ENGINEERING CHANGE NOTICE

Page 1 of 21. ECN **648604**Proj.
ECN

2. ECN Category (mark one) Supplemental ☐ Direct Revision ☐ Change ECN ☒ Temporary Standby ☐ Supersede ☐ Cancel/Void ☐	3. Originator's Name, Organization, MSIN, and Telephone No. J.J. Irwin, R3-86, 372-3743 6. Project Title/No./Work Order No. Spent Nuclear Fuel Project Cold Vacuum Drying Facility Safety Equipment List 9. Document Numbers Changed by this ECN (includes sheet no. and rev.) HNH-SD-SNF-SEL-002, Rev. 3	4. USQ Required? ☐ Yes ☒ No 7. Bldg./Sys./Fac. No. CVD Facility W-441 10. Related ECN No(s). n/a	5. Date 8/31/98 8. Approval Designator SQ 11. Related PO No. n/a
12a. Modification Work ☐ Yes (fill out Blk. 12b) ☒ No (NA Blks. 12b, 12c, 12d)	12b. Work Package No. n/a	12c. Modification Work Complete n/a Design Authority/Cog. Engineer Signature & Date	12d. Restored to Original Condition (Temp. or Standby ECN only) n/a Design Authority/Cog. Engineer Signature & Date
13a. Description of Change General revision of the CVD Facility Safety Equipment List to reflect revised Safety Analysis, 306 Testing for First Article, and to correct labeling errors. Design verification for this ECN performed by the CVDF Design Authorities <i>(J.J. Irwin for CVD Process Systems, C.C. Pitkoff for CVD Facilities, R. Whitehurst for CVD IFC).</i> Design verification by independent review by Carl Haller.			
13b. Design Baseline Document? ☒ Yes ☐ No 14a. Justification (mark one) Criteria Change ☒ Design Improvement ☐ Environmental ☐ Facility Deactivation ☐ As-Found ☐ Facilitate Const. ☐ Const. Error/Omission ☐ Design Error/Omission ☐			
14b. Justification Details SEL updated to reflect revised Safety Analysis, and First Article testing per HNF-3342. <i>SAR is Phase 2 SAR for the CVDF, HNF-SD-SNF-SAR-002, Rev. 4</i>			
15. Distribution (include name, MSIN, and no. of copies) WC Alaconis R3-86 (4) CC Pitkoff R3-86 (1) TD Hays R3-86 (1) CA Thompson R3-86 (1) JJ Irwin R3-86 (1) KJ McCracken E6-46 (1) JE Turnbaugh X3-79 (1) EA Nelson R3-86 (1) R Whitehurst R3-86 (1) AH McNeil R3-86 (1) CR Miska R3-86 (1) SL Mischke R3-86 (1) JR Brehm R3-26 (4) CVD (BM Brown) R3-86 (5) Project Files R3-11 (1) RG Pedigo S1-53 (1) MJ Langevin X3-74 (1) CK Detrick X3-78 (1) LJ McKenzie X3-86 (1) RE Piippo X3-79 (1) SH Peck X3-75 (1) RL Long Jr. S7-41 (1)			RELEASE STAMP DATE: STA: <i>4</i> OCT 19 1998

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ENGINEERING CHANGE NOTICE

Page 2 of 2

1. ECN (use no. from pg. 1)

648604

16. Design Verification Required ☒ Yes ☒ No 10/15/98	17. Cost Impact ENGINEERING Additional ☐ \$ Savings ☐ \$	CONSTRUCTION Additional ☐ \$ Savings ☐ \$	18. Schedule Impact (days) N/A Improvement ☐ Delay ☐
19. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 13. Enter the affected document number in Block 20.			
SDD/DD SAMP-3068, 3062*	☒	Seismic/Stress Analysis	☐
Functional Design Criteria 3062	☐	Stress/Design Report	☐
Operating Specification 3091	☐	Interface Control Drawing	☐
Criticality Specification	☐	Calibration Procedure	☐
Conceptual Design Report	☐	Installation Procedure	☐
Equipment Spec.	☐	Maintenance Procedure	☐
Const. Spec.	☐	Engineering Procedure	☐
Procurement Spec.	☐	Operating Instruction	☐
Vendor Information	☐	Operating Procedure	☐
OM Manual	☐	Operational Safety Requirement	☐
FSAR/SAR	☐	IEFD Drawing	☐
Safety Equipment List	☐	Cell Arrangement Drawing	☐
Radiation Work Permit	☐	Essential Material Specification	☐
Environmental Impact Statement	☐	Fac. Proc. Smp. Schedule	☐
Environmental Report	☐	Inspection Plan	☐
Environmental Permit	☐	Inventory Adjustment Request	☐
			Tank Calibration Manual ☐
			Health Physics Procedure ☐
			Spares Multiple Unit Listing ☐
			Test Procedures/Specification ☐
			Component Index ☐
			ASME Coded Item ☐
			Human Factor Consideration ☐
			Computer Software ☐
			Electric Circuit Schedule ☐
			ICRS Procedure ☐
			Process Control Manual/Plan ☐
			Process Flow Chart ☐
			Purchase Requisition ☐
			Tickler File ☐
			DRD (HNF-50-SNF -DRD-002) ☒
			Rev. 3A ☒

20. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision

Document Number/Revision

Document Number/Revision

H-1-83766/R3
H-1-82161/R2
H-1-82162/R2

H-1-82164/R2
H-1-82165/R2

500's SAMP-3069-3068
-3082, -3091

21. Approvals

Signature	Date	Signature	Date
(Approved) Design Authority <i>J. J. Irwin</i>	<i>10-7-98</i>	Design Agent	_____
Cog. Eng.	_____	PE	_____
Cog. Mgr. <i>G. Haller</i>	<i>10/15/98</i>	QA	_____
QA <i>William S. Mischke</i>	<i>10/14/98</i>	Safety	_____
Safety <i>J. R. Brown</i>	<i>10/9/98</i>	Design	_____
Environ.	_____	Environ.	_____
Other <i>W. C. Albrecht</i>	<i>10/14/98</i>	Other	_____
<i>DA R. W. Echmont</i> <i>J. C. O. A.</i>	<i>10/9/98</i>		_____
<i>DA C. P. H. Koff</i> <i>C. P. H. Koff</i>	<i>10/9/98</i>		_____
<i>C. Miska</i>	<i>10-15-98</i>		_____
<i>A. Miska</i> <i>J. H. A.</i>	<i>10/15/98</i>		_____
	_____		_____
	_____		_____
	_____		_____

DEPARTMENT OF ENERGY

Signature or a Control Number that tracks the Approval Signature

ADDITIONAL

Spent Nuclear Fuel Project Cold Vacuum Drying Facility Safety Equipment List

J. J. Irwin

Numatec Hanford Corporation, Richland, WA 99352

C. C. Pitkoff, R. Whitehurst

DE&S Hanford, Inc., Richland, WA 99352

U.S. Department of Energy Contract DE-AC06-96RL13200

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Abstract: This document provides the safety equipment list (SEL) for the Cold Vacuum Drying Facility (CVDF). The SEL was prepared in accordance with the procedure for safety structures, systems, and components (SSCs) in HNF-PRO-516, "Safety Structures, Systems, and Components," Revision 0 and HNF-PRO-097, Engineering Design and Evaluation, Revision 0. The SEL was developed in conjunction with HNF-SD-SNF-SAR-002, *Safety Analysis Report for the Cold Vacuum Drying Facility, Phase 2, Supporting Installation of Processing Systems* (Garvin 1998). The SEL identifies the SSCs and their safety functions, the design basis accidents for which they are required to perform, the design criteria, codes and standards, and quality assurance requirements that are required for establishing the safety design basis of the SSCs. This SEL has been developed for the CVDF Phase 2 Safety Analysis Report (SAR) and shall be updated, expanded, and revised in accordance with future phases of the CVDF SAR until the CVDF final SAR is approved.

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Release Approval 10/19/98
Date

Release Stamp

Approved for Public Release

**SPENT NUCLEAR FUEL PROJECT COLD VACUUM DRYING FACILITY
SAFETY EQUIPMENT LIST**

**HNF-SD-SNF-SEL-002
Revision 4**

October 1998

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LIST OF TERMS

ASHRAE	American Society of Heating, Refrigerating, and Air Conditioning Engineers
CEDE	committed effective dose equivalent
CVDF	Cold Vacuum Drying Facility
HEPA	high-efficiency particulate air (filter)
HVAC	heating, ventilating, and air conditioning
MCO	multicanister overpack
NA	not applicable
NPH	natural phenomena hazard
PC	performance category
PWCS	Process Water Conditioning System
SAR	safety analysis report
SC	safety class
SCHe	Safety Class Helium Purge System
SCIC	safety-class instrumentation and control
SEL	safety equipment list
SMACNA	Sheet Metal and Air Conditioning Contractors National Association.
SS	safety significant
SSC	structure, system, and component
TBD	to be determined
TSR	technical safety requirement
VPS	vacuum purge system

SPENT NUCLEAR FUEL PROJECT COLD VACUUM DRYING FACILITY SAFETY EQUIPMENT LIST

1.0 INTRODUCTION

This document provides the safety equipment list (SEL) for the Cold Vacuum Drying Facility (CVDF). The SEL was prepared in accordance with the procedure for safety structures, systems, and components (SSCs) in HNF-PRO-704, *Hazard and Accident Analysis Process*, Revision 1 and HNF-PRO-097, *Engineering Design and Evaluation*, Revision 0. The SEL was developed in conjunction with HNF-SD-SNF-SAR-002, *Safety Analysis Report for the Cold Vacuum Drying Facility, Phase 2, Supporting Installation of Processing Systems*. The SEL identifies the SSCs and their safety functions, the design criteria, codes and standards, and quality assurance requirements that are required for establishing the safety design basis of the SSCs. This SEL shall be updated, expanded, and revised in accordance with future phases of the CVDF SAR.

2.0 QUALITY ASSURANCE

In accordance with HNF-PRO-704 the safety classification categories are designated safety class, safety significant, and general service. General Services represents all non-safety SSCs. Quality assurance requirements for design, procurement, construction, and operation are described in Project Hanford Quality Assurance Program Description, HNF-MP-599 and DE&S Hanford, Inc. (DESH)/DESH-1, 1.4 Quality Assurance Planning, Attachment A, Quality Assurance Program Plan. Under HNF-MP-599 and DESH-1 Section 1.4, quality assurance controls are applied commensurate with the relative safety risk involved for the public, environment, and site workers. The relative risk is categorized by the safety classification definitions, i.e., safety class, safety significant and general services.

3.0 SAFETY STRUCTURES, SYSTEMS, AND COMPONENTS

The safety-class and safety-significant functions described in Chapter 4.0 of the Phase 2 CVDF SAR are listed in Appendix A, Tables A-1 through A-4 along with the specific SSCs required to perform those safety functions.

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HNF-SD-SNF-SEL-002, Rev. 4

Appendix A
CVDF Detailed Safety Equipment Lists

Table A-1. Cold Vacuum Drying Facility - Equipment/Structures

Component				Design Criteria			Environmental Qualification					
Sys. No.	P&ID	Component Tag No.	Component Description / Noun Name	Safety Function	Safety Category Designation	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic ^c	Environ. Cert. ^d	Environ. Condition
06-3	H-1-82125, 126		Walls	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-3	ICBO94, ASCE-4-7, AISC N690, AWS D1.1	NA	NA	3/1	None	Cond. A
06-3	H-1-82121 to -		Foundation and floors	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-3	ICBO94, ASCE-4-7, AISC N690, AWS D1.1	NA	NA	3/1	None	Cond. A
06-3	H-1-82112		Doors, Pedestrian	None	GS	PC-1	ICBO94, ASCE-4-7, AISC N690, AWS D1.1	NA	NA	None	None	Cond. A
06-4 Process water tank room structure (Sys. 06-4)												
06-4	H-1-82203		Wall Penetrations	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ICBO94, ASCE-4-7, AISC N690, AWS D1.1	NA	NA	3/1	None	Cond. A
06-4	H-1-82129, 130		Structural framing	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ICBO94, ASCE-4-7, AISC N690, AWS D1.1	NA	NA	3/1	None	Cond. A
06-4	H-1-82128, 110		Roofing System	None	GS	PC-1	ICBO94	NA	NA	None	None	Cond. B
06-4	H-1-82128, 110		Roof, Structural	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ICBO94, ASCE-4-7, AISC N690, AWS D1.1	NA	NA	3/1	None	Cond. A
06-4	H-1-82121 to -		Precast wall panels	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ICBO94, ASCE-4-7, AISC N690, AWS D1.1	NA	NA	3/1	None	Cond. A
06-4	H-1-82121 to -		Foundation & Floor	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ICBO94, ASCE-4-7, AISC N690, AWS D1.1	NA	NA	3/1	None	Cond. A
06-4	124		Doors, Pedestrian	None	GS	PC-1	ICBO94, ASCE-4-7, AISC N690, AWS D1.1	NA	NA	None	None	Cond. A
06-4	H-1-82112		Doors, Pedestrian	None	GS	PC-1	ICBO94, ASCE-4-7, AISC N690, AWS D1.1	NA	NA	None	None	Cond. A
07 Vacuum and purge system (Sys. 07)												
07-1 Vacuum and purge system (Sys. 07-1)												
07-1	H-1-82162	VPS-CLR-2*17	Condenser Tank Cooler	None	GS	PC-1 ^a	ASME Code, Sec VIII; TEMA	160 psig	MSLD	3/1	None	Cond. A
07-1	H-1-82162	VPS-COND-2*13	Condenser	None	GS	PC-1 ^a	ASME Code, Sec VIII; TEMA	150 psig and Full Vacuum	MSLD	3/1	None	Cond. A
07-1	H-1-82162	VPS-P-2*11	Vacuum Pump	None	GS	PC-1 ^a	Commercially Available	1000 mbar	MSLD	3/1	None	Cond. A
07-1	H-1-82162	VPS-TK-2*16	Condenser Receiver Tank	None	GS	PC-1 ^a	ASME Code, Sec VIII	30 psig and Full Vacuum	MSLD	3/1	None	Cond. A
07-1	H-1-82161, H-1-82162		Piping (see Table A-2)									
07-1	H-1-82161, H-1-82162		Valves (see Table A-3)									
07-1	H-1-82161, H-1-82162		Pipe Supports @ PES skid	None	GS	PC-1 ^a	ASME B31.3	NA	NA	3/1	None	Cond. A
07-1	H-1-82161, H-1-82162		Support Structure, PES	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2 ^a	AISC M-016, AWS D1.1	NA	NA	3/1	None	Cond. A
07-1	H-1-82161, H-1-82162		I&C (see Table A-4)									
07-1			VPS test jumper	None	GS	PC-1 ^a	Engineered Item Commercially Available	150 psig and Full Vacuum	MSLD	3/1	None	Cond. A
07-1			Trace Heat on VPS piping	None	GS	PC-1		NA	NA	None	None	Cond. A
07-2 Residual Gas Monitoring system (Sys. 07-2)												
07-2	H-1-82161/H-1-82162		I&C (see Table A-4)									
07-3 He MSLD and Auxiliary Vacuum system (Sys. 07-3)												
07-3			He MSLD	None	GS	PC-1 ^a	Commercially Available	1000 mbar	MSLD	3/1	None	Cond. A

		Component			Design Criteria		Environmental Qualification					
Sys. No.	P&ID	Component Tag No.	Component Description / Noun Name	Safety Function	Safety Category Designation	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic ^c	Environ. Cert. ^d	Environ. Condition
07-3			Aux. Vacuum Pump	None	GS	PC-1 ^a	Commercially Available Item	1000 mbar	MSLD	3/1	None	Cond. A
07-3			MSLD Vac. Pumps	None	GS	PC-1 ^a	Commercially Available Item	1000 mbar	MSLD	3/1	None	Cond. A
07-3			Piping (see Table A-2)									
07-3			Valves (see Table A-3)									
07-3			Pipe Supports	None	GS	PC-1 ^a	Commercially Available Item	NA	NA	3/1	None	Cond. A
07-3			Support Structure	None	GS	PC-1 ^a	Commercially Available Item	NA	NA	3/1	None	Cond. A
07-3			I&C (see Table A-4)									
11	Communication systems (Sys. 11)											
11	H-1-82243		HLAN	None	GS	PC-1	Commercially Available Item	NA	NA	None	None	Cond. A
11	H-1-82243		Telephones	Worker Safety	GS	PC-1	Commercially Available Item	NA	NA	None	None	Cond. A
11	H-1-82243		Voice Paging System	Worker Safety	GS	PC-1	Commercially Available Item	NA	NA	None	None	Cond. A
11	H-1-82243		Intercom System	Worker Safety	GS	PC-1	Commercially Available Item	NA	NA	None	None	Cond. A
12	Compressed and instrument air system (Sys. 12)											
12	H-1-82222	CA-CMP-5019, CA-CMP-5020	Compressor	None	GS	PC-1	Commercially Available Item	175 psig	Pneu. Test	None	None	Cond. A
12	H-1-82222	CA-TK-5019, CA-TK-5020	Storage Tank	None	GS	PC-1	ASME BP&V Code Sec VIII	175 psig	Pneu. Test	None	None	Cond. A
12	H-1-82222	CA-DRY-5019, CA-DRY-5020	Air Dryer	None	GS	PC-1	ASME B31.9	175 psig	Pneu. Test	None	None	Cond. A
12	H-1-82222		Piping (see Table A-2)									
12	H-1-82222		Valves (see Table A-3)									
12	H-1-82222		Pipe Supports	None	GS	PC-1 ^a	ASME B31.9	NA	NA	3/1	None	Cond. A
12	H-1-82222		I&C (see Table A-4)									
13	Helium systems (Sys. 13)											
13-1	General Service Helium system (Sys. 13-1)											
13-1	H-1-82222	HE-TK-5025 & HE-TK-5026	Tube Trailer	None	GS	PC-1	Commercially Available Item	tbd	MSLD	None	None	Cond. B
13-1	H-1-82222		Piping (see Table A-2)									
13-1	H-1-82222		Valves (see Table A-3)									
13-1	H-1-82222		Pipe Supports - SC	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-3	ASME B31.1	NA	NA	Seis. Cond. A	Cond. B	Cond. B
13-1	H-1-82222		Pipe Supports - GS	None	GS	PC-1 ^a	ASME B31.3	NA	NA	3/1	None	Cond. A
13-1	H-1-82222		I&C (see Table A-4)									
13-2	Safety class helium purge system (Sys. 13-2)											
13-2	H-1-82165	SCHe-TK-5*01	Helium supply tank	Prevent a H ₂ Explosion, Thermal Runaway, Provide Seismic 3/1 protection for adjacent SC and SS SSC	SC	PC-3	ASME Sect. VIII	2490 psig	MSLD	Seis. Cond. A	Cond. B	Cond. B
13-2	H-1-82165	SCHe-TK-5*02	Helium supply tank	Prevent a H ₂ Explosion, Thermal Runaway, Provide Seismic 3/1 protection for adjacent SC and SS SSC	SC	PC-3	ASME Sect. VIII	2490 psig	MSLD	Seis. Cond. A	Cond. B	Cond. B
13-2	H-1-82165	SCHe-TK-5*03	Helium supply tank	Prevent a H ₂ Explosion, Thermal Runaway, Provide Seismic 3/1 protection for adjacent SC and SS SSC	SC	PC-3	ASME Sect. VIII	2490 psig	MSLD	Seis. Cond. A	Cond. B	Cond. B
13-2	H-1-82165	SCHe-TK-5*04	Helium supply tank	Prevent a H ₂ Explosion, Thermal Runaway, Provide Seismic 3/1 protection for adjacent SC and SS SSC	SC	PC-3	ASME Sect. VIII	2490 psig	MSLD	Seis. Cond. A	Cond. B	Cond. B
13-2	H-1-82161		Piping (see Table A-2)									
13-2	H-1-82161		Valves (see Table A-3)									

