U.S. Department of Energy
Office of River Protection
P.O. Box 450, MSIN H6-60
Richland, Washington 99352

0097484

11-ESQ-163

JUL 07 2011

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

Dear Ms. Hedges:

SUBMITTAL OF HANFORD FACILITY RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) PERMIT MODIFICATION NOTIFICATION FORM 24590-HLW-PCN-ENV-10-015

Reference: WA7890008967, "Dangerous Waste Portion of the Hanford Facility Resource Conservation and Recovery Act Permit for the Treatment, Storage, and Disposal of Dangerous Waste, Operating Unit 10, 'Waste Treatment and Immobilization Plant.'"

This letter transmits Hanford Facility RCRA Permit Modification Notification Form 24590-HLW-PCN-ENV-10-015, attached, for the Washington State Department of Ecology (Ecology) review and approval. The form describes a requested Class 1 modification requiring concurrence or approval to the Reference.

Modification Notification Form 24590-HLW-PCN-ENV-10-015 submits Equipment Assembly Drawing (24590-HLW-MV-HDH-00003) and Mechanical Data Sheet (24590-HLW-MVD-HDH-00003) for Waste Neutralization Vessel HDH-VSL-00003 to replace the permitted drawing and data sheet currently found in Appendix 10.6 of the Reference.

Ecology was provided an opportunity to review the modification notification form and the associated information and comments were dispositioned.

If you have any questions, please contact me, or your staff may contact Gae M. Neath, Environmental Compliance Division, (509) 376-7828.

Sincerely,

Brian A. Hahn for

Paul G. Harrington, Acting Assistant Manager
Office of Environmental Safety and Quality

ESQ:GMN

Attachment

cc: See page 2

JUL 0 7 2011

cc w/attach:
B. L. Curn, BNI
B. Dubiel, BNI
B. G. Erlandson, BNI
P. A. Fisher, BNI
S. K. Murdock, BNI
F. M. Russo, BNI
Administrative Record (WTP H-0-8)
BNI Correspondence
Environmental Portal, LMSI

cc electronic:
A. S. Carlson, Ecology
S. L. Dahl, Ecology (1 hard copy)
M. K. Faber, Ecology
M. E. Jones, Ecology
D. W. Mears, Ecology
J. J. Wallace, Ecology (2 hard copies)
~~T. R. Williams, Ecology~~
J. F. Ollero, MSA
A. C. McKarns, RL
D. J. Sommer, SCS

cc w/o attach:
D. M. Busche, BNI
J. Cox, CTUIR
S. G. Harris, CTUIR
D. McDonald, Ecology
G. P. Bohnee, NPT
K. Niles, Oregon Energy
S. R. Weil, RL
R. Jim, YN

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Attachment
11-ESQ-163
(7 Pages Some Double-Sided)

Hanford Facility RCRA Permit Modification Notification
Form 24590-HLW-PCN-ENV-10-015

Quarter Ending 09/30/2011 24590-HLW-PCN-ENV-10-015

Hanford Facility RCRA Permit Modification Notification Form

Part III, Operating Unit 10

Waste Treatment and Immobilization Plant

Index

Page 2 of 3: Hanford Facility RCRA Permit, Part III, Operating Unit 10, Waste Treatment and Immobilization Plant

Replace Equipment Assembly Drawing for Waste Neutralization Vessel (HDH-VSL-00003) in Appendix 10.6 of the Dangerous Waste Permit (DWP)

Replace Mechanical Data Sheet for Waste Neutralization Vessel (HDH-VSL-00003) in Appendix 10.6 of the DWP

Submitted by Co-Operator:		Reviewed by ORP Program Office:	
Donna Busche			7/6/11
D. M. Busche	Date	D. L. Noyes	Date

Quarter Ending 09/30/2011 24590-HLW-PCN-ENV-10-015

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

Description of Modification:

The purpose of this Class 1 prime modification is to update and replace the following Equipment Assembly Drawing and Mechanical Data Sheet in Appendix 10.6 of the DWP:

Appendix 10.6			
Replace:	24590-HLW-MV-HDH-P0003, Rev. 1	With:	24590-HLW-MV-HDH-00003, Rev. 1
	24590-HLW-MVD-HDH-P0003, Rev. 2		24590-HLW-MVD-HDH-00003, Rev. 5

This modification requests Ecology approval and incorporation into the permit the specific changes to the above documents that are identified by notes, clouds, and revision triangles. Revisions are the result of ongoing design. Significant changes are summarized below:

24590-HLW-MV-HDH-00003, Rev. 1

- Updated nozzle table
- Revised Notes 1 through 8; added Notes 9 through 14
- Deleted Holds 1 through 7
- Revised plan view and section views
- Added Details 4 through 6. Added information on sparger, sparger support, and sparger standoff (Details 4 and 5). Added information on the radar level detection system (Detail 6)

24590-HLW-MVD-HDH-00003, Rev. 5

- Revised vessel Service/Contents (included 30% hydrogen peroxide as a content)
- Lowered specific gravity and maximum operating volume
- Revised operating external pressure and temperature and minimum design metal temperature
- Updated minimum and maximum operating pressures, temperatures, specific gravities, and content levels
- Updated number of cycles on equipment cyclic data sheet
- Specified nozzle loads and added reference for nozzle loads
- Added, deleted and changed notes; provided references for data sheet

