR REVISION, NO INFORMATION FROM 24590-PTF-M6-UFP-00011-00014, -00015, -00028, -00036, -00037, -00038, 24590-PTF-M6-UFP-00048, AND 24590-PTF-M6-PMD-00002001.

**HOLD/OPEN ITEMS:**  
 NONE

**REFERENCES:**

1. THE REQUIRED OPERATIONAL SEQUENCES, PERMISSIVES, INTERLOCKS, ALARMS AND OPERATOR INTERFACES FOR THE WASTE TREATMENT SYSTEM LOGIC DIAGRAMS (FUTURE) AND THE WTP SYSTEM DESCRIPTION (FUTURE REVISION).



REV	ISSUED FOR CONSTRUCTION	DATE
0	ISSUED FOR CONSTRUCTION	SEE NOTE 9

DATE	BY	DESCRIPTION
10/20/2008	E.I. DAVE DUB	ISSUED FOR CONSTRUCTION

NO.	DATE	BY	DESCRIPTION
1	10/20/2008	E.I. DAVE DUB	ISSUED FOR CONSTRUCTION

NO.	DATE	BY	DESCRIPTION
1	10/20/2008	E.I. DAVE DUB	ISSUED FOR CONSTRUCTION

NO.	DATE	BY	DESCRIPTION
1	10/20/2008	E.I. DAVE DUB	ISSUED FOR CONSTRUCTION

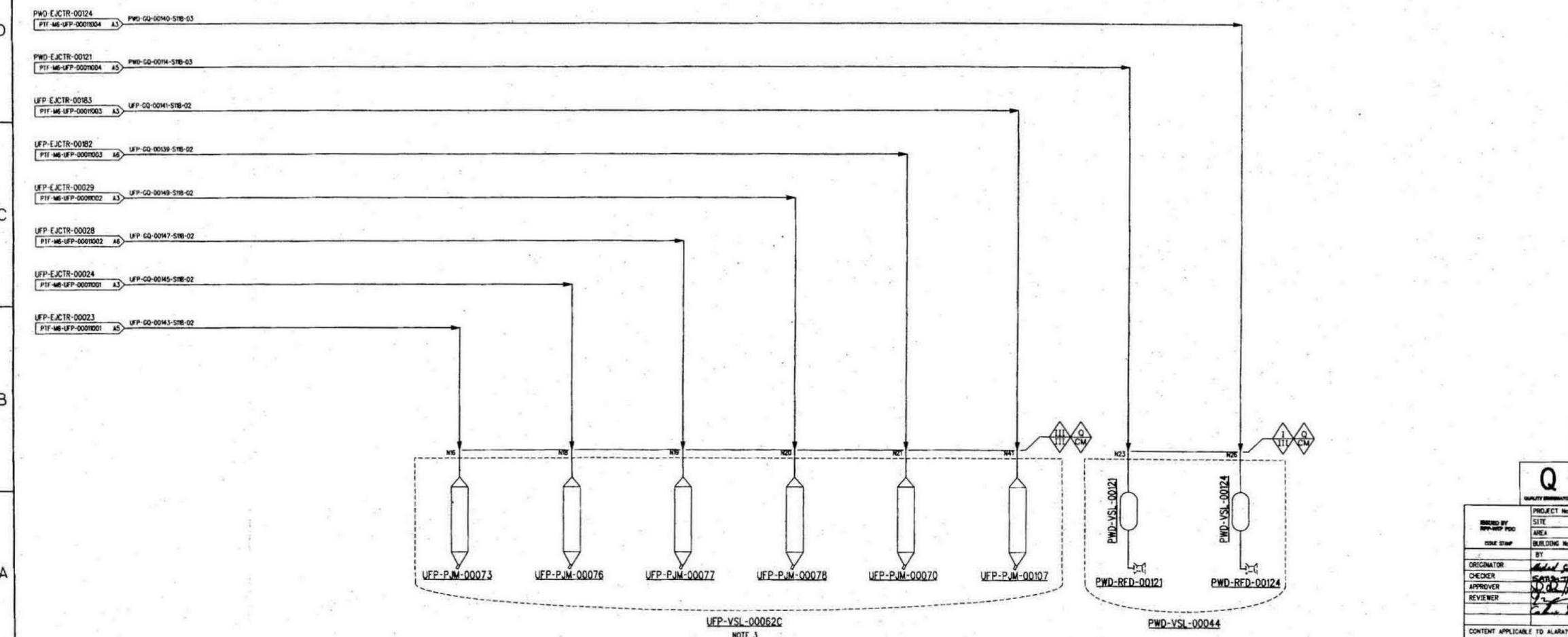
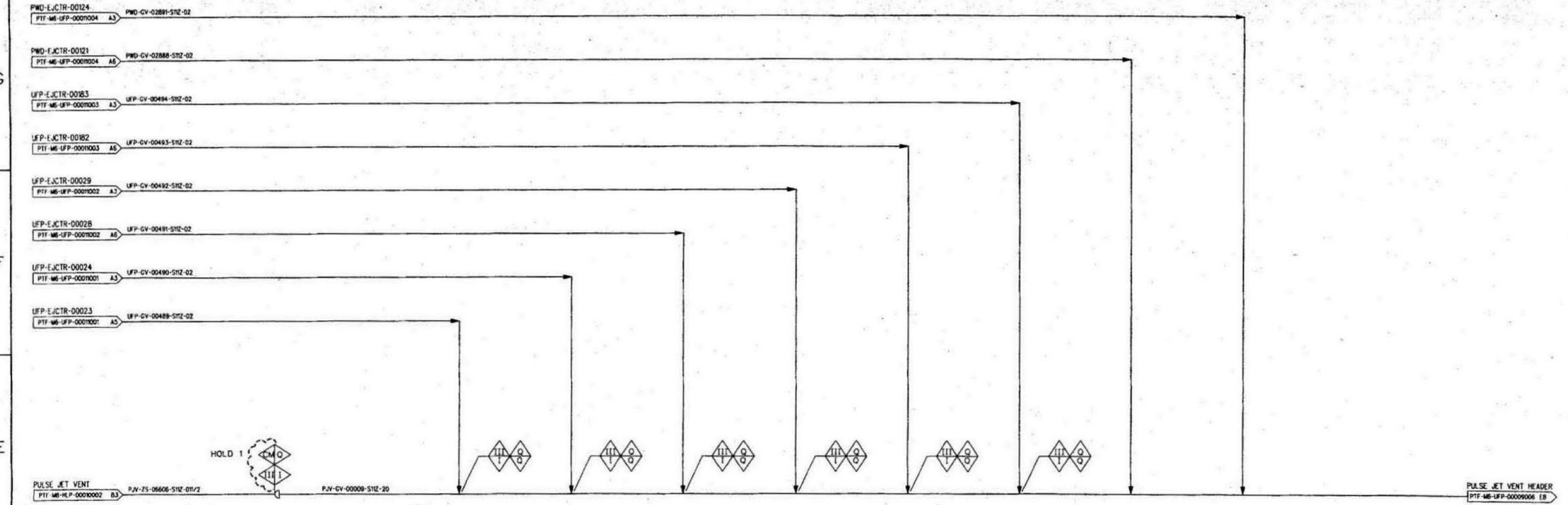
ULTRAFILTRATION PROCESS  
 UTILITY RACK  
 PSA-RK-00038

UFP-PJM-00073 PULSE_JET_MXER	UFP-PJM-00076 PULSE_JET_MXER	UFP-PJM-00077 PULSE_JET_MXER	UFP-PJM-00076 PULSE_JET_MXER	UFP-PJM-00070 PULSE_JET_MXER	UFP-PJM-00070 PULSE_JET_MXER	PWD-VSL-00021 RED CHARGE VESSEL	PWD-VSL-00024 RED CHARGE VESSEL
251 GAL	MODEL H 525 GAL 4'x 10' x 4'3" T-1	MODEL H 525 GAL 4'x 10' x 4'3" T-1					

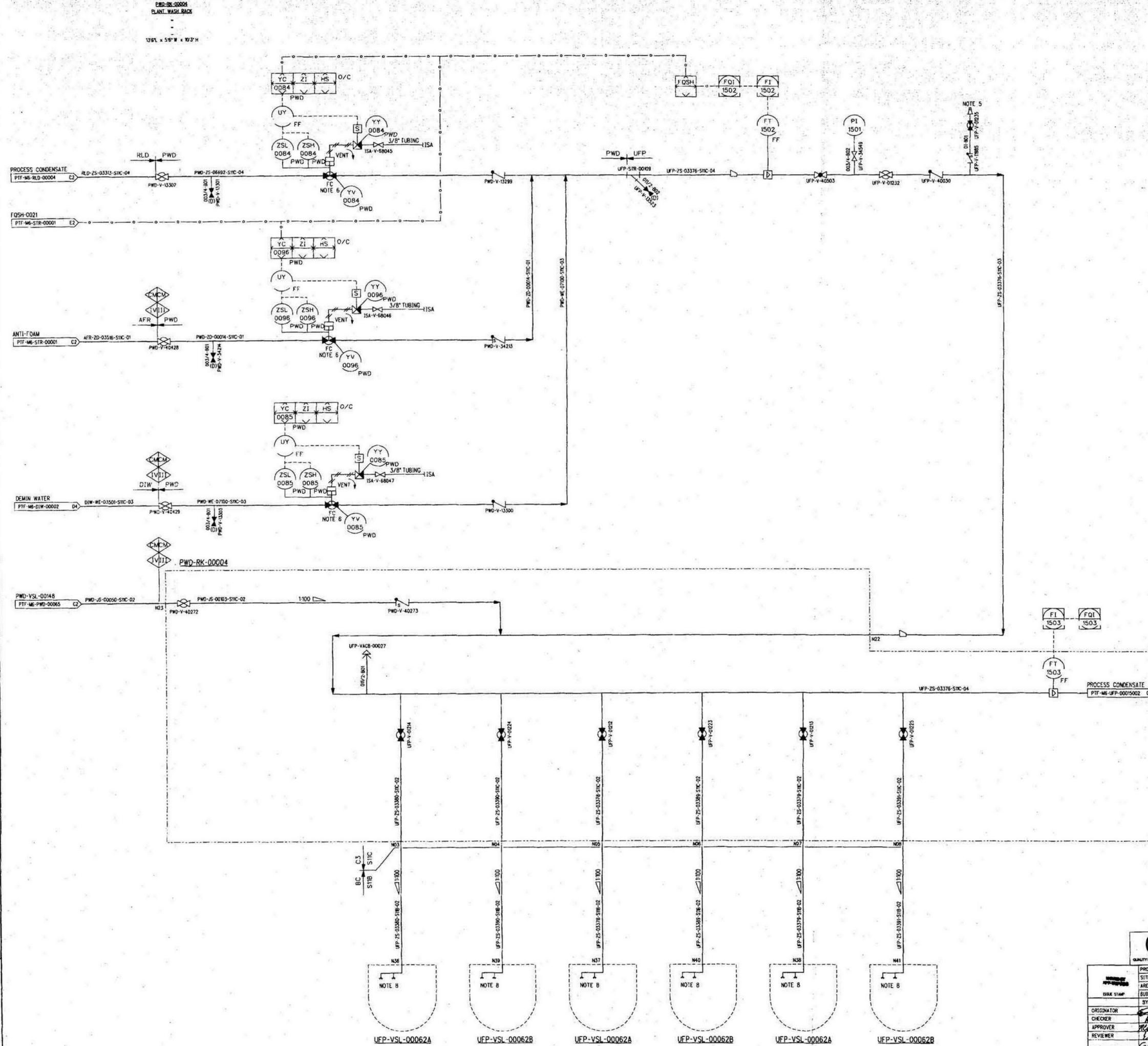
- NOTES:**
- SEE DRAWINGS 24590-WTP-M6-50-00001 THROUGH 24590-WTP-M6-50-00008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
  - CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
  - THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-1.
  - ALL LINES SHOWN ON THIS DRAWING ARE LOCATED IN THE BLACK CELL AND SHALL BE SELF DRAINING, UNLESS OTHERWISE NOTED.
  - FOR PROCESS INFORMATION SEE DRAWING 24590-PTF-M6-UFP-00004003 AND 24590-PTF-PWD-00002001.
  - THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTI-SHEET DRAWINGS AND, IN PART, SUPERSEDES 24590-PTF-M6-UFP-00011 REV 2. THIS IS A MAJOR REVISION, NO REVISION CLOUDS ARE SHOWN. THIS DRAWING MAY INCLUDE INFORMATION FROM 24590-PTF-M6N-M601-00011, -00014, -00015, -00026, -00036, -00037, -00038, 24590-PTF-M6N-UFP-00048, AND -00098.

- HOLD/OPEN ITEMS:**
- QUALITY LEVEL DESIGNATION AND SEISMIC CATEGORY CLASSIFICATION ON HOLD PENDING APPROVAL OF AUTHORIZATION BASIS AMENDMENT REQUEST 24590-WTP-SE-ENS-0120 (FUTURE).

**REFERENCES:**  
NONE



<p>Q ISSUED FOR CONSTRUCTION SEE NOTE 6</p> <p>REV DESCRIPTION ORG CHKD RVD/APPV DATE</p>		<p>REVISION HISTORY</p> <p>RIVER PROTECTION PROJECT WASTE TREATMENT PLANT 2435 STEVENS CENTER PLACE RICHLAND, WA 99354</p> <p>CONTRACT No: DE-AC27-01RV14136</p>	
<p>PROJECT No: 24590</p> <p>SITE: HANFORD</p> <p>AREA: 2006</p> <p>BUILDING No: 10</p>	<p>BY: [Signature]</p> <p>DATE: 10/21/08</p>	<p><b>P&amp;ID - PTF ULTRAFILTRATION PROCESS SYSTEM</b></p> <p>VESSEL/PJM/RFD</p> <p><b>UFP-VSL-00062C/PWD-VSL-00044</b></p>	
<p>ORIGINATOR: [Signature]</p> <p>CHECKER: [Signature]</p> <p>APPROVER: [Signature]</p> <p>REVIEWER: [Signature]</p>	<p>SAFETY SCREEN REQUIRED (YES) <input type="checkbox"/> NO <input checked="" type="checkbox"/></p> <p>EMG METAL IF YES <input checked="" type="checkbox"/></p>	<p>SCALE: NONE</p> <p>24590-PTF-M6-UFP-00011005</p>	<p>REV: 0</p>



- NOTES:**
- SEE DRAWINGS 24590-WTP-M6-50-00001 THROUGH 24590-WTP-M6-50-00008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
  - CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
  - THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL CM AND SEISMIC CATEGORY SC-III, UNLESS OTHERWISE NOTED.
  - ALL LINES SHOWN ON THIS DRAWING SHALL BE FREE DRAINING, EXCEPT BLACK CELL LINES WHICH ARE SELF-DRAINING, UNLESS OTHERWISE NOTED.
  - CONNECTION PROVIDED FOR REAGENTS, PLANT WASH, AND SERVICE AIR.
  - VALVES INTERLOCKED TO PREVENT MULTIPLE VALVE OPERATIONS.
  - FOR PROCESS INFORMATION, REFER TO DRAWING 24590-PTF-M6-UFP-00004001 AND -00004002.
  - PIPE ROUTING LIMITED TO MAXIMUM OF AN 8 FOOT STRAIGHT VERTICAL DROP AT THE CONNECTION TO THE VESSEL.
  - BLACK CELL PIPING TO BE SUPPORTED FOR MAXIMUM WATERFALL AND FOR THE EXPECTED DYNAMIC FORCES DURING THE TRANSITION FROM A DRY PIPE TO A LIQUID-FULL PIPE.
  - THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTI-SHEET DRAWINGS AND, IN PART, SUPERSEDES 24590-PTF-M6-UFP-00005 REV 2. THIS IS A MAJOR REVISION, NO REVISION CLOUDS ARE SHOWN. THIS DRAWING MAY INCLUDE INFORMATION FROM 24590-PTF-M6N-M801-00025, -00026, -00037, -00038, 24590-PTF-M6N-UFP-00057-00061, -00083, AND -00105.

**HOLD/OPEN ITEMS:**

NONE

**REFERENCES:**

- THE REQUIRED OPERATIONAL SEQUENCES, PERMISSIVES, INTERLOCKS, ALARMS AND OPERATOR INTERFACE POINTS ARE FULLY DESCRIBED IN THE UFP SYSTEM LOGIC DIAGRAMS (FUTURE), AND THE UFP SYSTEM DESCRIPTION (FUTURE REVISION).

DRAWING INDEX	
DWG NO	TITLE
24590-M6-UFP-00015001	ULTRAFILTRATION PROCESS SYSTEM PW-RK-00004
24590-M6-UFP-00015002	ULTRAFILTRATION PROCESS SYSTEM PW-RK-00004
24590-M6-UFP-00015003	ULTRAFILTRATION PROCESS SYSTEM PW-RK-00004

<p>ISSUED FOR CONSTRUCTION SEE NOTE 10</p>		<p>DATE: 11/27/08</p>
<p>REV: 4</p>	<p>DESCRIPTION: 24590-PTF-M6-UFP-00015002</p>	<p>ORG: CHKD: RVD: APVD: DATE: 11/27/08</p>
<p><b>REVISION HISTORY</b></p>		
<p>PROJECT No: 24590</p> <p>SITE: HANFORD</p> <p>AREA: 200C</p> <p>BUILDING No: 10</p>	<p>CONTRACT No: DE-AC27-01RVM135</p> <p>RIVER PROTECTION PROJECT WASTE TREATMENT PLANT 2435 STEVENS CENTER PLACE RICHLAND, WA 99354</p>	
<p><b>P&amp;ID-PTF ULTRAFILTRATION PROCESS SYSTEM PLANT WASH PWD-RK-00004</b></p>		
<p>ORIGINATOR: [Signature]</p> <p>CHECKER: [Signature]</p> <p>APPROVER: [Signature]</p> <p>REVIEWER: [Signature]</p>	<p>SCALE: NONE</p> <p>24590-PTF-M6-UFP-00015001</p> <p>REV: 0</p>	

NOTES:

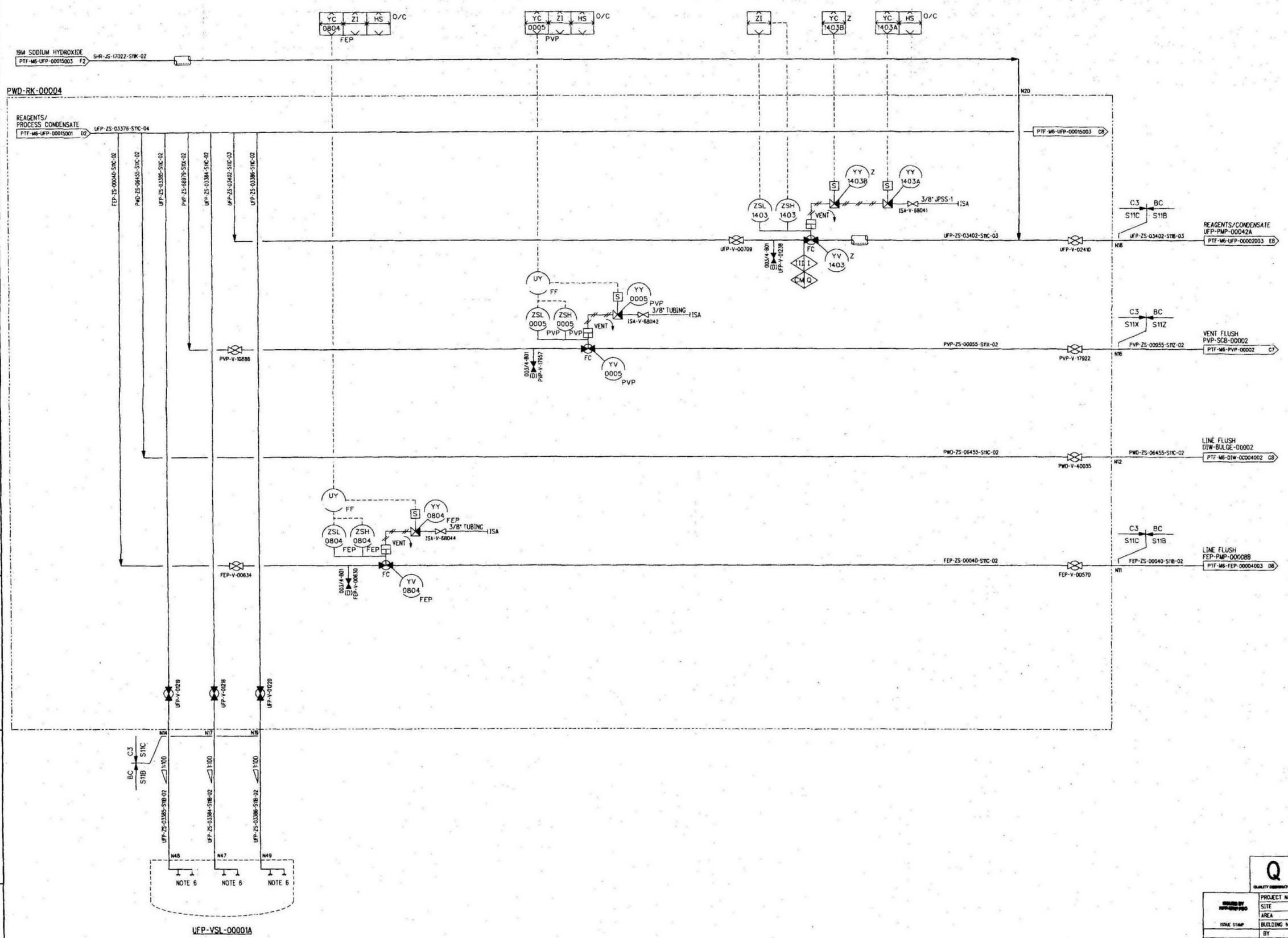
- SEE DRAWINGS 24590-WTP-M6-50-00001 THROUGH 24590-WTP-M6-50-00008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SloPE REQUIREMENTS.
- CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
- THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL CM AND SEISMIC CATEGORY SC-III, UNLESS OTHERWISE NOTED.
- ALL LINES SHOWN ON THIS DRAWING SHALL BE FREE DRAINING, EXCEPT BLACK CELL LINES WHICH ARE SELF-DRAINING, UNLESS OTHERWISE NOTED.
- FOR PROCESS INFORMATION, REFER TO DRAWING 24590-PTF-M6-UFP-00001001.
- PIPE ROUTING LIMITED TO MAXIMUM OF AN 8 FOOT STRAIGHT VERTICAL DROP AT THE CONNECTION TO THE VESSEL.
- BLACK CELL PIPING TO BE SUPPORTED FOR MAXIMUM WATERFALL AND FOR THE EXPECTED DYNAMIC FORCES DURING THE TRANSITION FROM A DRY PIPE TO A LIQUID-FULL PIPE.
- THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTI-SHEET DRAWINGS AND, IN PART, SUPERSEDES 24590-PTF-M6-UFP-00015 REV 2. THIS IS A MAJOR REVISION, NO REVISION CLOUDS ARE SHOWN. THIS DRAWING MAY INCLUDE INFORMATION FROM 24590-PTF-M6N-UFP-00025, -00026, -00037, -00038, 24590-PTF-M6N-UFP-00057-00061, -00063, AND -00105.

HOLD/OPEN ITEMS:

NONE

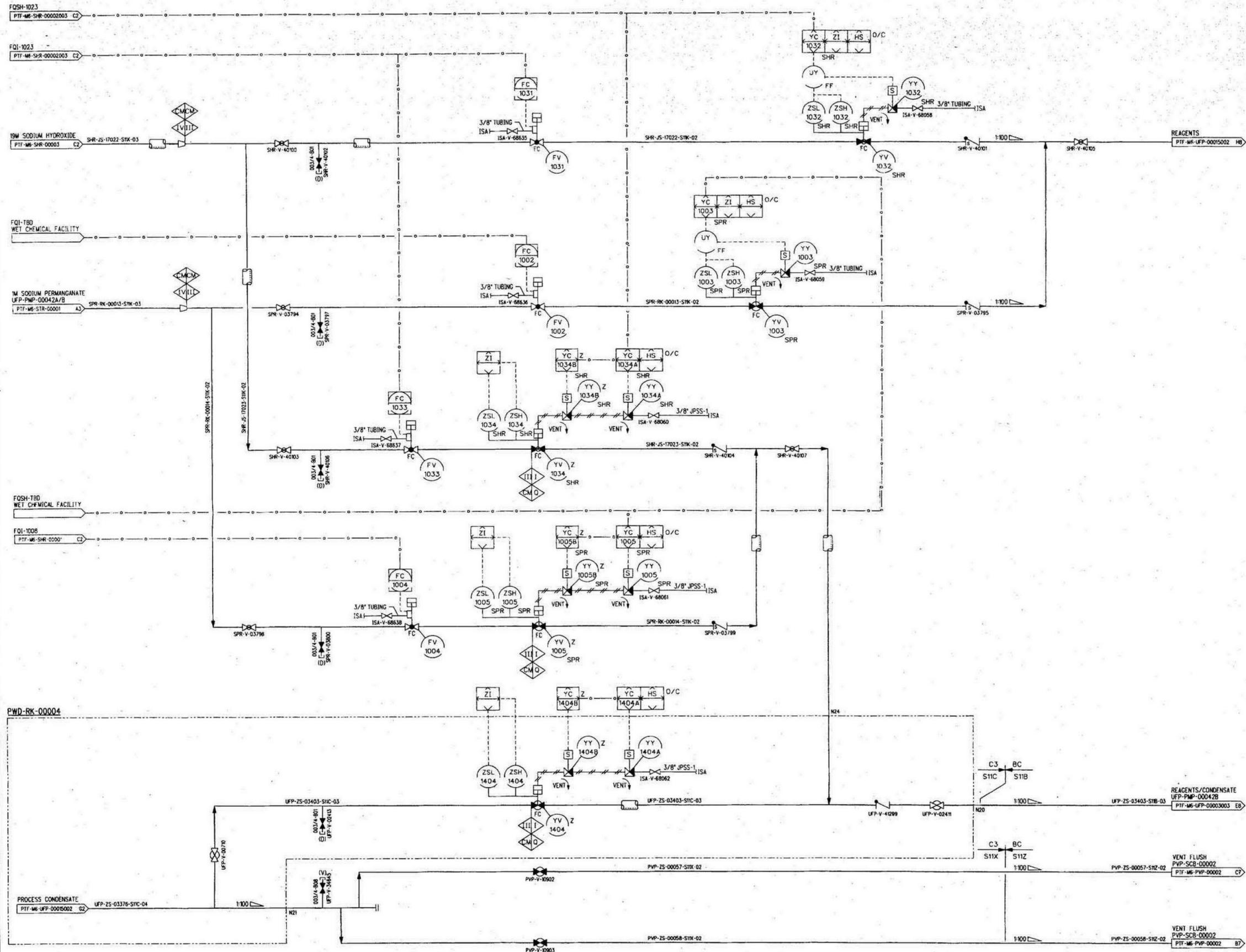
REFERENCES:

- THE REQUIRED OPERATIONAL SEQUENCES, PERMISSIVES, INTERLOCKS, ALARMS AND OPERATOR INTERFACE POINTS ARE FULLY DESCRIBED IN THE UFP SYSTEM LOGIC DIAGRAMS (FUTURE), AND THE UFP SYSTEM DESCRIPTION (FUTURE REVISION).



Personnel that prepare, modify, or approve drawings are responsible for ensuring that drawings comply with all applicable codes and standards, including the ASME Boiler and Pressure Vessel Code (BPVC) and applicable local, state, and federal codes. It is the responsibility of the drafter to ensure that drawings are prepared in accordance with the applicable codes and standards. The drafter is responsible for ensuring that drawings are prepared in accordance with the applicable codes and standards. The drafter is responsible for ensuring that drawings are prepared in accordance with the applicable codes and standards.

PROJECT No. 24590		RIVER PROTECTION PROJECT	
SITE HANFORD		WASTE TREATMENT PLANT	
AREA 200E		2435 STEVENS CENTER PLACE	
BUILDING No. 10		RICHLAND, WA 99354	
BY: [Signature]		CONTRACT No. DE-AC27-09W14136	
DATE: 10/27/08		P & ID - PTF	
CHECKER: [Signature]		ULTRAFILTRATION PROCESS	
APPROVER: [Signature]		SYSTEM	
REVIEWER: [Signature]		PLANT WASH	
DATE: 10/27/08		PWD-RK-00004	
DATE: 10/27/08		24590-PTF-M6-UFP-00015002	
DATE: 10/27/08		REV 0	



- NOTES:**
- SEE DRAWINGS 24590-WTP-M6-50-00001 THROUGH 24590-WTP-M6-50-00008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
  - CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
  - THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL CM AND SEISMIC CATEGORY SC-III, UNLESS OTHERWISE NOTED.
  - ALL LINES SHOWN ON THIS DRAWING SHALL BE FREE DRAINING, EXCEPT BLACK CELL LINES WHICH ARE SELF-DRAINING, UNLESS OTHERWISE NOTED.
  - THIS DRAWING IS CONVERTED FROM A SINGLE SHEET TO MULTI-SHEET DRAWINGS AND, IN PART, SUPERSEDES 24590-PTF-M6-UFP-00005 REV 2. THIS IS A MAJOR REVISION, NO REVISION CLOUDS ARE SHOWN. THIS DRAWING MAY INCLUDE INFORMATION FROM 24590-PTF-M6N-MB0T-00025, -00026, -00037, -00038, 24590-PTF-M6N-UFP-00057-00061, -00063, AND -00105.

**HOLD/OPEN ITEMS:**  
NONE

- REFERENCES:**
- THE REQUIRED OPERATIONAL SEQUENCES, PERMISSIVES, INTERLOCKS, ALARMS, AND OPERATOR INTERFACE POINTS ARE FULLY DESCRIBED IN THE UFP SYSTEM LOGIC DIAGRAMS (FUTURE), AND THE UFP SYSTEM DESCRIPTION (FUTURE REVISION).

<b>Q</b> QUALITY CHECKER 0 ISSUED FOR CONSTRUCTION SEE NOTE 5 1 REV DESCRIPTION		DATE 10/27/08
<b>REVISION HISTORY</b>		
ORIGINATOR CHECKER APPROVER REVIEWER	DATE 10/13/08 10/13/08 10/13/08 10/13/08	REVISION 1 2 3 4
PROJECT No. 24590 SITE HANFORD AREA 200C BUILDING No. 1D		CONTRACT No. DE-AC27-DIRV14136
RIVER PROTECTION PROJECT WASTE TREATMENT PLANT 2435 STEVENS CENTER PLACE RICHLAND, WA 99354		<b>P&amp;ID - PTF ULTRAFILTRATION PROCESS SYSTEM PLANT WASH PWD-RK-00004</b>
CONTENT APPLICABLE TO ALARMS? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO ADR NO. 24590-PTF-ADR-W-02-046 REV: 4		SCALE NONE 24590-PTF-M6-UFP-00015003 REV 0

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Quarter Ending June 30, 2009

24590-PTF-PCN-ENV-09-007

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

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Index

Page 2 of 2: Hanford Facility RCRA Permit, Part III, Operating Unit 10, Waste Treatment and Immobilization Plant  
Update PTF Piping and Instrumentation Diagram (P&ID) for the Pulse Jet Ventilation System Inlet Header to  
Demister Outlet in Appendix 8.2 of the Dangerous Waste Permit.

Submitted by Co-Operator:

Donna M Busche 6/11/09  
D. M. Busche Date

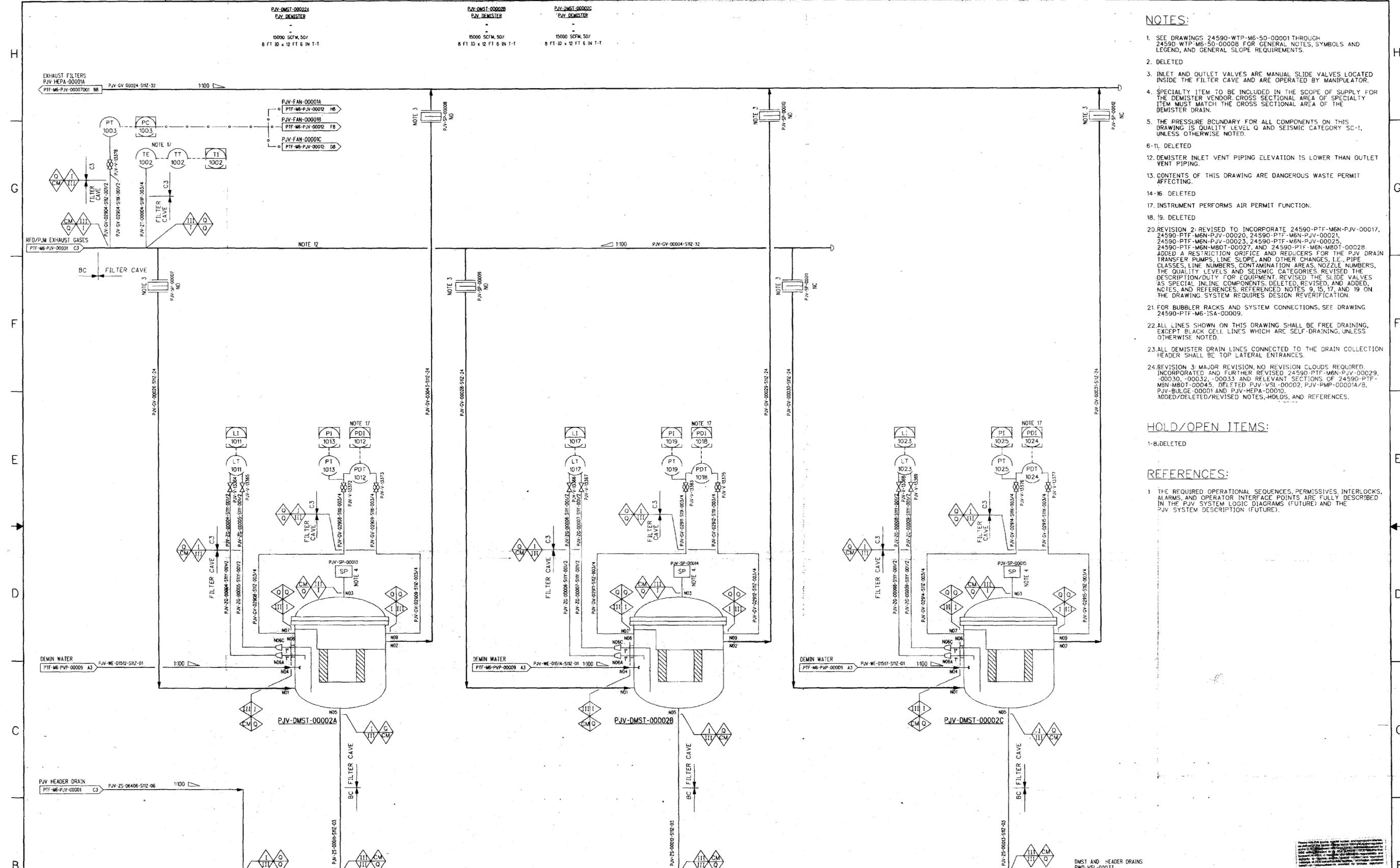
Reviewed by ORP Program Office:

S. J. Olinger 6/25/09  
S. J. Olinger Date

Quarter Ending June 30, 2009

24590-PTF-PCN-ENV-09-007

<b>Hanford Facility RCRA Permit Modification Notification Form</b>														
Unit: <b>Waste Treatment and Immobilization Plant</b>	Permit Part: <b>Part III, Operating Unit 10</b>													
<p><u>Description of Modification:</u>                      The purpose of this Class 1 prime modification is to update the following P&amp;ID for the PTF Pulse Jet Ventilation System Inlet Header to Demister Outlet. The following P&amp;ID is submitted to replace that currently in Appendix 8.2.</p>														
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td colspan="5" style="padding: 2px;">Appendix 8.2</td> </tr> <tr> <td style="width: 20%; padding: 2px;">Replace:</td> <td style="width: 30%; padding: 2px;">24590-PTF-M6-PJV-P0002, Rev. 0</td> <td style="width: 10%; padding: 2px;">With:</td> <td style="width: 30%; padding: 2px;">24590-PTF-M6-PJV-00002, Rev. 3</td> <td style="width: 10%;"></td> </tr> </table>					Appendix 8.2					Replace:	24590-PTF-M6-PJV-P0002, Rev. 0	With:	24590-PTF-M6-PJV-00002, Rev. 3	
Appendix 8.2														
Replace:	24590-PTF-M6-PJV-P0002, Rev. 0	With:	24590-PTF-M6-PJV-00002, Rev. 3											
<p>The referenced P&amp;ID has been revised. The drawing incorporates changes provided in applicable document change forms (e.g., DCN, SCN, SDDR, FCN, FCR, etc.) and changes associated with the resolution to comments on change documents since the issuance of the last revision of the permitted drawing. This modification requests Ecology approval and incorporation into the permit, the specific changes to the P&amp;ID that are indicated by note 24, clouds, and revision triangles. Revisions are the result of ongoing design changes.</p>														
<p>The following identifies the significant types of changes:</p> <ul style="list-style-type: none"> <li>• Added slope notation to specific lines</li> <li>• Added/deleted/revise notes, holds, and references</li> <li>• Rerouted sample supply and return lines</li> <li>• Deleted PJV Drain Collection Vessel PJV-VSL-00002</li> <li>• Deleted PJV Drain Transfer Pumps PJV-PMP-00001A/B</li> <li>• Deleted PJV-BULGE-00001</li> </ul>														
<p>The following outstanding change document has not been incorporated into this modification:</p> <ul style="list-style-type: none"> <li>• 24590-PTF-M6PR-10-00004</li> </ul>														
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 40%; padding: 2px;">WAC 173-303-830 Modification Class:</td> <td style="width: 10%; padding: 2px;">Class 1</td> <td style="width: 10%; padding: 2px;">Class <sup>1</sup>1</td> <td style="width: 10%; padding: 2px;">Class 2</td> <td style="width: 10%; padding: 2px;">Class 3</td> </tr> <tr> <td style="padding: 2px;">Please mark the Modification Class:</td> <td></td> <td style="text-align: center;">X</td> <td></td> <td></td> </tr> </table>					WAC 173-303-830 Modification Class:	Class 1	Class <sup>1</sup> 1	Class 2	Class 3	Please mark the Modification Class:		X		
WAC 173-303-830 Modification Class:	Class 1	Class <sup>1</sup> 1	Class 2	Class 3										
Please mark the Modification Class:		X												
<p>Enter relevant WAC 173-303-830, Appendix I Modification citation number:      NA</p> <p>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 <sup>1</sup>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."</p>														
<p>Modification Approved/Concur:    <input checked="" type="checkbox"/> Yes    <input type="checkbox"/> Denied (state reason below)</p> <p>Reason for denial:</p>			<p>Reviewed by Ecology:</p>											
<p><i>Ed Fredenburg</i></p> <p>Ed Fredenburg</p>			<p><i>K. Elsethagen</i>      9-10-2009</p> <p>Kelly Elsethagen      Date</p>											