Table A-1: Cold Vacuum Drying Facility - Equipment/Structures

Component													Design Criteria		NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic ^c	Environ. Cert. ^d	Environ. Condition			
Component Description / Noun Name													Safety Category	Designation	Safety Function	Prevent a H ₂ Explosion, Thermal Runaway, Provide Seismic	SC	PC-3	ASME B31.1	2490 psig	MSLD	Seis. Cond. A	Cond. B	Cond. B
Sys. No.	P&ID	Component Tag No.	Component Description / Noun Name										Safety Category	Designation	Safety Function	Prevent a H ₂ Explosion, Thermal Runaway, Provide Seismic	SC	PC-3	ASME B31.1	2490 psig	MSLD	Seis. Cond. A	Cond. B	Cond. B
14	H-1-82161	H-1-82132	Process Bay Overhead Crane										GS	PC-1 ^a	CMAA-74	NA	NA	3/1	None	Cond. A				
18	H-1-82223	Retention Basin											None	GS	PC-1	ACI-318	NA	NA	None	Cond. B				
18	H-1-82223	Piping (see Table A-2)																						
18	H-1-82223	Valves (see Table A-3)																						
19	H-1-82223	Pipe Supports											None	GS	PC-1 ^a	ASME B31.9	NA	NA	None	Cond. A				
19	H-1-82223	Condensate collection tanks											None	GS	PC-1 ^a	AWWA	15 psig	Hydro Test	3/1	None	Cond. A			
19	H-1-82223	Piping (see Table A-2)																						
19	H-1-82223	Valves (see Table A-3)																						
19	H-1-82223	Pipe Supports											None	GS	PC-1 ^a	ASME B31.9	NA	NA	None	Cond. A				
20	Electrical Systems (Sys. 20)	L&C (see Table A-4)											None	GS	PC-1 ^a	ASME B31.9	NA	NA	None	Cond. A				
20-1	242, -246, -247,	Transformers											None	GS	PC-1	Item	Commercially Available	NA	NA	None	Cond. A			
20-1		Switchboards											None	GS	PC-1	Item	Commercially Available	NA	NA	None	Cond. A			
20-1		Power Panels											None	GS	PC-1	Item	Commercially Available	NA	NA	None	Cond. A			
20-1		Motor Control Centers											None	GS	PC-1	Item	Commercially Available	NA	NA	None	Cond. A			
20-1		Distribution Panels(@ Process Bay)											None	GS	PC-1 ^a	Item	Commercially Available	NA	NA	3/1	None	Cond. A		
20-1		Relay Boxes											None	GS	PC-1	Item	Commercially Available	NA	NA	None	Cond. A			
20-1		Conduit/Wiring											None	GS	PC-1	Item	Commercially Available	NA	NA	None	Cond. A			
20-1		Conduit trays/supports											None	GS	PC-1	Item	Commercially Available	NA	NA	None	Cond. A			
20-2	Lighting [External/Internal/Exit/Emergency] (Sys. 20-2)	Internal Lighting(@ Process Bay)											None	GS	PC-1 ^a	Item	Commercially Available	NA	NA	3/1	None	Cond. A		
20-2	248												None	GS	PC-1	Item	Commercially Available	NA	NA	None	Cond. A			
20-2		External Lighting											None	GS	PC-1	Item	Commercially Available	NA	NA	None	Cond. B			
20-2		Exit Lighting											None	GS	PC-1	Item	Commercially Available	NA	NA	None	Cond. A			
20-2		Emergency Lighting											None	GS	PC-1	Item	Commercially Available	NA	NA	None	Cond. A			
20-3	Ground system (Sys. 20-3)												None	GS	PC-1	Item	Commercially Available			None	Cond. A			
20-3													None	GS	PC-1	Item	Commercially Available			None	Cond. A			
20-4	Facility Uninterruptible Power system (Sys. 20-4)												None	GS	PC-1	Item	Commercially Available			None	Cond. A			
20-4	242, -246, -247,	UPS-1											None	GS	PC-1	Item	Commercially Available	NA	NA	None	Cond. A			
20-5	Lightning/Surge protection (Sys. 20-5)												None	GS	PC-1	Item	Commercially Available			None	Cond. B			
20-5													None	GS	PC-1	Item	Commercially Available			None	Cond. B			

Table A-1. Cold Vacuum Drying Facility - Equipment/Structures

Component				Design Criteria	Environmental Qualification				Environ. Cert. ^d	Environ. Condition
Sys. No.	P&ID	Component Tag No.	Component Description / Noun Name	Safety Function	Safety Category Designation	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic ^c
Fire protection system (Sys. 24)										
24	H-1-82237 - H-1		Piping (see Table A-2)							
24	82240		Valves (see Table A-3)							
24	H-1-82237 - H-1		Pipe Supports	Provide Fire Protection & Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2 ^a	ASME B31.9	NA	NA	3/1
24	82240						Commercially Available	NA	NA	None
24	H-1-82244		Fire Alarm Panel/UPS	Fire Protection	GS	PC-1	Item			None
24	H-1-82244		I&C (see Table A-4)							
Deionized water system (Sys. 25)										
25	H-1-82222	DI-IX-9001	De-ionizer Unit		GS	PC-1		td	Hydro Test	None
25	H-1-82222		Piping (see Table A-2)							
25	H-1-82222		Valves (see Table A-3)							
25	H-1-82222		Pipe Supports		GS	PC-1 ^a	ASME B31.9	NA	NA	3/1
25	H-1-82222		I&C (see Table A-4)							
Potable water system (Sys. 26)										
26	H-1-82222		Piping (see Table A-2)							
26	H-1-82222		Valves (see Table A-3)		GS	PC-1	UPC	NA	NA	None
26	H-1-82222		Pipe Supports							
26	H-1-82222		I&C (see Table A-4)							
Sanitary sewage collection system (Sys. 27)										
27	H-1-82222	SANS-IK-9030	Storage Tank		GS	PC-0	AWWA	td	Hydro Test	None
27	H-1-82222		Piping (see Table A-2)							
27	H-1-82222		Valves (see Table A-3)							
27	H-1-82222		Pipe Supports		GS	PC-0	UPC	NA	NA	None
27	H-1-82222		I&C (see Table A-4)							
HVAC Systems (Sys. 30)										
HVAC-A System (Admin. Bldg) (Sys. 30-1)										
30-1	H-1-82195		Dampers		GS	PC-1	ASHRAE, SMACNA			None
30-1	H-1-82195	HVAC-HTP-8001	Heat Pump w Htr.		GS	PC-1	Commercially Available			None
30-1	H-1-82195	HVAC-EXHF-8005	Exhaust Fan		GS	PC-1	Commercially Available			None
30-1	H-1-82195		Ducting		GS	PC-1	ASHRAE, SMACNA			None
30-1	H-1-82195		Duct Supports		GS	PC-1	Commercially Available			None
30-1	H-1-82195		I&C (see Table A-4)				Item	NA	NA	None
HVAC-B System (Process Bay Supply/Recirc.) (Sys. 30-2)										
30-2	H-1-82204	HVAC-CCL-8*03	Cooling Coil		GS	PC-1 ^a	ASHRAE, SMACNA			3/1
30-2	H-1-82204	HVAC-HTR-8*04	Electrical Heater		GS	PC-1 ^a	ASHRAE, SMACNA			3/1
30-2	H-1-82204	HVAC-DMP-8*01	Damper		GS	PC-1 ^a	ASHRAE, SMACNA			3/1
30-2	H-1-82204	HVAC-F-8*02	HEPA filter		GS	PC-1 ^a	ASHRAE, ASME N509, ASME N510			3/1
30-2	H-1-82204		Ducting		GS	PC-1 ^a	ASHRAE, SMACNA, ASME N509, ASME N510			3/1
30-2	H-1-82204		Filter Housing & Duct Supports		GS	PC-1 ^a	ASHRAE, SMACNA, ASME N509, ASME N510			3/1
30-2	H-1-82204	HVAC-FAN-8*05	Fans		GS	PC-1 ^a	ASHRAE, SMACNA			3/1
30-2	H-1-82204		I&C (see Table A-4)							
HVAC-C System (Process Bay Local Exhaust) and Process Vent System (Sys. 30-3)										

Table A-1: Cold Vacuum Drying Facility - Equipment/Structures

Sys. No.		P&ID	Component Tag No.	Component Description / Noun Name	Safety Function	Safety Category	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic ^c	Environ. Cert. ^d	Environ. Condition
Component													
		Design Criteria	Environmental Qualification										
30-3	H-1-82206	HVAC-AMS-8044	Air Flow Measuring Station	Provide Seismic 3/1 protection for adjacent SS SSCs;	Safety Function	SS	PC-2 ^a	ASHRAE, SMACNA			3/1	None	Cond. A
30-3	H-1-82206	HVAC-EXHF-8045, -8047	Fans	None		GS	PC-1 ^a	ASHRAE, SMACNA			3/1	None	Cond. A
30-3	H-1-82206	HVAC-F-8040	HEPA filter	Provide Seismic 3/1 protection for adjacent SS SSCs;	Provide Seismic 3/1 protection for adjacent SS SSCs;	SS	PC-2 ^a	ASHRAE, SMACNA, ASME N509, ASME N510			3/1	None	Cond. A
30-3	H-1-82206		Ducting	Provide Seismic 3/1 protection for adjacent SS SSCs;	Provide Seismic 3/1 protection for adjacent SS SSCs;	SS	PC-2 ^a	ASHRAE, SMACNA, ASME N509, ASME N510			3/1	None	Cond. A
30-3	H-1-82206		Filter Housing & Duct Supports	Provide Seismic 3/1 protection for adjacent SS SSCs;	Provide Seismic 3/1 protection for adjacent SS SSCs;	SS	PC-2 ^a	ASHRAE, SMACNA, ASME N509, ASME N510			3/1	None	Cond. A
30-3	H-1-82192/H-1-82206	HVAC-DMP-8*03	Damper	Provide Seismic 3/1 protection for adjacent SS SSCs;	Provide Seismic 3/1 protection for adjacent SS SSCs;	SS	PC-2 ^a	ASHRAE/ SMACNA			3/1	None	Cond. A
30-3	82206	HVAC-DMP-005, -006, -007, -008, -8046, -8048	Dampers	Provide Seismic 3/1 protection for adjacent SS SSCs;	Provide Seismic 3/1 protection for adjacent SS SSCs;	GS	PC-2 ^a	ASHRAE/ SMACNA			3/1	None	Cond. A
30-3	H-1-82206		I&C (see Table A-4)								3/1	None	Cond. A
30-3			Cask Venting/Purging Equipment	Prevention of H ₂ /D/D		SS	PC-2	Engineered Item			3/1	None	Cond. A
Process vent system (Sys. 30-3)													
30-3	H-1-82161	PV-HOOD-1*12	Process Hood	protection for SC, SS SSCs	Radiation Protection, Confinement & Provide Seismic 3/1 protection for SC, SS SSCs	SS	PC-3	ASHRAE and ACGIH			3/1	None	Cond. A
30-3	H-1-82163	PV-F-3*15	HEPA filter	protection for SC, SS SSCs	protection for SC, SS SSCs	SS	PC-2	ASHRAE, SMACNA, ASME N509, ASME N510			3/1	None	Cond. A
30-3	H-1-82161 to -165		Piping (see Table A-2)										
30-3	H-1-82161 to -165		Valves (see Table A-3)										
30-3	H-1-82161 to -165		Pipe Supports	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SS	PC-2	ASME B31.3	NA	NA	3/1	None	Cond. A
30-4	HVAC-D System [Process General Supply] (Sys. 30-4)												
30-4	H-1-82205	HVAC-CCL-8004	Cooling Coil	None	GS	PC-1 ^a	ASHRAE, SMACNA				3/1	None	Cond. A
30-4	H-1-82205	HVAC-HTR-8003, -8010, -8011, -8012, -8013, -8014	Heater	None	GS	PC-1 ^a	ASHRAE, SMACNA				3/1	None	Cond. A
30-4	H-1-82205	HVAC-AMS-8007	Air Flow Measuring Station	None	GS	PC-1 ^a	ASHRAE, SMACNA				3/1	None	Cond. A
30-4	H-1-82205	HVAC-FAN-8005	Fans	None	GS	PC-1 ^a	ASHRAE, SMACNA				3/1	None	Cond. A
30-4	H-1-82205	HVAC-DMP-8001, -8035	Dampers	None	GS	PC-1 ^a	ASHRAE, SMACNA, ASME N509, ASME N510				3/1	None	Cond. A
30-4	H-1-82205	HVAC-F-8002	HEPA filter	None	GS	PC-1 ^a	ASHRAE, SMACNA, ASME N509, ASME N510				3/1	None	Cond. A
30-4	H-1-82205		Ducting	None	GS	PC-1 ^a	ASHRAE, SMACNA, ASME N509, ASME N510				3/1	None	Cond. A
30-4	H-1-82205		Filter Housing	None	GS	PC-1 ^a	ASHRAE, SMACNA, ASME N509, ASME N510				3/1	None	Cond. A
30-4	H-1-82205		Duct Supports	None	GS	PC-1 ^a	ASHRAE, SMACNA, ASME N509, ASME N510				3/1	None	Cond. A
30-4	H-1-82205		I&C (see Table A-4)								3/1	None	Cond. A
30-4	HVAC-D System [Process General Exhaust] (Sys. 30-4)												
30-4	H-1-82206	HVAC-AMS-8024	Air Flow Measuring Station	Provide Seismic 3/1 protection for adjacent SS SSCs;		SS	PC-2 ^a	ASHRAE, SMACNA			3/1	None	Cond. A
30-4	H-1-82206	HVAC-EXHF-8025, -8027	Fans			GS	PC-1 ^a	ASHRAE, SMACNA			3/1	None	Cond. A

Sys. No.	P&ID	Component Tag No.	Component Description / Noun Name	Safety Function	Design Criteria		Environmental Qualification				Environ. Cert. ^d	Environ. Condition
					Safety Category Designation	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic ^c		
30-4	H-1-82206	HVAC-F-8020	HEPA Filter	Provide Seismic 3/1 protection for adjacent SS SSCs; Provide Confinement	SS	PC-2 ^a	ASHRAE, ASME N509, ASME N510			3/1	None	Cond. A
30-4	H-1-82206		Ducting	Provide Seismic 3/1 protection for adjacent SS SSCs; Provide Confinement	SS	PC-2 ^a	ASHRAE, SMACNA, ASME N509, ASME N510			3/1	None	Cond. A
30-4	H-1-82206		Filter Housing	Provide Seismic 3/1 protection for adjacent SS SSCs; Provide Confinement	SS	PC-2	ASHRAE, SMACNA, ASME N509, ASME N510			3/1	None	Cond. A
30-4	H-1-82206		Duct Supports	Provide Seismic 3/1 protection for adjacent SS SSCs	SS	PC-2	ASHRAE, SMACNA, ASME N509, ASME N510			3/1	None	Cond. A
30-4	H-1-82206	HVAC-DMP-8-02	Damper	Provide Seismic 3/1 protection for adjacent SS SSCs; Provide Confinement	SS	PC-2 ^a	ASHRAE, ASME N509, ASME N510			3/1	None	Cond. A
30-4	H-1-82206	8015, -8016, -8017, -8018, -8019, -8026, -8028, -8060	Dampers	Provide Seismic 3/1 protection for adjacent SS SSCs	GS	PC-2 ^a	ASHRAE, ASME N509, ASME N510			3/1	None	Cond. A
30-4	H-1-82206		I&C (see Table A-4)									
30-5	H-1-82207		Piping (see Table A-2)									
30-5	H-1-82207		Valves (see Table A-3)									
30-5	H-1-82207		Pipe Supports	Provide Seismic 3/1 protection for adjacent SS SSCs	GS	PC-2	ASME B31.9	NA	NA	3/1	None	Cond. A
43	H-1-82207		I&C (see Table A-4)									
46	Process water conditioning system (Sys. 46-1)											
46-1	H-1-82164	PWC-EJR-4031	Water Jet Ejector	Liquid confinement, Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	60 psig	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-F-4042	Filter	Liquid confinement, Critically control (SC)	SC/GS ^a	PC-2	ASME Code, Sec VIII	150 psig	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-IXM-4037	Ion Exchange Module	Critically control (SC)	SC/GS ^a	PC-2	ASME Code, Sec VIII	150 psig	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-IXM-4038	Ion Exchange Module	Critically control (SC)	SC/GS ^a	PC-2	ASME Code, Sec VIII	150 psig	MSLD	3/1	None	Cond. A
46-1	H-1-82223	PWC-P-001	PWC Transporter Transfer Pump	Liquid confinement	GS	PC-2	ASME B73.1M, 2M	60 psig	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-P-4035	Circulation Water Pump A	Liquid confinement, Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B73.1M, 2M	60 psig	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-P-4036	Circulation Water Pump B	Liquid confinement, Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B73.1M, 2M	60 psig	MSLD	3/1	None	Cond. A
46-1	H-1-82223	PWC-TK-4001	Storage tank	Liquid confinement	GS	PC-2	AWWA-D-100	1 psig	Hydro Test	3/1	None	Cond. A
46-1	H-1-82223	PWC-F-4043	Storage tank HEPA Filter	Confinement	GS	PC-2		1 psig		3/1	None	Cond. A
46-1	H-1-82164	PWC-TK-4022	Receiver Tank	Liquid confinement, Critically control (SC)	SC/GS ^a	PC-2	ASME Code, Sec VIII	1 psig and Full Vacuum	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-TK-4033	Receiver Tank	Liquid confinement, Critically control (SC)	SC/GS ^a	PC-2	ASME Code, Sec VIII		MSLD	3/1	None	Cond. A
46-1	H-1-82164		Piping (see Table A-2)									
46-1	H-1-82164		Valves (see Table A-3)									
46-1	H-1-82164		Pipe Supports @ Process Bay	Liquid confinement, Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SS	PC-2 ^a	ASME B31.3	NA	NA	3/1	None	Cond. A
46-1	H-1-82164		Pipe Supports @ Tank Room	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	NA	NA	3/1	None	Cond. A
46-1	H-1-82164		Support Structure @ Tank Room	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SS	PC-2	AISC M-016, AWS D1.1	NA	NA	3/1	None	Cond. A
46-1	H-1-82164		I&C (see Table A-4)									