This modification requests Ecology approval and incorporation of the following list of outstanding change documents into the permit. Although not yet incorporated into the revised documents attached to this PCN, this list of outstanding DCNs are intended to be incorporated into this modification:

24590-HLW-MVN-HDH-00014

Quarter Ending 09/30/2011 24590-HLW-PCN-ENV-10-015

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

Enter relevant WAC 173-303-830, Appendix I Modification citation number: 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 [1]1 modification. WAC 173-303-830(4)(d)(ii)(A) states, "Class 1 modifications apply to minor changes that keep the permit current with routine changes to the facility or its operation. These changes do not substantially alter the permit conditions or reduce the capacity of the facility to protect human health or the environment. In the case of Class 1 modifications, the director may require prior approval."

Modification Approved/Concur: ☐ Yes ☐ Denied (state reason below) Reason for denial:	Reviewed by Ecology:
	J. J. Wallace Date

BECHTEL	**MECHANICAL DATA SHEET: VESSEL**	**PLANT ITEM No.** ***24590-HLW-MV-HDH-VSL-00003***

R11273761

Project:	***RPP-WTP***	P&ID:	***24590-HLW-M6-HDH-00002***
Project No:	***24590***	Vessel Drawing	***24590-HLW-MV-HDH-00003***
Project Site:	***Hanford***		
Description:	***Waste Neutralization Vessel***		

Reference Data

Charge Vessels (Tag Numbers)	***N/A***	ISSUED BY
Pulsejet Mixers / Agitators (Tag Numbers)	***N/A***	RPP-WTP PDC
RFDs/Pumps (Tag Numbers)	***N/A***	

Design Data

Quality Level		***CM***	Fabrication Specs	***24590-WTP-3PS-MV00-T0001***		
Seismic Category		***SC-III***	Design Code	***ASME VIII Div 1***		
Service/Contents		***0.5 M Cerium Nitrate, 1M Nitric Acid, 30% Hydrogen Peroxide, 5M NaOH, Demin Water***	Code Stamp	***Yes***		
Design Specific Gravity		***1.03***	NB Registration	***Yes***		
Maximum Operating Volume	gal	***4650 (Note 4)***	Weights (lbs)	Empty	Operating	Test
Total Volume	gal	***5315 (Note 4) actual***	Estimated	***17,500***	***58,000***	***62,000***
Environmental Qualification		***N/A***	Actual *			

Inside Diameter	inch	***84***			Wind Design	***None***	
Length/Height (TL-TL)	inch	***204***			Snow Design	***None***	
		Vessel Operating	Vessel Design	Coil/Jacket Design	Seismic Design	***24590-WTP-3PS-MV00-T0002*** ***24590-WTP-3PS-FB01-T0001***	
Internal Pressure	psig	***Atm***	***15***	***N/A***	Seismic Base Moment *	ft*lb	
External Pressure	psig	***5.8***	***FV***	***N/A***	Postweld Heat Treat	***None***	
Temperature	°F	5 ***122***	***237***	***N/A***	Corrosion Allowance	Inch	***0.04***
Min. Design Metal Temp.	°F	***59***			Hydrostatic Test Pressure *	psig	

Materials of Construction

Component	Material	Minimum Thickness / Size	Containment
Top Head	***SA-240 304 (Note 2)***	***See Drawing***	***Auxiliary***
Shell	***SA-240 304 (Note 2)***	***See Drawing***	***Primary***
Bottom Head	***SA-240 304 (Note 2)***	***See Drawing***	***Primary***
Support	***SA-240 304 (Note 2)***	***See Drawing***	***N/A***
Jacket/Coils/Half-Pipe Jacket	***SA-240 304 (Note 2)***	***See Drawing***	***N/A***
Internals	***SA-240 304 (Note 2)***	***See Drawing***	***Thermowells Primary***
Pipe	***SA-312 TP304 (Note 2)***	***See Drawing***	***Note 1***
Forgings/ Bar stock	***SA-182 F304 (Note 2)***	***See Drawing***	***N/A***
Bolting/Gaskets	***SA193 B8 CLASS 2, SPIRAL WOUND GRAPHITE FILLED***	***N/A***	***N/A***

Miscellaneous Data

Orientation	***Vertical***	Support Type	***Skirt***
Insulation Function	***Not Applicable***	Insulation Material	***Not Applicable***
Insulation Thickness (inch)	***Not Applicable***	Internal Finish	***Note 3***
		External Finish	***Note 3***

BECHTEL	**MECHANICAL DATA SHEET: VESSEL**	**PLANT ITEM No.** ***24590-HLW-MV-HDH-VSL-00003***

Remarks

**** To be determined by the vendor.***
Note 1: Nozzle necks below max. operating level are primary, others auxiliary.
Note 2: Maximum carbon content of 0.030% for all welded components.
Note 3: Welds descaled as laid.
Note 4: Vessel volumes are approximate and do not account for manufacturing tolerances, nozzles, and displacement of internals.
Notes 5 through 8: Deleted 5
Note 9: Contents of this document are dangerous waste permit affecting.
Note 10: Revision 5 Add radionuclide disclaimer and EN&S review check box. Updated heat transfer summary. 5