- NOTES:**
- SEE DRAWINGS 24590-WTP-M6-50-00001 THROUGH 24590-WTP-M6-50-00008 FOR GENERAL NOTES, SYMBOLS AND LEGEND, AND GENERAL SLOPE REQUIREMENTS.
  - DELETED
  - INLET AND OUTLET VALVES ARE MANUAL SLIDE VALVES LOCATED INSIDE THE FILTER CAVE AND ARE OPERATED BY MANIPULATOR.
  - SPECIALTY ITEM TO BE INCLUDED IN THE SCOPE OF SUPPLY FOR THE DEMISTER VENDOR. CROSS SECTIONAL AREA OF SPECIALTY ITEM MUST MATCH THE CROSS SECTIONAL AREA OF THE DEMISTER DRAIN.
  - THE PRESSURE BOUNDARY FOR ALL COMPONENTS ON THIS DRAWING IS QUALITY LEVEL Q AND SEISMIC CATEGORY SC-1, UNLESS OTHERWISE NOTED.
  - DELETED
  - DEMISTER INLET VENT PIPING ELEVATION IS LOWER THAN OUTLET VENT PIPING.
  - CONTENTS OF THIS DRAWING ARE DANGEROUS WASTE PERMIT AFFECTING.
  - DELETED
  - INSTRUMENT PERFORMS AIR PERMIT FUNCTION.
  - DELETED
  - REVISION 2: REVISED TO INCORPORATE 24590-PTF-M6N-PJV-00017, 24590-PTF-M6N-PJV-00020, 24590-PTF-M6N-PJV-00021, 24590-PTF-M6N-PJV-00023, 24590-PTF-M6N-PJV-00025, 24590-PTF-M6N-M807-00027, AND 24590-PTF-M6N-M807-00028. ADDED A RESTRICTION ORIFICE AND REDUCERS FOR THE PVJ DRAIN TRANSFER PUMPS, LINE SLOPE, AND OTHER CHANGES, I.E., PIPE CLASSES, LINE NUMBERS, CONTAMINATION AREAS, NOZZLE NUMBERS, THE QUALITY LEVELS AND SEISMIC CATEGORIES. REVISED THE DESCRIPTION/DUTY FOR EQUIPMENT. REVISED THE SLIDE VALVES AS SPECIAL INLINE COMPONENTS. DELETED, REVISED, AND ADDED, NOTES AND REFERENCES. REFERENCED NOTES 9, 15, 17, AND 19 ON THE DRAWING. SYSTEM REQUIRES DESIGN REVERIFICATION.
  - FOR BUBBLER RACKS AND SYSTEM CONNECTIONS, SEE DRAWING 24590-PTF-M6-15A-00009.
  - ALL LINES SHOWN ON THIS DRAWING SHALL BE FREE DRAINING, EXCEPT BLACK CELL LINES WHICH ARE SELF-DRAINING, UNLESS OTHERWISE NOTED.
  - ALL DEMISTER DRAIN LINES CONNECTED TO THE DRAIN COLLECTION HEADER SHALL BE TOP LATERAL ENTRANCES.
  - REVISION 3: MAJOR REVISION, NO REVISION CLOUDS REQUIRED. INCORPORATED AND FURTHER REVISED 24590-PTF-M6N-PJV-00029, 24590-PTF-M6N-M807-00033, AND RELEVANT SECTIONS OF 24590-PTF-M6N-M807-00045. DELETED PVJ-VSL-00002, PVJ-PMP-00001A/B, PVJ-BULGE-00001 AND PVJ-HEPA-00010. ADDED/DELETED/REVISED NOTES, HOLDS, AND REFERENCES.

- HOLD/OPEN ITEMS:**
- 1-8. DELETED
- REFERENCES:**
- THE REQUIRED OPERATIONAL SEQUENCES, PERMISSIVES, INTERLOCKS, ALARMS, AND OPERATOR INTERFACE POINTS ARE FULLY DESCRIBED IN THE PVJ SYSTEM LOGIC DIAGRAMS (FUTURE) AND THE PVJ SYSTEM DESCRIPTION (FUTURE).

REV	DESCRIPTION	ORG	CHK	RVWD	APVD	DATE
3	REVISED PER NOTE 24					5/26/08
2	REVISED PER NOTE 20					5/26/06
0	ISSUED FOR CONSTRUCTION	RM	RM	JJ	RV	5/1/03

QUALITY DESIGNATION		REVISION HISTORY	
ORIGINATOR	RYAN MCDLAUGHERY	DATE	4/28/03
CHECKER	ROOSEVELT MCLINA	DATE	4/28/03
APPROVER	ROBERT VOKE	DATE	5/1/03
REVIEWER	JOHN JULYK	DATE	4/30/03

PROJECT NO.	24590
SITE	HANFORD
AREA	200E
BUILDING NO.	70
BY	
DATE	
CONTRACT NO.	DE-AC27-01RY14136
<b>P&amp;ID - PTF</b>	
<b>PULSE JET VENTILATION SYSTEM</b>	
<b>INLET HEADER TO</b>	
<b>DEMISTER OUTLET</b>	
CONTENT APPLICABLE TO ALARMS	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
ADR NO. 24590-PTF-ADR-M-02-009	REV. 3
Safety Screen is required for	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Drawing Types Identified in	2
24590-WTP-PTF-SPEC-002	COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED
SCALE	NONE
24590-PTF-M6-PJV-00002	REV 3

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**Hanford Facility RCRA Permit Modification Notification Forms**

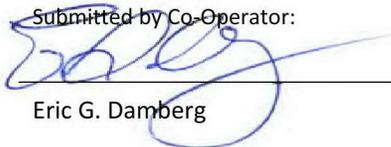
**Part III, Operating Unit 15  
331-C Storage Unit**

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Index

- Page 2 of 4: Hanford Facility RCRA Permit, III.15
- Page 3 of 4: Addendum B, Definitions
- Page 4 of 4: Addendum B, §B.7.2.1:

Submitted by Co-Operator:



Eric G. Damberg

27 AUG 2009  
Date

Reviewed by DOE Program Office:



Joe R. Franco

9/11/09  
Date



**Hanford Facility RCRA Permit Modification Notification Form**

Unit: <b>331-C Storage Unit</b>	Permit Part <b>Part III, Operating Unit 15</b>
------------------------------------	---

Description of Modification:  
 Addendum C, Process Information:

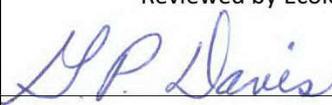
**Definitions**

Term	Definition
...	
Fingerprint Analysis	Testing of significant parameters expected from a waste (as documented in its approved profile) performed after physical transfer of the waste to the <u>331-C Storage Unit</u> <del>325 Hazardous Waste Treatment Units</del> . Fingerprint analysis is intended to verify that the waste transferred to the <u>331-C Storage Unit</u> <del>325 Hazardous Waste Treatment Units</del> matches the profile provided. Fingerprinting is usually performed by visual examination of the waste and/or use of readily available testing methods such as test kits.
Incompatible Waste	Materials/wastes unsuitable for placement in a particular device or facility because it may corrode or decay the containment materials, or is unsuitable for mixing with another waste or material because the mixture might produce heat or pressure, fire or explosion, violent reaction, toxic dusts, fumes, mists, or gases, or flammable fumes or gases. Refer to Table 1.
Inspection	Viewing of the contents of the container, container markings and labeling, number of containers, and/or the container itself as a means of confirming the identity of the waste
Knowledge	Sufficient information about a waste to reliably substitute for direct testing of the waste. To be sufficient and reliable, the <i>knowledge</i> used must provide information necessary to manage the waste in accordance with the requirements of this Addendum. <a href="#">[WAC 173-303-040]</a> Note: <i>Knowledge</i> may be used by itself or in combination with testing to designate as waste pursuant to <a href="#">WAC 173-303-070(3)(c)</a> , or to obtain a detailed chemical, physical, and/or biological analysis of a waste as required in <a href="#">WAC 173-303-300(2)</a> .
Profile	<i>A detailed physical, chemical, and/or biological analysis of a dangerous waste</i> provided by the waste generator in order to allow the <u>331-C Storage Unit</u> <del>325 Hazardous Waste Treatment Units</del> staff to perform waste analysis. The Chemical Disposal/Recycle Request (CDRR) and/or Radioactive Waste Disposal Request (RWDR) at PNNL currently serve as the waste profile. A sample CDRR is shown in Table B.3.
...	

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:  
 A.1 General Permit Provisions, Administrative and informational changes

Modification Approved/Concur  Yes  Denied (state reason below)  
Reason for denial:

Reviewed by Ecology:  
  
 G. P Davis Date 8-31-09

<b>Hanford Facility RCRA Permit Modification Notification Form</b>				
Unit: <b>331-C Storage Unit</b>	Permit Part <b>Part III, Operating Unit 15</b>			
<p><u>Description of Modification:</u> Addendum B, §B.7.2.1:</p> <p><b>B.7.2.1 Waste Treatment</b></p> <p>No permitted waste treatment occurs at 331-C Storage Unit. Waste received may or may not meet the applicable LDRs determined during the acceptance process (Section B.2). Waste received for storage that does not meet the applicable LDR treatment standards at the <i>point of generation</i> will receive treatment at offsite facilities.</p> <p>Shipments of waste shall not be accepted from any non-PNNL generator without any required LDR certification accompanying each shipment. For waste received from non-PNNL generators, the <u>331-C Storage Unit</u> <del>325 Hazardous Waste Treatment Units</del> shall receive the information required by <u>WAC 173-303-140</u> regarding LDR wastes. The generator must sign the LDR certification.</p>				
WAC 173-303-830 Modification Class	Class 1	Class 1	Class 2	Class 3
Please mark the Modification Class:	X			
<p>Enter relevant WAC 173-303-830, Appendix I Modification citation number: A.1</p> <p>Enter wording of WAC 173-303-830, Appendix I Modification citation:</p> <p>A.1 General Permit Provisions, Administrative and informational changes</p>				
Modification Approved/Concur <input checked="" type="checkbox"/> Yes <input type="checkbox"/> Denied (state reason below) <u>Reason for denial:</u>	Reviewed by Ecology:  8-31-09 G. P Davis Date			

---

**Hanford Facility RCRA Permit Modification**

**Part III, Operating Unit 15  
331-C Storage Units**

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**Replacement Sections:**

- Remove Permit Conditions, dated June 30, 2009 and replace with Permit Conditions dated September 30, 2009
- Remove Addendum B, Waste Analysis Plan dated March 31, 2009 and replace with Addendum B, Waste Analysis Plan dated September 30, 2009

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**PART III, OPERATING UNIT GROUP 15 CONDITIONS**

**331-C Storage Unit**

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**Unit Description**

The 331-C Storage Unit is a dangerous waste container storage unit located within the south portion of the 300 Area. The unit is used for the collection, consolidation, packaging, storage, and preparation for transport and disposal of dangerous waste. The waste stored at the 331-C Storage Unit consists of listed waste from specific and nonspecific sources, discarded commercial chemical products, characteristic waste, and criteria waste.

The 331-C Storage Unit is divided into a number of separate locations equipped with independent secondary containment to ensure the segregation of incompatible wastes and proper management and removal of any spills or leaks that might occur. A small, laboratory-style fume hood on the south wall in the storage area is used for waste verification, compatibility testing, and small-volume waste work.

**List of Addenda Specific to Operating Unit Group 15**

- Addendum A Part A Form, dated September 30, 2008
- Addendum B Waste Analysis Plan, dated September 30, 2009
- Addendum C Process Information, dated June 30, 2009
- Addendum D Groundwater Monitoring (Reserved)
- Addendum E Procedures to Prevent Hazards, dated June 30, 2009
- Addendum F Preparedness and Prevention, dated June 30, 2009
- Addendum G Personnel Training, dated March 31, 2009
- Addendum H Closure Plan, dated June 30, 2009
- Addendum I Inspection Requirements, dated June 30, 2009
- Addendum J Contingency Plan, dated June 30, 2009

**Definitions**

The term "**Cell**" means a discrete area for storing a given type of waste within its own secondary containment, a basic unit of storage, a narrow confining area.

**Acronyms**

Reserved

**III.15.A COMPLIANCE WITH UNIT-SPECIFIC PERMIT CONDITIONS**

III.15.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 331-C Storage Unit, in addition to requirements in Permit Parts I and II.

**III.15.B GENERAL WASTE MANAGEMENT**

III.15.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 331-C Storage Unit.

III.15.B.2 The Permittees are authorized to store dangerous and/or mixed waste physically located in the 331-C Storage Unit as of the effective date of this Permit, and wastes accepted for storage pursuant to Permit Condition III.15.B.1.

- 1 III.15.B.3 The Permittees will maintain the physical structure of the 331-C Storage Unit as  
2 documented in Addendum C, Section C.1.4.1. [[WAC 173-303-630\(7\)](#)]
- 3 III.15.B.4 The Permittees will conduct waste loading and unloading operations consistent with and  
4 no less stringent than the practices described in Addendum F, Section F.2.1.  
5 [[WAC 173-303-395](#)]
- 6 **III.15.C WASTE ANALYSIS**
- 7 III.15.C.1 The Permittees will comply with requirements in Addendum B for waste analysis for all  
8 dangerous and/or mixed waste managed at this unit. [[WAC 173-303-300\(5\)](#)]
- 9 III.15.C.2 The Permittees will have an accurate and complete waste profile as described in  
10 Addendum B, Section B.1.1.1.2.1 for every waste stream accepted by the 331-C Storage  
11 Unit. [[WAC 173-303-380\(1\)\(a\)\(b\)](#)]
- 12 III.15.C.3 The Permittees will place a copy of each waste profile required by Permit  
13 Condition III.15.C.2 in the Hanford Facility Operating Record, 331-C Storage Unit File  
14 required by Permit Condition II.I.2. [[WAC 173-303-380\(1\)\(a\)\(b\)](#)]
- 15 III.15.C.4 The Permittees will comply with the requirements in Addendum F, Section F.3.1, and  
16 F.3.2, to prevent hazards from ignitable, reactive, or incompatible wastes.  
17 [[WAC 173-303-395\(1\)](#)]
- 18 III.15.C.5 The Permittees will make a copy of the waste profile required by Permit  
19 Condition III.15.C.2 available upon request. [[WAC 173-303-380\(1\)\(a\) and \(b\)](#)]
- 20 **III.15.D RECORDKEEPING AND REPORTING**
- 21 III.15.D.1 The Permittees will place the following into the Hanford Facility Operating Record,  
22 331-C Storage Unit File required by Permit Condition II.I.2: [[WAC 173-303-380](#)]
- 23 III.15.D.1.a A description of and quantity of each dangerous and/or mixed waste accepted for storage  
24 in the 331-C Storage Unit; [[WAC 173-303-380\(1\)\(a\)](#)]
- 25 III.15.D.1.b Records and results of any sampling or analysis of wastes accepted for storage at the  
26 331-C Storage Unit, and from any other sampling and analysis required by Addendum B;  
27 [[WAC 173-303-380\(1\)\(c\)](#)] [[WAC 173-303-300\(2\)\(b\)](#)]
- 28 III.15.D.1.c Summary reports and details of all incidents that require implementation of Addendum J,  
29 Contingency Plan according to the requirements of Permit Condition III.15.G.1;  
30 [[WAC 173-303-380\(1\)\(d\)](#)]
- 31 III.15.D.1.d An inspection log, or a summary of such log, of inspections conducted pursuant to Permit  
32 Condition III.15.H.1; [[WAC 173-303-380\(1\)\(e\)](#)]
- 33 III.15.D.1.e Records required by [WAC 173-303-380\(1\)\(k\)](#) and (o), incorporated by reference.
- 34 **III.15.E SECURITY**
- 35 III.15.E.1 The Permittees will maintain security at the 331-C Storage Unit according to the  
36 requirements in Addendum E, and in accordance with Permit Attachment 3 and required  
37 by Permit Condition II.L. [[WAC 173-303-310\(2\)\(b\)](#)]
- 38 **III.15.F PREPAREDNESS AND PREVENTION**
- 39 III.15.F.1 The Permittees will comply with the Preparedness and Prevention requirements in  
40 Addendum F. [[WAC 173-303-340](#)]

1 **III.15.G CONTINGENCY PLAN**

2 III.15.G.1 The Permittees will comply with Addendum J, in addition to the requirements of Permit  
3 Condition II.A when applicable. Enforceable portions of Addendum J are identified in  
4 Addendum J, Page J-i. [[WAC 173-303-350](#)]

5 **III.15.H INSPECTIONS**

6 III.15.H.1 The Permittee will perform inspections of the 331-C Storage Unit according to  
7 Addendum I, Inspection Plan. The inspection shall include:

8 III.15.H.1.a All monitoring equipment, safety and emergency equipment, security devices, and  
9 operating and structural equipment that help prevent, detect, or respond to hazards to the  
10 public health or the environment; [[WAC 173-303-320\(2\)](#)]

11 III.15.H.2 The inspection schedule required by Permit Condition III.15.H.1 will provide the  
12 frequency of inspection for specific items. The frequency should be based on the rate of  
13 possible deterioration of equipment and the probability of an environmental or human  
14 health incident. Areas subject to spills must be inspected daily when in use.  
15 [[WAC 173-303-320\(2\)\(c\)](#)]

16 III.15.H.3 The Permittee must remedy any problems revealed by inspections conducted pursuant to  
17 Permit Condition III.15.H.1, on a schedule that prevents hazards to the public health and  
18 the environment. Where a hazard is imminent or has already occurred, remedial action  
19 must be taken immediately. [[WAC 173-303-320\(3\)](#)]

20 III.15.H.4 The Permittees will place a copy of the inspection requirements and schedule prepared  
21 according to Permit Condition III.5.H.1 in the Hanford Facility Operating Record,  
22 331-C Storage Unit File required by Permit Condition II.I.2. [[WAC 173-303-320\(2\)\(a\)](#)]

23 III.15.H.5 The Permittee will keep an inspection log or summary of inspections conducted pursuant  
24 to Permit Condition III.15.H.1, including at a minimum the following:

25 III.15.H.5.a Date and time of the inspection;

26 III.15.H.5.b Printed name and the handwritten signature of the inspector;

27 III.15.H.5.c Notation of the observations made;

28 III.15.H.6 An account of spills or discharges in accordance with Permit Condition II.E, and the date  
29 and description of any repairs or remedial actions taken

30 **III.15.I TRAINING PLAN**

31 III.15.I.1 The Permittee will include Addendum G training requirements in the written training  
32 plan required by Permit Condition II.C. [[WAC 173-303-330](#)]

33 **III.15.J OTHER GENERAL REQUIREMENTS**

34 III.15.J.1 The Permittees will conduct waste management activities within 331-C Storage Unit  
35 authorized by this Permit according to the requirements in Addendum F, Sections F.3.1,  
36 and F.3.2. The Permittees will document compliance with these provisions in the  
37 Hanford Facility Operating Record, 331-C Storage Unit File.  
38 [[WAC 173-303-395\(1\)\(a\)-\(c\)](#)]

39 III.15.J.2 The Permittees will comply with the requirements of [WAC 173-303-395\(2\)](#), incorporated  
40 by reference.

