



MECHANICAL DATA SHEET: VESSEL

PLANT ITEM No.
24590-PTF-MV-CXP-VSL-00004

R10315126

Project	RPP-WTP	P&ID: <i>Calculation</i>	24590-PTF-M6-CXP-P0001/24590-PTF-M6-CXP-P0005/24590-PTF-M6-CXP-P0007
Project No	24590	Process Data Sheet:	24590-PTF-MVD-CXP-00004 24590-PTF-MVC-CXP-00004 <i>HP</i>
Project Site	Hanford	Vessel Drawing	24590-PTF-MV-CXP-P0002 <i>05/26/04</i>
Description:	Cs. IX. Caustic Rinse Collection Vessel.		

Reference Data

Charge Vessels (Tag Numbers)	4(CXP-VSL-00006/CXP-VSL-00007/CXP-VSL-00008/CXP-VSL-00009)	ISSUED BY <i>RPP-WTP PDC</i> DATE <i>5/26/04</i>
Pulsejet Mixers / Agitators (Tag Numbers)	CXP-PJM-00001	
RFDs/Pumps (Tag Numbers)	4(CXP-RFD-00004A/B/CXP-RFD-00005/CXP-RFD-00006)	

Design Data

Quality Level	QL-1	Fabrication Specs	24590-WTP-3PS-MV00-TP001		
Seismic Category	SC-1	Design Code	ASME VIII Div 1		
Service/Contents	NaOH Rinse	Code Stamp	Yes		
Design Specific Gravity	1.22	NB Registration	Yes		
Maximum Operating Volume	gal 9,450	Weights (lbs)	Empty	Operating	Test
Total Volume	gal 11,085	Estimated	27,150	124,100	114,600
		Actual *			

Inside Diameter	inch	126			Wind Design	Not Required
Length/Height (TL-TL)	inch	171			Snow Design	Not Required
		Vessel Operating	Vessel Design	Coil/Jacket Design	Seismic Design	24590-WTP-3PS-MV00-TP002 234590-WTP-3PS-FB01-T0001
Internal Pressure	psig	0	15		Seismic Base Moment *	ft*lb
External Pressure	psig	0.22	FV		Postweld Heat Treat	Not Required
Temperature	°F	77	138		Corrosion Allowance	Inch 0.04
Min. Design Metal Temp.	°F	40			Hydrostatic Test Pressure *	psig

Note: 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.



EXPIRES 12/10/04

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Materials of Construction

Component	Material	Minimum Thickness / Size	Containment
Top Head	SA 240 304 Note1	See Drawing	Auxiliary (See Note 7)
Shell	SA 240 304 Note1	See Drawing	Primary (See Note 7)
Bottom Head	SA 240 304 Note1	See Drawing	Primary (See Note 7)
Support	SA 240 304 Note1	See Drawing	NIA
Jacket/Coils/Half-Pipe Jacket	NIA	NIA	NIA
Internals	SA 240 304 Note1	See Drawing	
Pipe	SA 312 TP304 Seamless Note 1	See Drawing	Primary (See Note 7)
Forgings/ Bar stock	SA 182 F304 Note 1	See Drawing	NIA
Gaskets	NIA	NIA	NIA
Bolting	NIA	NIA	NIA

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

Remarks

*** To be determined by the vendor.**

Note 1. Max. Carbon Content 0.030%

Note 2: Deleted

Note 3. Welds descaled as laid.

Note 4. Vessel volumes are approximate and do not account for manufacturing tolerances, and displacement of internals.

Note 5: Deleted

Note 6: This Vessel is in a Black Cell

Note 7: All Welds Forming Part of the Primary and Auxiliary Containment, including Nozzle Attachment Welds, Shall be Subjected to 100% Volumetric Examination

Note 8: Contents of this document are Dangerous Waste Permit affecting.



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Equipment Cyclic Data Sheet

Component Plant Item Number:	CXP-VSL-00004
Component Description	Parent Vessel

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

Materials of Construction	SA 240 304 with 0.030% max carbon
Design Life	40 Years
Component Function and Life Cycle Description	The purpose of the Cesium Ion Exchange caustic rinse collection vessel is to serve as a feed and receipt vessel for the cesium ion exchange columns as well as a dilution vessel for Caustic Soda.

Load Type		Min	Max	Number of Cycles	Comment
Design Pressure	psig	FV	15	10	Nominal Assumption for testing
Operating Pressure	psig	-0.22	0	N/A	This vessel will remain under constant pressure depending upon the plant HVAC system.
Operating Temperature	°F	59	113	N/A	Temperature will not cycle appreciably with vessel cycling.
Contents Specific Gravity		1.00	1.22	N/A	Normally 1.01 without cycling.
Contents Level	inch	34	184	1.46x10⁴	
Localized Features					
Nozzles					
Supports					

Notes

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



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Component Plant Item Number:	CXP-VSL-00006, - 00007, -0008, 00009
Component Description	Charge Vessels (Type G. Typical)

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 max. carbon of 0.030 %
Design Life	40 Years
Component Function and Life Cycle Description	The charge vessel is cyclically loaded using vacuum to fully fill the charge vessel with process liquid and compressed air to fully empty the charge vessel. The charge vessel is contained within a parent vessel with varying liquid level. It shall be designed to cycle between the maximum design pressure and the minimum design pressure plus the external static head imposed by the parent vessel. The charge vessel supports shall be designed to cycle between fully buoyant (charge vessel empty and parent vessel full) and fully loaded (charge vessel full and parent vessel empty).

Load Type		Min	Max	Number of Cycles	Comment
Design Pressure	psig	FV	80	10	Nominal assumption for Testing
Operating Pressure	psig	FV	75	1.45 x 10⁷	Based on 40 years life expectancy
Operating Temperature	°F	59	113	N/A	Uniform Material Temperature Range, not between two points.
Contents Specific Gravity		1.00	1.20	N/A	Normally 1.01 without cycling.
Contents Level	inch	Empty	Flooded	1.46 x 10⁴	
Localized Features					
Nozzles					
Supports		Buoyant / Loaded		1.46 x 10⁴	

Notes

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Component Plant Item Number:	CXP-PJM-00001
Component Description	Pulse Jet Mixer (PJM Type E)

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Materials of Construction	SA 240 304 with max. carbon of 0.030 %
Design Life	40 Years
Component Function and Life Cycle Description	These pulse jet mixers are cyclically loaded using vacuum to fully fill the vessel with process liquid and compressed air to fully empty the vessel. The pulse jet mixers are contained within a parent vessel with varying liquid level. They shall be designed to cycle between the maximum design pressure and the minimum design pressure plus the external static head imposed by the parent vessel. The pulse jet mixer supports shall be designed to cycle between fully buoyant (pulse jet mixer empty and parent vessel full) and fully loaded (pulse jet mixer full and parent vessel empty) in addition to thrust.

Load Type		Min	Max	Number of Cycles	Comment
Design Pressure	psig	FV	80	10	Nominal assumption for testing
Operating Pressure	psig	FV	75	7.42 x 10⁷	Based on 40 year life expectancy
Operating Temperature	°F	59	113	N/A	Uniform Material Temperature range, not between two points
Contents Specific Gravity		1.00	1.20	N/A	Normally 1.01 without cycling.
Contents Level	inch	Empty	Flooded	7.42 x 10⁷	
Localized Features					
Nozzles					
Supports		Buoyant/ loaded		7.42 x 10⁷	

Notes

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