Equipment Cyclic Data Sheet

Component Plant Item Number:	***HDH-VSL-00003***
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-240-304 with 0.030 % carbon.***
Design Life	***40 Years***
Component Function and Life Cycle Description	***The parent vessel is cyclically loaded and discharged in batch operation. In each batch operation, 2,037 gallons of liquid content is loaded and discharged.***

Load Type		Min	Max	Number of Cycles	Comment
Design Pressure	psig	***FV***	***15***	***10***	***Nominal assumption***
Operating Pressure	psig	***-5.8***	***0***	***14600***	
Operating Temperature	°F	***59***	***212***	***14600***	
Contents Specific Gravity		***1.03***	***1.18***	***14600***	
Contents Level	inch	***14***	***192***	***14600***	
Localized Features					
Nozzles **N06/N06A, N07/N07A, N29/N29A, N30/N30A**		***59***	***212***	***Cycles: 87,600 (6 per day, 1 hour each cycle)*** ***Assume vessel temperature is at 59° F***	
Nozzle Loads				***Nozzles shall be designed or reinforced to meet the Loads in 24590-WTP-3PS-MV00-T0001, Table A-2***	

Notes for Cyclic Data

- ***Cycle Increase: The Seller must increase the numbers of operational cycles given above by 10% to account for commissioning duty unless otherwise noted.***
- ***Nozzles N06/N06A, N07/N07A, N29/N29A, N30/N30A, and associated piping connected to ejectors shall be fatigue assessed/analyzed for pressure/temperature cycles over 40 years from 0 psig at 59°F to 109 psig at 358°F temperature. The pressure cycles shall coincide with temperature cycles.***
- ***Nozzles N04, N32, are spares***
- ***Heat Transfer summary for vessel:*** 5
  - ***A. Cell Ambient Temperature: Min. 59° F, Max. 95° F***
  - ***B. Only one ejector can operate at a time due to system limitations, steam rack only supports one ejector.***

BECHTEL	**MECHANICAL DATA SHEET: VESSEL**	**PLANT ITEM No.** ***24590-HLW-MV-HDH-VSL-00003***

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.

5

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

5

Approval

Rev	Description	Vessel Engr	Checker	System Engr	E&NS	Reviewer	Approval	Date
0	Issued for Purchase	C. Slater	T. Galioto/ C. Slater	K. Minton	N/A	D. Yarbrough	M. Hoffmann	01/22/04
1	Issued for Supplemental Information to Vendor	B. Balakrishnan	T. Galioto/ C. Slater	U. Olivas	N/A	J. Rouse/ E. Isern	M. Hoffmann	11/30/04
2	Issued for Supplemental Information to Vendor	S. L. Lee	S. Cross/ C. Slater	U. Olivas	N/A	R. Peters/ E. Isern/ D. Adler	M. Hoffmann	04/11/05
3	Revised as Noted	S. L. Lee	R. Peter	S. Cross	N/A	E. Isern	M. Hoffman	5/27/05
4	Revised as Noted Incorporated 24590-HLW-MVN-HDH-00009 24590-WTP-M6N-M80T-00002 24590-WTP-M6N-M80T-00005	R. Wight	M. Seed	M. Kufahl	B. Dubiel	J. Julyk	J. Julyk	10/26/10
5	Revised as Noted	R. Wight R. Wight	M. Seed M Seed	R. Peters R Peters	B. Dubiel B Dubiel	NA	D. Wilsey D J Wilsey	5/6/11

REFERENCES for Data Sheet: 24590-HLW-MVD-HDH-00003, Rev. 5 *(For BNI Use Only)*

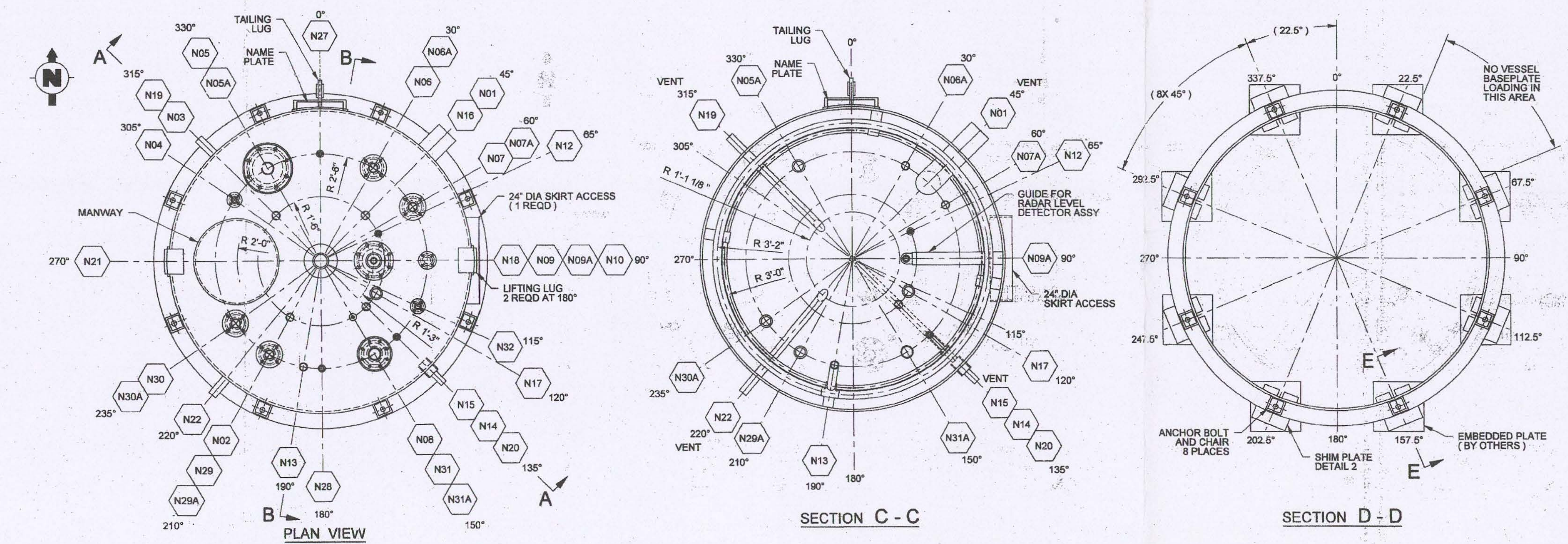
Component Tag No(s): 24590-HLW-MV-HDH-VSL-00003