- 1     **III.15.K     CLOSURE**
- 2     III.15.K.1     The Permittees will close the 331-C Storage Unit in accordance with Addendum H,  
3     Closure Plan. [[WAC 173-303-610\(3\)\(a\)](#)]
- 4     III.15.K.2     The Permittees will amend the Closure Plan in accordance with Permit Condition II.J.2  
5     and Addendum H. [[WAC 173-303-610\(3\)\(b\)](#)]
- 6     III.15.K.3     The Permittees will provide Ecology with a Notice of Closure according to Permit  
7     Condition II.J.1. [[WAC 173-303-610\(3\)\(c\)](#)]
- 8     **III.15.L     POST CLOSURE**
- 9     Reserved
- 10    **III.15.M     CRITICAL SYSTEMS**
- 11    Reserved
- 12    **III.15.N     RESERVED**
- 13    **III.15.O     CONTAINERS**
- 14    III.15.O.1     Container Storage Unit Standards
- 15    III.15.O.1.a    The Permittees will maintain the integrity of container storage secondary containment as  
16    documented in Addendum C, Section C.1.4, including all chemically resistant coatings  
17    and sealants described in Addendum C, Section C.1.4.1.1, as necessary to ensure any  
18    spills or releases do not migrate to the underlying concrete or soils.
- 19    III.15.O.1.b    The Permittees will place documentation of any damage to and subsequent repairs of  
20    chemically resistant coatings in 331-C Storage Unit secondary containment in the  
21    Hanford Facility Operating Record, 331-C Storage Unit File required by Permit  
22    Condition II.I.2. [[WAC 173-303-630\(7\)](#)]
- 23    III.15.O.1.c    Within thirty (30) days of the effective date of this Permit, the Permittee will place  
24    documentation in the Hanford Facility Operating Record, 331-C Storage Unit File  
25    identifying the specific chemical resistant coatings and sealants used for construction and  
26    maintenance of the 331-C Storage Unit cells. This documentation will demonstrate that  
27    these materials are impervious to the wastes managed in each of the 331-C Storage Unit  
28    cells to contain spills until the collected spill material is detected and removed.  
29    [[WAC 173-303-630\(7\)\(a\)\(i\)](#)]
- 30    III.15.O.2     Container Management Standards
- 31    III.15.O.2.a    The Permittees are authorized to manage wastes in the 331-C Storage Unit according to  
32    the requirements of Addendum C, Sections C.1.1, C.1.2, C.1.4, and Addendum B,  
33    Section B.1.1.1.2.2, and Table B.1.
- 34    III.15.O.2.a.i   Wastes may be stored in the outside storage area identified as “10” in Addendum C,  
35    Figure C.5, only if they do not require secondary containment per  
36    [WAC 173-303-630\(7\)\(c\)](#) and meet all other requirements cited in Condition III.15.O.2.a.  
37    [[WAC 173-303-630\(2\), \(4\), \(5\), \(8\), and \(9\)](#)]
- 38    III.15.O.2.b    The Permittees will label containers according to the requirements of Addendum C,  
39    Section C.1.3. The Permittees will also ensure that:
- 40    III.15.O.2.b.i   Appropriate labels are affixed to containers into which wastes are transferred;
- 41    III.15.O.2.b.ii   Container labels are not obscured or are otherwise unreadable;

- 1 III.15.O.2.b.iii Containers are oriented so that labels are readily visible;
- 2 III.15.O.2.b.iv Container labels are removed or completely obscured when the container to which they  
3 are attached is rendered empty. [[WAC 173-303-630\(3\)](#)]
- 4 III.15.O.2.c The Permittees comply with the requirements of [WAC 173-303-630\(4\)](#), incorporated by  
5 reference.
- 6 III.15.O.2.d The Permittees will ensure the physical arrangement and spacing of drums that are stored  
7 in the 331-C Storage Unit are stored in rows no more than two drums wide and with a  
8 separation of at least thirty (30) inches between rows of drums to ensure that all drums  
9 are readily accessible for movement and inspection. [[WAC 173-303-630\(5\)\(c\)](#),  
10 [WAC 173-303-340\(3\)](#)]
- 11 III.15.O.2.e The Permittees will remove any accumulated liquids from container storage areas in the  
12 331-C Storage unit, including individual secondary containment systems (spill pallets,  
13 portable booms, or other commercially available drum containment systems) that may be  
14 used to ensure containers are not in contact with free liquids and to prevent overflow of  
15 the container storage area secondary containment. [[WAC 173-303-630\(7\)](#)]
- 16 III.15.O.2.f The Permittees are authorized to consolidate containerized wastes, and to treat wastes in  
17 containers via consolidation of wastes, decanting of free liquids and addition of  
18 absorbents. Absorbents must satisfy the requirements of [WAC 173-303-140\(4\)\(b\)\(iv\)](#),  
19 incorporated by reference, for wastes to be land disposed in Washington. The Permittees  
20 may not use addition of absorbents for purposes of changing the treatability group of a  
21 waste with respect to the land disposal restriction standards of [40 CFR 268](#), incorporated  
22 by reference by [WAC 173-303-140](#). [[WAC 173-303-140](#)]
- 23 III.15.O.2.g The Permittees will comply with the requirements for air emissions from containers as  
24 described in Addendum C, Section C.8.3. [[WAC 173-303-692](#)]
- 25

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9

1 **Addendum B**

**Waste Analysis Plan**

---

2 **Executive Summary**

3 The 331-C Storage Unit collects, consolidates, and prepares dangerous waste for shipment. Waste is  
4 primarily received from onsite generators and offsite Pacific Northwest National Laboratory (PNNL)  
5 facilities. The purpose of this Waste Analysis Plan (WAP) is to document the process to confirm PNNL's  
6 knowledge about dangerous waste before storing waste at 331-C Storage Unit, as required in  
7 [WAC 173-303-300](#). The purpose of waste analysis at permitted facilities is to assure that waste can be  
8 stored properly.

9 *Waste analysis* at permitted facilities consists of obtaining and reviewing a *detailed chemical, physical,*  
10 *and/or biological analysis* of a waste prior to storage. This detailed analysis can consist of *knowledge* of  
11 the wastes as defined in [WAC 173-303-040](#), typically provided by the generator, data obtained by direct  
12 testing, or a combination of both. When the analysis provided by the generator relies upon knowledge,  
13 that knowledge must be documented and confirmed. The waste analysis performed by PNNL waste  
14 management staff is used to determine the acceptability of the waste for storage at 331-C Storage Unit.

15 This WAP describes the process for inspection and, if necessary, analysis of wastes received at  
16 331-C Storage Unit to confirm that the waste matches the identity of the waste on the accompanying  
17 shipping documentation. The WAP also contains a description of the sampling methodologies, analytical  
18 techniques, and processes that are undertaken for confirmatory sampling and analysis of dangerous waste  
19 managed in the 331-C Storage Unit. Finally, the WAP describes the records that are maintained in order  
20 to meet requirements specified in the Hanford Facility Dangerous Waste Permit.

21

1 **Definitions**

<b>Term</b>	<b>Definition</b>
Analysis	Obtaining and reviewing information provided by the waste generator and/or provided by other means to confirm the information provided concerning a waste stream.
Compatible	As applied to suitability of containers, tanks or sampling equipment, <i>compatible</i> means the waste will not react with or otherwise damage the container, tank, or sampling equipment such that the ability of the equipment to contain the waste is not impaired. For determination of compatibility for storage, refer to definition of <i>incompatible waste</i> .
Database	The PNNL waste management database (the Integrated Waste Management System) containing profile, confirmation, storage, and shipment information on each container of waste.
Fingerprint Analysis	Testing of significant parameters expected from a waste (as documented in its approved profile) performed after physical transfer of the waste to the 331-C Storage Unit. Fingerprint analysis is intended to verify that the waste transferred to the 331-C Storage Unit matches the profile provided. Fingerprinting is usually performed by visual examination of the waste and/or use of readily available testing methods such as test kits.
Incompatible Waste	Materials/wastes unsuitable for placement in a particular device or facility because it may corrode or decay the containment materials, or is unsuitable for mixing with another waste or material because the mixture might produce heat or pressure, fire or explosion, violent reaction, toxic dusts, fumes, mists, or gases, or flammable fumes or gases. Refer to Table 1.
Inspection	Viewing of the contents of the container, container markings and labeling, number of containers, and/or the container itself as a means of confirming the identity of the waste
Knowledge	Sufficient information about a waste to reliably substitute for direct testing of the waste. To be sufficient and reliable, the <i>knowledge</i> used must provide information necessary to manage the waste in accordance with the requirements of this Addendum. <a href="#">[WAC 173-303-040]</a> Note: <i>Knowledge</i> may be used by itself or in combination with testing to designate as waste pursuant to <a href="#">WAC 173-303-070(3)(c)</a> , or to obtain a detailed chemical, physical, and/or biological analysis of a waste as required in <a href="#">WAC 173-303-300(2)</a> .
Profile	A <i>detailed physical, chemical, and/or biological analysis of a dangerous waste</i> provided by the waste generator in order to allow the 331-C Storage Unit staff to perform waste analysis. The Chemical Disposal/Recycle Request (CDRR) and/or Radioactive Waste Disposal Request (RWDR) at PNNL currently serve as the waste profile. A sample CDRR is shown in Table B.3.
Testing	Performance of a procedure that yields a quantitative or qualitative evaluation of the type and/or quantity of materials present. Sometimes referred to as <i>analysis</i> or <i>laboratory analysis</i> , but for purposes of this procedure, the term <i>testing</i> is used to distinguish it from waste analysis (refer to definition of <i>analysis</i> above).
Verification	Determination that the waste in question is that waste described on the approved profile. Verification may include inspection and/or fingerprint analysis.
Waste Stream	Wastes that are physically or chemically different from each other; wastes that are generated from different types of processes; or wastes that are of the same type, but generated at different points in the process or at different process locations.

## 1 **B. WASTE ANALYSIS PLAN**

### 2 **B.1 UNIT DESCRIPTION**

3 The 331-C Storage Unit (331-C) is a dangerous waste container storage unit owned and operated by DOE  
4 and co-operated by Pacific Northwest National Laboratory (PNNL). The unit is used for the collection,  
5 consolidation, packaging, storage, and preparation for transport and disposal of dangerous waste,  
6 universal waste, and recyclables. It is an integral part of the PNNL waste management system.

#### 7 **B.1.1 Description of Unit Processes and Activities**

8 The 331-C Storage Unit is housed in a one-story metal building with an adjacent covered area constructed  
9 in the early 1970s. The unit is located in the southern portion of the 300 Area, as shown in Addendum A,  
10 and was formerly used for equipment storage. Unit upgrades were completed in 2006 to meet  
11 requirements for storage of dangerous waste. Waste storage activities under temporary authorization  
12 began in February 2006 and received final status under Hanford Facility RCRA Permit, Revision 8B on  
13 January 8, 2007.

14 The 331-C Storage Unit collects, consolidates, packages, stores, and prepares dangerous waste for  
15 shipment. Waste is primarily received from onsite generators and offsite PNNL facilities.

#### 16 **B.1.1.1 How Waste is Accepted, Moved, Processed, and Managed**

17 PNNL's waste management organization maintains a waste management database to support the  
18 identification and tracking of waste from profiling through final disposition, and maintain the information  
19 required by [WAC 173-303-380](#). This section contains information on waste acceptance and analysis.  
20 Waste movement, processing, and management are discussed in Addendum C.

##### 21 **B.1.1.1.1 Narrative Process Descriptions**

22 Nonradioactive chemical wastes are generated by PNNL's research laboratory and support activities,  
23 usually in small quantities. These wastes are managed in accordance with generator requirements prior to  
24 submittal for transfer to 331-C Storage Unit during the accumulation period. Waste streams accepted for  
25 storage at 331-C Storage Unit can be categorized as follows:

26 **B.1.1.1.1.1 Listed Waste from Specific and Nonspecific Sources.** Certain wastes from specific and  
27 nonspecific sources identified in [WAC 173-303-9904](#) (designated with 'F' or 'K' waste codes) are accepted  
28 at 331-C Storage Unit for storage and subsequent shipment. Addendum A identifies the waste codes and  
29 estimated annual management quantities for each. These estimated annual management quantities are the  
30 maximum allowable amounts for storage at 331-C Storage Unit.

31 Spent solvents may be halogenated or nonhalogenated. Spent degreasing solvents (F001) as well as spent  
32 halogenated solvents (F002) are generated primarily in research activities, with a few generated by  
33 maintenance activities. Spent non-halogenated solvents (F003, F004, and F005) are also primarily  
34 generated by research activities, with a few generated by maintenance activities. Manufacturing activities  
35 are not performed at Hanford or PNNL locations; therefore, dangerous waste from specific sources  
36 ('K' waste codes) typically is not generated. However, small quantities of secondary wastes  
37 (e.g. discarded labware and protective clothing) have been generated from time to time by treatability  
38 study and sample analysis activities. These secondary wastes could also be accepted for storage if the  
39 applicable waste code(s) are listed in Addendum A and the waste meets waste acceptance criteria. WPCB  
40 state source waste (PCB electrical equipment waste) has been generated in limited amounts in the past  
41 and could be stored at 331-C Storage Unit if future generating activities occur.

1 **B.1.1.1.1.2** Discarded Commercial Chemical Products. Discarded commercial chemical products are  
2 those described in [WAC 173-303-081](#). Addendum A identifies all of the discarded commercial chemical  
3 products listed in [WAC 173-303-9903](#), as research activities have the potential to generate any of these  
4 wastes. Estimated annual management quantities are given based on prior experience.

5 These wastes ('P' and 'U' waste codes) are typically received at 331-C Storage Unit in the manufacturer's  
6 original container. These containers are usually 4 liters or less in volume, and are glass or polyethylene  
7 jars or bottles, or metal cans. Such wastes may be discarded at the end of a project, as part of a lab  
8 cleanout, or after the passage of an expiration date, that renders the chemical non-useable due to quality  
9 assurance requirements of Laboratory projects.

10 **B.1.1.1.1.3** Characteristic Waste. Some wastes from research activities and maintenance, although not  
11 listed pursuant to [WAC 173-303-081](#) or [-082](#), exhibit one or more characteristics of dangerous waste  
12 described in [WAC 173-303-090](#). Although wastes exhibiting any of these characteristics are routinely  
13 managed at 331-C Storage Unit, the most prevalent waste types are ignitable wastes (D001), corrosive  
14 wastes (D002), solid corrosives (WSC2), and wastes containing chromium (D007) and/or lead (D008).  
15 All characteristic waste codes and estimated annual management quantities are given in Addendum A.  
16 These estimated annual management quantities are the maximum allowable amounts for storage.

17 **B.1.1.1.1.4** Criteria Waste (Toxic and/or Persistent). Wastes from research or maintenance activities  
18 that is not a listed waste and does not exhibit a characteristic of dangerous waste is checked against state  
19 dangerous waste criteria given in [WAC 173-303-100](#). Wastes exhibiting the criteria of toxicity (WT02)  
20 are PNNL's most prevalent waste type. All criteria waste codes and their estimated annual management  
21 quantities are given in Addendum A.

## 22 **B.1.1.1.2 Waste Acceptance Process**

23 **B.1.1.1.2.1** Waste Submittal. The waste analysis process for 331-C Storage Unit begins when the  
24 generating unit completes and transmits a profile to the waste management organization for the waste  
25 stream. This profile is currently submitted electronically into the waste management database by field-  
26 deployed waste management staff. The profile provides the *detailed physical, chemical, and/or*  
27 *biological analysis* of each waste submitted. Information required includes a physical and chemical  
28 description of the waste, accounting for 100% of the contents, and identity and concentration of the  
29 hazardous constituents known or reasonably expected to be in the waste; location and container  
30 information; identity of the waste generator; and the hazards of the waste. Profile information includes  
31 process knowledge and any available testing data on the waste.

32 Profile information must meet the following four distinct information needs for management of dangerous  
33 waste at 331-C Storage Unit.

- 34 • Verify that wastes are properly designated in accordance with [WAC 173-303](#) and whether those  
35 wastes are DW or EHW
- 36 • Identify the applicable treatment standards under [WAC 173-303-140](#) and whether the waste complies  
37 with applicable treatment standards under [WAC 173-303-140](#)
- 38 • Identify and verify specific characteristics of waste in solid, liquid, or solution form
- 39 • Determine how to safely handle, transport, analyze, store, and dispose of the waste.

40 **B.1.1.1.2.2** Evaluation and Acceptance. After a profile is submitted, waste management staff first  
41 performs a consistency check of profile information. For instance, profile data is checked to confirm that  
42 percentages of waste constituents listed add to 100%, physical state is consistent with chemical  
43 description, and that chemicals are compatible with container type. The purpose of this check is to  
44 determine if any process knowledge provided constitutes *knowledge* for purposes of the Dangerous Waste  
45 Regulations, i.e. is adequate to substitute for testing information in order to quantify constituents and

1 characteristics, and enable proper management of the waste in accordance with the Dangerous Waste  
2 Regulations. Any information discrepancies are noted and resolved with the profile submitter.  
3 Discrepancies that cannot be resolved result in rejection of the waste profile.

4 Once the consistency check is complete, waste designation information is verified. Any constituent  
5 regulated under other regulations is also checked (e.g. PCBs, asbestos) and DOT hazard class and packing  
6 group information is determined based on the hazard description given in DOT regulations. Applicable  
7 LDR treatment standards are identified and underlying hazardous constituents (UHC) are identified, as  
8 appropriate. The verified waste codes, other identification, LDR treatment standard and UHC  
9 information, and DOT hazard class and packing group information associated with the waste are  
10 confirmed for correct entry in the waste management database.

11 Once designation verification is complete, the waste management staff determines if a waste is  
12 unacceptable for storage (e.g. waste code not listed in Addendum A), and storage capacity limits  
13 (Table B.2) are checked. If the waste is confirmed to meet the storage type and quantity limitations of  
14 Addenda A, B, and C, it meets the waste acceptance criteria, and is acceptable for storage. The approved  
15 waste is assigned a unique identification number, cell location, and hazard classification. The profile is  
16 noted as *approved*.

17 **B.1.1.1.2.1** Confirmation of Knowledge. In PNNL's experience, process knowledge from the  
18 generator is generally sufficient to meet the requirements for a *detailed chemical, physical, and/or*  
19 *biological analysis* of wastes accepted at 331-C Storage Unit for the following reasons:

- 20 • Wastes stored at 331-C Storage Unit are generated on the Hanford Site and/or by PNNL research  
21 programs who maintain effective administrative control over individual waste generating units (i.e.,  
22 the same organization generates the waste and operates the storage unit).
- 23 • Some wastes stored at 331-C Storage Unit are discarded chemical products for which knowledge of  
24 waste characteristics is available without further analysis.
- 25 • Most of the waste stored at 331-C Storage Unit is a result of research activities that are carefully  
26 controlled and documented; this documentation includes information on chemical constituent inputs  
27 and outputs.

28 To confirm the sufficiency and reliability of the knowledge provided by generators, waste management  
29 activities (e.g. satellite accumulation areas) are co-managed by field-deployed waste management staff.  
30 These staff assists in obtaining the data and other information utilized to prepare the profile, and review  
31 the quality and sufficiency of the information provided in order to confirm that it is adequate for safely  
32 managing the waste. Other methods for confirmation noted in [WAC 173-303-300\(2\)\(a\)](#) may be used  
33 instead of or in conjunction with onsite visits and data review in special situations.

34 Instances where testing may be required by 331-C Storage Unit to corroborate process knowledge include  
35 the following:

- 36 • when waste management personnel have reason to suspect a change in the waste based on  
37 inconsistencies on the profile or in packaging or labeling of the waste
- 38 • when the information submitted previously by a generator does not match the characteristics of the  
39 waste that was submitted
- 40 • when a receiving TSD facility rejects the waste because waste verification at that facility reveals an  
41 inconsistency with the waste profile provided by 331-C Storage Unit

42 Testing is not required when the inconsistency deals with a listing based on process usage (e.g. F001  
43 designation based on use as a solvent).