Table A-1. Cold Vacuum Drying Facility - Equipment/Structures

Component				Design Criteria	Environmental Qualification				Environ. Condition			
Sys. No.	P&ID	Component Tag No.	Component Description / Noun Name	Safety Function	Safety Category Designation	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic ^c	Environ. Cert. ^d	Environ. Condition
46-2 Conditioned Water Shipping System (Sys. 46-2)												
46-2			PWC Sample Bottle Cask	None	GS	PC-1 ^a	Engineered Item	tbd	Pne. Test	3/1	None	Cond. A
46-3 Contaminated Water Sampling and Analysis (Sys. 46-3)												
46-3	H-1-82164	PWC-SMP-4039	Automatic Sampler	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	Engineered Item	300 psig	MSLD	3/1	None	Cond. A
46-3	H-1-82164											
46-3	H-1-82164	PWC-SMP-4040	Automatic Sampler	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	Engineered Item	300 psig	MSLD	3/1	None	Cond. A
46-3	H-1-82164	PWC-SMP-4041	Automatic Sampler	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	Engineered Item	300 psig	MSLD	3/1	None	Cond. A
46-3	H-1-82164		Automatic Sample Bottle	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	Engineered Item	300 psig	MSLD	3/1	None	Cond. A
46-3	H-1-82164		Valves (see Table A-3)									
47 Cooling water system (Sys. 47)												
47-1 MCO-tempered water system (Sys. 47-1)												
47-1	H-1-82163	TW-CLR-3*10	Cooler	None	GS	PC-1 ^a	ASME Code, Sec VIII; TEMA		Hydro Test	3/1	None	Cond. A
47-1	H-1-82163	TW-HTR-3*11	Heater	None	GS	PC-1 ^a	ASME Code, Sec VIII; TEMA		Hydro Test	3/1	None	Cond. A
47-1	H-1-82163	TW-P-3*14	Pump	None	GS	PC-1 ^a	ASME B73.1M, 2M		Hydro Test	3/1	None	Cond. A
47-1	H-1-82161	TW-SE-1*13	MCO/Cask Seal Ring	Provide Seismic 3/1 protection for adjacent SC and SS SSCs & Post Accident Recovery (Refill Capability)	SC	PC-3	ASME B31.1		Hydro Test	Seis. Cond. A	Cond. B	NA
47-1	H-1-82164	TW-TK-3*12	Expansion Tank	None	GS	PC-1 ^a	ASME Code, Sec VIII	150 psig and Full Vacuum	Hydro Test	3/1	None	Cond. A
47-1	242, -246, -247, 248		TW Heater SCR's (@ Process Bay)	None	GS	PC-1 ^a	Commercially Available			3/1	None	Cond. A
47-1	H-1-82161 & -		Cask Lower Port SC Piping & Pipe Supports	Prevent a Runaway Reaction	SC	PC-3	ASME B31.1		MSLD	Seis. Cond. A	Cond. B	NA
47-1	H-1-82161 & -		Cask Upper Port SC Piping & Pipe Supports	Prevent a Runaway Reaction	SC	PC-3	ASME B31.1		MSLD	Seis. Cond. A	Cond. B	NA
47-1	H-1-82161 & -		Piping (see Table A-2)									
47-1	H-1-82161 & -		Valves (see Table A-3)									
47-1	H-1-82161 & -		Pipe Supports @ PES skid	None	GS	PC-1 ^a	ASME B31.3	N/A	NA	3/1	None	Cond. A
47-1	H-1-82161 & -											
47-2 Tempered water cooling system (Sys. 47-2)												
47-2	H-1-82224	TWC-HX-7051	Heat Exchanger	None	GS	PC-1	Commercially Available		Hydro Test	None	None	Cond. A
47-2	H-1-82224	TWC-P-7055, -7058	Pumps	None	GS	PC-1	Commercially Available		Hydro Test	None	None	Cond. A
47-2	H-1-82224	TWC-SEP-7063	Air Separator	None	GS	PC-1	ASME BP&V Code Sec VIII		Hydro Test	None	None	Cond. A
47-2	H-1-82224	TWC-STR-7054	Strainer	None	GS	PC-1	ASME BP&V Code Sec VIII		Hydro Test	None	None	Cond. A
47-2	H-1-82224	TWC-TK-7056	Expansion Tank	None	GS	PC-1	ASME BP&V Code Sec VIII		Hydro Test	None	None	Cond. A
47-2	H-1-82224		Piping (see Table A-2)									
47-2	H-1-82224		Valves (see Table A-3)									

Component												
Sys. No.	P&ID	Component Tag No.	Component Description / Noun Name	Safety Function	Design Criteria	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic ^c	Environ. Cert. ^d	Environ. Condition
47-2	H-1-82224		Pipe Supports		Safety Category Designation			Pressure				
47-2	H-1-82224		I&C (see Table A-4)	None	GS	PC-1	ASME B31.9	NA	NA	3/1	None	Cond. A
Chilled water system (Sys. 47-3)												
47-3	H-1-82201 & -		Air Cooled Chiller w Remote Evaporator Section	None	GS	PC-1	Commercially Available	300 psig	Hydro Test	None	None	Cond. A
47-3	H-1-82201 & -		Chemical Feeder	None	GS	PC-1	Commercially Available	215 psig	Hydro Test	None	None	Cond. A
47-3	H-1-82201 & -		Pumps	None	GS	PC-1	Commercially Available	215 psig	Hydro Test	None	None	Cond. A
47-3	H-1-82201 & -		Air Separator	None	GS	PC-1	Commercially Available	215 psig	Hydro Test	None	None	Cond. A
47-3	H-1-82201 & -		Expansion Tank	None	GS	PC-1	ASME BP&V Code Sec VIII	215 psig	Hydro Test	None	None	Cond. A
47-3	H-1-82201 & -		DCC Chiller Sequencer	None	GS	PC-1	NFPA-70	NA	NA	None	None	Cond. A
47-3	H-1-82201 & -		Piping (see Table A-2)									
47-3	H-1-82201 & -		Valves (see Table A-3)									
47-3	H-1-82201 & -		Pipe Supports	None	GS	PC-1 ^a	ASME B31.9	NA	NA	3/1	None	Cond. A
47-3	H-1-82201 & -		I&C (see Table A-4)									
VPS chilled water system (Sys. 47-4)												
47-4	H-1-82224		Air Cooled Chiller	None	GS	PC-1	Commercially Available	40 psig	Hydro Test	None	None	Cond. A
47-4	H-1-82224		Transfer Pumps	None	GS	PC-1	Commercially Available	40 psig	Hydro Test	None	None	Cond. A
47-4	H-1-82224		Accumulator	None	GS	PC-1	Commercially Available	125 psig	Hydro Test	None	None	Cond. A
47-4	H-1-82224		Piping (see Table A-2)									
47-4	H-1-82224		Valves (see Table A-3)									
47-4	H-1-82224		Pipe Supports	None	GS	PC-1 ^a	ASME B31.9	NA	NA	3/1	None	Cond. A
47-4	H-1-82224		I&C (see Table A-4)									
Stack monitoring system (Sys. 50)												
50	H-1-82209		Alpha Particulate Monitor	Radiation Protection	GS	PC-1	Commercially Available	N/A	N/A	None	None	Cond. A
50	H-1-82209		Regulated Air Pump	Radiation Protection	GS	PC-1	Commercially Available	N/A	N/A	None	None	Cond. A
50	H-1-82209		Record Air Sampler	Radiation Protection	GS	PC-1	Commercially Available	N/A	N/A	None	None	Cond. A
50	H-1-82209		Piping (see Table A-2)									
50	H-1-82209		Valves (see Table A-3)									
50	H-1-82209		Pipe Supports	Radiation Protection	GS	PC-1	ASME B31.9	N/A	N/A	None	None	Cond. A
50	H-1-82209		I&C (see Table A-4)									
50	H-1-82209		Support Structure	None	GS	PC-1	AISC M-016, AWS D1.1	N/A	N/A	None	None	Cond. A
Security system (Sys. 54)												
54			Facility security equipment	None	GS	PC-1	Commercially Available	N/A	N/A	None	None	Cond. A
54			Process bay security equipment	None	GS	PC-1	Commercially Available	N/A	N/A	None	None	Cond. A
Instrumentation and control system (Sys. 93)												
Monitoring and control system (Sys. 93-1)												

Table A-1. Cold Vacuum Drying Facility - Equipment/Structures

		Component				Design Criteria	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic ^c	Environ. Cert. ^d	Environ. Condition
Sys. No.	P&ID	Component Tag No.	Component Description / Noun Name	Safety Function	Safety Category	Designation	Category	Item	PC-1 ^a	Item	PC-1 ^a	Item	Cond. A
93-1	H-1-82291	Workstations		None	GS		PC-1	Commercially Available	NA	NA	None	None	Cond. A
93-1	H-1-82291	Printers		None	GS		PC-1	Commercially Available	NA	NA	None	None	Cond. A
93-1	H-1-82291	PLC Racks		None	GS		PC-1	Commercially Available	NA	NA	None	None	Cond. A
93-1	H-1-82291	Field Taps		None	GS		PC-1	Commercially Available	NA	NA	None	None	Cond. A
93-1	H-1-82291	Remote I/O Cabinets		Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS		PC-1 ^a	Commercially Available	NA	NA	3/1	None	Cond. A
93-1	H-1-82291	Conduit		None	GS		PC-1	Commercially Available	NA	NA	None	None	Cond. A
93-1	H-1-82291	Conduit supports		None	GS		PC-1 ^a	Commercially Available	NA	NA	3/1	None	Cond. A
93-2	Safety class I&C system (Sys. 93-2)												
93-2	H-1-82161 & -165			(See Table A-4)									
100	Specialty Equipment												
100			VPS/PWC/TW/SCHe Process Hood Support Structure	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC		PC-3	Engineered Item	NA	NA	Seis. Cond A	Cond. B	Cond. A
100			Retention Basin/tank Room Portable Transfer Pump and Suction Hose	None	GS		PC-1	Commercially Available	tdb	Hydro test	None	None	Cond. A
100			Swipe Count Pigs	None	GS		PC-1 ^a	Commercially Available	NA	NA	3/1	None	Cond. A
100			RGA Calibration Equipment	None	GS		PC-1	Commercially Available	NA	NA	None	None	Cond. A
100			Cask Lid Storage Fixture (seal replacement and lid decon)	None	GS		PC-1 ^a	Commercially Available	NA	NA	3/1	None	Cond. A
100			Cask Lid Lift Fixture (CSB Design)	None	GS		PC-1	Engineered Item	NA	NA	None	None	Cond. A
100			Cask Trailer Bumper	None	GS		PC-1 ^a	Commercially Available	NA	NA	3/1	None	Cond. A
100			Cask Trailer Wheel Chocks	None	GS		PC-1 ^a	Commercially Available	NA	NA	3/1	None	Cond. A
100			Cask Transporter Air Supply Glad Hand	None	GS		PC-1 ^a	Commercially Available	NA	NA	3/1	None	Cond. A
100			Cask Truck Exhaust Elephant Trunk	None	GS		PC-1	Commercially Available	NA	NA	None	None	Cond. A
100			Portable Crane for IXM Lifting	None	GS		PC-1	Commercially Available	NA	NA	None	None	Cond. A
100			Process Hood Lift Fixture	None	GS		PC-1 ^a	Engineered Item	NA	NA	3/1	None	Cond. A
100			PWC IXM Lifting Fixture	None	GS		PC-1	Commercially Available	NA	NA	None	None	Cond. A
100			Storage Rack/Enclosure for He Leak Test Tools	None	GS		PC-1 ^a	Commercially Available	NA	NA	3/1	None	Cond. A
100			Storage Rack/Enclosure for MCO-Cask Tools	None	GS		PC-1 ^a	Commercially Available	NA	NA	3/1	None	Cond. A
Special Tools													
101			Cask Lid Bolting Torque Calibration Tool/Standard	None	GS		PC-1 ^a	Commercially Available	NA	NA	3/1	None	Cond. A
101			Cask Lid Bolting Torque Wrench (Pneumatic) and Sockets	None	GS		PC-1 ^a	Commercially Available	NA	NA	3/1	None	Cond. A
101			Cask Lid Vent Port Cover Removal and Installation Tools	None	GS		PC-1 ^a	Commercially Available	NA	NA	3/1	None	Cond. A

Table A-1, Cold Vacuum Drying Facility - Equipment/Structures

		Component				Design Criteria	Environmental Qualification					
Sys. No.	P&ID	Component Tag No.	Component Description / Noun Name	Safety Function	Safety Category	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic ^c	Environ. Cert. ^d	Environ. Condition
101			Cask Lower Port Cover Tool			PC-1 ^a	Item	Commercially Available	NA	NA	3/1	Cond. A
101			Cask Lower Port SC Spoolpiece Installation Tool			PC-1 ^a	Engineered Item		NA	NA	3/1	Cond. A
101			Emergency Cask Annulus Water Refill Tool			PC-1 ^a	Engineered Item		NA	NA	3/1	Cond. A
101			HEPA Filter Changeout Tools			PC-1	Item	Commercially Available	NA	NA	None	Cond. A
101			I&C Calibration Tools			PC-1	Item	Commercially Available	NA	NA	None	Cond. A
101			MCO/VPS Process Port Connector Bolt Torque Wrench			PC-1 ^a	Item	Commercially Available	NA	NA	3/1	Cond. A
101			MCO/VPS Process Port Connector Handling Tool (T-Handle, 2 sizes)			PC-1 ^a	Item	Commercially Available	NA	NA	3/1	Cond. A
101			MCO/VPS Process Port Connector He Leak Test Tools			PC-1 ^a	Item	Commercially Available	NA	NA	3/1	Cond. A
101			MCO/VPS Process Port Cover Removal and Installation Tools			PC-1 ^a	Item	Commercially Available	NA	NA	3/1	Cond. A
101			PWC and VPS Process Skid Operation (GOV Overrides) and Maintenance Tools			PC-1	Item	Commercially Available	NA	NA	None	Cond. A
101			PWC Tank Room Hatch Lifting Fixture			PC-1	Item	Commercially Available	NA	NA	None	Cond. A
101			Rad. Survey Instruments			GS	Item	Commercially Available	NA	NA	None	Cond. A

^a Seismic 3/1 Evaluations shall be performed on SC, SS or GS SSCs for potential impact to SS and SC SSCs

^b MSLD (Mass Spectrometer Leak Detection) as specified in ASTM E498 or equivalent. Component must pass leak detection test.

^c Seismic Qualification Conditions (Refer to Hanford document HNF-PRO-097) :

Condition A : Maintain critical function during and after Seismic event (Certification to DOE-STD-1020-94 or IEEE 344-1987 or equivalent). Confinement defined as 1xE-4 sec/min or less.

Condition B : Maintain pressure boundary during and after Seismic event (Certification to DOE-STD-1020-94 or IEEE 344-1987 or equivalent). Component function or operation is not required.

Condition 3/1 : GS, SS or SC component cannot impact a SC component during a Seismic event (Certification to WHC-SD-GN-DGS-30006)

^d Environmental Conditions: Note: The CVDF is a mild environment as defined in IEEE-323

Condition A: 60 °F @ 40 RH, 75° F @ 25% RH

Condition B: 40 °F @ 60 RH, 115° F @ 22% RH

^e GS Procurement with QC Inspection During Fabrication to Satisfy Critically Control Dimensions

Component				Safety Function	Design Criteria			Environmental Qualification				
Sys. No.	P&ID	Component Tag No.	Component Description/Noun Name		Safety Category Designation	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic ^c	Environ. Cert. ^d	Environ. Condition
07	Vacuum and purge system (Sys. 07)											
07-1	H-1-82161	VPS-02-SS-1"	Vacuum Purge System	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC From VPS-V-010 to GOV-1*05	PC-3 From VPS-V-010 to GOV-1*05	ASME B31.1	150 psig and Full Vacuum	MSLD	Seis Cond A	Cond. B	NA
07-1	H-1-82162	VPS-02-SS-2"	Vacuum Purge System	None	GS from GOV-1*05	PC-1 ^a from GOV-1*05	ASME B31.3	150 psig and Full Vacuum	MSLD	3/1	None	Cond. A
07-1	H-1-82162	VPS-03-SS-2"	Vacuum Purge System	None	GS	PC-1 ^a	ASME B31.3	150 psig and Full Vacuum	MSLD	3/1	None	Cond. A
07-1	H-1-82162	VPS-04-SS-1"	Vacuum Purge System	None	GS	PC-1 ^a	ASME B31.3	150 psig and Full Vacuum	MSLD	3/1	None	Cond. A
07-1	H-1-82162	VPS-07-SS-1"	Vacuum Purge System	None	GS	PC-1 ^a	ASME B31.3	150 psig and Full Vacuum	MSLD	3/1	None	Cond. A
07-1	H-1-82162	VPS-08-SS-2"	Vacuum Purge System	None	GS	PC-1 ^a	ASME B31.3	150 psig and Full Vacuum	MSLD	3/1	None	Cond. A
07-1	H-1-82162	VPS-09-SS-1"	Vacuum Purge System	None	GS	PC-1 ^a	ASME B31.3	150 psig and Full Vacuum	MSLD	3/1	None	Cond. A
07-1	H-1-82162	VPS-10-SS-2"	Vacuum Purge System	None	GS	PC-1 ^a	ASME B31.3	150 psig and Full Vacuum	MSLD	3/1	None	Cond. A
07-1	H-1-82162	VPS-11-SS-1"	Vacuum Purge System	None	GS	PC-1 ^a	ASME B31.3	150 psig and Full Vacuum	MSLD	3/1	None	Cond. A
07-1	H-2-82161	VPS-SP-04, -81, -84	VPS Flex Line	None	GS	PC-1 ^a	ASME B31.3	150 psig and Full Vacuum	MSLD	3/1	None	Cond. A
07-2	H-1-82162	VPS-12-ST-1/4"	Vacuum Purge System - RGA Inlet	None	GS	PC-1 ^a	ASME B31.3	150 psig and Full Vacuum	MSLD	3/1	None	Cond. A
07-2	H-1-82162	VPS-13-ST-1/4"	Vacuum Purge System - RGA Outlet	None	GS	PC-1 ^a	ASME B31.3	150 psig and Full Vacuum	MSLD	3/1	None	Cond. A
07-3	He MSLD and Auxiliary Vacuum system (Sys. 07-3)											
07-3		VPS-4b4	MSLD Line	None	GS	PC-1 ^a	ASME B31.3	150 psig	MSLD	3/1	None	Cond. A
12	Compressed and instrument air system (Sys. 12)											
12	H-1-82161	CA-01-SS-1"	Compressed Air	None	GS	PC-1 ^a	ASME B31.9	150 psig	Pneumatic	3/1	None	Cond. A
12	H-1-82161	CA-xxx-SS-x"	Compressed Air - Balance of Plant	None	GS	PC-1	ASME B31.9	150 psig	Pneumatic	none	None	Cond. A
12	H-1-82161	IA-01-SS-1:	Instrument Air to PES Skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Pneumatic	3/1	None	Cond. A
12	H-1-82161	IA-02-ST-1/4"	Instrument Air to Seal Ring	None	GS	PC-1 ^a	ASME B31.3	150 psig	Pneumatic	3/1	None	Cond. A
12	H-1-82161	IA-03-SS-1"	Instrument Air from PES Skid to Hood Assy.	None	GS	PC-1 ^a	ASME B31.3	150 psig	Pneumatic	3/1	None	Cond. A
12	H-1-82164	IA-001-SS-1/2"	Instrument Air Supply to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Pneumatic	3/1	None	Cond. A
12	H-1-82164	IA-002-SS-1/2"	Instrument Air Supply to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Pneumatic	3/1	None	Cond. A
12	H-1-82161	IA-SP-01, -82, -02	IA Flex Line	None	GS	PC-1 ^a	ASME B31.3	150 psig	Pneumatic	3/1	None	Cond. A
12	H-1-82161	IA-xxx-SS-x"	Instrument Air - Balance of Plant	None	GS	PC-1	ASME B31.9	150 psig	Pneumatic	none	None	Cond. A
13	Helium systems (Sys. 13)											
13-1	General Service Helium system (Sys. 13-1)											
13-1	H-1-82161	He-01-SS-1"	General Service Helium Supply to PES Skid.	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC from FE-1*21 to VPS-V-1*019	PC-3 from FE-1*21 to VPS-V-1*019	ASME B31.1	150 psig	MSLD	Seis Cond A	Cond. B	NA
13-1	H-1-82161	He-01-SS-1"	General Service Helium Supply to PES Skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	MSLD	3/1	None	Cond. A
13-1	H-1-82161	He-02-ST-1/4"	General Service Helium Supply for Cask	None	GS	PC-1 ^a	ASME B31.3	150 psig	MSLD	3/1	None	Cond. A