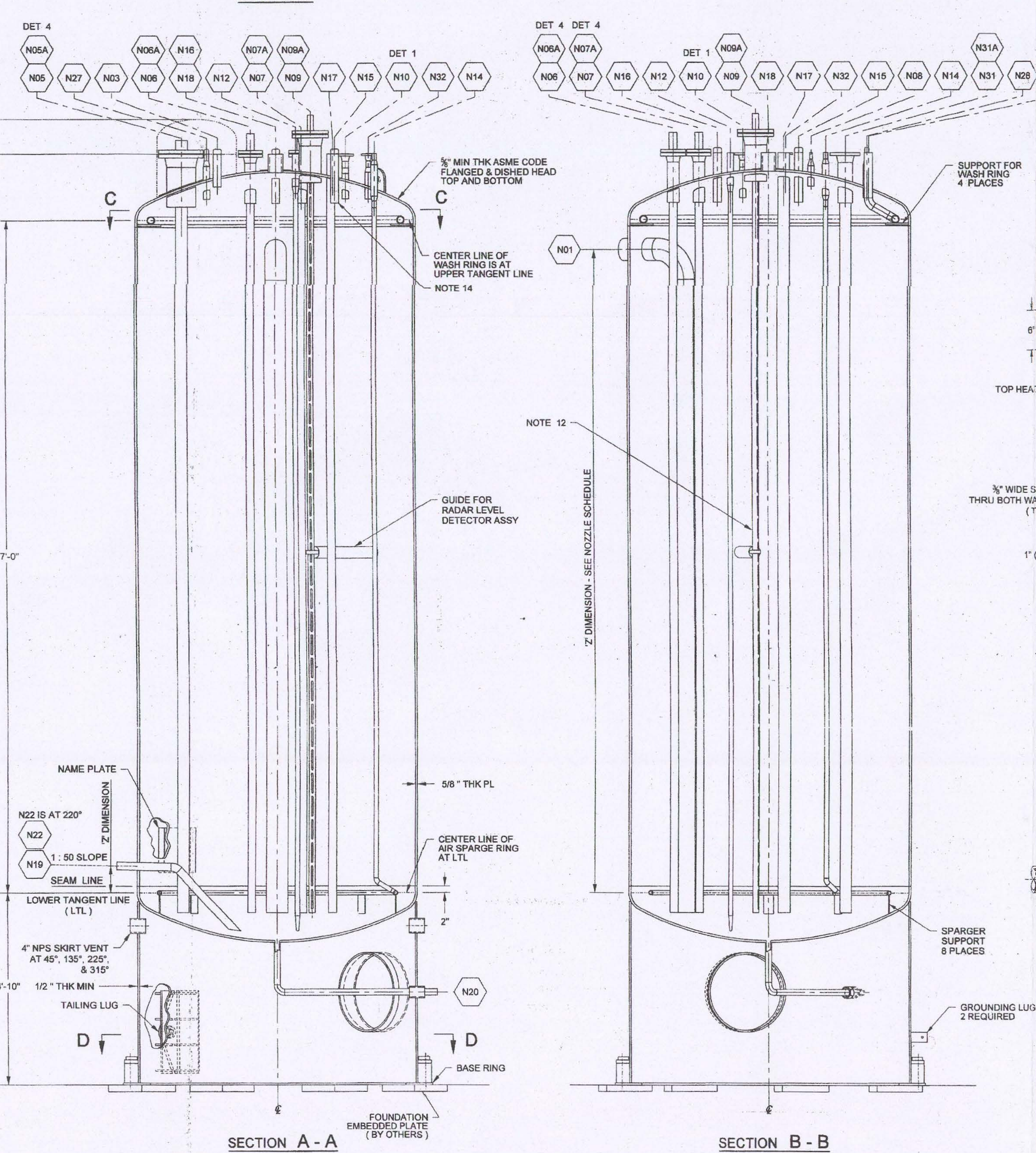
Data	Document #	Rev	Document Title
Quality Level	24590-HLW-M6-HDH-00002	4	*P&ID HLW Canister Decontamination Handling System (CM)*
Seismic Category	24590-HLW-M6-HDH-00002 24590-WTP-PSAR-ESH-01-002-04	4 04S	*P&ID HLW Canister Decontamination Handling System (III)* *Preliminary Documented Safety Analysis; HLW Facility Specific Information (Table 3A-10)*
Design Specific Gravity	24590-HLW-M4C-HDH-00001 (See Note 2)	2	*HLW Canister Decontamination Mass and Heat Balance (1.03) - Table 8.6, Stream 20*
Total Volume	24590-CM-POA-MVA0-00018-01-00002	00D	*COMPRESS Pressure Vessel Design Calculations (5315 gallons) p. 206*
Operating Volume	24590-HLW-M6C-HDH-00001	C	*HLW Waste Neutralization Vessel HDH-VSL-00003 Sizing Calculation (4650 gal)*
Inside Diameter	24590-HLW-M6C-HDH-00001	C	*HLW Waste Neutralization Vessel HDH-VSL-00003 Sizing Calculation (7')*
Length TL-TL	24590-HLW-MV-HDH-00003	1	*Equipment Assembly Waste Neutralization Vessel HDH-VSL-00003*
Design Pressure (internal & external)	24590-HLW-MVC-30-00001	B	*HLW Vessel Cyclic Datasheet Inputs (internal 1: external FV)*
Operating Pressure (internal & external)	24590-HLW-MVC-HDH-00005	A	*HDH Vessel and Tank Process data (external -5.8 psi: internal ATM)*
Operating Temp	24590-HLW-M4C-HDH-00001	1	*HLW Canister Decontamination Mass and Heat Balance (122.3 dF)*
Design Temp (max)	24590-WTP-GPG-M-017 24590-HLW-MVC-30-00001	8 B	*Design Parameters & Test Pressures for Equipment & Piping (Section 3.2 Operating Temperature + 25°F is 237°F)* *HLW Vessel Cyclic Datasheet Inputs (internal 1: external FV)*
Design Temp (min)	24590-WTP-DB-ENG-01-001	1P	*Basis of Design (59°F)*
Corrosion Allowance, Erosion allowance	24590-HLW-N1D-HDH-00005	4	*Corrosion Evaluation (0.04)*
Materials of Construction	24590-HLW-N1D-HDH-00005	4	*Corrosion Evaluation (304, Max 0.030% C)*
Cyclio Data (Vessel)	24590-HLW-MVC-30-00001 (See Note 2)	B	*HLW Vessel Cyclic Datasheet Inputs*
Nozzle Loads	24590-WTP-3PS-MV00-T0001	4	Pressure Vessel Design and Fabrication, Section 3.7 and Table A-2
Nozzle Design Temperatures and Pressures	24590-HLW-MVC-30-00001 24590-HLW-M6X-HDH-00004	B 4	*HLW Vessel Cyclic Datasheet Inputs* *Line List for 24590-HLW-M6-HDH-00002, Rev. 4*
Process Chemicals	24590-HLW-MVC-HDH-00005	4	*HDH Vessel and Tank Process Data Calculation*
Ejector Transfers/Steam Rack	24590-HLW-J3-HDH-00001 thru 00015 and 01001 thru 01010	0	*HDH System Logic Diagrams*
Cell Ambient Temperature	24590-HLW-U0D-W16T-00001	1	*HLW Room EEQ Data*