44 If a waste stream is profiled and multiple shipments of the same waste stream are accepted utilizing the  
45 same approved profile, it must be reevaluated when the generator and/or 331-C Storage Unit personnel

1 have reason to believe the process generating the waste, or the characteristic or the chemical constituents  
2 of the waste stream, have changed, or there is a manifest discrepancy (for wastes received from off-site),  
3 shipping paper discrepancy (receipt of wastes from on-site dangerous waste management units) or failure  
4 of the waste verification process. Even if no such instances occur, the waste stream will be re-profiled  
5 and re-evaluated at least annually.

## 6 **B.1.2 Identification and Classification of Waste**

7 331-C Storage Unit is utilized for container storage of dangerous waste. As a result, the following waste  
8 types are not accepted for storage:

- 9 • Bulk liquid waste (non-containerized)
- 10 • Bulk solids (non-containerized)

11 Dangerous waste containing source, special nuclear, or byproduct material under the Atomic Energy Act  
12 (i.e. mixed waste) is only accepted when already containerized. Such containers are only managed by  
13 holding them for re-shipment at 331-C Storage Unit. No other management or repackaging of mixed  
14 waste is performed at 331-C Storage Unit.

15 Refer to Addendum C, Section C.1.6 for precautions taken in the storage of various types of wastes  
16 (e.g. ignitable, reactive, or incompatible wastes).

17 A wide range of waste container sizes/volumes are typically used to manage wastes at 331-C Storage Unit  
18 due to the variety of research and maintenance activities supported. Refer to Addendum C for a  
19 description of secondary containment and container types and sizes managed. Each secondary  
20 containment sump at the entrances to the 331-C Storage Unit has a capacity of 168 gallons. No individual  
21 container of material requiring secondary containment per [WAC 173-303-630\(7\)](#) in excess of 168 gallons  
22 capacity will be accepted or managed at the unit without management approval and additional secondary  
23 containment system capacity provided as required by Permit conditions established pursuant to  
24 [WAC 173-303-630\(7\)](#).

25 Containerized wastes managed include labpacks conforming to the standards of [WAC 173-303-161](#), and  
26 hazardous debris and contaminated soil as defined in [40 CFR 268.2](#) (incorporated by reference at  
27 [WAC 173-303-140](#)).

28 Along with waste received for storage, 331-C Storage Unit also generates dangerous waste as a byproduct  
29 of waste handling activities. Typically, these wastes include personal protective equipment, rags, and  
30 other spent materials that designate as hazardous waste when discarded. Such wastes are accumulated at  
31 331-C Storage Unit in satellite or 90-day accumulation areas (as appropriate) and a profile submitted for  
32 formal acceptance into the unit.

### 33 **B.1.2.1 Dangerous Waste Numbers, Quantities, and Design Capacity**

34 Refer to Addendum A for the waste numbers, quantities, and design capacity for 331-C Storage Unit.

## 35 **B.2 WASTE CONFIRMATION**

### 36 **B.2.1 Pre-Shipment Review**

37 Once a waste has been accepted per the process in Section B.1.1.1.2, it is scheduled for pickup by Waste  
38 Management staff. At pickup, waste management organization staff visits the generator storage area and  
39 make a final inspection of the waste containers to determine whether the profile and contents label  
40 information match completely, and whether the containers are adequate for transport to and storage at  
41 331-C Storage Unit. The purpose of visual inspection is to confirm that the waste matches the description  
42 in the profile. As a quality assurance/quality control measure, only trained and experienced personnel  
43 conduct visual inspection of wastes to verify that the waste being picked up matches the description  
44 provided by the waste generator and evaluated during the waste verification/waste acceptance process.

1 If the waste is a discarded commercial chemical product, the contents of the container are inspected to  
2 verify that they match the description of the product. For other waste, e.g., spent solvents, waste  
3 descriptions are compared with the products in use at the generating unit to determine if the profile  
4 description is accurate. If, after visual inspection of the waste, any doubt remains as to the identity of the  
5 waste, the waste is not picked up. The generator is required to resubmit the profile with accurate  
6 information.

7 After inspection of the waste at the generating unit, and the information on the profile matches with the  
8 container labeling and visual inspection, the waste is picked up for transport to 331-C Storage Unit. Any  
9 appropriate DOT labeling is applied. In addition, each waste container is labeled with a physical  
10 description of the waste (accounting for 100% of the contents), identity, and concentration of the  
11 hazardous constituents known or reasonably expected to be in the waste, and major risk(s). This  
12 information helps the waste handlers verify safe handling, storage, retrieval, and transportation of  
13 dangerous waste.

14 Most of the waste stored at the 331-C Storage Unit is generated on the Hanford Site and/or by PNNL  
15 research programs within the 300 Area. All transportation of dangerous waste to the 331-C Storage Unit  
16 will be according to the requirements of Permit Condition II.N. Additional requirements for waste  
17 generated outside the 300 Area include proper manifesting (if appropriate) to the 331-C Storage Unit and  
18 proper packaging for transport over public roadways. Although PNNL waste generated outside of the  
19 300 Area is considered to be generated offsite since it may be transported to the 331-C Storage Unit on  
20 roads accessible to the public, it is generated under the same administrative controls as wastes that are  
21 generated *onsite* (i.e., in the 300 Area). Therefore, no distinction is necessary between *on-site* and *off-site*  
22 for PNNL waste with respect to the waste analysis requirements of this WAP.

## 23 **B.2.2 Receipt Verification**

24 The waste acceptance procedure for receipt of waste from both on- and off-site is based on the following  
25 requirements. These verification procedures are summarized in Table B.2.

### 26 **B.2.2.1 Physical Verification Process**

#### 27 **B.2.2.1.1 Inspection of Shipping Papers/Documentation**

28 **B.2.2.1.1.1 Document Verification.** The necessary documentation (e.g. manifest or onsite shipping  
29 paper) for the entire shipment are verified (i.e., signatures are dated, all waste containers included in the  
30 shipment are accounted for and correctly indicated on the shipment documentation, there is consistency  
31 throughout the different shipment documentation, and the documentation matches the labels on the  
32 containers).

33 **B.2.2.1.1.1.1 Response to Significant Discrepancies.** The primary concern during acceptance of  
34 containers for storage is improper packaging or manifest discrepancies. Containers with such  
35 discrepancies are not accepted at the 331-C Storage Unit until the discrepancy has been resolved.  
36 Depending on the nature of the condition, such discrepancies can be resolved using one or more of the  
37 following alternatives.

- 38 • Incorrect or incomplete entries on the uniform hazardous waste manifest or on-site shipping  
39 documentation can be corrected or completed with concurrence of the onsite generator or offsite  
40 generator. Corrections are made by drawing a single line through the incorrect entry. Corrected  
41 entries are initialed and dated by the individual making the correction.
- 42 • The waste packages can be held and the onsite generator or offsite waste generator requested to  
43 provide verbal or written instructions for use in correcting the condition before the waste is accepted.
- 44 • Waste packages can be returned as unacceptable.

- 1 • If a noncompliant dangerous waste package is received from an offsite waste generator, the waste  
2 package is non-returnable because of condition, packaging, etc., and if an agreement cannot be  
3 reached among, the involved parties to resolve the noncompliant condition, then the issue will be  
4 referred to DOE for resolution. Ecology will be notified in writing if a discrepancy is not resolved  
5 within 15 days after receiving a noncompliant shipment. Pending resolution, such waste packages,  
6 although not accepted, might be placed in the 331-C Storage Unit. The package(s) will be segregated  
7 from other waste, and an entry will be made into the 331-C Storage Unit logbook describing the  
8 actions that were taken to store the packages in a safe manner until a resolution has been reached.

9 **B.2.2.1.1.1** Activation of Contingency Plan for Damaged Shipment. If waste shipments arrive at  
10 331-C Storage Unit in a condition that presents a hazard to public health or the environment, the Building  
11 Emergency Procedure is implemented as described in Addendum J, Contingency Plan.

12 **B.2.2.1.1.2** Inspection of Waste Containers. The condition of waste containers is checked to verify  
13 that the containers are in good condition (i.e., free of holes and punctures).

14 **B.2.2.1.1.3** Inspection of Container Labeling. Shipment documentation is used to verify that the  
15 containers are labeled with the appropriate *Hazardous/Dangerous Waste* labeling and associated  
16 markings according to the contents of the waste container.

17 **B.2.2.1.1.4** Acceptance of Waste Containers. 331-C Storage Unit personnel sign the shipment  
18 documents and retain a copy. Any discrepancies and their resolution are recorded in the waste  
19 management database and the Hanford Facility Operating Record, 331-C Storage Unit File.

## 20 **B.2.2.2 Chemical Verification Process**

21 The purpose of chemical verification is to verify that the waste received matches that described in the  
22 waste profile. Onsite and offsite waste received at 331-C Storage Unit will receive chemical verification  
23 at the unit according to the following process.

### 24 **B.2.2.2.1 Exceptions to Chemical Verification**

25 **B.2.2.2.1.1** Laboratory reagents and commercial products such as paint, lubricants, solvent, or cleaning  
26 products are not subject to analytical verification when received in their original containers.

27 **B.2.2.2.1.2** Heterogeneous wastes (such as discarded machinery, shop rags, labpacks, and debris) that  
28 do not yield a representative sample are only subject to the physical screening process.

29 **B.2.2.2.1.3** Asbestos wastes.

30 **B.2.2.2.1.4** Spill cleanup wastes resulting from the spill or release of known materials.

31 **B.2.2.2.1.5** Wastes previously receiving chemical verification at the accumulation area (e.g. North  
32 Richland) in accordance with the requirements of this section B.2.2.2.

33 **B.2.2.2.1.6** Previously packaged mixed waste (Section B.1.2).

34 **B.2.2.2.1.7** Waste designated for listing criteria based on process information (e.g. F001 waste  
35 identified as a used solvent).

### 36 **B.2.2.2.2 Number of Verifications**

37 Five percent of waste containers received from PNNL generating locations will receive chemical  
38 verification each month. The number of containers to be verified in any month is based on five percent of

1 the number of containers received at 331-C Storage Unit during the previous three months, divided by  
2 three, exclusive of those exempt from verification as described in Section B.2.2.2.1 above. Fractional  
3 numbers are rounded upwards. For example, if 40 qualifying containers are received in June  
4 50 containers in July, and 60 containers in August, an average of 50 per month, 3 containers  
5 ( $50 \times 5\% = 2.5$ , rounded to 3) would be sampled and analytically verified. Note that during the first three  
6 months of operation under this WAP, the *previous three months* are the three calendar months preceding  
7 the effective date of this Permit.

8 Ten percent of the number of containers on any shipment from offsite (except PNNL generating  
9 locations) receives chemical verification. If a shipment contains waste from more than one generator, ten  
10 percent of containers from each generator receive chemical verification.

#### 11 **B.2.2.2.3 Selection Process**

12 Randomly selected containers from onsite will receive chemical verification until the required number of  
13 verifications necessary for that month is accomplished. A variety of non-PNNL generating locations and  
14 waste types, if any, will be analyzed to the extent practicable. However, the number of containers  
15 selected from any given shipment will be based on the volume of containers scheduled for pickup during  
16 the current month as well as the number of containers in the individual shipment that are subject to  
17 chemical verification.

#### 18 **B.2.2.2.4 Sampling**

19 Waste containers selected for verification are sampled utilizing the methods in [WAC 173-303-110\(2\)](#) for  
20 representative samples, or utilizing a similar method suitable to the container. For instance, to sample a  
21 one-liter bottle of homogeneous liquid, glass tubing, or a pipet would be utilized to obtain a representative  
22 sample instead of a COLIWASA. Generally, these samples are analyzed immediately, so preservation  
23 techniques are not utilized. If the samples must be stored, they will be preserved in accordance with the  
24 requirements of the analytical technique being utilized (Table B.2).

#### 25 **B.2.2.2.5 Testing Methods**

26 The methods utilized for chemical verification at 331-C Storage Unit are selected based on the  
27 appropriateness for the waste being verified. Tests performed are selected from the following.

28 **Water Miscibility/Separable Organics.** Performed utilizing water solubility Hazcat© test kits per the  
29 instructions given in those kits. These tests are not performed on materials known to be organic  
30 peroxides, ethers, and/or water reactive.

31 **Oxidizers.** Performed utilizing oxidizer Hazcat© test kits per the instructions given in those kits. These  
32 tests are not performed on materials known to be organic peroxides, ethers, and/or water reactive.

33 **pH.** SW-846 Method 9040, 9041, or 9045 (by pH meter or pH paper). This test will not be performed on  
34 organic liquids.

35 **Cyanides.** Performed utilizing cyanide Hazcat© test kits per the instructions given in those kits.

36 **Sulfides.** Performed utilizing sulfide Hazcat© test kits per the instructions given in those kits.

37 **Flashpoint.** Performed utilizing flashpoint tester, e.g. Setaflash tester. Not performed on materials  
38 described as aqueous, or any solids.

39 **Halogenated/Volatile Organics.** Examination with a photoionizer or flame ionizer to determine if the  
40 waste contains volatile organic compounds. Clor-D-Tect© kits may be used to detect organic halogens.

#### 41 **B.2.2.2.6 Quality Assurance/Quality Control for Analytical Verification**

42 Each testing process is subject to QA/QC requirements as follows. The data quality objectives for these  
43 analyses are given in Section B.4.5.

1 **B.2.2.2.6.1** Water Miscibility/Separable Organics – Performed utilizing water solubility Hazcat© test  
2 kits per the instructions given in those kits using test kits that are not older than the expiration date  
3 specified on the kit. Data interpretations are performed utilizing the manufacturer’s instructions for the  
4 test kit.

5 **Oxidizers.** Performed according to manufacturer’s instructions utilizing test kits that are not older than  
6 the expiration date specified on the kit. Data interpretations are performed utilizing the manufacturer’s  
7 instructions for the test kit.

8 **pH.** Calibration of pH meters and pH paper is performed as required by the appropriate method being  
9 used (SW-846 method 9040, 9041, or 9045).

10 **Cyanides.** Performed according to manufacturer’s instructions utilizing test kits that are not older than  
11 the expiration date specified on the kit. Data interpretations are performed utilizing the manufacturer’s  
12 instructions for the test kit.

13 **Sulfides.** Performed according to manufacturer’s instructions utilizing test kits that are not older than the  
14 expiration date specified on the kit. Data interpretations are performed utilizing the manufacturer’s  
15 instructions for the test kit.

16 **Flashpoint.** The flashpoint measurement instrument is calibrated daily (when in use) using material of a  
17 known flash point and according to manufacturer’s instructions.

18 **Halogenated/Volatile Organics.** The photoionizer is calibrated daily (when in use) to a standard gas  
19 mixture in accordance with manufacturer’s instructions. Data interpretations are performed utilizing  
20 observed data (meter readings) with adjustment as necessary based on the relative responsiveness of the  
21 waste compared to the standard mixture utilized for calibration. These adjustments are given in  
22 photoionizer manufacturer’s literature. Clor-D-Tect© tests are performed according to manufacturer’s  
23 instructions utilizing test kits that are not older than the expiration date specified on the kit. Data  
24 interpretations are performed utilizing the manufacturer’s instructions for the test kit.

### 25 **B.2.3 Waste Acceptance**

26 Once waste items have been confirmed by physical and necessary chemical verification, as described  
27 above, the waste is considered *accepted* and placed in the designated location in the unit determined prior  
28 to pickup. Containers of dangerous waste are managed according to the requirements of Addendum C.

## 29 **B.3 SELECTING WASTE ANALYSIS PARAMETERS**

30 Physical and chemical screening parameters are chosen from those in Sections B.3.1 and B.3.2,  
31 respectively, as described in Section B.2.2.2 and B.2.2.3 of this WAP. Parameters for confirmation of  
32 designation and compliance with LDR requirements are given in Section B.3.3. Parameters, methods,  
33 and rationale for physical and chemical screening parameters and the pre-shipment review (Section B.2.1)  
34 are summarized in Table B.2.

### 35 **B.3.1 Physical Screening Parameters**

#### 36 **B.3.1.1 Visual Inspection, Rationale**

37 Waste containers (and contents visible through the container or through an easily and safely opened lid)  
38 are examined to confirm that waste matches the physical description given in the waste profile  
39 documentation. Labeling examination also identifies waste prohibited by LDR requirements related to  
40 downstream TSD unit acceptance criteria. For instance, an organic destined for incineration might  
41 contain acids that the intended facility did not have a permit to treat by DEACT.

1 **B.3.1.2 Visual Inspection, Method**

2 Waste containers are inspected by trained, experienced personnel to verify that it matches the description  
3 in the profile. If the waste is a discarded product, the contents of the container are inspected to verify that  
4 they match the description of the product. For other waste, e.g., spent solvents, waste descriptions are  
5 compared with the products in use at the generating unit. This information is compared to the description  
6 of the waste on the profile. If, after visual inspection of the waste and inquiry of the generating unit  
7 personnel, any doubt remains as to the identity of the waste, the waste is not picked up and required to be  
8 re-profiled by the generator.

9 **B.3.1.3 Visual Inspection, Failure Criteria**

10 Waste does not correlate with the description of the waste (e.g. color, layering, consistency).

11 **B.3.2 Chemical Screening Parameters**

12 **B.3.2.1 Water Miscibility**

13 **Rationale:** Water miscibility/separable organics testing is chosen to confirm that waste matches that  
14 described on waste acceptance documentation, identify separable organics, and/or identify waste  
15 prohibited by LDR requirements related to downstream TSD unit acceptance criteria. Not performed on  
16 organic peroxides, ether, or water-reactive wastes.

17 **Method:** Performed utilizing water solubility Hazcat© test kits per the instructions given in those kits.

18 **Failure Criteria:** Test results do not confirm the presence or absence of constituents of interest.

19 **B.3.2.2 Oxidizer**

20 **Rationale:** The oxidizer test is performed to confirm that waste matches that described on waste  
21 acceptance documentation, and verify waste requires oxidizer management pursuant to  
22 WAC 173-303-395(1)(b) at the 331-C Storage Unit. Not performed on organic peroxides, ether, or water-  
23 reactive compounds.

24 **Method:** HazCat© Oxidizer Screen Test Kit

25 **Failure Criteria:** Test results do not confirm the presence or absence of constituents of interest.

26 **B.3.2.3 pH**

27 **Rationale:** Used to confirm that waste matches that described on waste acceptance documentation and to  
28 verify compliance with [WAC 173-303-395](#)(1)(b) concerning separation of incompatible wastes. (Not  
29 used for solids or organic liquids).

30 **Method:** pH Screen [SW-846](#) Method 9040C or 9045 (pH meter) or 9041A (pH paper).

31 **Failure Criteria:** Test result does not match the pH given in the profile within a 4.0 pH unit tolerance, or  
32 the observed pH results in a designation change (e.g. profiled as non-corrosive, but exhibits a pH  $\leq 2.0$  or  
33  $\geq 12.5$ ).

34 **B.3.2.4 Cyanides**

35 **Rationale:** Confirm that waste matches that described on waste acceptance documentation; verify waste  
36 requires compliance with [WAC 173-303-395](#)(1)(b) concerning separation of incompatible wastes.

37 **Method:** HazCat© Cyanide Screen Test Kit

38 **Failure Criteria:** Test results do not confirm the presence or absence of cyanide.

### 1 **B.3.2.5 Sulfides**

2 **Rationale:** Confirm that waste matches that described on waste acceptance documentation; verify waste  
3 requires compliance with [WAC 173-303-395](#)(1)(b) concerning separation of incompatible wastes.

4 **Method:** HazCat© Sulfide Screen Test Kit

5 **Failure Criteria:** Test results do not confirm the presence or absence of sulfide.