Component												
Sys. No.	P&ID	Component Tag No.	Component Description/Noun Name	Safety Function	Safety Category Designation	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic ^c	Environ. Cert. ^d	Environ. Condition
13-1	H-1-82161	He-03-SS-1"	General Service Helium Supply to PSS Skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	MSLD	3/1	None	Cond. A
13-1	H-1-82161	He-04-ST-1/4"	General Service Helium Supply to PSS Skid Vacuum Pump Ballast	None	GS	PC-1 ^a	ASME B31.3	150 psig	MSLD	3/1	None	Cond. A
13-1	H-1-82161	He-05-SS-1/2"	General Service Helium Supply to SCHe	None	GS	PC-2 ^a	ASME B31.3	150 psig	MSLD	3/1	None	Cond. A
13-1	H-1-82165	He-06-SS-1/2"	General Service Helium Supply to SCHe	None	GS	PC-1 ^a	ASME B31.3	150 psig	MSLD	3/1	None	Cond. A
13-1	H-1-82165	He-07-ST-1/2"	General Service Helium Supply to SCHe	None	GS	PC-1 ^a	ASME B31.3	150 psig	MSLD	3/1	None	Cond. A
13-1	H-1-82165	He-08-ST-1/2"	General Service Helium Supply to SCHe	None	GS	PC-1 ^a	ASME B31.3	150 psig	MSLD	3/1	None	Cond. A
13-1	H-1-82165	He-09-ST-1/2"	General Service Helium Supply to MCO DI flush line	None	GS	PC-1 ^a	ASME B31.3	150 psig	MSLD	3/1	None	Cond. A
13-1	H-1-82222	He-001-SS-1/2"	General Service Helium Supply - Balance of Plant	None	GS	PC-1 ^a	ASME B31.9	150 psig	MSLD	3/1	None	Cond. A
13-1	H-1-82161	He-SP-84, -85	General Service Helium Supply - Flex Line	None	GS	PC-1 ^a	ASME B31.9	150 psig	MSLD	3/1	None	Cond. A
13-2	H-1-82165	SCHe-01-ST-1/4"	Safety Class Helium System	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 psig	MSLD	Seis Cond A	Cond. B	NA
13-2	H-1-82165	SCHe-02-ST-1/4"	Safety Class Helium System	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 psig	MSLD	Seis Cond A	Cond. B	NA
13-2	H-1-82165	SCHe-03-ST-1/4"	Safety Class Helium System	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 psig	MSLD	Seis Cond A	Cond. B	NA
13-2	H-1-82165	SCHe-04-ST-1/4"	Safety Class Helium System	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 psig	MSLD	Seis Cond A	Cond. B	NA
13-2	H-1-82165	SCHe-05-ST-1/4, 1/2"	Safety Class Helium System	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 psig	MSLD	Seis Cond A	Cond. B	NA
13-2	H-1-82165	SCHe-06-ST-1/4, 1/2"	Safety Class Helium System	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 psig	MSLD	Seis Cond A	Cond. B	NA
13-2	H-1-82165	SCHe-07-ST-1/4, 1/2"	Safety Class Helium System	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 psig	MSLD	Seis Cond A	Cond. B	NA
13-2	H-1-82165	SCHe-08-ST-1/4, 1/2"	Safety Class Helium System	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 psig	MSLD	Seis Cond A	Cond. B	NA
13-2	H-1-82161	SCHe-09-ST-1/2, -1"	Safety Class Helium System	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 psig	MSLD	Seis Cond A	Cond. B	NA
13-2	H-1-82161	SCHe-10-ST-1/2, -1"	Safety Class Helium System	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 psig	MSLD	Seis Cond A	Cond. B	NA
13-2	H-1-82165	SCHe-11-ST-1/2, -1"	Safety Class Helium System	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 psig	MSLD	Seis Cond A	Cond. B	NA
13-2	H-1-82165	SCHe-12-ST-1/2, -1"	Safety Class Helium System	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 psig	MSLD	Seis Cond A	Cond. B	NA
18	H-1-82223	Effluent drains system (Sys. 18)	Effluent Drain System	None	GS	PC-1 ^a	ASME B31.9	150 psig	Hydro	None	None	Cond. A
19	H-1-82201 ⁻	Condensate collection system (Sys. 19)	Condensate Collection System	None	GS	PC-1 ^a	ASME B31.9	150 psig	Hydro	None	None	Cond. A
24	H-1-82237 ⁻	Fire protection system (Sys. 24)	Fire Protection System	None	GS	PC-1 ^a	ASME B31.9	150 psig	Hydro	3/1	None	Cond. A
24	H-1-82237 ⁻	FPS	Fire Protection System	Fire Protection	GS	PC-1 ^a	ASME B31.9	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82161	DI/He-01-SS-3/4"	Deionized Water to MCO	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC to GOV-1+11	PC-3	ASME B31.1	150 psig	MSLD	Seis Cond A	Cond. B	NA
25	H-1-82161	DI-01-SS-3/4"	Deionized Water to MCO	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A

Component				Design Criteria				Environmental Qualification				
Sys. No.	PEID	Component Tag No.	Component Description/Non Name	Safety Function	Safety Category Designation	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic ^c	Environ. Cert. ^d	Environ. Condition
25	H-1-82161, H-1-82163	DI-*02-SS-1"	De-ionized Water to TW-TK-3*12	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82161	DI-*03-ST-1/2"	De-ionized Water to MCO	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-004-SS-1/2"	De-ionized Water supply header	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-012-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-013-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A
25	H-1-82164	DI-014-SS-1/2"	De-ionized Water Service to PWC skid	None	GS	PC-1 ^a	ASME B31.3	150 psig	Hydro	3/1	None	Cond. A

Component												
Sys.	P&ID	Component Tag No.	Component Description/Noun Name	Safety Function	Safety Category	Design Criteria	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic ^c	Environ. Cert. ^d
46-1	H-1-82162	PWC-02-SS-1"	Process Water Conditioning at VPS	Confinement, Provide Seismic 3/1 protection for adjacent SC	GS	PC-2 *	ASME B31.3	150 psig and Full Vacuum	MSLD	3/1	None	Cond. A
46-1	H-1-82163	PWC-04-SS-1"	Process Water Conditioning at TW sys. Drain	Confinement, Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2 *	ASME B31.3	150 psig and Full Vacuum	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-001-SS-1"	Process Water Conditioning at PWC skid	Confinement, Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 psig and Full Vacuum	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-002-SS-2"	Process Water Conditioning at PWC skid	Confinement, Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 psig	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-003-SS-1 1/2"	Process Water Conditioning at PWC skid	Confinement, Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 psig	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-004-SS-1 1/2"	Process Water Conditioning at PWC skid	Confinement, Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 psig	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-005-SS-1 1/2 & 2"	Process Water Conditioning at PWC skid	Confinement, Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 psig	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-006-SS-1 1/2"	Process Water Conditioning at PWC skid	Confinement, Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 psig	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-007-SS-1 1/2"	Process Water Conditioning at PWC skid	Confinement, Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 psig	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-008-SS-1 1/2"	Process Water Conditioning at PWC skid	Confinement, Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 psig	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-009-SS-1 1/2"	Process Water Conditioning at PWC skid	Confinement, Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 psig	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-010-SS-1"	Process Water Conditioning at PWC skid	Confinement, Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 psig	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-011-SS-1 1/2"	Process Water Conditioning at PWC skid	Confinement, Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 psig	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-012-SS-1 1/2"	Process Water Conditioning at PWC skid	Confinement, Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 psig	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-013-SS-2"	Process Water Conditioning at PWC skid	Confinement, Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 psig	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-014-SS-1"	Process Water Conditioning at PWC skid	Confinement, Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 psig	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-0xx-SS-1"	Process Water Conditioning at PWC skid	Confinement, Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 psig	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-0xx-SS-2"	Process Water Conditioning at PWC skid	Confinement, Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 psig	MSLD	3/1	None	Cond. A
46-1	H-1-82161, H-1-82164	PWC-SP-04, -01, -02, -05, -08	Process Water Conditioning Flex Line	Confinement, Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 psig	MSLD	3/1	None	Cond. A
47			Cooling water system (Sys. 47)									
47-1			MCO-tempered water system (Sys. 47-1)									
47-1	H-1-82161	TW-02-SS-1 1/2"	Tempered Water System	H2 Explosion prevention; Runaway Reaction Prevention	SC to SP-87	PC-3	ASME B31.1	150 psig	MSLD	Seis Cond A	Cond. B	NA
47-1	H-1-82161	TW-01-SS-1 1/2"	Tempered water System	H2 Explosion prevention; Runaway Reaction Prevention	SC to SP-88	PC-3	ASME B31.1	150 psig	MSLD	Seis Cond A	Cond. B	NA
47-1	H-1-82163	TW-01-SS-1 1/2"	Tempered Water System	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2 *	ASME B31.3	150 psig	Hydro Test	3/1	None	Cond. A
47-1	H-1-82163	TW-02-SS-1 1/2"	Tempered Water System		GS	PC-2 *	ASME B31.3	150 psig	Hydro Test	None	None	Cond. A
47-1	H-1-82163	TW-03-SS-1"	Tempered Water System		GS	PC-1	ASME B31.3	150 psig	Hydro Test	None	None	Cond. A
47-1	H-1-82163	TW-04-SS-1 1/2"	Tempered Water System		GS	PC-1	ASME B31.3	150 psig	Hydro Test	None	None	Cond. A
47-1	H-1-82163	TW-05-SS-1 1/2"	Tempered Water System		GS	PC-1	ASME B31.3	150 psig	Hydro Test	None	None	Cond. A
47-1	H-1-82163	TW-06-SS-1"	Tempered Water System		GS	PC-1	ASME B31.3	150 psig	Hydro Test	None	None	Cond. A
47-1	H-1-82163	TW-07-SS-1"	Tempered Water System		GS	PC-1	ASME B31.3	150 psig	Hydro Test	None	None	Cond. A
47-1	H-1-82161	TW-SP-09, -10, -87, -88	Tempered Water System Flex Line		None							
47-2			Tempered water cooling system (Sys. 47-2)									

Sys. No.	P&ID	Component		Safety Function	Design Criteria			Environmental Qualification				
		Component Tag No.	Component Description/Name		Safety Category Designation	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic ^c	Environ. Cert. ^d	Environ. Condition
47-2	H-1-82224	TWC*01-CT-1 1/2"	Tempered Water Cooling System - Balance of Plant	None	GS	PC-1	ASME B31.9	150 psig	Hydro Test	None	None	Cond. A
47-2	H-1-82224	TWC*02-CT-1 1/2"	Tempered Water Cooling System - Balance of Plant	None	GS	PC-1	ASME B31.9	150 psig	Hydro Test	None	None	Cond. A
47-2	H-1-82163	TWC*01-SS-1 1/2"	Tempered Water Cooling System at PES skid	None	GS	PC-1	ASME B31.3	150 psig	Hydro Test	None	None	Cond. A
47-2	H-1-82163	TWC*02-SS-1 1/2"	Tempered Water Cooling System at PES skid	None	GS	PC-1	ASME B31.3	150 psig	Hydro Test	None	None	Cond. A
47-2	H-1-82163	TWC*03-ST-1/2"	Tempered Water Cooling System - Cool Wir to VPS PMP	None	GS	PC-1	ASME B31.3	150 psig	Hydro Test	None	None	Cond. A
47-2	H-1-82163	TWC*04-ST-1/2"	Tempered Water Cooling System - Cool Wir to VPS PMP	None	GS	PC-1	ASME B31.3	150 psig	Hydro Test	None	None	Cond. A
47-2	H-1-82224	TWC*001-CT-1"	Tempered Water Cooling System - Balance of Plant	None	GS	PC-1	ASME B31.9	150 psig	Hydro Test	None	None	Cond. A
47-3	H-1-82201, -	CHW-001-CT-4"	Chilled Water System - Balance of Plant	None	GS	PC-1	ASME B31.9	150 psig	Hydro Test	None	None	Cond. A
47-3	H-1-82201, -	CHW-002-CT-4"	Chilled Water System - Balance of Plant	None	GS	PC-1	ASME B31.9	150 psig	Hydro Test	None	None	Cond. A
47-3	H-1-82201, -	CHW-003-CT-4"	Chilled Water System - Balance of Plant	None	GS	PC-1	ASME B31.9	150 psig	Hydro Test	None	None	Cond. A
47-3	H-1-82201, -	CHW-004-CT-4"	Chilled Water System - Balance of Plant	None	GS	PC-1	ASME B31.9	150 psig	Hydro Test	None	None	Cond. A
47-3	H-1-82201, -	CHW-005-CT-4"	Chilled Water System - Balance of Plant	None	GS	PC-1	ASME B31.9	150 psig	Hydro Test	None	None	Cond. A
47-3	H-1-82201, -	CHW-006-CT-4"	Chilled Water System - Balance of Plant	None	GS	PC-1	ASME B31.9	150 psig	Hydro Test	None	None	Cond. A
47-3	H-1-82201, -	CHW-007-CT-4"	Chilled Water System - Balance of Plant	None	GS	PC-1	ASME B31.9	150 psig	Hydro Test	None	None	Cond. A
47-3	H-1-82201, -	CHW-008-CT-4"	Chilled Water System - Balance of Plant	None	GS	PC-1	ASME B31.9	150 psig	Hydro Test	None	None	Cond. A
47-3	H-1-82201, -	CHW-009-CT-4"	Chilled Water System - Balance of Plant	None	GS	PC-1	ASME B31.9	150 psig	Hydro Test	None	None	Cond. A
47-3	H-1-82201, -	CHW-010-CT-4"	Chilled Water System - Balance of Plant	None	GS	PC-1	ASME B31.9	150 psig	Hydro Test	None	None	Cond. A
47-3	H-1-82201, -	CHW-011-CT-4"	Chilled Water System - Balance of Plant	None	GS	PC-1	ASME B31.9	150 psig	Hydro Test	None	None	Cond. A
47-3	H-1-82201, -	CHW-012-CT-4"	Chilled Water System - Balance of Plant	None	GS	PC-1	ASME B31.9	150 psig	Hydro Test	None	None	Cond. A
47-3	H-1-82201, -	CHW-013-CT-4"	Chilled Water System - Balance of Plant	None	GS	PC-1	ASME B31.9	150 psig	Hydro Test	None	None	Cond. A
47-3	H-1-82201, -	CHW-014-CT-4"	Chilled Water System - Balance of Plant	None	GS	PC-1	ASME B31.9	150 psig	Hydro Test	None	None	Cond. A
47-3	H-1-82201, -	CHW-015-CT-4"	Chilled Water System - Balance of Plant	None	GS	PC-1	ASME B31.9	150 psig	Hydro Test	None	None	Cond. A
47-3	H-1-82201, -	CHW-016-CT-4"	Chilled Water System - Balance of Plant	None	GS	PC-1	ASME B31.9	150 psig	Hydro Test	None	None	Cond. A
47-3	H-1-82201, -	CHW-017-CT-4"	Chilled Water System - Balance of Plant	None	GS	PC-1	ASME B31.9	150 psig	Hydro Test	None	None	Cond. A
47-3	H-1-82201, -	CHW-018-CT-4"	Chilled Water System - Balance of Plant	None	GS	PC-1	ASME B31.9	150 psig	Hydro Test	None	None	Cond. A
47-3	H-1-82201, -	CHW-020-CT-4"	Chilled Water System - Balance of Plant	None	GS	PC-1	ASME B31.9	150 psig	Hydro Test	None	None	Cond. A

Component				Design Criteria				Environmental Qualification				
Sys No.	P&ID	Component Tag No.	Component Description/Noun Name	Safety Function	Safety Category Designation	NPI and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic ^c	Environ. Cert. ^d	Environ. Condition
47-3	H-1-82201, -82208	CHW-021-CT-4"	Chilled Water System - Balance of Plant	None	GS	PC-1	ASME B31.9	150 psig	Hydro Test	None	None	Cond. A
47-3	H-1-82201, -82208	CHW-022-CT-4"	Chilled Water System - Balance of Plant	None	GS	PC-1	ASME B31.9	150 psig	Hydro Test	None	None	Cond. A
47-3	H-1-82201, -82208	CHW-023-CT-4"	Chilled Water System - Balance of Plant	None	GS	PC-1	ASME B31.9	150 psig	Hydro Test	None	None	Cond. A
47-3	H-1-82201, -82208	CHW-01-CT-4"	Chilled Water System - Balance of Plant	None	GS	PC-1	ASME B31.9	150 psig	Hydro Test	None	None	Cond. A
47-3	H-1-82201, -82208	CHW-02-CT-4"	Chilled Water System - Balance of Plant	None	GS	PC-1	ASME B31.9	150 psig	Hydro Test	None	None	Cond. A
47-3	H-1-82201, -82208	CHW-RS-xxx	Chilled Water System - Balance of Plant	None	GS	PC-1	ASME B31.5	td	Hydro Test	None	None	Cond. A
47-3	H-1-82201, -82208	CHW-RL-xxx	Chilled Water System - Balance of Plant	None	GS	PC-1	ASME B31.5	td	Hydro Test	None	None	Cond. A
47-4	H-1-82224	VPSCHW-01-CT-1"	VPS Condenser Chilled Water Supply	None	GS	PC-1	ASME B31.9	150 psig	Hydro Test	None	None	Cond. A
47-4	H-1-82162	VPSCHW-01-SS-1"	VPS Condenser Chilled Water Supply	None	GS	PC-1	ASME B31.3	150 psig	Hydro Test	None	None	Cond. A
47-4	H-1-82224	VPSCHW-02-CT-1"	VPS Condenser Chilled Water Return	None	GS	PC-1	ASME B31.9	150 psig	Hydro Test	None	None	Cond. A
47-4	H-1-82162	VPSCHW-02-SS-1"	VPS Condenser Chilled Water Return	None	GS	PC-1	ASME B31.3	150 psig	Hydro Test	None	None	Cond. A
47-4	H-1-82162	VPSCHW-101-CT-1	VPS Condenser Chilled Water at VPS-TK-2*1.6/VPS-Cond-2*13	None	GS	PC-1	ASME B31.3	150 psig	Hydro Test	None	None	Cond. A
47-4	H-1-82224	VPSCHW-102-CT-1	VPS Condenser Chilled Water - Balance of Plant	None	GS	PC-1	ASME B31.9	150 psig	Hydro Test	None	None	Cond. A
50	Stack monitoring system (Sys. 50)		Stack Monitor Sample System - Balance of Plant	Radiation Protection	GS	PC-1	ASME B31.9	150 psig	Pneu. Test	None	None	Cond. A

^a Seismic 3/1 Evaluations shall be performed on SC, SS or GS SSCs for potential impact to SS and SC SSCs.

^b MSID (Mass Spectrometer Leak Detection) as specified in ASTM E498 or equivalent. Component must pass leak detection test.

^c Seismic Qualification Conditions (Refer to Hanford document HNF-PRO-097):

Condition A : Maintain critical function during and after Seismic event (Certification to DOE-STD-1020-94 or IEEE 344-1987 or equivalent). Confinement defined as 1XG-4 sec/min or less.