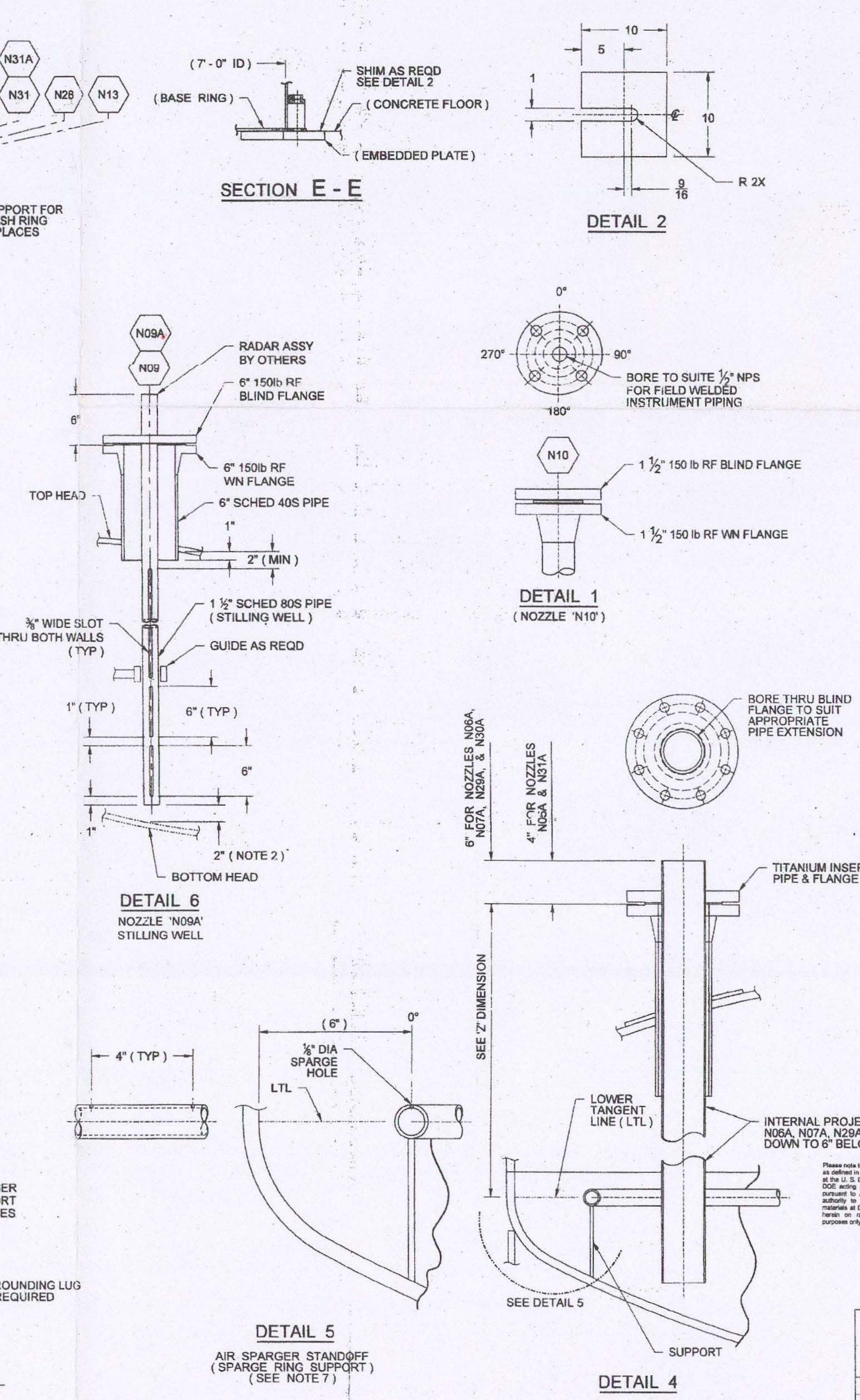
Notes:

Note 1: Wind and snow design do not apply. This vessel is located in room H-B035, at the -14' level of the High Level Waste Facility.

Note 2: The specific gravity for cyclic data is taken from the cyclic data calculation dated 2007. The value of 1.18 is conservative and will be used for cyclic evaluation. The Mass and heat balance for the system 24590-HLW-M4C-HDH-00001 dated December 2010 shows that 83 gallons of 5M sodium hydroxide at 1.19 specific gravity is added to 2000 gallons of neutralizing waste in the last process step, resulting in a specific gravity of 1.03. This more accurate number is used for design specific gravity.







NOZZLE	SIZE	RATING	SERVICE / REMARKS	Z DIM	DETAIL / REFERENCE	CONNECTION
N01	6"	120S	OVERFLOW	16'-3"	24590-WTP-MV-M59T-00016001 DET 2	6" - 10S
N02	2"	80S	SPARE	18'-8"	24590-WTP-MV-M59T-00016001 DET 2	CAPPED
N03	2"	80S	SPARE	18'-8"	24590-WTP MV-M59T-00016001 DET 2	CAPPED
N04	2" OD x 1"	MACH; 150 lb	SPARE	18'-8"	24590-WTP-MV-M59T-00016001 DET 5	CAPPED
N05	8"	150 lb	HDH-VSL-00002 OVERFLOW INLET	18'-8"	24590-WTP-MV-M59T-00016001 DET 9	8"-150 lb RF WN
N05A	3"	150 lb	N05 INSERT PIPE	19'-0"	DET 4; 24590-WTP-MV-M59T-00016001 DET 9	3"-150 lb RF WN
N06	3"	150 lb	INLET FROM EJECTOR 3A	18'-8"	24590-WTP-MV-M59T-00016001 DET 9	3"-150 lb RF WN
N06A	2"	150 lb	N06 INSERT PIPE	19'-2"	DET 4; 24590-WTP-MV-M59T-00016001 DET 9	2"-150 lb RF WN
N07	3"	150 lb	INLET FROM EJECTOR 3B	18'-8"	24590-WTP-MV-M59T-00016001 DET 9	3"-150 lb RF WN
N07A	2"	150 lb	N07 INSERT PIPE	19'-2"	DET 4; 24590-WTP-MV-M59T-00016001 DET 9	2"-150 lb RF WN
N08	2" OD x ½"	MACHINED	HYDROGEN PEROXIDE INLET	18'-8"	24590-WTP-MV-M59T-00016001 DET 5	½" - 40S
N09	6"	150 lb	RADAR LEVEL	19'-0"	DETAIL 6	6"-150 lb RF WN
N09A	1 1/2"	150 lb	N09 INSERT PIPE	19'-6"	DETAIL 6	6"-150 lb RF WN
N10	1/2"	150 lb	PRESSURE	18'-8"	24590-WTP-MV-M59T-00016001 DET 5	½" - 40S
N12	1"	MACHINED	TEMPERATURE	18'-8"	24590-WTP-MV-M59T-00007 ASSY 1 DET 5	1" - 40S
N13	2"	80S	NaOH; PL WASH; WASH RING	18'-8"	24590-WTP-MV-M59T-00016001 DET 3	2" - 40S
N14	2" OD x 1"	MACHINED	PL AIR INLET TO SPARGER	18'-8"	24590-WTP-MV-M59T-00016001 DET 5	1" - 40S
N15	2"	160S	SPARE	18'-8"	24590-WTP-MV-M59T-00016001 DET 2	CAPPED
N16	2"	160S	SPARE	18'-8"	24590-WTP-MV-M59T-00016001 DET 2	CAPPED
N17	3"	160S	INLET (DIP LEG)	18'-8"	24590-WTP-MV-M59T-00016001 DET 4	3" - 40S
N18	4"	120S	VESSEL VENT	18'-8"	24590-WTP-MV-M59T-00016001 DET 1	4" - 40S
N19	2"	160S	OUTLET TO RLD-EJCTR-00002A	0'-8"	24590-WTP-MV-M59T-00016001 DET 3	2" - 40S
N20	1 1/2"	160S	OUTLET TO RLD-EJCTR-00057	2'-6"	24590-WTP-MV-M59T-00016001 DET 1	1 ½" - 40S
N21	24"	PLATE	MANWAY	18'-8"	24590-WTP-MV-M59T-00017 DET 1	CAPPED
N22	2"	160S	OUTLET TO RLD-EJCTR-00002B	0'-8"	24590-WTP-MV-M59T-00016001 DET 3	2" - 40S
N23			DELETED			
N24			DELETED			
N25			DELETED			
N26			DELETED			
N27	2" OD x 1"	MACHINED	SPARE	18'-8"	24590-WTP-MV-M59T-00016001 DET 5	CAPPED
N28	2" OD x 1"	MACHINED	SPARE	18'-8"	24590-WTP-MV-M59T-00016001 DET 5	CAPPED
N29	3"	150 lb	INL FROM HDH-EJECTR-56B	18'-8"	DET 4; 24590-WTP-MV-M59T-00016001 DET 11	3"-150 lb RF WN
N29A	2"	150 lb	N29 INSERT PIPE	19'-2"	24590-WTP-MV-M59T-00016001 DET 11	2"-150 lb RF WN
N30	3"	150 lb	INL FROM HDH-EJECTR-56A	18'-8"	DET 4; 24590-WTP-MV-M59T-00016001 DET 11	3"-150 lb RF WN
N30A	2"	150 lb	N30 INSERT PIPE	19'-2"	24590-WTP-MV-M59T-00016001 DET 11	2"-150 lb RF WN
N31	4"	150 lb	HDH-VSL-00004 OVERFLOW	18'-8"	DET 4; 24590-WTP-MV-M59T-00016001 DET 9	4"-150 lb RF WN
N31A	3"	150 lb	N31 INSERT PIPE	19'-0"	24590-WTP-MV-M59T-00016001 DET 9	3"-150 lb RF WN
N32	2" OD x 1"	MACH; 150 lb	SPARE	18'-8"	24590-WTP-MV-M59T-00016001 DET 5	CAPPED