### 6 **B.3.2.6 Flashpoint**

7 **Rationale:** Confirm that waste matches that described on waste acceptance documentation

8 **Method:** Flashpoint measurement instrument

9 **Failure Criteria:** Test results do not confirm the flash point of the waste within a 5% tolerance or result  
10 in a change in designation with respect to the characteristic of ignitability.

### 11 **B.3.2.7 Halogenated/Volatile Organic Compounds**

12 **Rationale:** Confirm that waste matches that described on waste acceptance documentation

13 **Method:** Photoionizer or Flame Ionizer, or Clor-D-Tect Kits©

14 **Failure Criteria:** Test results do not confirm the presence or absence of organics (photoionizer or flame  
15 ionizer testing) or of halogenated organics (Clor-D-Tect Kits).

16 If a waste is determined to have failed any of the tests performed above, the discrepancy resolution  
17 process described in Section B.2.2.1.1.1.1 of this WAP is utilized to resolve the discrepancy. If the  
18 discrepancy cannot be easily resolved, the waste is returned to the generator and must be re-profiled prior  
19 to consideration for acceptance.

### 20 **B.3.3 Other Analysis Parameters**

21 The 331-C Storage Unit does not have any process vents that manage hazardous waste with organic  
22 concentrations of at least 10 parts per million by weight percent, or pumps, or compressors used more  
23 than 300 hours per year that come into contact with hazardous waste with an organic concentration of at  
24 least 10 percent by weight. As a result, no special waste analysis requirements for volatile organics are  
25 required by [WAC 173-303-690](#) or [-691](#).

26 A variety of small volume chemical wastes is generated by PNNL's research laboratory activities. These  
27 containers typically range in sizes from 10 ml to 5 gallons. These wastes are brought to the  
28 331-C Storage Unit and segregated by compatibility for storage (refer to *incompatible waste* in the  
29 definitions section of this WAP) in the unit until enough waste is accumulated to fill a labpack or bulking  
30 container, usually a 30- to 55-gallon drum. All containers having a design capacity greater than 0.1 m<sup>3</sup> to  
31 less than or equal to 0.46 m<sup>3</sup> are equipped with a cover and comply with all applicable Department of  
32 Transportation regulations on packaging hazardous waste for transport under [49 CFR 178](#).

33 DOT approved intermediate bulk packaging may be utilized for some solid (non-dangerous) wastes.  
34 These containers range in size from 0.1 cu yard (27 cu ft) to 1.6 cu yard (43 cu ft) and are approved for  
35 solid waste only. With these limitations in place, no special waste analysis requirements for volatile  
36 organics are required by [WAC 173-303-692](#) (Subpart CC requirements).

## 37 **B.4 SELECTING SAMPLING PROCEDURES**

### 38 **B.4.1 Sampling Strategies**

39 Samples are collected for chemical screening as required by Section B.2.2.2. Sample collection methods  
40 conform to the representative sample methods referenced in [WAC 173-303-110](#)(2).

#### 1 **B.4.2 Sampling Methods**

2 In all instances, sampling methods will conform to the representative sample method referenced in  
3 [WAC 173-303-110\(2\)](#), i.e., ASTM standards for solids and [SW-846](#) for liquids. Some adaptation of the  
4 method may be necessary for small containers being sampled for chemical screening, as discussed in  
5 Section B.2.2.2.4. Exceptions to the methods may also be used if permissible pursuant to  
6 [WAC 173-303-110](#), NRC/EPA *Clarification of RCRA Hazardous Waste Testing Requirements for*  
7 *Low-Level Radioactive Mixed Waste – Final Guidance* ([62 Federal Register 62080](#), November 20, 1997),  
8 Data Quality Objectives, and/or an alternative approved by Ecology pursuant to the Permit modification  
9 process. The specific sampling methods and equipment used varies with the chemical and physical nature  
10 of the waste material and the sampling circumstances.

#### 11 **B.4.3 Selecting Sampling Equipment**

12 Representative samples of liquid waste from containers (vertical *core sections*) are typically obtained  
13 using a composite liquid waste sampler (COLIWASA) or tubing, as appropriate. The sampler is long  
14 enough to reach the bottom of the container in order to provide a representative sample of all phases of  
15 the containerized liquid waste. If a liquid waste has more than one phase, each phase is separated for  
16 individual testing, depending on the waste management pathways of the phases.

17 Other waste types that might require sampling are sludges, powders, and granules. In general, nonviscous  
18 sludges are sampled using a COLIWASA. Highly viscous sludges and cohesive solids are sampled using  
19 a trier, as described in [ASTM](#) Standard D1452-80. Dry powders and granules are sampled using a thief,  
20 as described in [ASTM](#) Standard D346-75.

21 Samplers are constructed of material compatible with the waste. In general, aqueous liquids are sampled  
22 using polyethylene samplers, organic liquids using glass samplers, and solids using polyethylene  
23 samplers. Disposable samplers are used whenever possible to eliminate the potential for cross-  
24 contamination. If non-disposable sampling equipment is used, it is decontaminated between samples as  
25 necessary to ensure subsequent samples are representative of the wastes being sampled.

#### 26 **B.4.4 Sample Preservation**

27 All sample containers, preservation techniques, and hold times follow [SW-846](#) protocol. Many samples  
28 are immediately analyzed at the 331-C Storage Unit and are not preserved.

#### 29 **B.4.5 Establishing Quality Assurance and Quality Control for Sampling**

30 Pacific Northwest National Laboratory is committed to maintaining a high standard of quality for all of its  
31 activities. A crucial element in maintaining that standard is a quality-assurance program that provides  
32 management controls for conducting activities in a planned and controlled manner and enabling the  
33 verification of those activities.

34 The QA/QC objective of the 331-C Storage Unit is to control and characterize errors associated with  
35 collected data and to illustrate that waste testing has been performed according to specification in this  
36 waste analysis plan.

37 The data-quality objectives (DQO) for the waste sampling and data analyses are as follows:

- 38 • Determine if waste samples are representative of the contents of the containers at the time the samples  
39 were taken.
- 40 • Determine if waste accepted for storage meets the 331-C Storage Unit waste-acceptance criteria  
41 (Addendum B).
- 42 • Determine if waste to be accepted match the corresponding waste description in the approved waste  
43 profile.

## **B.5 LABORATORY SELECTION AND QUALITY ASSURANCE/QUALITY CONTROL**

### **B.5.1 Evaluation of Laboratories**

Laboratory selection is limited. Preference will be given to any PNNL facility or other laboratories on the Hanford Facility that exhibit-demonstrated experience and capabilities in four major areas:

- comprehensive written QA/QC program based on DOE-RL requirements specifically for that laboratory
- audited for effective implementation of QA/QC program
- participate in performance-evaluation samples to demonstrate analytical proficiency
- demonstrated ability to produce analytical data meeting the data quality requirements of this WAP.

All laboratories (onsite or offsite) are required to have the following QA/QC documentation:

- Daily analytical data generated in the contracted analytical laboratories are controlled by the implementation of an analytical laboratory QA plan.
- Before commencement of the contract for analytical work, the laboratory will have its QA plan available for review. At a minimum, the QA plan will document the following:
  - sample custody and management practices
  - requirements for sample preparation and analytical procedures
  - instrument maintenance and calibration requirements
  - internal QA/QC measures, including the use of method blanks
  - required sample preservation protocols
  - analysis capabilities

### **B.5.2 Quality Assurance/Quality Control Objectives**

The objective of the QA/QC program is to control and characterize any errors associated with the collected data and to confirm that the data collected is adequate for its intended purpose. Quality-assurance activities, such as the use of standard methods for locating and collecting samples, are intended to limit the introduction of error. Quality-control activities, such as the collection of duplicate samples and the inclusion of blanks in sample sets, are intended to provide the information required to characterize any errors in the data. Other QC activities, such as planning the QC program and auditing ongoing and completed activities, verify that the specified methods are followed and that the QA information needed for characterizing error is obtained. To illustrate that waste testing has been performed according to requirements of this waste analysis plan, activities include:

- Field inspections—performed and documented by waste management staff at the generating location. The inspections primarily are visual examinations but might include measurements of materials and equipment used, techniques employed, and the final products. The purpose of these inspections is to confirm the sufficiency and reliability of the knowledge used for the waste profile.
- Field-testing—performed onsite by 331-C Storage Unit staff (or designee) according to specified procedures or protocol identified by the manufacturer's instructions supplied in the field test kits.
- Laboratory analyses—performed by onsite or offsite laboratories on samples of waste. The purpose of the laboratory analyses is to determine constituents or characteristics present and the concentration or level.

1 The 331-C Storage Unit will assess analytical data used for decision making according to the following  
2 quality standards, as appropriate for the data considered:

- 3 • Precision: Agreement between the collected samples/duplicates for the same parameters, at the same  
4 location, subjected to the same preparation and analytical techniques. Analytical precision also  
5 includes agreement among individual test portions taken from the same sample.
- 6 • Accuracy: Agreement between the observed data and the result of QA samples (e.g. certified  
7 standards, in-house standards, and performance evaluation samples).
- 8 • Representativeness: The degree to which the data accurately represent the waste stream. Criteria  
9 evaluated include number and adequacy of sampling locations, use of appropriate sampling and  
10 analytical methods, and documentation of environmental conditions at time of sampling.
- 11 • Completeness: Amount of data obtained versus amount requested.
- 12 • Comparability: Ability to compare one data set to another. Usually addressed by evaluating proper  
13 use of standard methods prescribed in this WAP.

14 These practices verify that all data and the decisions based on that data are technically sound, statistically  
15 valid, and properly documented.

16 The primary purpose of waste testing is to confirm the waste is acceptable for storage at the  
17 331-C Storage Unit in compliance with the requirements of this WAP. Waste testing also is performed to  
18 verify the safe management of waste being stored and control of the acceptance of waste for storage. The  
19 specific objectives of the waste-sampling and analysis program at the 331-C Storage Unit are as follows:

- 20 • Identify the presence of waste that is incompatible with waste currently stored.
- 21 • Provide a detailed chemical and physical analysis of the waste before the waste is accepted at the  
22 331-C Storage Unit to ensure proper management and disposal.
- 23 • Provide an analysis that is accurate and up-to-date.
- 24 • Ensure safe management of waste undergoing storage at the 331-C Storage Unit.
- 25 • Demonstrate compliance with applicable LDR treatment standards, for waste treated at  
26 the 331-C Storage Unit.
- 27 • Identify and reject waste that does not meet the 331-C Storage Unit acceptance requirements  
28 (e.g., incomplete information).
- 29 • Identify and reject waste that does not meet specifications for the 331-C Storage Unit (e.g., waste  
30 code not given in Addendum A).

### 31 **B.5.3 Laboratory Quality Assurance/Quality Control**

32 All analytical work performed by independent laboratories, is defined, and controlled by a Statement of  
33 Work, prepared in accordance with administrative procedures and requirements of this WAP. The daily  
34 quality of analytical data generated in the analytical laboratories will be controlled by the implementation  
35 of an analytical laboratory QA plan. At a minimum, the plan will document the following:

- 36 • sample custody and management practices
- 37 • requirements for sample preparation and analytical procedures
- 38 • instrument maintenance and calibration requirements
- 39 • internal QA/QC measures, including the use of method blanks
- 40 • required sample preservation protocols following receipt of samples at the laboratory

- 1 • analysis capabilities

2 The types of internal quality-control checks are as follows and are used as specified in the analytical  
3 laboratory's program as described in Section B.5.1:

- 4 • Method Blanks—Method blanks usually consist of laboratory reagent-grade water treated in the same  
5 manner as the sample (i.e., digested, extracted, distilled) that is analyzed and reported as a standard  
6 sample would be reported.
- 7 • Method Blank Spike—A method blank spike is a sample of laboratory reagent-grade water fortified  
8 (spiked) with the analytes of interest, which is prepared and analyzed with the associated sample  
9 batch.
- 10 • Laboratory Control Sample—A QC sample introduced into a process to monitor the performance of  
11 the system.
- 12 • Matrix Spikes— An aliquot of sample spiked with a known concentration of target analyte(s). The  
13 spiking occurs prior to sample preparation and analysis.
- 14 • Laboratory Duplicate Samples—Duplicate samples are obtained by splitting a field sample into two  
15 separate aliquots and performing two separate analyses on the aliquots. The analyses of laboratory  
16 duplicates monitor the precision of the analytical method for the sample matrix; however, the  
17 analyses might be affected by nonhomogeneity of the sample, in particular, by nonaqueous samples.  
18 Duplicates are performed only in association with selected protocols. Duplicates are performed only  
19 in association with selected protocols. Laboratory duplicates are performed on 5 percent of the  
20 samples (1 in 20) or one per batch of samples. If the precision value exceeds the control limit, then  
21 the sample set must be reanalyzed for the parameter in question.
- 22 • Known QC Check Sample—This is a reference QC sample as denoted by [SW-846](#) of known  
23 concentration, obtained from the EPA, the National Institute of Standards and Technology, or an  
24 EPA-approved commercial source. This QC sample is taken to check the accuracy of an analytical  
25 procedure. The QC sample is particularly applicable when a minor revision or adjustment has been  
26 made to an analytical procedure or instrument. The results of a QC-check standard analysis are  
27 compared with the true values, and the percent recovery of the check standard is calculated.

#### 28 PNNL Analytical Chemistry Laboratory QA/QC

29 PNNL's analytical chemistry laboratory may need to be used to analyze samples of potentially radioactive  
30 dangerous waste. It has a rigorous QA plan that verifies that data produced are defensible, scientifically  
31 valid, and of known precision and accuracy, and meets the requirements of its clients.

### 32 **B.5.4 DATA ASSESSMENT**

33 Analytical data will be communicated clearly and documented to verify that laboratory data-quality  
34 objectives are achieved.

35 The acquired data need to be scientifically sound, of known quality, and thoroughly documented. The  
36 DQOs for the data assessment are given in Section B.5.2.

## 37 **B.6 SELECTING WASTE RE-EVALUATION FREQUENCIES**

### 38 **B.6.1 Periodic Re-Evaluation**

39 Periodic re-evaluation is an evaluation of a waste stream that provides verification that the results from  
40 the initial verification are still valid. Periodic re-evaluation of a waste stream also checks for changes in  
41 the waste stream. Most waste stream containers are individually profiled, and hence subject to both  
42 physical and chemical analysis as described in Section B.2.2.1 and B.2.2.2 of this WAP, each time they  
43 are received at 331-C Storage Unit. Any waste stream received by 331-C Storage Unit not re-profiled

1 each time containers of that waste stream are submitted (i.e. *standing profiles*) will be re-evaluated at least  
2 annually.

### 3 **B.6.2 Re-Evaluation for Cause**

4 Re-evaluation of a waste stream under a *standing profile* will also be required if any of the following  
5 occur:

- 6 • The 331-C Storage Unit personnel have reason to suspect a change in the waste, based on  
7 inconsistencies in packaging, labeling, or visual inspection of the waste.
- 8 • The information submitted previously does not match the characteristics of the waste submitted as  
9 identified through fingerprint testing.
- 10 • The process generating the waste changes

## 11 **B.7 SPECIAL WASTE ANALYSIS PROCEDURAL REQUIREMENTS**

### 12 **B.7.1 Procedures for Receiving Onsite and Offsite Waste**

13 Most of the waste stored at 331-C Storage Unit is generated on the Hanford Site and/or by PNNL research  
14 programs within the 300 Area. Additional requirements for waste generated off the Hanford Site include  
15 proper manifesting (if required) to the 331-C Storage Unit and proper packaging for transport over public  
16 roadways. Offsite waste is subject to more stringent chemical verification (Section B.2.2.2.2). Although  
17 PNNL waste generated outside of the 300 Area is considered to be generated offsite since it may be  
18 transported to the 331-C Storage Unit on roads accessible to the public, it is under the same administrative  
19 controls as wastes that are generated onsite (i.e., in the 300 Area).

20 The procedures for receiving waste at 331-C Storage Unit are given in Section B.2.

### 21 **B.7.2 Provisions for Complying with Land Disposal Restriction Requirements**

22 The *Dangerous Waste Regulations* prohibit the land disposal of certain types of wastes. Most of the  
23 waste types stored at the 331-C Storage Unit falls within the purview of these land-disposal restrictions  
24 (LDRs). Information presented below describes how generators and 331-C Storage Unit personnel  
25 characterize, document, and certify waste subject to LDR requirements.

#### 26 **B.7.2.1 Waste Treatment**

27 No permitted waste treatment occurs at 331-C Storage Unit. Waste received may or may not meet the  
28 applicable LDRs determined during the acceptance process (Section B.2). Waste received for storage that  
29 does not meet the applicable LDR treatment standards at the *point of generation* will receive treatment at  
30 offsite facilities.

31 Shipments of waste shall not be accepted from any non-PNNL generator without any required LDR  
32 certification accompanying each shipment. For waste received from non-PNNL generators, the  
33 331-C Storage Unit shall receive the information required by [WAC 173-303-140](#) regarding LDR wastes.  
34 The generator must sign the LDR certification.

#### 35 **B.7.2.2 Sampling and Analytical Methods**

36 Refer to Sections B.4 and B.5 for selection of sampling and analytical methods.

#### 37 **B.7.2.3 Land Disposal Restriction Certification of Treatment**

38 No permitted waste treatment occurs at 331-C Storage Unit. Any certification of treatment received  
39 related to waste stored at 331-C Storage Unit is managed in accordance with the recordkeeping process  
40 described in Section B.8.

## 1 **B.8 RECORDKEEPING**

2 Records associated with the waste-analysis plan and waste-verification program are maintained by the  
3 waste-management organization and are placed in the Hanford Facility Operating Record, 331-C Storage  
4 Unit File. A copy of the profile for each waste stream accepted at the 331-C Storage Unit shall be placed  
5 in the Hanford Facility Operating Record, 331-C Storage Unit File. Organizational units associated with  
6 generator activities maintain their sampling and analysis records. The waste analysis plan shall be revised  
7 through the Permit modification process whenever regulation changes affect the waste analysis plan.

8 The 331-C Storage Unit has and will continue to receive and store restricted or prohibited waste. Because  
9 331-C Storage Unit personnel verify designations and characterization, including LDR determinations,  
10 qualified staff for PNNL-generated waste prepare all notifications and certifications, as required by  
11 40 CFR 268, incorporated by reference by [WAC 173-303-140](#). The 331-C Storage Unit staff collects  
12 information from generators via the waste profile to assure that appropriate LDR treatment standards have  
13 been properly identified, as well as any information documenting compliance with applicable LDR  
14 treatment standards. The notifications and certifications are submitted to onsite and offsite TSD units  
15 during the waste-shipment process. Additionally, any necessary LDR treatment variance requests are  
16 prepared by PNNL qualified staff for U.S. DOE submittal to Ecology for approval.

17 The 331-C Storage Unit staff requires applicable LDR information/notifications from non-PNNL  
18 generators.

19 Where a restricted or prohibited waste does not meet the applicable treatment standards set forth in  
20 [40 CFR 268](#), Subpart D, the 331-C Storage Unit provides to the onsite dangerous waste management unit  
21 or offsite TSD facility a written notice that includes the information required by [40 CFR 268.7](#).

- 22 • In instances where 331-C Storage Unit staff determines that a restricted waste is being managed that  
23 can be land-disposed without further treatment, 331-C Storage Unit staff submits a written notice and  
24 certification to the onsite dangerous waste management unit or offsite TSD facility where the waste is  
25 being shipped, stating that the waste meets applicable treatment standards set forth in [40 CFR 268](#),  
26 Subpart D, incorporated by reference by [WAC 173-303-140](#), and includes the information required by  
27 [40 CFR 268.7](#).