Condition B : Maintain pressure boundary during and after Seismic event (Certification to DOE-STD-1020-94 or IEEE 344-1987 or equivalent). Component function or operation is not required.

Condition 3/1: GS, SS or SC component cannot impact a Seismic event (Certification to WHC-SD-GN-DGS-30006)

^d Environmental Conditions: Note: The CVDF is a mild environment as defined in IEEE-323

Condition A: 60 °F @ 40 RH, 75° F @ 25% RH

Condition B: 40 °F @ 60 RH, 115° F @ 22% RH

Sys. No.	P&ID	Component		Safety Function	Design Criteria		Codes & Standards	Environmental Qualification			Environ. Cert. ^d	Environ. Condition
		Component Tag No.	Component Noun Name		Safety Category Designation	NPH and Performance Category		Internal Pressure	Leak Tightness ^b	Seismic ^c		
07	Vacuum and purge system (S/s: 07)											
07-1	H-1-82161	VPS-GOV-1*05	HE-SPL-Y-MCO-LNG-TB-ISO-VIV	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG and Full Vacuum	MSLD	Sets Cond A	Cond B	NA
07-1	H-1-82161	VPS-GOV-1*09	MCO-SHT-TB-ISO-VLV	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG and Full Vacuum	MSLD	Sets Cond A	Cond B	NA
07-1	H-1-82161	VPS-SOV-1*05	VPS-GOV-1*05-SOL-VLV	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Sets Cond A	Cond B	NA
07-1	H-1-82161	VPS-SOV-1*09	VPS-GOV-1*09-SOL-VLV	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Sets Cond A	Cond B	NA
07-1	H-1-82161	VPS-V*010	MCO-SHT-TB-PLUG VLV	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG and Full Vacuum	MSLD	Sets Cond A	Cond B	NA
07-1	H-1-82161	VPS-V*019	MCO-LNG-TB-PLUG VLV	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG and Full Vacuum	MSLD	Sets Cond A	Cond B	NA
07-1	H-1-82161	VPS-V*059	VPS-PT-1*36-INST RT VLV	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG and Full Vacuum	MSLD	Sets Cond A	Cond B	NA
07-1	H-1-82161	VPS-V*061	VPS-PT-1*37 INST RT VLV	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG and Full Vacuum	MSLD	Sets Cond A	Cond B	NA
07-1	H-1-82162	VPS-CKV*050	VPS-SR-TO-PV-CKV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG and Full Vacuum	MSLD	3/1	None	Cond. A
07-1	H-1-82162	VPS-GOV-2*03	VPS-COND-BYPASS-ISO-VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG and Full Vacuum	MSLD	3/1	None	Cond. A
07-1	H-1-82162	VPS-GOV-2*04	VPS-RECIRC-PUMP-INLET-ISO-VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG and Full Vacuum	MSLD	3/1	None	Cond. A
07-1	H-1-82162	VPS-GOV-2*05	VPS-RECIRC-PUMP-BYPASS-VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG and Full Vacuum	MSLD	3/1	None	Cond. A
07-1	H-1-82162	VPS-GOV-2*07	VPS-VAC-PUMP-INLET-ISO-VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG and Full Vacuum	MSLD	3/1	None	Cond. A
07-1	H-1-82162	VPS-GOV-2*16	PWC-COND-TK-DISCH-ISO-VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG and Full Vacuum	MSLD	3/1	None	Cond. A
07-1	H-1-82162	VPS-GOV-2*21	VPS-COND-TK-DR-ISO-VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG and Full Vacuum	MSLD	3/1	None	Cond. A
07-1	H-1-82162	VPS-GOV-2*22	VPS-COND-INLET-ISO-VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG and Full Vacuum	MSLD	3/1	None	Cond. A
07-1	H-1-82162	VPS-PCV-2*37	VPS PURGE DISCHARGE PCV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG and Full Vacuum	MSLD	3/1	None	Cond. A
07-1	H-1-82162	VPS-SOV-2*03	VPS-COND-BYPASS-ISO-SOL-VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
07-1	H-1-82162	VPS-SOV-2*04	VPS-RECIRC-PUMP-INLET-ISO-SOL-VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
07-1	H-1-82162	VPS-SOV-2*05	VPS-RECIRC-PUMP-BYPASS-SOL-VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
07-1	H-1-82162	VPS-SOV-2*07	VPS-VAC-PUMP-INLET-ISO-VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
07-1	H-1-82162	VPS-SOV-2*16	PWC-COND-TK-DISCH-ISO-VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
07-1	H-1-82162	VPS-SOV-2*21	VPS-COND-TK-DR-ISO-VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
07-1	H-1-82162	VPS-SOV-2*22	VPS-COND-INLET-ISO-VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
07-1	H-1-82162	VPS-SOV-2*16	PWC-COND-TK-DISCH-ISO-SOL-VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
07-1	H-1-82162	VPS-SOV-2*21	VPS-COND-TK-DR-ISO-VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
07-1	H-1-82162	VPS-SOV-2*22	VPS-COND-INLET-ISO-SOL-VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
07-1	H-1-82162	VPS-SRV-2*17	VPS-PG-COND-2*13-INLET-SRV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG and Full Vacuum	MSLD	3/1	None	Cond. A
07-1	H-1-82162	VPS-V*028	VPS-PT-2*09-INST RT VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG and Full Vacuum	MSLD	3/1	None	Cond. A

		Component			Design Criteria			Environmental Qualification				
Sys. No.	P&ID	Component Tag No.	Component Noun Name	Safety Function	Safety Category Designation	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic ^c	Environ. Cert. ^d	Environ. Condition
07-1	H-1-82162	VPS-V-045	VPS-PT-2*11 INST RT VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG and Full Vacuum	MSLD	3/1	None	Cond. A
07-1	H-1-82162	VPS-V-046	VPS-PT-2*08 INST RT VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG and Full Vacuum	MSLD	3/1	None	Cond. A
07-2	RGM system (Sys. 07-2)											
07-2	H-1-82162	VPS-V-029	RGA-ISO VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG and Full Vacuum	MSLD	3/1	None	Cond. A
07-2	H-1-82162	VPS-V-032	RGA-CALBRAT-PT-ISO VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG and Full Vacuum	MSLD	3/1	None	Cond. A
07-3	He MSLD and Auxiliary Vacuum system (Sys. 07-3)											
07-3	VPS-Itd		MSLD Valve	None	GS	PC-1 ^a	ASME B31.3	150 psig	MSLD	3/1	None	Cond. A
12	Compressed and instrument air system (Sys. 12)											
12	H-1-82161	CA-CKV-1*13	CA-AIR-TO-TW CK VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A
12	H-1-82161	IA-CKV-062	IA-063 CKV VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A
12	H-1-82164	IA-CKV-034	AIR-CHECK-VALVE	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A
12	H-1-82161	IA-GOV-1*15	CA-CASK-PURGE-ISO-VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A
12	H-1-82161	IA-PCV-1*26	CASK-SEAL-RING-IA-PCV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A
12	H-1-82161	IA-PCV-1*35	CA-CASK-PURGE-PCV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A
12	H-1-82164	IA-PCV-4056	AIR-PRESS-CONTROL-VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A
12	H-1-82161	IA-SOV-1*15	CA-CASK-DISCH-ISO-SOL-VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A
12	H-1-82161	IA-SRV-1*18	CA-AIR-HE-PURGE-SRV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A
12	H-1-82161	IA-V-001	IA-SOV-1*30 ISO VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A
12	H-1-82161	IA-V-002	IA-SOV-1*01 ISO VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A
12	H-1-82161	IA-V-003	IA-SOV-1*02 ISO VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A
12	H-1-82161	IA-V-004	IA-SOV-1*09 ISO VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A
12	H-1-82161	IA-V-006	IA-SOV-1*06 ISO VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A
12	H-1-82161	IA-V-007	IA-SOV-1*15 ISO VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A
12	H-1-82161	IA-V-008	IA-SOV-1*14 ISO VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A
12	H-1-82161	IA-V-009	IA-SOV-1*12 ISO VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A
12	H-1-82161	IA-V-022	IA-SEAL-RNG3-SPLY/VENT	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A
12	H-1-82161	IA-V-023	IA-PT-1*104 INST-RT VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A
12	H-1-82163	IA-V-034	IA-SOV-3*14-ISO VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A

Component										Design Criteria				Environmental Qualification			
Sys. No.	P&ID	Component Tag No.	Component Noun Name	Safety Function	Safety Category	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic ^c	Environ. Cert. ^d	Environ. Condition					
12	H-1-82162	IA-V-*038	IA-SOV-2*03 ISO VLV		GS	PC-1 *	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A					
12	H-1-82162	IA-V-*039	IA-SOV-2*22 ISO VLV		GS	PC-1 *	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A					
12	H-1-82162	IA-V-*040	IA-SOV-2*21 ISO VLV		GS	PC-1 *	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A					
12	H-1-82162	IA-V-*041	IA-SOV-2*07 ISO VLV		GS	PC-1 *	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A					
12	H-1-82162	IA-V-*042	IA-SOV-2*04 ISO VLV		GS	PC-1 *	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A					
12	H-1-82162	IA-V-*043	IA-SOV-2*05 ISO VLV		GS	PC-1 *	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A					
12	H-1-82162	IA-V-*044	IA-SOV-2*16 ISO VLV		GS	PC-1 *	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A					
12	H-1-82163	IA-V-*047	IA-SOV-3*01 ISO VLV		GS	PC-1 *	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A					
12	H-1-82161	IA-V-*053	IA-SOV-1*03 ISO VLV		GS	PC-1 *	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A					
12	H-1-82161	IA-V-*054	IA-SOV-1*17 ISO VLV		GS	PC-1 *	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A					
12	H-1-82161	IA-V-*055	IA-SOV-1*05 ISO VLV		GS	PC-1 *	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A					
12	H-1-82165	IA-V-*075	IA-AIR-SOV-5*12 ISO VLV		GS	PC-1 *	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A					
12	H-1-82165	IA-V-*076	IA-AIR-SOV-5*31 ISO VLV		GS	PC-1 *	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A					
12	H-1-82165	IA-V-*086	IA-SOV-5*51-ISO VLV		GS	PC-1 *	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A					
12	H-1-82165	IA-V-*087	IA-SOV-5*71 ISO VLV		GS	PC-1 *	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A					
12	H-1-82161 H-1-83766	IA-V-*111	IA-SOV-1*11 ISO VLV		GS	PC-1 *	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A					
12	H-1-82164	IA-V-001	Ball Valve		GS	PC-1 *	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A					
12	H-1-82164	IA-V-002	Ball Valve		GS	PC-1 *	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A					
12	H-1-82164	IA-V-011	IA-SOV-4057 ISO VLV		GS	PC-1 *	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A					
12	H-1-82164	IA-V-026	Ball Valve		GS	PC-1 *	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A					
12	H-1-82164	IA-V-030	Ball Valve		GS	PC-1 *	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A					
12	H-1-82164	IA-V-037	Ball Valve		GS	PC-1 *	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A					
12	H-1-82164	IA-V-038	Ball Valve		GS	PC-1 *	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A					
12	H-1-82164	IA-V-039	Ball Valve		GS	PC-1 *	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A					
12	H-1-82164	IA-V-041	Ball Valve		GS	PC-1 *	ASME B31.3	150 PSIG	Pneumatic Test	3/1	None	Cond. A					
12	H-1-82222	IA-V-xxxx	Balance of Plant IA VLV		None	PC-1 *	ASME B31.9	150 PSIG	Pneumatic Test	3/1	None	Cond. A					
12	H-1-82222	CA-V-xxxx	Balance of Plant CA VLV		None	PC-1 *	ASME B31.9	150 PSIG	Pneumatic Test	3/1	None	Cond. A					

Table A-3. Cold Vacuum Drying Facility - Valves

Component													Design Criteria		Environmental Qualification																																																																																																																																																																																																																																																																	
Sys. No.	P&ID	Component Tag No.	Component Noun Name	Safety Function	Safety Category	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic ^c	Environ. Cert. ^d	Environ. Condition	13 Helium systems (Sys. 13)										13-1 General Service Helium system (Sys. 13-1)																																																																																																																																																																																																																																																									
13-1	H-1-82161	He-FV-1*20	HE-SPLY-LNG-TB-FLOW-CONTROL-VLV	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-1 ⁺	ASME B31.1	150 PSIG	MSLD	3/1	Cond. B	NA	13-1	H-1-82161	He-GOV-1*02	HE-GOV-1*02-SOL-VLV	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Sets Cond A	Cond. B	NA	13-1	H-1-82161	He-GOV-1*06	HE-GOV-1*06-SOL-VLV	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Sets Cond A	Cond. B	NA	13-1	H-1-82161	He-SRV-5027	HE-SPLY-SRV-VLV	Preclude MCCO from overpressurization from He supply	SC	PC-3	ASME B31.1	2000 PSIG	MSLD	Sets Cond A	Cond. B	NA	13-1	H-1-82222	He-SRV-5029	HE-SPLY-SRV-VLV	Preclude MCCO from overpressurization from He supply	SC	PC-3	ASME B31.1	2000 PSIG	MSLD	Sets Cond A	Cond. B	NA	13-1	H-1-82161	He-V-*014	He-PDT-1*34 ISO VLV	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG and Full Vacuum	MSLD	Sets Cond A	Cond. B	NA	13-1	H-1-82161	He-V-*015	He-PDT-1*35 ISO VLV	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG and Full Vacuum	MSLD	Sets Cond A	Cond. B	NA	13-1	H-1-82161	He-CKV-*012	HE-SPLY-MCO/VPS-PURGE CK VLV	None	GS	PC-1 ⁺	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A	13-1	H-1-82161	He-CKV-*067	HE-CASK-LID-CONN-CKV	None	GS	PC-1 ⁺	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A	13-1	H-1-82162	He-CKV-*107	HE-VPS-PURGE-CK VLV	None	GS	PC-1 ⁺	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A	13-1	H-1-82161	He-GOV-1*12	HE-PURGE-VPS-ISO-VLV	None	GS	PC-1 ⁺	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A	13-1	H-1-82161	He-PCV-1*27	HE-PURGE-SPLY-VPS-PCV	None	GS	PC-1 ⁺	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A	13-1	H-1-82222	He-PCV-5026	Pressure Control Valve	None	GS	PC-1	ASME B31.3	150 PSIG	MSLD	None	None	Cond. A	13-1	H-1-82222	He-PCV-5028	Pressure Control Valve	None	GS	PC-1	ASME B31.3	150 PSIG	MSLD	None	None	Cond. A	13-1	H-1-82161	He-OD-*110		None	GS	PC-1 ⁺	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A	13-1	H-1-82161	He-SOV-1*12	HE-PURGE-SPLY-VPS-ISO-SOL-VLV	None	GS	PC-1 ⁺	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A	13-1	H-1-82222	He-V-*01	Valves - Balance of Plant	None	GS	PC-1 ⁺	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A	13-1	H-1-82161	He-V-*016	HE-CASK-LID ISO VLV B	None	GS	PC-1 ⁺	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A	13-1	H-1-82161	He-V-*026	HE-SCHE/PURGE ISO VLV	None	GS	PC-1 ⁺	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A	13-1	H-1-82162	He-V-*063	P-2*11-BALLAST- ISO VLV	None	GS	PC-1 ⁺	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A	13-1	H-1-82161	He-V-*066	HE-CASK-LID-CONN-ISO VLV A	None	GS	PC-1 ⁺	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
																										13-2 Safety class helium purge system (Sys. 13-2)																																																																																																																																																																																																																																																						

		Component											
Sys. No.	P&ID	Component Tag No.	Component Noun Name	Safety Function	Safety Category	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic ^c	Environ. Cert. ^d	Environ. Condition	
13-2	H-1-82165	SCH-C-KV-*090	HF-SUPPLY-PURGE-A-CV	Thermal Runaway and H2 Explosion prevention; Provide	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA	
13-2	H-1-82165	SCH-C-KV-*091	HF-SUPPLY-PURGE-B-CV	Thermal Runaway and H2 Explosion prevention; Provide	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA	
13-2	H-1-82165	SCH-C-KV-*092	HF-SUPPLY-PURGE-C-CV	Thermal Runaway and H2 Explosion prevention; Provide	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA	
13-2	H-1-82165	SCH-C-KV-*093	HF-SUPPLY-PURGE-D-CV	Thermal Runaway and H2 Explosion prevention; Provide	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA	
13-2	H-1-82165	SCH-GOV-5*12	HF-SUPPLY-PURGE-A	Thermal Runaway and H2 Explosion prevention; Provide	SC	PC-3	ASME B31.1	150 PSIG and Full Vacuum	MSLD	Seis Cond A	Cond. B	NA	
13-2	H-1-82165	SCH-GOV-5*31	HF-SUPPLY-PURGE-B	Thermal Runaway and H2 Explosion prevention; Provide	SC	PC-3	ASME B31.1	150 PSIG and Full Vacuum	MSLD	Seis Cond A	Cond. B	NA	
13-2	H-1-82165	SCH-GOV-5*51	HF-SUPPLY-PURGE-C	Thermal Runaway and H2 Explosion prevention; Provide	SC	PC-3	ASME B31.1	150 PSIG and Full Vacuum	MSLD	Seis Cond A	Cond. B	NA	
13-2	H-1-82165	SCH-GOV-5*71	HF-SUPPLY-PURGE-D	Thermal Runaway and H2 Explosion prevention; Provide	SC	PC-3	ASME B31.1	150 PSIG and Full Vacuum	MSLD	Seis Cond A	Cond. B	NA	
13-2	H-1-82165	SCH-P-PCV-5*04	Pressure Control Valve	Thermal Runaway and H2 Explosion prevention; Provide	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA	
13-2	H-1-82165	SCH-P-PCV-5*08	Pressure Control Valve	Thermal Runaway and H2 Explosion prevention; Provide	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA	
13-2	H-1-82165	SCH-P-PCV-5*23	Pressure Control Valve	Thermal Runaway and H2 Explosion prevention; Provide	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA	
13-2	H-1-82165	SCH-P-PCV-5*27	Pressure Control Valve	Thermal Runaway and H2 Explosion prevention; Provide	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA	
13-2	H-1-82165	SCH-P-PCV-5*43	Pressure Control Valve	Thermal Runaway and H2 Explosion prevention; Provide	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA	
13-2	H-1-82165	SCH-P-PCV-5*47	Pressure Control Valve	Thermal Runaway and H2 Explosion prevention; Provide	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA	
13-2	H-1-82165	SCH-P-PCV-5*54	Pressure Control Valve	Thermal Runaway and H2 Explosion prevention; Provide	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA	
13-2	H-1-82165	SCH-P-PCV-5*55	Pressure Control Valve	Thermal Runaway and H2 Explosion prevention; Provide	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA	
13-2	H-1-82165	SCH-P-PCV-5*63	Pressure Control Valve	Thermal Runaway and H2 Explosion prevention; Provide	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA	
13-2	H-1-82165	SCH-P-PCV-5*67	Pressure Control Valve	Thermal Runaway and H2 Explosion prevention; Provide	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA	
13-2	H-1-82165	SCH-P-PCV-5*74	Pressure Control Valve	Thermal Runaway and H2 Explosion prevention; Provide	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA	
13-2	H-1-82165	SCH-P-PCV-5*75	Pressure Control Valve	Thermal Runaway and H2 Explosion prevention; Provide	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA	
13-2	H-1-82165	SCH-P-PCV-5*80	Pressure Control Valve	Thermal Runaway and H2 Explosion prevention; Provide	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA	
13-2	H-1-82165	SCH-P-PCV-5*82	Pressure Control Valve	Thermal Runaway and H2 Explosion prevention; Provide	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA	
13-2	H-1-82165	SCH-P-PCV-5*84	Pressure Control Valve	Thermal Runaway and H2 Explosion prevention; Provide	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA	
13-2	H-1-82165	SCH-P-PCV-5*86	Pressure Control Valve	Thermal Runaway and H2 Explosion prevention; Provide	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA	
13-2	H-1-82165	SCH-SOV-5*12	Electric Solenoid Valve	Thermal Runaway and H2 Explosion prevention; Provide	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA	
13-2	H-1-82165	SCH-SOV-5*31	Electric Solenoid Valve	Thermal Runaway and H2 Explosion prevention; Provide	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA	
13-2	H-1-82165	SCH-SOV-5*51	Electric Solenoid Valve	Thermal Runaway and H2 Explosion prevention; Provide	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA	