GENERAL NOTES (UNLESS OTHERWISE SPECIFIED)

1. ALL INTERNALS SHALL BE DESIGNED, PROVIDED, AND INSTALLED BY SELLER.
2. CLEARANCE OF DIP PIPES FROM BOTTOM HEAD IS 2".
3. 'Z' DIMS ARE MEASURED FROM THE LOWER TANGENT LINE (LTL). THE 'Z' DIMS OF SHELL (SIDE) NOZZLES ARE MEASURED FROM THE LTL TO THE CENTER OF THE NOZZLE FACE.
4. ALL FLANGES (EXCEPT BLIND FLANGES) ARE 150 lb RAISED FACE (RF) WELD NECK (WN). BLIND FLANGES ARE 150 lb RF. BOLT HOLES SHALL STRADDLE NORMAL VESSEL CENTER LINE.
5. SELLER SHALL PROVIDE (8) SHIM PACKS, EACH COMPRISING OF:
   (2) ¼" THICK PLATES
   (1) ⅛" THICK PLATE
   (2) $\frac{1}{16}$" THICK PLATES
   THE SKIRT SHALL BE SUPPORTED BY THE SHIM PLATES SPACED PER THE EMBEDDED PLATE PLAN VIEW (SECTION D-D).
6. SELLER SHALL SIZE ANCHOR BOLTS & CHAIRS PER REF DWG 24590-WTP-MV-M59T-00026. BUYER SHALL PROVIDE & WELD ANCHOR BOLTS TO A240 304L PLATES EMBEDDED IN CONCRETE FLOOR. SELLER SHALL SIZE ANCHOR BOLTS USING MATERIAL PROPERTIES OF THE EMBEDDED PLATE.
7. HOLES SHALL BE DRILLED AFTER BENDING PIPE. SPARGE HOLES SHALL BE SPACED AT 4 HOLES PER FOOT. SPARGE RING SUPPORTS SHALL BE A MINIMUM WIDTH OF 2" USING FLAT BAR AT ¼" MINIMUM THICKNESS & TWICE THE CORROSION THICKNESS. PIPE SHALL BE 1" DIA (NPS) SCHED 40S. SUPPORTS SHALL BE SAME MATERIAL AS THE BOTTOM HEAD ON MECHANICAL DATA SHEET 24590-HLW-MVD-HDH-00003.
8. *GROUNDING LUG DETAILS PER REF DWG 24590-WTP-MV-M59T-00012.*
9. INCORPORATED THE FOLLOWING DOCUMENTS (CHANGE NOTICES): HLW-MVN-HDH-00005, HLW-MVN-HDH-00006, HLW-MVN-HDH-00007, WTP-M6N-M80T-00003.
10. REVISED / ADDED / DELETED:
    a) DECREASED THE INTERNAL PROJECTION OF NOZZLES N15 & N16 FROM 2" FROM THE INSIDE SURFACE OF THE BOTTOM HEAD TO 2" FROM THE INSIDE SURFACE OF THE TOP HEAD.
    b) ADDED SPARGER AND SPARGER SUPPORT INFORMATION TO DETAIL 4.
    c) ADDED RADAR LEVEL DETECTION SYSTEM TO NOZZLE N09 (SEE NOTE 12).
    d) UPDATED NOZZLE INFORMATION TO REFLECT ACTUAL.
    e) EXTENSIVE REVISION, NO CLOUDS REQUIRED.
    f) UPDATED NOZZLES N04 & N02 FROM CONDENSATE NOZZLES TO SPARES.
11. CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.