28 The certification accompanying any of the notices previously described is signed by an authorized  
29 representative of the generator and states the following:

30 *I certify under penalty of law that I personally have examined and am familiar with the waste*  
31 *through analysis and testing or through knowledge of the waste to support this certification that the*  
32 *waste complies with the treatment standards specified in [40 CFR 268](#) Subpart D and all applicable*  
33 *prohibitions set forth in [40 CFR 268.32](#) or RCRA Section 3004(d). I believe that the information I*  
34 *submitted is true, accurate, and complete. I am aware that there are significant penalties for*  
35 *submitting a false certification, including the possibility of a fine and imprisonment.*

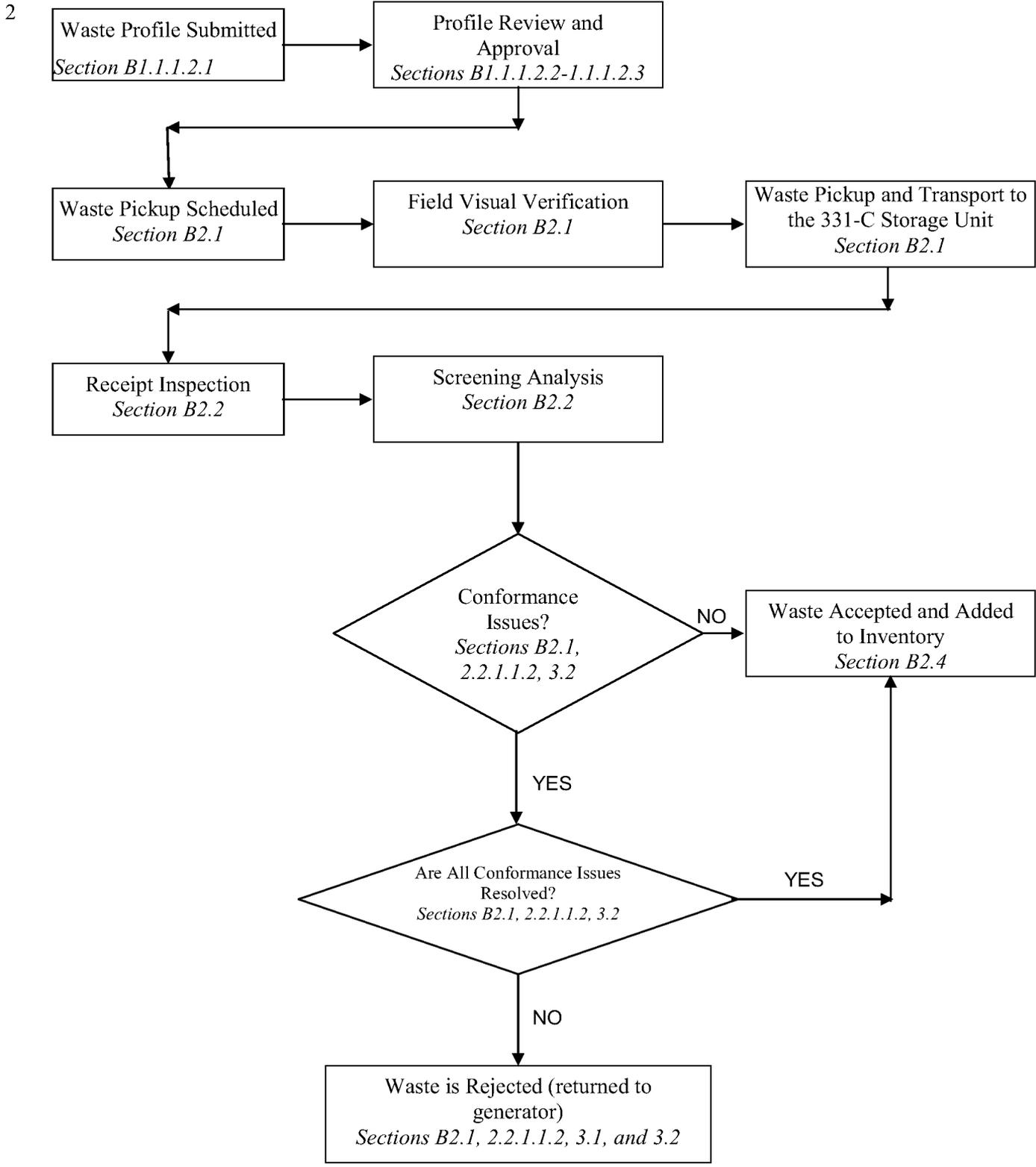
36 Certifications and notifications of treatment are prepared and submitted in accordance with the applicable  
37 requirements of [40 CFR 268.7\(b\)](#), incorporated by reference by [WAC 173-303-140](#).

38 Copies of all notices and certifications described are placed in the Hanford Facility Operating Record,  
39 331-C Storage Unit File and retained for at least 5 years from the date that the waste was last sent to an  
40 onsite dangerous waste management unit or offsite TSD facility. After that time, the notices and  
41 certifications are sent to Records Storage.

1 **B.9 REFERENCES**

- 2 U.S. Environmental Protection Agency. 1994. *Waste Analysis At Facilities That Generate, Treat, Store,*  
3 *And Dispose of Hazardous Waste: A Guidance Manual.* [OSWER 9938.4-03](#), Washington, DC.
- 4 Washington Administrative Code. 2005. *Dangerous Waste Regulations.* [WAC 173-303](#), Olympia, WA.
- 5 Washington Department of Ecology. 2008. *Hanford Facility Resource Conservation and Recovery Act*  
6 *Permit*, WA7 89000 8967, as amended.
- 7

1 **Figure B.1 Waste Confirmation and Acceptance Process for the 331-C Storage Unit**



**Table B.1. Waste Compatibility Chart**

Class or Division <sup>1</sup>		Notes	1.1 1.2	1.3	1.4	1.5	1.6	2.1	2.2	2.3 Gas Zone A	2.3 Gas Zone B	3	4.1	4.2	4.3	5.1	5.2	6.1 Liquids PGI Zone A	7	8 Liquids Only
Explosives	1.1 1.2	A	*	*	*	*	*	X	X	X	X	X	X	X	X	X	X	X	X	X
Explosives	1.3		*	*	*	*	*	X	X	X	X	X	X	X	X	X	X	X	X	X
Explosives	1.4		*	*	*	*	*	O		O	O	O		O				O		O
Very insensitive explosives	1.5	A	*	*	*	*	*	X	X	X	X	X	X	X	X	X	X	X	X	X
Extremely insensitive explosives	1.6		*	*	*	*	*													
Flammable gases	2.1		X	X	O	X				X	O							O	O	
Non-toxic, non-flammable gases	2.2		X			X														
Poisonous gas Zone A	2.3		X	X	O	X		X				X	X	X	X	X	X			X
Poisonous gas Zone B	2.3		X	X	O	X		O				O	O	O	O	O	O			O
Flammable liquids	3		X	X	O	X				X	O					O		X		
Flammable solids	4.1		X			X				X	O							X		O
Spontaneously combustible materials	4.2		X	X	O	X				X	O							X		X
Dangerous when wet materials	4.3		X	X		X				X	O							X		O
Oxidizers	5.1	A	X	X		X				X	O	O						X		O
Organic peroxides	5.2		X	X						X	O							X		O
Poisonous liquids PG I Zone A	6.1		X	X	O	X		O				X	X	X	X	X	X			X
Radioactive materials	7		X			X		O												
Corrosive liquids	8		X	X	O	X				X	O		O	X	O	O	O	X		

**Notation**

**Description**

- (blank) No incompatibility restrictions apply; materials may be stored together. Also true for any hazard class not shown (e.g. state-only dangerous waste)
- X Materials may not be stored together in the same cell; separate secondary containment is required.
- O Materials may not be stored together in the same secondary containment, but may be stored in the same cell if necessary, provided individual secondary containment devices are provided.
- \* Explosives compatibility is described in [49 CFR 174.81\(f\)](#) (refer to table given there)
- A Notwithstanding the 'X' in the table, ammonium nitrate fertilizer may be stored with Division 1.1 or 1.5 materials if necessary.

Source: [49 CFR 174.81](#).

B.19

<sup>1</sup> For definition of these hazard classes, refer to [49 CFR 173.2](#).

1

**Table B.2. Summary of Test Parameters, Rationales, and Methods**

Parameter <sup>(a)</sup>	Method <sup>(b)</sup>	Rationale for Selection
<b>Physical Screening</b>		
Visual inspection	Field method—observe phases, presence of solids in waste	Confirm that waste matches that described on waste acceptance documentation; identify waste prohibited by LDR requirements related to downstream TSD unit acceptance criteria
<b>Chemical Screening</b>		
Water miscibility/separable organics (c)	Water solubility Hazcat © test kits	Confirm that waste matches that described on waste acceptance documentation; identify separable organics; identify waste prohibited by LDR requirements related to downstream TSD unit acceptance criteria
Oxidizer	Oxidizer Screen Hazcat © test kits	Confirm that waste matches that described on waste acceptance documentation; verify compliance with <a href="#">WAC 173-303-395(1)(b)</a>
pH	pH screen <a href="#">SW-846</a> Method 9040, 9041, or 9045	Confirm that waste matches that described on waste acceptance documentation; verify compliance with <a href="#">WAC 173-303-395(1)(b)</a>
Cyanides	Cyanide screen Hazcat © test kits	Confirm that waste matches that described on waste acceptance documentation; verify compliance with <a href="#">WAC 173-303-395(1)(b)</a>
Sulfides	Sulfide screen Hazcat © test kits	Confirm that waste matches that described on waste acceptance documentation; verify compliance with <a href="#">WAC 173-303-395(1)(b)</a>
Flashpoint	Flashpoint measurement instrument	Confirm that waste matches that described on waste acceptance documentation
Halogenated/Volatile Organic Compounds	Photoionizer or Flame Ionizer, or Clor-D-Tect Kits©	Confirm that waste matches that described on waste acceptance documentation
<b>Pre-Shipment Review</b>		
Mercury (total)	Generator knowledge or <a href="#">SW-846</a> Method 7470/7471	Identify waste prohibited by LDR requirements related to downstream TSD unit acceptance criteria.
Polycyclic aromatic hydrocarbons	Generator knowledge or <a href="#">SW-846</a> Method 8270 or 8100	Identify waste not identified in Addendum A, Part A Form, (for waste with >1% solids and for which WP03 could apply)

- (a) Addition parameters can be used on current waste acceptance criteria of the downstream TSD unit. Operation limits transfer/shipments are based on current waste acceptance criteria.
- (b) Procedures based on EPA [SW-846](#), unless otherwise noted. When regulations require a specific method, the method shall be followed.
- (c) These tests will not be performed on materials known to be organic peroxides, ether, and/or water reactive compounds.

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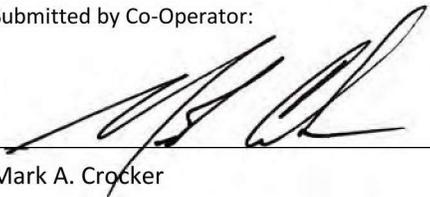
**Hanford Facility RCRA Permit Modification Notification Forms**  
**Part III, Operating Unit 16**  
**400 Area Waste Management Unit**

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**Permit Modification Index**

Page 2 of 5:        Hanford Facility Permit, III.16  
Page 3 of 5:        Addendum G  
Page 4 of 5:        Addendum I, §I.1.1  
Page 5 of 5:        Addendum I, §I.1.2

Submitted by Co-Operator:

  
\_\_\_\_\_  
Mark A. Crocker

9-21-09  
Date

Reviewed by DOE Program Office:

  
\_\_\_\_\_  
Matthew S. McCormick

*APC 09/21/09*  
*JST 9/21/09*  
9/21/09  
Date

<b>Hanford Facility RCRA Permit Modification Notification Form</b>					
Unit: <b>400 Area Waste Management Area</b>	Permit Part <b>Part III, Operating Unit 16</b>				
<p>Description of Modification: Hanford Facility Permit, III.16:</p> <p style="text-align: center;"><b>Part III, OPERATING UNIT GROUP 16 PERMIT CONDITIONS</b></p> <p style="text-align: center;"><b>400 Area Waste Management Unit</b></p>					
<b>UNIT DESCRIPTION:</b>					
<p>The 400 Area Waste Management Unit (WMU) is in the Property Protected Area (PPA) at the Fast Flux Test Facility (FFTF), in Hanford's 400 Area. The 400 Area WMU consists of two container storage units:</p> <ul style="list-style-type: none"> <li>• Fuel Storage Facility (FSF, Building 403). The FSF is a large steel-frame, metal-sided, high bay building. Its dimensions are 34 x 27 x 12 meters (112 x 90 x 40 feet). The container storage unit is on the ground-level floor. In it are two large steel boxes that store sodium-contaminated core component pots (CCPs). The Permittees do not plan to store more mixed waste than is currently stored in the facility; however, the FSF is physically capable of storing additional mixed waste. They will store any additional wastes at the 400 Area WMU in the Interim Storage Area.</li> <li>• Interim Storage Area, 4718 (ISA). The ISA consists of 156 x 247 meters (513 x 247 feet) totally fenced area. This area is for aboveground dry cask storage of spent fuel. A concrete pad in the ISA, which measures 27 x 37 meters (90 x 120 feet), was used for dry cask storage, but will not necessarily be used for mixed waste management. The rest of the ISA surface is gravel. The ISA is generally flat. However, it is graded to drain in accordance with the general drainage plan for the FFTF PPA. Inside the ISA, there is also one building along the west fence line, and open on the side. This building, Building 432A, is authorized for mixed waste management.</li> </ul> <p>The scale map in Addendum A shows the location of each storage unit. The only mixed waste stored in these two container storage units is debris (e.g., piping, equipment, and components) contaminated with elemental sodium and sodium hydroxide (D002). This waste stream is designated as (D001, D003, and WSC2). The 400 Area WMU will not store, treat, or dispose of bulk metallic sodium or bulk sodium hydroxide.</p>					
<b><u>LIST OF ADDENDA SPECIFIC TO OPERATING UNIT GROUP 16</u></b>					
Addendum A	Part A Form, dated October 1, 2008				
Addendum B	Waste Analysis Plan, dated June 30, 2009				
Addendum C	Process Information, dated June 30, 2009				
Addendum D	Groundwater Monitoring – Reserved				
Addendum E	Security Requirements, dated June 30, 2009				
Addendum F	Preparedness and Prevention, dated June 30, 2009				
Addendum G	Personnel Training, dated <del>June 30, 2009</del> <b>September 30, 2009</b>				
Addendum H	Closure Plan, dated June 30, 2009				
Addendum I	Inspection Requirements, dated <del>June 30, 2009</del> <b>September 30, 2009</b>				
Addendum J	Contingency Plan, dated June 30, 2009				
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:					
A.1 General Permit Provisions, Administrative and informational changes					
Modification Approved/Concur <input checked="" type="checkbox"/> Yes <input type="checkbox"/> Denied (state reason below)		Reviewed by Ecology:			
Reason for denial:		 G. P. Davis			
		Date 9-22-09			

**Hanford Facility RCRA Permit Modification Notification Form**

Unit: <b>400 Area Waste Management Area</b>	Permit Part <b>Part III, Operating Unit 16</b>
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**Description of Modification:**

Addendum G:

**400 Area Waste Management Unit Training Matrix**

Permit Attachment 5, Training Category	Training Category*				
	General Hanford Facility Training	Contingency Plan Training	Emergency Coordinator Training	Operations Training	
400 Area WMU DWTP implementing plan	Orientation Program	Emergency Response (Contingency Plan)	Emergency Coordinator Training	General Waste Management	Container Management
<b>Job title/position</b>					
Environmental Compliance Officer	X	X		X	<u>X</u>
Building Emergency Director	X		X		
Non-Resident Waste Service Provider	X			X	
Non-Resident Sampler	X			X	

\*Refer to the 400 Area WMU Dangerous Waste Training Plan (DWTP) for a complete description.

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

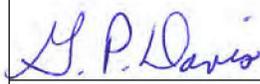
Enter wording of WAC 173-303-830, Appendix I Modification citation:

A.1 General Permit Provisions, Administrative and informational changes

Modification Approved/Concur  Yes  Denied (state reason below)

Reason for denial:

Reviewed by Ecology:

  
 G. P Davis 9-22-09  
 Date

<b>Hanford Facility RCRA Permit Modification Notification Form</b>				
Unit: <b>400 Area Waste Management Area</b>	Permit Part <b>Part III, Operating Unit 16</b>			
Description of Modification: Addendum I, §I.1.1: <b>I.1.1 Types of Inspections</b> Semi-annually a qualified <u>Environmental Compliance Officer</u> , person performs an inspection of the active 400 Area WMU storage areas and containers for any signs of malfunctions, deterioration, discharges, and other anomalies. Specific items and/or problems to be noted during semi-annual inspections include the following: <ul style="list-style-type: none"> <li>• Condition of concrete floor, curbing, and walls in the FSF</li> <li>• Appropriate safety and packaging equipment</li> <li>• Container structural integrity</li> <li>• Containers closed</li> <li>• Inert gas pressure in feed line to CCP boxes in the FSF</li> <li>• Significant corrosion of containers</li> <li>• Evidence of spills or leaks</li> <li>• Container labels and markings in place, legible, and un-obscured</li> <li>• Moisture in modules including condensation in the ISA storage modules</li> </ul> As needed to support work within the 400 Area WMU, personnel will conduct inspections and tests of safety equipment. These inspections and tests include portable fire extinguishers, first aid equipment, and spill kits. For addition information, refer to Table I.1, Inspection Schedule.				
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.8 Enter wording of WAC 173-303-830, Appendix I Modification citation: A.8 General Permit Provisions, Changes to remove permit conditions that are no longer applicable (i.e., because the standards upon which they are based are no longer applicable to the facility).				
Modification Approved/Concur <input checked="" type="checkbox"/> Yes <input type="checkbox"/> Denied (state reason below) Reason for denial:	Reviewed by Ecology: <div style="text-align: right; font-family: cursive; font-size: 1.2em;">                         G. P. Davis      9-22-09                     </div> <div style="text-align: right; font-size: 0.8em;">                         G. P Davis      Date                     </div>			

**Hanford Facility RCRA Permit Modification Notification Form**

<b>Unit:</b> <b>400 Area Waste Management Area</b>	<b>Permit Part</b> <b>Part III, Operating Unit 16</b>
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Description of Modification:

Addendum I, §I.1.2:

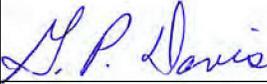
**I.1.2 Frequency of Inspections**

The Environmental Compliance Officer ~~Qualified personnel~~ performs the 400 Area WMU inspections. The following inspection frequencies exist (refer to Table I.1):

- Semi-Annually container inspections
- Semi-Annually inspections
- Daily inspections of those portions of the 400 Area WMU that are in the process of receiving waste or transferring waste out to document any deficiencies noted and to immediately bring deficiencies to the attention of the S & M Operations Manager.
- Annual ignitable/reactive waste storage area inspections

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.8  
 Enter wording of WAC 173-303-830, Appendix I Modification citation:  
 A.8 General Permit Provisions, Changes to remove permit conditions that are no longer applicable (i.e., because the standards upon which they are based are no longer applicable to the facility).