Table A-3. Cold Vacuum Drying Facility - Valves

Sys. No.	P&ID	Component Tag No.	Component Noun Name	Safety Function	Design Criteria			Environmental Qualification			Environ. Cert. ^d	Environ. Condition
					Safety Category Designation	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic ^c		
13-2	H-1-82165	SCHE-SOV-5*71	Electric Solenoid Valve	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA
13-2	H-1-82165	SCHE-SRV-5*05	Safety Relief Valve	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA
13-2	H-1-82165	SCHE-SRV-5*24	Safety Relief Valve	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA
13-2	H-1-82165	SCHE-SRV-5*44	Safety Relief Valve	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA
13-2	H-1-82165	SCHE-SRV-5*64	Safety Relief Valve	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA
13-2	H-1-82165	SCHE-V-5*064	SCHE-TK-5*01 INST RT	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA
13-2	H-1-82165	SCHE-V-5*065	SCHE-TK-5*02 INST RT	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA
13-2	H-1-82165	SCHE-V-5*069	SCHE-HE-SPL-5*06 INST RT	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA
13-2	H-1-82165	SCHE-V-5*070	SCHE-HE-SPL-5*25 INST RT	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA
13-2	H-1-82165	SCHE-V-5*077	SCHE-PI-5*09 INST RT	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA
13-2	H-1-82165	SCHE-V-5*078	SCHE-PI-5*28 INST RT	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA
13-2	H-1-82165	SCHE-V-5*082	SCHE-TK-5*03 INST RT	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA
13-2	H-1-82165	SCHE-V-5*083	SCHE-PI-5*45 INS RT	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA
13-2	H-1-82165	SCHE-V-5*084	SCHE-TK-5*04 INST RT	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA
13-2	H-1-82165	SCHE-V-5*085	SCHE-PI-5*65 INST RT	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA
13-2	H-1-82165	SCHE-V-5*088	SCHE-PI-5*48 INST RT	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA
13-2	H-1-82165	SCHE-V-5*089	SCHE-PI-5*68 INST RT	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA
13-2	H-1-82165	SCHE-V-5*102	SCHE-HE-PI-5*09 ISO-VLV-BLEED	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA
13-2	H-1-82165	SCHE-V-5*103	SCHE-HE-PI-5*28 ISO-VLV-BLEED	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA
13-2	H-1-82165	SCHE-V-5*104	SCHE-HE-PI-5*48 ISO-VLV-BLEED	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA
13-2	H-1-82165	SCHE-V-5*105	SCHE-HE-PI-5*68 ISO-VLV-BLEED	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG	MSLD	Seis Cond A	Cond. B	NA
13-2	H-1-82165	SCHE-V-5*071	HE-SPL-PURGE-A-ISO VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
13-2	H-1-82165	SCHE-V-5*072	HE-SPL-PURGE-B-ISO VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
13-2	H-1-82165	SCHE-V-5*073	HE-SPL-PURGE-C-ISO VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
13-2	H-1-82165	SCHE-V-5*074	HE-SPL-PURGE-D-ISO VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
13-2	H-1-82165	SCHE-V-5*094	SCHE-HE-PI-5*81 ISO VLV-BLEED	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A

Table A-3. Cold Vacuum Drying Facility - Valves

		Component			Design Criteria			Environmental Qualification				
Sys. No.	P&ID	Component Tag No.	Component Noun Name	Safety Function	Safety Category Designation	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic ^c	Environ. Cert. ^d	Environ. Condition
13-2	H-1-82165	SCHE-V-*095	SCHE-HE-PI-5*81 INST RT	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
13-2	H-1-82165	SCHE-V-*096	SCHE-HE-PI-5*83-ISO-VLV-BLEED	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
13-2	H-1-82165	SCHE-V-*097	SHCE-HE-PI-5*83-INST RT	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
13-2	H-1-82165	SCHE-V-*098	SCHE-HE-PI-5*85-ISO-VLV-BLEED	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
13-2	H-1-82165	SCHE-V-*099	SCHE-HE-PI-5*85-INST RT	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
13-2	H-1-82165	SCHE-V-*100	SCHE-HE-PI-5*87-ISO-VLV-BLEED	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
13-2	H-1-82165	SCHE-V-*101	SCHE-HE-PI-5*87-INST RT	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
18	Effluent drains system (Sys. 18)											
18	H-1-82223	EF-V-xxxx	Valves - Balance of Plant	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
19	Condensate collection system (Sys. 19)											
19	H-1-82223	CCS-V-xxx	Valves - Balance of Plant	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
24	Fire protection system (Sys. 24)											
24	H-1-82237	FP-V-xxxx	Valves - Balance of Plant	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
25	Deionized water system (Sys. 25)											
25	H-1-82161	DI/He-GOV-1*17	MCO-LNG-TB-RECIRC-ISO-VLV	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG and Full Vacuum	MSLD	Ssis Cond A	Cond B	NA
25	H-1-82161	DI/He-GOV-1*11	MCO-LNG-TB-RECIRC-ISO-VLV	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG and Full Vacuum	MSLD	Ssis Cond A	Cond B	NA
25	H-1-82161	DI/He-SOV-1*17	DI/He-GOV-1*17-SOL-VLV	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG and Full Vacuum	MSLD	Ssis Cond A	Cond B	NA
25	H-1-82161	DI/He-SOV-1*11	DI/He-GOV-1*11-SOL-VLV	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	Full Vacuum	MSLD	Ssis Cond A	Cond B	NA
25	H-1-82165	DI/He-QD*110		None	GS	PC-1 ^a	ASME B31.3	150 PSIG	Hydro Test	3/1	None	Cond. A
25	H-1-82161	DI-CKV-*011	DI-TO-MCO-CKV VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	Hydro Test	3/1	None	Cond. A
25	H-1-82164	DI-CKV-017	Check Valve	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	Hydro Test	3/1	None	Cond. A
25	H-1-82164	DI-CKV-035	Check Valve	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	Hydro Test	3/1	None	Cond. A
25	H-1-82161	DI-GOV-1*01	DI-SPLY-ISO-VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	Hydro Test	3/1	None	Cond. A
25	H-1-82164	DI-PCV-4057	Gas Operated Valve	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	Hydro Test	3/1	None	Cond. A
25	H-1-82165	DI-QD-*110	Quick Disconnect	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	Hydro Test	3/1	None	Cond. A
25	H-1-82161	DI-SOV-1*01	DI-SPLY-ISO-SOL-VLV	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	Hydro Test	3/1	None	Cond. A
25	H-1-82164	DI-SOV-4057	Electric Solenoid Valve	None	GS	PC-1 ^a	ASME B31.3	150 PSIG	Hydro Test	3/1	None	Cond. A

Table A-3. Cold Vacuum Drying Facility - Valves

Sys. No.	P&ID	Component Tag No.	Component Noun Name	Safety Function			Safety Category	Design Category	NPH and Performance Category	Design Criteria			Environmental Qualification				Environ. Condition
													Leak	Tightness ^b	Seismic ^c	Environ. Cert. ^d	
25	H-1-82163	DI-V-049	TW-EXPANSION -TK-INST-ISO VLV				GS	PC-1 ^a	ASME B31.3	150 PSIG	Hydro Test	3/1	None	Cond. A			
25	H-1-82164	DI-V-008	Ball Valve				GS	PC-1 ^a	ASME B31.3	150 PSIG	Hydro Test	3/1	None	Cond. A			
25	H-1-82164	DI-V-010	Ball Valve				GS	PC-1 ^a	ASME B31.3	150 PSIG	Hydro Test	3/1	None	Cond. A			
25	H-1-82164	DI-V-016	Ball Valve				GS	PC-1 ^a	ASME B31.3	150 PSIG	Hydro Test	3/1	None	Cond. A			
25	H-1-82164	DI-V-028	Ball Valve				GS	PC-1 ^a	ASME B31.3	150 PSIG	Hydro Test	3/1	None	Cond. A			
25	H-1-82164	DI-V-031	Ball Valve				GS	PC-1 ^a	ASME B31.3	150 PSIG	Hydro Test	3/1	None	Cond. A			
25	H-1-82164	DI-V-032	Ball Valve				GS	PC-1 ^a	ASME B31.3	150 PSIG	Hydro Test	3/1	None	Cond. A			
25	H-1-82222	DI-V-xxx	Valves - Balance of Plant				GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A			
26	Potable water system (Sys. 26)																
26-1	H-1-82222	PW-V-xxx	Valves - Balance of Plant				GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A			
27	Sanitary sewage collection system (Sys. 27)																
27	H-1-82222	SANS-V-xxx	Valves - Balance of Plant				GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A			
30	HVAC Systems (Sys. 30)																
30-2	HVAC-B System [Process Bay Supply/Recirc.] (Sys. 30-2)																
30-2	H-1-82204	HVACB-SOV-8201	BAY 2 OPEN DAMPER	None			GS	PC-1 ^a	ASME B31.9	150 PSIG	Pneumatic Test	3/1	None	Cond. A			
30-2	H-1-82204	HVACB-SOV-8301	BAY 3 OPEN DAMPER	None			GS	PC-1 ^a	ASME B31.9	150 PSIG	Pneumatic Test	3/1	None	Cond. A			
30-2	H-1-82204	HVACB-SOV-8401	BAY 4 OPEN DAMPER	None			GS	PC-1 ^a	ASME B31.9	150 PSIG	Pneumatic Test	3/1	None	Cond. A			
30-2	H-1-82204	HVACB-SOV-8501	BAY 5 OPEN DAMPER	None			GS	PC-1 ^a	ASME B31.9	150 PSIG	Pneumatic Test	3/1	None	Cond. A			
30-3	HVAC-C System [Process Bay Local Exhaust] and Process Vent System (Sys. 30-3)																
30-3	H-1-82206	HVACC-SOV-8046	LOC EXH LEAD DAMPER	None			GS	PC-1 ^a	ASME B31.9	150 PSIG	Pneumatic Test	3/1	None	Cond. A			
30-3	H-1-82206	HVACC-SOV-8048	LOC RXH STBY DAMPER	None			GS	PC-1 ^a	ASME B31.9	150 PSIG	Pneumatic Test	3/1	None	Cond. A			
30-3	Process vent system (Sys. 30-3)																
30-3	H-1-82161	PV-PSB-1*33	MCO-RD	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG and Full Vacuum	MSLD	Seis Cond A	Cond. B	NA					
30-3	H-1-82161	PV-CKV-*012	MCO-RD-CKV	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	Full Vacuum	MSLD	Seis Cond A	Cond. B	NA					
30-3	H-1-82162	PV-CKV-*031	VPS -TO- PV -CKV	H2 Explosion prevention, Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A					
30-3	H-1-82163	PV-CKV-*060	TW-EXPANSION-TK-VENT CK	H2 Explosion prevention, Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A					
30-3	H-1-82161	PV-QD-*017	PV-CASK-LID-QUICK DISC.	H2 Explosion prevention, Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A					
30-3	H-1-82161	PV-V-*068	PV-CASK-LID-DISH-ISO VLV	H2 Explosion prevention, Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A					
30-3	H-1-82165	PV-V-*079	SCHB-PV-G-ISO VLV	H2 Explosion prevention, Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A					

Table A-3: Cold Vacuum Drying Facility - Valves

		Component				Design Criteria		Environmental Qualification					
Sys. No.	P&ID	Component Tag No.	Component Noun Name	Safety Function	Safety Category	Designation	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic ^c	Environ. Cert. ^d	Environ. Condition
30-3	H-1-82165	PV-V-*080	SCHF-Q-PV-ISO SLV	H2 Explosion prevention, Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A	
30-4	HVAC-D System (Process General Supply/Exhaust) (Sys. 30-4)												
30-4	H-1-82205	HVACD-SOV-8001	GEN SUPPLY ISO DAMPER VALVE	None	GS	PC-1 ^a	ASME B31.9	150 PSIG	Pneumatic Test	3/1	None	Cond. A	
30-4	H-1-82205	XFER CORR ISO DAMPER VALVE	None	GS	PC-1 ^a	ASME B31.9	150 PSIG	Pneumatic Test	3/1	None	Cond. A		
30-4	H-1-82205	HVACD-SOV-8016	FUME HOOD ISO DAMPER VALVE	None	GS	PC-1 ^a	ASME B31.9	150 PSIG	Pneumatic Test	3/1	None	Cond. A	
30-4	H-1-82205	HVACD-SOV-8017	TANK RM ISO DAMPER VALVE	None	GS	PC-1 ^a	ASME B31.9	150 PSIG	Pneumatic Test	3/1	None	Cond. A	
30-4	H-1-82205	HVACD-SOV-8018	MECH RM ISO DAMPER VALVE	None	GS	PC-1 ^a	ASME B31.9	150 PSIG	Pneumatic Test	3/1	None	Cond. A	
30-4	H-1-82205	HVACD-SOV-8019	MECH RM ISO DAMPER VALVE	None	GS	PC-1 ^a	ASME B31.9	150 PSIG	Pneumatic Test	3/1	None	Cond. A	
30-4	H-1-82206	HVACD-SOV-8026	GEN EXH LEAD DAMPER	None	GS	PC-1 ^a	ASME B31.9	150 PSIG	Pneumatic Test	3/1	None	Cond. A	
30-4	H-1-82206	HVACD-SOV-8028	GEN EXH STBY DAMPER	None	GS	PC-1 ^a	ASME B31.9	150 PSIG	Pneumatic Test	3/1	None	Cond. A	
30-4	H-1-82206	HVACD-SOV-8035	LW TK RM ISOLATION DAMPER	None	GS	PC-1 ^a	ASME B31.9	150 PSIG	Pneumatic Test	3/1	None	Cond. A	
30-4	H-1-82206	HVACD-SOV-8060	EXH STACK ISO DAMPER	None	GS	PC-1 ^a	ASME B31.9	150 PSIG	Pneumatic Test	3/1	None	Cond. A	
30-4	H-1-82205	HVACD-SOV-8102	SPARE BAY ISO DAMPER VALVE	None	GS	PC-1 ^a	ASME B31.9	150 PSIG	Pneumatic Test	3/1	None	Cond. A	
30-4	H-1-82206	HVACD-SOV-8202	BAY 2 ISO DAMPER	None	GS	PC-1 ^a	ASME B31.9	150 PSIG	Pneumatic Test	3/1	None	Cond. A	
30-4	H-1-82205	HVACD-SOV-8203	BAY2 LOC ISO DAMPER VALVE	None	GS	PC-1 ^a	ASME B31.9	150 PSIG	Pneumatic Test	3/1	None	Cond. A	
30-4	H-1-82205	HVACD-SOV-8302	BAY3 ISO DAMPER VALVE	None	GS	PC-1 ^a	ASME B31.9	150 PSIG	Pneumatic Test	3/1	None	Cond. A	
30-4	H-1-82205	HVACD-SOV-8303	BAY3 LOC ISO DAMPER VALVE	None	GS	PC-1 ^a	ASME B31.9	150 PSIG	Pneumatic Test	3/1	None	Cond. A	
30-4	H-1-82205	HVACD-SOV-8402	BAY4 ISO DAMPER VALVE	None	GS	PC-1 ^a	ASME B31.9	150 PSIG	Pneumatic Test	3/1	None	Cond. A	
30-4	H-1-82205	HVACD-SOV-8403	BAY4 LOC ISO DAMPER VALVE	None	GS	PC-1 ^a	ASME B31.9	150 PSIG	Pneumatic Test	3/1	None	Cond. A	
30-4	H-1-82205	HVACD-SOV-8502	BAY5 ISO DAMPER VALVE	None	GS	PC-1 ^a	ASME B31.9	150 PSIG	Pneumatic Test	3/1	None	Cond. A	
30-4	H-1-82205	HVACD-SOV-8503	BAY5 LOC ISO DAMPER CLOSED	None	GS	PC-1 ^a	ASME B31.9	150 PSIG	Pneumatic Test	3/1	None	Cond. A	
30-5	H-1-82207	RA-V-xxx		None			ASME B31.9, B16 Series	150 PSIG	Pneumatic Test	None	None	Cond. A	
46	Process water conditioning system (Sys. 46)												
46-1	Process water conditioning system (Sys. 46-1)												
46-1	H-1-82161	MCO-PWC-ISO-VLV	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG and Full Vacuum	MSLD	Seis Cond A	Cond. B	NA		
46-1	H-1-82161	MCO-PWC-ISO-VLV	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG and Full Vacuum	MSLD	Seis Cond A	Cond. B	NA		
46-1	H-1-82161	MCO-PWC-ISO-VLV	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG and Full Vacuum	MSLD	Seis Cond A	Cond. B	NA		
46-1	H-1-82161	MCO-PWC-ISO-SOV-VLV	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG and Full Vacuum	MSLD	Seis Cond A	Cond. B	NA		
46-1	H-1-82161	MCO-PWC-ISO-SOV-VLV	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG and Full Vacuum	MSLD	Seis Cond A	Cond. B	NA		

Component				Design Criteria			Environmental Qualification					
Sys. No.	P&ID	Component Tag No.	Component Noun Name	Safety Function	Safety Category Designation	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic ^c	Environ. Cert. ^d	Environ. Condition
46-1	H-1-82163	PWC-CKV-030	TW/VPS COND TO PWC CKV	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-82163	PWC-CKV-038	MCO-TO-PWC-CKV	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-83766	PWC-CKV-002	PWC-HEADER-CKV	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-83766	PWC-CKV-003	PWC-HEADER-CKV	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-83766	PWC-CKV-004	PWC-HEADER-CKV	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-83766	PWC-CKV-005	PWC-HEADER-CKV	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-82163	PWC-CKV-006	TW-TO-PWC-CKV	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-82163	PWC-CKV-007	VPS-COND-TK-TO-PWC-CKV	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-CKV-014	Check Valve	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-CKV-018	Check Valve	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-FV-4039	PWC-FLW-TO-IXM-ELE	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-GOV-4045	PWC-CIRC-PUMP-SUCTON	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-GOV-4046	PWC-CIRC-PUMP-DISCH	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-GOV-4047	PWC-IXM-RECR/STG-TK-3WAY	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-GOV-4048	PWC-IXM/RECR-TK-3WAY	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-PCV-4042	DI-TO-PWC-PCV	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
H-1-82164 H-1-82161	82164	PWC-QD-020	CASK-DRN-QIK DCONN	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
H-1-83766 H-1-82164	82164	PWC-QD-045	TK-4001 to Tanker QD	None	GS	PC-1	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-SOV-4045	Electric Solenoid Valve	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-SOV-4046	Electric Solenoid Valve	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-SOV-4047	PWC-FILTER-ISO-SOL-VLV	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-82163	PWC-V-0033	TW/SMPL-PT-ISO VLV	None	GS	PC-1	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-82163	PWC-V-0048	CK-DRAIN-TO-PWC-ISO VLV	None	GS	PC-1	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-82163	PWC-V-0051	TW-TO-PWC-ISO VLV	None	GS	PC-1	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-V-004	Gage Root Valve	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-V-005	Gage Root Valve	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-V-006	Gage Root Valve	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A