NOTES 12-14 APPLY DIRECTLY TO POST-STAMPING VESSEL ALTERATIONS. USE OTHER NOTES AS APPLICABLE.

12. INSTALL STILLING WELL AS PART OF RADAR LEVEL DETECTION IN N09.
13. DRILL A ⅜" DIA HOLE IN THE DIP PIPES CONNECTED TO NOZZLES N06, N07, N17, N29, & N30. THIS HOLE SHALL BE LOCATED IN THE VESSEL HEAD SPACE ABOVE THE OVERFLOW LEVEL OF THE VESSEL. THESE ARE ANTI-SIPHON HOLES FOR THE HDH EJECTORS AND HDH-VSL-00001 DIP PIPE INLETS.
14. TERMINATE THE DIP LEGS OF NOZZLES 15 & 16 ABOVE THE VESSEL OVERFLOW LEVEL.

HOLDS

1. 1 - 7 DELETED

THIS DRAWING MUST BE READ IN CONJUNCTION WITH THE MECHANICAL DATA SHEET 24590-HLW-MVD-HDH-00003

REFERENCE DRAWINGS

DRAWING NUMBER	REV	TITLE
24590-HLW-M6-HDH-00002	4	P&ID - HLW CANISTER DECONTN HANDLING
24590-WTP-MV-M59T-00001	4	PRESSURE VESSEL TOLERANCES STD DETAILS
24590-WTP-MV-M59T-00007	3	THERMOWELL CONNECTION STANDARD DETAILS
24590-WTP-MV-M59T-00011	2	WASH RINGS STANDARD DETAILS
24590-WTP-MV-M59T-00016001	3	VESSEL CONNECTIONS STD DETAILS SH 1 OF 3
24590-WTP-MV-M59T-00016002	2	VESSEL CONNECTIONS STD DETAILS SH 2 OF 3
24590-WTP-MV-M59T-00016003	1	VESSEL CONNECTIONS STD DETAILS SH 3 OF 3
24590-WTP-MV-M59T-00017	1	VESSEL INSPECTION MANWAY STANDARD DETAILS
24590-WTP-MV-M59T-00012	1	GROUNDING LUG STD DETAILS
24590-WTP-MV-M59T-00009	2	LIFTING LUG STANDARD DETAILS
24590-WTP-MV-M59T-00010	2	TAILING LUG STANDARD DETAILS
24590-HLW-MVD-HDH-00003	3	MECHANICAL DATA SHEET
24590-WTP-MV-M59T-00018	3	VESSEL NAMEPLATE STANDARD DETAILS
24590-WTP-MV-M59T-00026	1	ANCHOR BOLT CHAIR DETAILS FOR VERT VESSELS

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.

CM
QUALITY DESIGNATOR

REVISION HISTORY

REV	DESCRIPTION	ORG	CHKD	RVWD	APVD	DATE
1	EXTENSIVE REVISION, NO CLOUDS REQD (SEE NOTE 9) RW 11/2/10	RW	MAS	Jm	JJ	10/27/10
0	ISSUED FOR PURCHASE	MA-KM	TG-CS	MH	DW	1-22-2004

ISSUED BY RPP-WTP PDC
ISSUE STAMP

PROJECT No.	24590
SITE	HANFORD
AREA	200E
BUILDING No.	30

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

CONTRACT No: DE-AC27-01RV14136

	BY	DATE
ORIGINATOR	ARULAPALAM/MINTON	01-15-2004
CHECKER	GALIOTO/SLATER	01-21-2004
APPROVER	M. HOFFMAN	01-22-2004
REVIEWER	D. YARBROUGH	01-21-2004

EQUIPMENT ASSEMBLY WASTE NEUTRALIZATION VESSEL HDH-VSL-00003

CONTENT APPLICABLE TO ALARA? [X] YES [ ] NO
ADR NO. 24590-WTP-ADR-M-03-008 REV: 2
FANS SCREENING REQUIRED? [ ] YES [X] NO FANS INITIAL IF YES

SCREENING IS REQUIRED FOR DRAWING TYPES IDENTIFIED IN 24590-WTP-GPP-SREG-002

'E' SIZE - 44x34
COMPUTER GENERATED - MANUAL DESIGN CHANGES NOT PERMITTED

SCALE: NONE

24590-HLW-MV-HDH-00003 REV 1

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