Modification Approved/Concur <input checked="" type="checkbox"/> Yes <input type="checkbox"/> Denied (state reason below) Reason for denial:	Reviewed by Ecology: <div style="text-align: center;">                       _____                      G. P Davis                 </div> <div style="text-align: right;">                     9-22-09                      _____                      Date                 </div>
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**Hanford Facility RCRA Permit Modification**  
**Part III, Operating Unit 16**  
**400 Area Waste management Area**

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Remove and replace the following sections for Part III, Operating Unit 16:

- Remove Operating Unit 16, Unit Specific Conditions dated June 30, 2009, and replace with Unit Specific Conditions dated September 30, 2009
- Remove Addendum G dated June 30, 2009, and replace with Addendum F dated September 30, 2009
- Remove Addendum H dated June 30, 2009, and replace with Addendum H dated September 30, 2009

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1                                   **PART III, OPERATING UNIT GROUP 16 PERMIT CONDITIONS**

2                                   **400 Area Waste Management Unit**

---

3    **UNIT DESCRIPTION:**

4    The 400 Area Waste Management Unit (WMU) is in the Property Protected Area (PPA) at the Fast Flux  
5    Test Facility (FFTF), in Hanford's 400 Area. The 400 Area WMU consists of two container storage  
6    units:

- 7    • Fuel Storage Facility (FSF, Building 403). The FSF is a large steel-frame, metal-sided, high bay  
8    building. Its dimensions are 34 x 27 x 12 meters (112 x 90 x 40 feet). The container storage unit is  
9    on the ground-level floor. In it are two large steel boxes that store sodium-contaminated core  
10   component pots (CCPs). The Permittees do not plan to store more mixed waste than is currently  
11   stored in the facility; however, the FSF is physically capable of storing additional mixed waste. They  
12   will store any additional wastes at the 400 Area WMU in the Interim Storage Area.
- 13   • Interim Storage Area, 4718 (ISA). The ISA consists of 156 x 247 meters (513 x 247 feet) totally  
14   fenced area. This area is for aboveground dry cask storage of spent fuel. A concrete pad in the ISA,  
15   which measures 27 x 37 meters (90 x 120 feet), was used for dry cask storage, but will not necessarily  
16   be used for mixed waste management. The rest of the ISA surface is gravel. The ISA is generally  
17   flat. However, it is graded to drain in accordance with the general drainage plan for the FFTF PPA.  
18   Inside the ISA, there is also one building along the west fence line, and open on the side. This  
19   building, Building 432A, is authorized for mixed waste management.

20   The scale map in Addendum A shows the location of each storage unit. The only mixed waste stored in  
21   these two container storage units is debris (e.g., piping, equipment, and components) contaminated with  
22   elemental sodium and sodium hydroxide (D002). This waste stream is designated as (D001, D003, and  
23   WSC2). The 400 Area WMU will not store, treat, or dispose of bulk metallic sodium or bulk sodium  
24   hydroxide.

25   **LIST OF ADDENDA SPECIFIC TO OPERATING UNIT GROUP 16**

- 26   Addendum A   Part A Form, dated October 1, 2008
- 27   Addendum B   Waste Analysis Plan, dated June 30, 2009
- 28   Addendum C   Process Information, dated June 30, 2009
- 29   Addendum D   Groundwater Monitoring – Reserved
- 30   Addendum E   Security Requirements, dated June 30, 2009
- 31   Addendum F   Preparedness and Prevention, dated June 30, 2009
- 32   Addendum G   Personnel Training, dated September 30, 2009
- 33   Addendum H   Closure Plan, dated June 30, 2009
- 34   Addendum I   Inspection Requirements, dated September 30, 2009
- 35   Addendum J   Contingency Plan, dated June 30, 2009

36   **DEFINITIONS**

37   The term "**CCP**" or **Core Component Pot** means one of 109 cylindrical containers, each containing  
38   3.75 gallons of un-reacted sodium totaling 405 gallons, currently stored as mixed waste in the FFTF Fuel  
39   Storage Facility. The CCPs were previously filled with sodium and used in the FFTF Interim Decay  
40   Storage Vessel to store spent FFTF Driver Fuel Assemblies under inert gas.

1 **ACRONYMS**

2	FFTF	Fast Flux Test Facility
3	CCP	Core Component Pot
4	PPA	Property Protected Area
5	ISA	Interim Storage Area
6	FSF	Fuel Storage Facility
7	WMU	Waste Management Unit

8 **III.16.A COMPLIANCE WITH UNIT-SPECIFIC PERMIT CONDITIONS**

9 III.16.A.1 The Permittees will comply with all conditions in this Chapter and its addenda with  
10 respect to dangerous waste management and dangerous waste management units in the  
11 400 Area WMU, in addition to conditions in Permit Parts I and II.

12 **III.16.B GENERAL WASTE MANAGEMENT**

13 III.16.B.1 The Permittees are authorized to accept, according to the waste acceptance procedure  
14 documented in Addendum B, Section B.2, mixed debris generated from demolition and  
15 decommissioning of the Fast Flux Test Facility reactor system containing or  
16 contaminated with residual elemental sodium and sodium hydroxide. The Permittee will  
17 store these wastes in the ISA.

18 III.16.B.2 The Permittees are authorized to store core component pots generated prior to the  
19 effective date of this permit in two large metal boxes in the 400 Area WMU, FSF.

20 III.16.B.3 The Permittees are authorized store mixed waste in the ISA up to a maximum capacity of  
21 19,000 gallons.

22 III.16.B.4 The Permittees will maintain the physical structure of dangerous waste management units  
23 in the 400 Area WMU as documented in the Unit Description above and Addendum C,  
24 Figures C.1 and C.2.

25 III.16.B.5 The Permittees will maintain appropriate administrative controls and work practices to  
26 ensure that only wastes specified in Permit Condition III.16.B.1, are received by the ISA  
27 for storage, and that no co-mingling or cross-contamination of the waste stream specified  
28 in Permit Condition III.16.B.1 with any other waste stream may occur.

29 **III.16.C WASTE ANALYSIS**

30 III.16.C.1 The Permittees will have an accurate and complete waste profile for the waste stream  
31 identified in Permit Condition III.16.B.1. This waste profile will be signed and dated  
32 upon approval by the 400 Area WMU authorized representative.  
33 [\[WAC 173-303-380\(1\)\(a\)\]](#)

34 III.16.C.2 The Permittees will make a copy of the waste profile required by Permit  
35 Condition III.16.C.1 available upon request. [\[WAC 173-303-815\(2\)\(b\)\(ii\)\]](#)

36 **III.16.D RECORDKEEPING AND REPORTING**

37 III.16.D.1 The Permittees will place the following into the Hanford Facility Operating Record,  
38 400 Area WMU File required by Permit Condition II.I.2. [\[WAC 173-303-380\]](#)

39 III.16.D.2 Records required by [WAC 173-303-380\(1\)\(o\)](#), incorporated by reference;

40 **III.16.E SECURITY**

41 III.16.E.1 The Permittees will post warning signs at all entrances to the FSF and the ISA specified  
42 in Addendum E, Section E.1.1. [\[WAC 173-303-310\(2\)\(a\)\]](#)

- 1 **III.16.F PREPAREDNESS AND PREVENTION**
- 2 III.16.F.1 The Permittees will comply with the Addendum F, Preparedness and Prevention  
3 requirements specific to the 400 Area WMU. [[WAC 173-303-340](#)]
- 4 **III.16.G CONTINGENCY PLAN**
- 5 III.16.G.1 The Permittees will comply with Addendum J, Contingency Plan in addition to the  
6 requirements of Permit Condition II.A when applicable. [[WAC 173-303-350](#)]
- 7 **III.16.H INSPECTIONS**
- 8 III.16.H.1 The Permittees will perform inspections of the 400 Area WMU according to  
9 Addendum I, Inspection Plan for inspecting all monitoring equipment, safety and  
10 emergency equipment, security devices, and operating and structural equipment that help  
11 prevent, detect, or respond to hazards to the public health or the environment pursuant to  
12 the requirements of WAC 173-303-320 [[WAC 173-303-320\(2\)](#)]
- 13 **III.16.I TRAINING PLAN**
- 14 III.16.I.1 The Permittees will include Addendum G unit-specific training requirements in the  
15 written training plan required by Permit Condition II.C. [[WAC 173-303-330](#)]
- 16 **III.16.J OTHER GENERAL REQUIREMENTS**
- 17 III.16.J.1 The Permittees will comply with the requirements of [WAC 173-303-395](#)(1)(a)-(c),  
18 incorporated by reference, for prevention of reaction of ignitable, reactive, or  
19 incompatible wastes.
- 20 III.16.J.2 Land Disposal Restriction Requirements
- 21 III.16.J.2.a The Permittees will ensure a schedule of compliance and any applicable associated work  
22 requirements are included in the land disposal restrictions report required by the  
23 HFFACO Milestone M-26, incorporated by reference by Permit Condition II.O for  
24 treatment and/or acquisition of treatment capacity for wastes which are or are expected to  
25 be stored in the 400 Area WMU container storage units.
- 26 **III.16.K CLOSURE**
- 27 III.16.K.1 The Permittees will close the 400 Area WMU Container Storage Units in accordance  
28 with Addendum H, Closure Plan. [[WAC 173-303-610\(4\)](#)]
- 29 **III.16.L POST CLOSURE**
- 30 Reserved
- 31 **III.16.M CRITICAL SYSTEMS**
- 32 Reserved
- 33 **III.16.N RESERVED**
- 34 **III.16.O CONTAINERS**
- 35 III.16.O.1 Container Management Standards
- 36 III.16.O.1.a The Permittees will ensure that all containers remain in good condition. If a container  
37 holding mixed waste is not in good condition (e.g., severe rusting or corrosion, or  
38 apparent structural defects), or if it begins to leak, the Permittee must transfer the waste  
39 from the container to a container that is in good condition or place the leaking container  
40 in an appropriate over-pack container. [[WAC 173-303-630\(2\)](#)]

- 1 III.16.O.1.b The Permittees shall ensure that all containers are constructed of carbon steel or stainless  
2 steel, or other materials compatible with metallic sodium and sodium hydroxide.  
3 [\[WAC 173-303-630\(4\)\]](#)
- 4 III.16.O.1.c The Permittees must remove spilled or leaked waste within secondary containment  
5 pursuant to [WAC 173-303-630\(7\)\(a\)\(ii\)](#), incorporated by reference.
- 6 III.16.O.1.d Requirements for the Fuel Storage Facility
- 7 III.16.O.1.e The Permittee will maintain an inert gas (argon or nitrogen) cover within each large metal  
8 box to prevent contact of the metallic sodium with the water vapor in the air and the  
9 formation of free liquids.
- 10 III.16.O.1.f The Permittees will place large boxes stored in the FSF in drip pans to ensure a base free  
11 of cracks or gaps, and ensure that the large boxes are elevated or otherwise protected  
12 from contact with accumulated liquids.
- 13 III.16.O.1.g Requirements for the Interim Storage Area
- 14 III.16.O.1.h The Permittee may store wastes in the ISA in standard metal containers (e.g., 208-liter  
15 drums), large metal boxes fabricated to accommodate the size and shape of a particular  
16 component or debris, or unique components removed from FFTF that when closed in  
17 accordance with [WAC 173-303-630\(5\)\(a\)](#) serve as a primary container.
- 18 III.16.O.1.i The Permittees will manage unique components stored in the ISA on the gravel surface  
19 with sufficient open space between components and between components and the fence  
20 line to accommodate inspections and movement of equipment.
- 21 III.16.O.1.j The Permittees will not place wastes in the open-sided structure (Building 432A) within  
22 the ISA identified in the Unit Description above.  
23

**Addendum G**

**Personnel Training**

**400 Area Waste Management Unit Training Matrix**

	Training Category*				
Permit Attachment 5, Training Category	General Hanford Facility Training	Contingency Plan Training	Emergency Coordinator Training	Operations Training	
400 Area WMU DWTP implementing plan	Orientation Program	Emergency Response (Contingency Plan)	Emergency Coordinator Training	General Waste Management	Container Management
<b>Job title/position</b>					
Environmental Compliance Officer	X	X		X	X
Building Emergency Director	X		X		
Non-Resident Waste Service Provider	X			X	
Non-Resident Sampler	X			X	

\*Refer to the 400 Area WMU Dangerous Waste Training Plan (DWTP) for a complete description.

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1 **Addendum I** **Inspection Requirements**

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2 I. INSPECTION REQUIREMENTS .....I.1  
3 I.1 GENERAL INSPECTION REQUIREMENTS.....I.1  
4 I.1.1 Types of Inspections .....I.1  
5 I.1.2 Frequency of Inspections .....I.1  
6 I.2 SCHEDULE FOR REMEDIAL ACTION FOR PROBLEMS REVEALED .....I.2

7

8 **Tables**

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9 Table I.1. Inspection Schedule I.2  
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## I. INSPECTION REQUIREMENTS

This section describes the method and schedule for inspection of the 400 Area WMU. The purpose of the inspections are to prevent malfunctions and deterioration, operating errors, discharges, identify leaking containers, improperly stored containers, and degradation of containment and safety equipment and/or systems (e.g., inert gas pressure in feed line). These inspections help to ensure that situations do not exist that might cause or lead to the release of waste to the environment or that might pose a threat to human health. Abnormal conditions identified by inspections are corrected in accordance with [WAC 173-303-320\(3\)](#).

### I.1 GENERAL INSPECTION REQUIREMENTS

The content and frequency of inspections are described in this section. Inspections, implemented through operating requirements, are documented on inspection checklists and log sheets. Inspection records are maintained in accordance with Permit Condition II.I.1, and contain the following information:

- Date and time of inspection,
- Printed name and the handwritten signature of the inspector,
- Notation of the observations made, and
- Date and nature of any repairs or remedial actions taken

The inspection checklists consist of a listing of items that are to be assessed during each inspection. For each item listed, a yes/no response are made. A 'yes' response means that the item complies with the conditions stated on the checklist. Any problems identified during the inspection, as indicated by a 'no' response on the checklist, are reported to the S & M Operations Manager.

#### I.1.1 Types of Inspections

Semi-annually Environmental Compliance Officer, person performs an inspection of the active 400 Area WMU storage areas and containers for any signs of malfunctions, deterioration, discharges, and other anomalies. Specific items and/or problems to be noted during semi-annual inspections include the following:

- Condition of concrete floor, curbing, and walls in the FSF
- Appropriate safety and packaging equipment
- Container structural integrity
- Containers closed
- Inert gas pressure in feed line to CCP boxes in the FSF
- Significant corrosion of containers
- Evidence of spills or leaks
- Container labels and markings in place, legible, and un-obscured
- Moisture in modules including condensation in the ISA storage modules

As needed to support work within the 400 Area WMU, personnel will conduct inspections and tests of safety equipment. These inspections and tests include portable fire extinguishers, first aid equipment, and spill kits. For addition information, refer to Table I.1, Inspection Schedule.

#### I.1.2 Frequency of Inspections

The Environmental Compliance Officer performs the 400 Area WMU inspections. The following inspection frequencies exist (refer to Table I.1):

- Semi-Annually container inspections
- Semi-Annually inspections
- Daily inspections of those portions of the 400 Area WMU that are in the process of receiving waste or transferring waste out to document any deficiencies noted and to immediately bring deficiencies to the attention of the S & M Operations Manager.

- Annual ignitable/reactive waste storage area inspections

## I.2 SCHEDULE FOR REMEDIAL ACTION FOR PROBLEMS REVEALED

Consistent with [WAC 173-303-320\(3\)](#), if inspections identify leaks, spills, and/or precipitation, in the secondary containment; the resultant material will be removed on a schedule that prevents hazards to human health and the environment. If corrosion or other obvious structural deficiency is observed on containers, corrective actions shall be pursued in a timeframe established by the S & M Operations Manager.

On receipt and before containers are accepted for storage in the 400 Area WMU, personnel inspect each container to confirm appropriate documentation, labeling, and soundness of containers. Depending on the severity of any container anomalies, corrective actions could range from continued monitoring to correcting on discovery or longer if procurement of needed materials and personnel are required. Other conditions that are not a threat to human health and the environment will be dispositioned in a timeframe established by the S & M Operations Manager.

**Table I.1. Inspection Schedule**

Requirement Description	Inspection Frequency	Types of Problems
Inspections of those portions of the 400 Area WMU that are in process of receiving or transferring waste out	Daily	Document any deficiencies noted and immediately bring the deficiencies to the attention of the S & M Operations Manager
Container storage areas (FSF)	Semi-Annually	Condition of concrete floor, container structural integrity, containers closed, inert gas pressure in feed line to large boxes, significant corrosion of containers, evidence of leaks, spills, accumulated liquids, and open and improperly sealed containers, container labels and markings in place, legible, and unobstructed
Container storage, large boxes, and unique components (ISA)	Semi-Annually	Condition of containers/large boxes/unique components structural integrity, containers closed, significant corrosion of containers, evidence of leaks, spills, accumulated liquids, and open and improperly sealed containers, container labels and markings in place, legible, and unobstructed, and moisture and condensate in the storage modules
Portable fire extinguishers, first aid kits, and spill response kits	As needed to support work within the 400 Area WMU	Check for equipment not present and test, as appropriate
Ignitable or reactive waste	Annual	Storage in compliance with <a href="#">WAC 173-303-395(l)(d)</a>

**Hanford Facility RCRA Permit Modification Notification Forms**

**Part IV, Corrective Action Unit 2**

**100-NR-2 Operable Unit**

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Index

Page 2 of 2: Chapter IV.2

Reviewed by DOE Program Office:

  
Matthew S. McCormick

  
Date

<b>Hanford Facility RCRA Permit Modification Notification Form</b>					
Unit: <b>100-NR-2 Operable Unit</b>	Permit Part <b>Part IV, Corrective Action Unit 2</b>				
<p><u>Description of Modification:</u></p> <p>Chapter IV.2: Delete and remove Chapter IV.2.</p> <p>Basis: Permit Condition II.Y.2.a, and TPA Change Request C-08-06, Designation of Appendix C, Groundwater Operable Units and River Corridor Source Operable Units as CERCLA Past Practice.</p>					
<p><b>PART IV CORRECTIVE ACTION UNIT 2 UNIT SPECIFIC CONDITIONS</b></p> <p><b>100-NR-2 Operable Unit</b></p>					
<p>The 100 NR-2 is the ground water below 100 NR-1, which has been contaminated as a result of past intentional disposal operations and unintentional spills of hazardous substances. As prescribed by Permit Conditions II.Y of this Permit, this Chapter sets forth the corrective action requirements for the 100 NR-2.</p> <p><b><del>IV.2.A COMPLIANCE WITH APPROVED CORRECTIVE MEASURES STUDY</del></b></p> <p>The Permittees shall comply with all requirements set forth in Corrective Action Unit 2. Enforceable portions are listed below; all subsections, figures, and tables included in these portions are also enforceable, unless stated otherwise:</p> <p><b>Corrective Action Unit 2:</b></p> <p>Chapter 1.0 — Comparative Analysis of Remedial Alternatives            Chapter 2.0 — Recommended Corrective Measures            Chapter 3.0 — Applicable or Relevant and Appropriate Requirements            Chapter 4.0 — Cost Estimates            Chapter 5.0 — Compliance with ARARS            Chapter 6.0 — Recommended Alternative            Chapter 7.0 — Integration Plan for Decontamination and Demolition and Remedial Action in the 100-N Area</p>					
WAC 173-303-830 Modification Class Please mark the Modification Class:		Class 1	Class 1	Class 2	Class 3
			X		
Enter relevant WAC 173-303-830, Appendix I Modification citation number: A.8 Enter wording of WAC 173-303-830, Appendix I Modification citation: Changes to remove permit conditions that are no longer applicable (i.e., because the standards upon which they are based are no longer applicable to the facility).					
Modification Approved/Concur <input type="checkbox"/> Yes <input type="checkbox"/> Denied (state reason below) <u>Reason for denial:</u>			Reviewed by Ecology:		
			_____ G. P Davis	_____ Date	