Table A-3. Cold Vacuum Drying Facility - Valves

		Component			Design Criteria			Environmental Qualification				
Sys. No.	P&ID	Component Tag No.	Component Noun Name	Safety Function	Safety Category Designation	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic ^c	Environ. Cert. ^d	Environ. Condition
46-1	H-1-82164	PWC-V-007	Ball Valve; Three Way	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-V-008	Ball Valve; Three Way	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-V-009	Gage Root Valve	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-V-013	Gage Root Valve	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-V-015	Ball Valve	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-V-019	Ball Valve	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-V-022	Gage Root Valve	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-V-023	Gage Root Valve	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-V-024	Gage Root Valve	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-V-025	Gage Root Valve	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-V-032	Ball Valve; Three Way	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-V-036	Ball Valve	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-V-042	Gage Root Valve	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-V-043	Gage Root Valve	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-1	H-1-82164	PWC-V-044	Gage Root Valve	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
46-3 (Contained Water Sampling and Analysis (Sys. 46-3))												
46-3	H-1-82166	PWC-V-xxx	Valves - Balance of Plant	Provide Seismic 3/1 protection for adjacent SC and SS SSCs	GS	PC-2	ASME B31.3	150 PSIG	MSLD	3/1	None	Cond. A
47 (Cooling water system (Sys. 47))												
47-1	MCO-tempered water system (Sys. 47-1)											
47-1	H-1-82161	TW-FCV-1*22	TW-ANNUALS-ANTI-SIPHON-B	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG	Hydro Test	Seis Cond A	Cond. B	NA
47-1	H-1-82161	TW-FCV-1*23	TW-ANNUALS-ANTI-SIPHON-A	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG	Hydro Test	Seis Cond A	Cond. B	NA
47-1	H-1-82161	TW-OD-*018	TW-CASK-INLET-QUICK DISC	Thermal Runaway and H2 Explosion prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG	Hydro Test	Seis Cond A	Cond. B	NA
47-1	H-1-82161	TW-V-*021	TW-CASK-MANUAL-FILL ISO VLV	Thermal Runaway prevention; Provide Seismic 3/1 protection for adjacent SC and SS SSCs	SC	PC-3	ASME B31.1	150 PSIG	Hydro Test	Seis Cond A	Cond. B	NA
47-1	H-1-82161	TW-V-*027	Ball Valve	Provide Post Accident Monitoring of Cask Annulus water level for Runaway Reaction Prevention	SC	PC-3	ASME B31.1	150 PSIG	Hydro Test	Seis Cond A	Cond. B	NA
47-1	H-1-82163	TW-FCV-3*18	TW-WTR-TK-3*12-FDR-PCV	None	GS	PC-1	ASME B31.3	150 PSIG	Hydro Test	None	None	Cond. A
47-1	H-1-82161	TW-GOV-1*14	Gas Operated Valve	None	GS	PC-1	ASME B31.3	150 PSIG	Hydro Test	None	None	Cond. A
47-1	H-1-82163	TW-GOV-3*14	TW-DISCH-ISO-VLV	None	GS	PC-1	ASME B31.3	150 PSIG	Hydro Test	None	None	Cond. A
47-1	H-1-82161	TW-SOV-1*14	TW-CASK-DISCH-ISO-SOL-VLV	None	GS	PC-1	ASME B31.3	150 PSIG	Hydro Test	None	None	Cond. A

Component				Design Criteria			Environmental Qualification					
Sys. No.	P&ID	Component Tag No.	Component Noun Name	Safety Function	Safety Category Designation	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic ^c	Environ. Cert. ^d	Environ. Condition
47-1	H-1-82163	TW-SOV-3*14	TW-HTR-DISCH-ISO-SOL-VLV	None	GS	PC-1	ASME B31.3	150 PSIG	Hydro Test	None	None	Cond. A
47-1	H-1-82163	TW-SRV-3*11	TW-WTR-TK-3*12-INLET-PCV	None	GS	PC-1	ASME B31.3	150 PSIG	Hydro Test	None	None	Cond. A
47-1	H-1-82163	TW-V-*035	TW-EXPANSION-TK-DISCH -ISO VLV	None	GS	PC-1	ASME B31.3	150 PSIG	Hydro Test	None	None	Cond. A
47-1	H-1-82163	TW-V-*036	TW-CERC-PUMP-DISCH-ISO VLV	None	GS	PC-1	ASME B31.3	150 PSIG	Hydro Test	None	None	Cond. A
47-1	H-1-82163	TW-V-*037	TW-COOLER-DISCH-ISO VLV	None	GS	PC-1	ASME B31.3	150 PSIG	Hydro Test	None	None	Cond. A
47-1	H-1-82163	TW-V-*052	TW-PIT-3*08-INSTR RT	None	GS	PC-1	ASME B31.3	150 PSIG	Hydro Test	None	None	Cond. A
47-1	H-1-82163	TW-V-*109	TW-HTR-DRN-ISO VLV	None	GS	PC-1	ASME B31.3	150 PSIG	Hydro Test	None	None	Cond. A
47-2) Tempered water cooling system (Svs. 47-2)												
47-2	H-1-82224	TW-C-CKV-057	Check Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-2	H-1-82224	TW-C-CKV-060	Check Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-2	H-1-82163	TW-C-GOV-3*01	TW-CLR-INLET-ISO-VLV	None	GS	PC-1	ASME B31.3	150 PSIG	Hydro Test	None	None	Cond. A
47-2	H-1-82224	TW-C-PCV-7055	Pressure Control Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-2	H-1-82163	TW-C-SOV-3*01	TW-CLR-INLET-ISO-SOL-VLV	None	GS	PC-1	ASME B31.3	150 PSIG	Hydro Test	None	None	Cond. A
47-2	H-1-82224	TW-C-SRV-7063	Safety Relief Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-2	H-1-82224	TW-C-SRV-7065	Safety Relief Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-2	H-1-82224	TW-C-V-*31	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-2	H-1-82224	TW-C-V-*32	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-2	H-1-83766	TW-C-V-*33	TWVC to VPS PMP	None	GS	PC-1	ASME B31.3	150 PSIG	Hydro Test	None	None	Cond. A
47-2	H-1-83766	TW-C-V-*34	TWVC from VPS PMP	None	GS	PC-1	ASME B31.3	150 PSIG	Hydro Test	None	None	Cond. A
47-2	H-1-82224	TW-C-V-051	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-2	H-1-82224	TW-C-V-052	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-2	H-1-82224	TW-C-V-053	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-2	H-1-82224	TW-C-V-054	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-2	H-1-82224	TW-C-V-055	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-2	H-1-82224	TW-C-V-056	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-2	H-1-82224	TW-C-V-058	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-2	H-1-82224	TW-C-V-061	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-2	H-1-82224	TW-C-V-062	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-2	H-1-82224	TW-C-V-063	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-2	H-1-82224	TW-C-V-064	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-2	H-1-82224	TW-C-V-065	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-2	H-1-83768	TW-C-V-066	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-2	H-1-83768	TW-C-V-067	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3) Chilled water system (Svs. 47-3)												
47-3	H-1-83768 H-1-	CHW-CKV-003	Check Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-	CHW-CKV-005	Check Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-	CHW-CKV-015	Check Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-	CHW-CKV-031	Check Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-	CHW-CKV-041	Check Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-	CHW-V-001	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A

Table A-3. Cold Vacuum Drying Facility - Valves

		Component			Design Criteria			Environmental Qualification				
Sys. No.	P&ID	Component Tag No.	Component Noun Name	Safety Function	Safety Category Designation	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic ^c	Environ. Cert. ^d	Environ. Condition
47-3	H-1-83768 H-1-82224	CHW-V-002	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-003	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-004	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-005	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-006	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-007	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-008	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-009	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-010	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-011	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-012	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-013	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-014	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-015	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-016	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-017	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-018	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-019	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-020	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-021	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-022	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-023	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-024	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-025	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-026	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-027	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-030	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A

Table A-3. Cold Vacuum Drying Facility - Valves

		Component			Design Criteria		Environmental Qualification					
Sys. No.	P&ID	Component Tag No.	Component Noun Name	Safety Function	Safety Category Designation	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic ^c	Environ. Cert. ^d	Environ. Condition
47-3	H-1-83768 H-1-82224	CHW-V-031	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-032	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-033	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-040	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-041	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-042	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-043	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-051	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-052	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-053	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-054	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-055	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-056	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-070	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-071	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-072	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-201	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-202	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-203	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-204	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-205	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-206	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-301	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-302	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-303	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-304	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A
47-3	H-1-83768 H-1-82224	CHW-V-305	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A

		Component			Design Criteria		Environmental Qualification									
Sys. No.	P&ID	Component Tag No.	Component Noun Name	Safety Function	Safety Category	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic ^c	Environ. Cert. ^d	Environ. Condition				
47-3	82224	CHW-V-306	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A				
47-3	82224	CHW-V-401	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A				
47-3	82224	CHW-V-402	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A				
47-3	82224	CHW-V-403	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A				
47-3	82224	H-1-83768 H-1-	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A				
47-3	82224	CHW-V-501	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A				
47-3	82224	CHW-V-502	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A				
47-3	82224	H-1-83768 H-1-	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A				
47-3	82224	CHW-V-503	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A				
47-3	82224	CHW-V-504	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A				
47-3	82224	H-1-83768 H-1-	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A				
47-3	82224	CHW-V-505	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A				
47-3	82224	CHW-V-506	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A				
47-3	82224	H-1-83768 H-1-	Pressure Control Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A				
47-3	82224	CHW-PCV-7060	Pressure Control Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A				
47-3	82224	H-1-83768 H-1-	Pressure Control Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A				
47-3	82224	CHW-PCV-7061	Pressure Control Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A				
47-3	82224	H-1-83768 H-1-	Safety Relief Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A				
47-3	82224	CHW-SRV-7050	Safety Relief Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A				
47-3	82224	H-1-83768 H-1-	Temperature Control Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A				
47-3	82224	CHW-TCV-5054	Temperature Control Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A				
47-3	82224	H-1-83768 H-1-	Temperature Control Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A				
47-3	82224	CHW-TCV-8203	Temperature Control Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A				
47-3	82224	H-1-83768 H-1-	Temperature Control Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A				
47-3	82224	CHW-TCV-8303	Temperature Control Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A				
47-3	82224	H-1-83768 H-1-	Temperature Control Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A				
47-3	82224	CHW-TCV-8403	Temperature Control Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A				
47-3	82224	H-1-83768 H-1-	Temperature Control Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A				
47-4	VPS chilled water system (Sys. 47-4)															
47-4	H-1-82162	VPS-CHW-COND-TK-INLET-FCV	None	GS	PC-1	ASME B31.3	150 PSIG	Hydro Test	None	None	None	Cond. A				
47-4	H-1-82224	Safety Relief Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	None	Cond. A				
47-4	H-1-82224	VPSCHW-SRV-7081	Safety Relief Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A				
47-4	H-1-82224	VPSCHW-PCV-7075	Pressure Control Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A				
47-4	H-1-82224	VPSCHW-V-075	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A				
47-4	H-1-82224	VPSCHW-V-076	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A				
47-4	H-1-82224	VPSCHW-V-077	Ball Valve	None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	Cond. A				

Component													Design Criteria		Environmental Qualification									
Sys. No.	P&ID	Component Tag No.	Component Noun Name	Safety Function	Safety Category	Designation	Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic ^c	Environ. Cert. ^d	Environ. Condition											
47.4	H-1-82224	VPSCHW-V-078	Ball Valve	Safety Function	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	None	Cond. A											
47.4	H-1-82224	VPSCHW-V-079	Ball Valve		None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	None	Cond. A										
47.4	H-1-82224	VPSCHW-V-*75	Ball Valve		None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	None	Cond. A										
47.4	H-1-82224	VPSCHW-V-*76	Ball Valve		None	GS	PC-1	ASME B31.9	150 PSIG	Hydro Test	None	None	None	Cond. A										
50	Stack monitoring system (Sys. 50)				None	GS	PC-1	ASME B31.9	150 PSIG	Pneumatic Test	None	None	None	Cond. A										
50	H-1-82209	SM-V-xxxx	Valves - Balance of Plant	None	GS		PC-1	ASME B31.9	150 PSIG	Pneumatic Test	None	None	Cond. A											
Seismic 3/1 Evaluations shall be performed on SC, SS or GS SSCs for potential impact to SS and SC SSCs																								
^b MSLD (Mass Spectrometer Leak Detection) as specified in ASTM E498 or equivalent. Component must pass leak detection test.																								
^c Seismic Qualification Conditions (Refer to Hanford document HNF-PRO-097) :																								
Condition A : Maintain critical function during and after Seismic event (Certification to DOE-STD-1020-94 or IEEE 344-1987 or equivalent). Confinement defined as 1XE-4 scf/min or less.																								
Condition B : Maintain pressure boundary during and after Seismic event (Certification to DOE-STD-1020-94 or IEEE 344-1987 or equivalent). Component function or operation is not required.																								
Condition 3/1: GS, SS or SC component cannot impact a Seismic event (Certification to WHC-SD-GN-DGS-30006)																								
^d Environmental Conditions: Note: The CVPDF is a mild environment as defined in IEEE-323																								
Condition A: 60 °F @ 40 RH, 75° F @ 25% RH																								
Condition B: 40 °F @ 60 RH, 115° F @ 22% RH																								

Sys. No.	Design Criteria	Safety Function	Safety Category	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic	Environ. Cert.	Environ. Cond.
05	Personnel Monitoring System									
05-1	Radation Monitoring System (Sys. 05-1)									
05-1	ARM	Area Rad. Monitoring	GS	PC-1	HSRCM-1	None	NA	None	None	Cond. A
05-1	CAM	Continuous Air Monitor	GS	PC-1	HSRCM-1	None	NA	None	None	Cond. A
05-1	PCM	Personel Contamination Monitor	GS	PC-1	HSRCM-1	None	NA	None	None	Cond. A
05-1	ARM-1111	PWC RCVR TK Rad LVL	GS	PC-1	HSRCM-1/ANS-8.3-1997	None	NA	None	None	Cond. A
05-2	Room Air Quality system (Sys. 05-2)									
05-2	AQ	Oxygen Monitoring Balance of Plant I&C	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
07	Vacuum and purge system (Sys. 07)									
07-1	VPS-PI-1*40	VPS-PG-MCO-IN/OUT-PRESS I	SC	PC-3	IEEB 344, IEEB 379, IEEB 603, IEEB 627	150 PSIG	MLSD ^a	Sets Cond A	Cond. B	Cond. B
07-1	VPS-PI-1*41	VPS-PG-MCO-IN/OUT-PRESS I	SC	PC-3	IEEB 344, IEEB 379, IEEB 603, IEEB 627	150 PSIG	MLSD ^a	Sets Cond A	Cond. B	Cond. B
07-1	VPS-PT-1*08	MCO-DISCH-PRESS-SMTTR-R-TRW	SC	PC-3	IEEB 344, IEEB 379, IEEB 603, IEEB 627	150 PSIG	MLSD ^a	Sets Cond A	Cond. B	Cond. B
07-1	VPS-PT-1*10	MCO-DISCH-PRESS-SMTTR-R-TRN	SC	PC-3	IEEB 344, IEEB 379, IEEB 603, IEEB 627	150 PSIG	MLSD ^a	Sets Cond A	Cond. B	Cond. B
07-1	VPS-PT-1*36	MCO-DISCH-PRESS-XMTTR-R-TRW	SC	PC-3	IEEB 344, IEEB 379, IEEB 603, IEEB 627	150 PSIG	MLSD ^a	Sets Cond A	Cond. B	Cond. B
07-1	VPS-PT-1*37	MCO-DISCH-PRESS-XMTTR-R-TRW	SC	PC-3	IEEB 344, IEEB 379, IEEB 603, IEEB 627	150 PSIG	MLSD ^a	Sets Cond A	Cond. B	Cond. B
07-1	VPS-LSH-2*25	VPS-LOND-TK-LUL-SWT	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	30 psig	MLSD ^a	None	Cond. A	Cond. A
07-1	VPS-PI-2*09	VPS-COND-OUTLET-PRES-XMITR	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	150 psig	MLSD ^a	None	None	Cond. A
07-1	VPS-PI-2*11	VPS-COND-INLET-PRES-XMITR	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	150 psig	MLSD ^a	None	None	Cond. A
07-1	VPS-PT-2*08	VAC-PMP-INLET-PRES-XMITR	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	150 psig	MLSD ^a	None	None	Cond. A
07-1	VPS-TIT-1*07	MCO-SHT-TB-TEMP-XMITR	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	3/1	NA	None	None	Cond. A
07-1	VPS-TIT-2*14	VPS-COND-OUTLET-TEMP-XMITR	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	3/1	NA	None	None	Cond. A
07-1	VPS-TIT-2*15	VPS-VAC-PUMP-DISCH-TEMP-XMITR	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	3/1	NA	None	None	Cond. A
07-1	VPS-RECIRC-PUMP-DISCH-TEMP-XMITR	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	3/1	NA	None	None	Cond. A
07-1	VPS-TIT-2*18	AMMITR	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	3/1	NA	None	None	Cond. A
07-1	VPS-TIT-2*35	VPSCHW Condenser Outlet Temperature Indicator/Transmitter	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	3/1	NA	None	None	Cond. A
07-1	VPS-TIT-2*36	VPSCHW Condenser Outlet Temperature Indicator/Transmitter	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	3/1	NA	None	None	Cond. A
07-1	VPS-ZS-1*03	MCO TO PWC Isolation Local Valve Position Switch	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
07-1	VPS-ZS-1*05	MCO Short Dip Tube Isolation Valve Position Switch	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
07-1	VPS-ZS-1*09	MCO Short Dip Tube Isolation Valve Position Switch	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
07-1	VPS-ZS-1*17	MCO Long Dip Tube Isolation Valve Position Switch	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
07-1	VPS-ZS-2*03	VPS Condenser Bypass Valve Position Switch	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
07-1	VPS-ZS-2*04	VPS Blower Inlet Valve Position Switch	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A

Table A-4. Cold Vacuum Drying Facility - Instrumentation and Control

Component															Design Criteria															Environmental Qualification																																																																																																																																		
Sys. No.	P&ID	Component Tag No.	Component Noun Name	Safety Function	Safety Category	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic	Environ. Cert.	Environ. Cond.	Sys. No.	P&ID	Component Tag No.	Component Noun Name	Safety Function	Safety Category	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic	Environ. Cert.	Environ. Cond.	Sys. No.	P&ID	Component Tag No.	Component Noun Name	Safety Function	Safety Category	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic	Environ. Cert.	Environ. Cond.																																																																																																																										
Residual Gas Monitoring system (Sys. 07-2)																																																																																																																																																																
07-1	H-1-82162	VPS-ZS-2*22	VPS Condenser Inlet Valve Position Switch	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A	07-1	H-1-82162	VPS-ZS-2*21	VPS Condenser Outlet Valve Position Switch	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A	07-1	H-1-82162	VPS-ZS-2*07	VPS Vacuum Pump Inlet Valve Position Switch	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A	07-1	H-1-82162	VPS-ZS-2*05	VPS Vacuum and Blower Bypass Valve Position Switch	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A																																																																																																													
Compressed and instrument air system (Sys. 12)																																																																																																																																																																
07-2	H-1-82162	VPS-AB-2*13	VPS-RGA-ANAL-ELE	None	GS	PC-1 ^a	ISA-S5.1, -S5.4, -S18.1, -S20	30 psig	MLSD ^a	3/1	None	Cond. A	07-2	H-1-82162	VPS-AT-2*13	VPS-RGA-ANAL-XMITR	None	GS	PC-1 ^a	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	3/1	None	Cond. A	12	H-1-82164	IA-FI-4048	PWC-IA-FLOW IND	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	150 psig	Pneumatic Test	None	None	None	Cond. A	12	H-1-82161	IA-PIT-1*04	CASK-SEAL-RING-IA-PRES-XMITR	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	150 psig	NA	None	None	Cond. A																																																																																																												
12	H-1-82161	IA-ZS-1*15	TW Compress Air Supply to Cask Valve Position Switch	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	150 psig	NA	3/1	None	Cond. A	12	H-1-82222	CA-XXXX	CA Balance of Plant I&C (not part of piping boundary)	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A	12	H-1-82222	IA-XXXX	IA Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	None	Cond. A	13	Helium systems (Sys. 13)																																																																																																																							
General Service Helium system (Sys. 13-1)																																																																																																																																																																
13-1	H-1-82161	He-PT-1*34	He-SUPPLY-MCO-PRESS	Thermal Runaway and H2 Explosion prevention; pressure boundary only	SC	PC-3	IEEB 344, ISA-S5.1, -S5.4, -S18.1, -S20	150 PSIG	MLSD ^a	Seis Cond B	Cond. B	Cond. B	13-1	H-1-82161	He-PT-1*35	He-SUPPLY-MCO-PRESS	Thermal Runaway and H2 Explosion prevention; Provides press boundary and SCIC trip inputs	SC	PC-3	IEEB 344, IEEB 379, IEEB 603, IEEB 627	150 PSIG	MLSD ^a	Seis Cond B	Cond. B	Cond. B	13-1	H-1-82161	He-FE-1*20	He-MCO-LNG-TB-FL-W-ELE	Thermal Runaway and H2 Explosion prevention; Provides press boundary and SCIC trip inputs	SC	PC-3	IEEB 344, IEEB 379, IEEB 603, IEEB 627	150 PSIG	MLSD ^a	Seis Cond B	Cond. B	Cond. B	13-1	H-1-82161	He-FE-1*21	He-MCO-LNG-TB-FL-W-ELE	Thermal Runaway and H2 Explosion prevention; Provides SCIC trip inputs	SC	PC-3	IEEB 344, IEEB 603, IEEB 627	None	NA	Seis Cond A	Cond. B	Cond. B	13-1	H-1-82161	He-FIT-1*20	Thermal Runaway and H2 Explosion prevention; Provides SCIC trip inputs	SC	PC-3	IEEB 344, IEEB 379, IEEB 603, IEEB 627	None	NA	Seis Cond A	Cond. B	Cond. B	13-1	H-1-82161	He-FIT-1*21	Thermal Runaway and H2 Explosion prevention; Provides SCIC trip inputs	SC	PC-3	IEEB 344, IEEB 603, IEEB 627	None	NA	Seis Cond A	Cond. B	Cond. B	13-1	H-1-82161	He-FE-1*19	HE-SPLY-VPS-FLOW-ELE	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A	Cond. A	13-1	H-1-82161	He-FIT-1*19	HE-SPLY-VPS-FLOW-XMITR	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A	Cond. A	13-1	H-1-82222	He-PT-5030	Helium Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A	Cond. A	13-1	H-1-82161	He-ZS-1*06	MCO Short Dip Tube Iso to Normal He, Valve Pos Switch	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A	Cond. A	13-1	H-1-82161	He-ZS-1*12	Normal He Supply Isolation Valve Position Switch	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A	Cond. A	13-2	Safety class helium purge system (Sys. 13-2)													

Table A-4, Cold Vacuum Drying Facility - Instrumentation and Control

Sys. No.	P&ID	Component Tag No.	Component Noun Name	Safety Function	Safety Category	Design Criteria		Environmental Qualification			
						NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic	Environ. Cert.
13-2	H-1-82165	SCHe-FI-5*10	SCHe Flow Indication to MCO; Rotameter	Thermal Runaway and H2 Explosion prevention; pressure boundary only	SC	PC-3	IEEB 344, ISA-S5.1, -S5.4, -S18.1, -S20	150 PSIG	MLSD ^a	Seis Cond B	Cond. B
13-2	H-1-82165	SCHe-FI-5*29	SCHe Flow Indication to MCO; Rotameter	Thermal Runaway and H2 Explosion prevention; pressure boundary only	SC	PC-3	IEEB 344, ISA-S5.1, -S5.4, -S18.1, -S20	150 PSIG	MLSD ^a	Seis Cond B	Cond. B
13-2	H-1-82165	SCHe-FI-5*49	SCHe Flow Indication to MCO; Rotameter	Thermal Runaway and H2 Explosion prevention; pressure boundary only	SC	PC-3	IEEB 344, ISA-S5.1, -S5.4, -S18.1, -S20	150 PSIG	MLSD ^a	Seis Cond B	Cond. B
13-2	H-1-82165	SCHe-FI-5*52	SCHe Flow Indication to Vent; Rotameter	Thermal Runaway and H2 Explosion prevention; pressure boundary only	SC	PC-3	IEEB 344, ISA-S5.1, -S5.4, -S18.1, -S20	150 PSIG	MLSD ^a	Seis Cond B	Cond. B
13-2	H-1-82165	SCHe-FI-5*69	SCHe Flow Indication to MCO; Rotameter	Thermal Runaway and H2 Explosion prevention; pressure boundary only	SC	PC-3	IEEB 344, ISA-S5.1, -S5.4, -S18.1, -S20	150 PSIG	MLSD ^a	Seis Cond B	Cond. B
13-2	H-1-82165	SCHe-FI-5*72	SCHe Flow Indication to Vent; Rotameter	Thermal Runaway and H2 Explosion prevention; pressure boundary only	SC	PC-3	IEEB 344, ISA-S5.1, -S5.4, -S18.1, -S20	150 PSIG	MLSD ^a	Seis Cond B	Cond. B
13-2	H-1-82165	SCHe-FI-5*76	SCHe Flow Indication to MCO; Rotameter	Thermal Runaway and H2 Explosion prevention; pressure boundary only	SC	PC-3	IEEB 344, ISA-S5.1, -S5.4, -S18.1, -S20	150 PSIG	MLSD ^a	Seis Cond B	Cond. B
13-2	H-1-82165	SCHe-FI-5*77	SCHe Flow Indication to MCO; Rotameter	Thermal Runaway and H2 Explosion prevention; pressure boundary only	SC	PC-3	IEEB 344, ISA-S5.1, -S5.4, -S18.1, -S20	150 PSIG	MLSD ^a	Seis Cond B	Cond. B
13-2	H-1-82165	SCHe-FI-5*78	SCHe Flow Indication to MCO; Rotameter	Thermal Runaway and H2 Explosion prevention; pressure boundary only	SC	PC-3	IEEB 344, ISA-S5.1, -S5.4, -S18.1, -S20	150 PSIG	MLSD ^a	Seis Cond B	Cond. B
13-2	H-1-82165	SCHe-FSH-5*76	SCHe Flow SW HI	Thermal Runaway and H2 Explosion prevention; pressure boundary only	SC	PC-3	IEEB 344, ISA-S5.1, -S5.4, -S18.1, -S20	150 PSIG	MLSD ^a	Seis Cond B	Cond. B
13-2	H-1-82165	SCHe-FSH-5*77	SCHe Flow SW HI	Thermal Runaway and H2 Explosion prevention; pressure boundary only	SC	PC-3	IEEB 344, ISA-S5.1, -S5.4, -S18.1, -S20	150 PSIG	MLSD ^a	Seis Cond B	Cond. B
13-2	H-1-82165	SCHe-FSH-5*78	SCHe Flow SW HI	Thermal Runaway and H2 Explosion prevention; pressure boundary only	SC	PC-3	IEEB 344, ISA-S5.1, -S5.4, -S18.1, -S20	150 PSIG	MLSD ^a	Seis Cond B	Cond. B
13-2	H-1-82165	SCHe-FSH-5*79	SCHe Flow SW HI	Thermal Runaway and H2 Explosion prevention; pressure boundary only	SC	PC-3	IEEB 344, ISA-S5.1, -S5.4, -S18.1, -S20	150 PSIG	MLSD ^a	Seis Cond B	Cond. B
13-2	H-1-82165	SCHe-PI-5*02	SCHe Bottle Pressure Local Indicator	Thermal Runaway and H2 Explosion prevention boundary only	SC	PC-3	IEEB 344	150 PSIG	MLSD ^a	Seis Cond A	Cond. B
13-2	H-1-82165	SCHe-PI-5*07	SCHe 15 psig Pressure Indicator	Thermal Runaway and H2 Explosion prevention; pressure boundary only	SC	PC-3	IEEB 344	150 PSIG	MLSD ^a	Seis Cond B	Cond. B
13-2	H-1-82165	SCHe-PI-5*09	SCHe 7 psig Pressure Indicator	Thermal Runaway and H2 Explosion prevention; pressure boundary only	SC	PC-3	IEEB 344	150 PSIG	MLSD ^a	Seis Cond B	Cond. B
13-2	H-1-82165	SCHe-PI-5*21	SCHe Bottle Pressure Local Indicator	Thermal Runaway and H2 Explosion prevention boundary only	SC	PC-3	IEEB 344	150 PSIG	MLSD ^a	Seis Cond A	Cond. B
13-2	H-1-82165	SCHe-PI-5*26	SCHe 15 psig Pressure Indicator	Thermal Runaway and H2 Explosion prevention; pressure boundary only	SC	PC-3	IEEB 344	150 PSIG	MLSD ^a	Seis Cond B	Cond. B
13-2	H-1-82165	SCHe-PI-5*28	SCHe 7 psig Pressure Indicator	Thermal Runaway and H2 Explosion prevention; pressure boundary only	SC	PC-3	IEEB 344	150 PSIG	MLSD ^a	Seis Cond B	Cond. B
13-2	H-1-82165	SCHe-PI-5*41	SCHe Bottle Pressure Local Indicator	Thermal Runaway and H2 Explosion prevention boundary only	SC	PC-3	IEEB 344	150 PSIG	MLSD ^a	Seis Cond A	Cond. B
13-2	H-1-82165	SCHe-PI-5*46	SCHe 15 psig Pressure Indicator	Thermal Runaway and H2 Explosion prevention; pressure boundary only	SC	PC-3	IEEB 344	150 PSIG	MLSD ^a	Seis Cond B	Cond. B
13-2	H-1-82165	SCHe-PI-5*48	SCHe 2 psig Pressure Indicator	Thermal Runaway and H2 Explosion prevention; pressure boundary only	SC	PC-3	IEEB 344	150 PSIG	MLSD ^a	Seis Cond B	Cond. B
13-2	H-1-82165	SCHe-PI-5*61	SCHe Bottle Pressure Local Indicator	Thermal Runaway and H2 Explosion prevention boundary only	SC	PC-3	IEEB 344	150 PSIG	MLSD ^a	Seis Cond A	Cond. B
13-2	H-1-82165	SCHe-PI-5*66	SCHe 15 psig Pressure Indicator	Thermal Runaway and H2 Explosion prevention; pressure boundary only	SC	PC-3	IEEB 344	150 PSIG	MLSD ^a	Seis Cond B	Cond. B
13-2	H-1-82165	SCHe-PI-5*68	SCHe 2 psig Pressure Indicator	Thermal Runaway and H2 Explosion prevention; pressure boundary only	SC	PC-3	IEEB 344	150 PSIG	MLSD ^a	Seis Cond B	Cond. B
13-2	H-1-82165	SCHe-PSL-5*03	SCHe Bottle Pressure Switch Low	Thermal Runaway and H2 Explosion prevention; pressure boundary only	SC	PC-3	IEEB 344, ISA-S5.1, -S5.4, -S18.1, -S20	150 PSIG	MLSD ^a	Seis Cond B	Cond. B

Sys. No.		P&ID	Component Tag No.	Component Noun Name	Safety Function	Safety Category	Design Criteria	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic	Environ. Cert.	Environ. Cond.
Component														
13-2	H-1-82165	SCHe-P&SL-5*06	SCHe 15 psig Pressure Switch Low	Thermal Runaway and H2 Explosion prevention; pressure boundary only	SC	PC-3	IEEB 344, ISA-S5.1, -S5.4, -S18.1, -S20	MLSD ^a	Seis Cond B	Cond. B	Cond. B			
13-2	H-1-82165	SCHe-P&SL-5*22	SCHe Bottle Pressure Switch Low	Thermal Runaway and H2 Explosion prevention; pressure boundary only	SC	PC-3	IEEB 344, ISA-S5.1, -S5.4, -S18.1, -S20	MLSD ^a	Seis Cond B	Cond. B	Cond. B			
13-2	H-1-82165	SCHe-P&SL-5*25	SCHe 15 psig Pressure Switch Low	Thermal Runaway and H2 Explosion prevention; pressure boundary only	SC	PC-3	IEEB 344, ISA-S5.1, -S5.4, -S18.1, -S20	MLSD ^a	Seis Cond B	Cond. B	Cond. B			
13-2	H-1-82165	SCHe-P&SL-5*42	SCHe Bottle Pressure Switch Low	Thermal Runaway and H2 Explosion prevention; pressure boundary only	SC	PC-3	IEEB 344, ISA-S5.1, -S5.4, -S18.1, -S20	MLSD ^a	Seis Cond B	Cond. B	Cond. B			
13-2	H-1-82165	SCHe-P&SL-5*45	SCHe 15 psig Pressure Switch Low	Thermal Runaway and H2 Explosion prevention; pressure boundary only	SC	PC-3	IEEB 344, ISA-S5.1, -S5.4, -S18.1, -S20	MLSD ^a	Seis Cond B	Cond. B	Cond. B			
13-2	H-1-82165	SCHe-P&SL-5*62	SCHe Bottle Pressure Switch Low	Thermal Runaway and H2 Explosion prevention; pressure boundary only	SC	PC-3	IEEB 344, ISA-S5.1, -S5.4, -S18.1, -S20	MLSD ^a	Seis Cond B	Cond. B	Cond. B			
13-2	H-1-82165	SCHe-P&SL-5*65	SCHe 15 psig Pressure Switch Low	Thermal Runaway and H2 Explosion prevention; pressure boundary only	SC	PC-3	IEEB 344, ISA-S5.1, -S5.4, -S18.1, -S20	MLSD ^a	Seis Cond B	Cond. B	Cond. B			
13-2	H-1-82165	SCHe-P&T-5*01	SCHe Bottle Pressure Indicator/ Transmitter	Thermal Runaway and H2 Explosion prevention; pressure boundary only	SC	PC-3	IEEB 344, ISA-S5.1, -S5.4, -S18.1, -S20	MLSD ^a	Seis Cond B	Cond. B	Cond. B			
13-2	H-1-82165	SCHe-P&T-5*20	SCHe Bottle Pressure Indicator/ Transmitter	Thermal Runaway and H2 Explosion prevention; pressure boundary only	SC	PC-3	IEEB 344, ISA-S5.1, -S5.4, -S18.1, -S20	MLSD ^a	Seis Cond B	Cond. B	Cond. B			
13-2	H-1-82165	SCHe-P&T-5*40	SCHe Bottle Pressure Indicator/ Transmitter	Thermal Runaway and H2 Explosion prevention; pressure boundary only	SC	PC-3	IEEB 344, ISA-S5.1, -S5.4, -S18.1, -S20	MLSD ^a	Seis Cond B	Cond. B	Cond. B			
13-2	H-1-82165	SCHe-P&T-5*60	SCHe Bottle Pressure Indicator/ Transmitter	Thermal Runaway and H2 Explosion prevention; pressure boundary only	SC	PC-3	IEEB 344, ISA-S5.1, -S5.4, -S18.1, -S20	MLSD ^a	Seis Cond B	Cond. B	Cond. B			
13-2	H-1-82165	SCHe-P&S-5*81	Norm Helium SCHe Supply Pressure Indicator	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A		
13-2	H-1-82165	SCHe-P&S-5*83	Norm Helium SCHe Supply Pressure Indicator	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A		
13-2	H-1-82165	SCHe-P&S-5*85	Norm Helium SCHe Supply Pressure Indicator	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A		
13-2	H-1-82165	SCHe-Z&S-5*12	SCHe Isolation Valve Position Indicator	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A		
13-2	H-1-82165	SCHe-Z&S-5*31	SCHe Isolation Valve Position Indicator	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A		
13-2	H-1-82165	SCHe-Z&S-5*51	SCHe Isolation Valve Position Indicator	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A		
13-2	H-1-82165	SCHe-Z&S-5*71	SCHe Isolation Valve Position Indicator	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A		
18	Effluent drains system (Sys. 18)													
18	H-1-82223	EFS	Effluent Drain Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A		
19	Condensate collection system (Sys. 19)													
19	H-1-82223	CCS	Condensate Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A		
24	Fire protection system (Sys. 24)													
24	H-1-82237	FPS	Fire Protection Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A		
25	Dionized water system (Sys. 25)													
25	H-1-82161	D/Hc-Z&S-1*11	D/Water Isolation Valve Position Switch	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A		
25	H-1-82161	D/Hc-Z&S-1*17	D/Water Isolation Valve Position Switch	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A		
25	H-1-82161	DI-SPLY-ROTAMETER		None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A		

Component			Design Criteria			Environmental Qualification						
Sys. No.	P&ID	Component Tag No.	Component Noun Name	Safety Function	Safety Category Designation	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic	Environ. Cert.	Environ. Cond.
25	H-1-82164	DI-Fl-4049	DI Local Flow Indicator	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	150 psig	Hydro Test	None	None	Cond. A
25	H-1-82161	DI-ZS-1*01	DI Water Isolation Valve Position Switch	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
25	H-1-82164	DI-ZS-4057	DI Water Isolation Valve Position Switch	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
25	H-1-82222	DI-XXXX	BALANCE OF PLANT I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
26	H-1-82222	PW	Potable Water Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
27	Sanitary sewage collection system (Sys. 27)											
27	H-1-82222	SANS	Sewage Collection Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30	HVAC Systems (Sys. 30)											
30-1	HVAC-A System (Admin Bldg) (Sys. 30-1)											
30-1	H-1-82195		HVAC ANNUNCIATOR PNL	Notification of Loss of Bay Local or General and PWC Tank Room General Exhaust	SS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-1	H-1-82195	HVAC-A	Admin HVAC Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-2	HVAC-B System (Process Bay Supply/Recirc.) (Sys. 30-2)											
30-2	H-1-82204	HVACB-HS-8205	BAY SUPPLY FAN MSTR HCS CONTROL	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-2	H-1-82204	HVACB-HS-8305	BAY SUPPLY FAN MSTR HCS CONTROL	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-2	H-1-82204	HVACB-HS-8405	BAY SUPPLY FAN MSTR HCS CONTROL	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-2	H-1-82204	HVACB-HS-8505	BAY SUPPLY FAN MSTR HCS CONTROL	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-2	H-1-82204	HVACB-PDIS-8201	BAY 2 HVAC FILTER DP	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-2	H-1-82204	HVACB-PDIS-8202	BAY 2 HVAC FILTER DP	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-2	H-1-82204	HVACB-PDIS-8203	BAY 2 HVAC FILTER DP	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-2	H-1-82204	HVACB-PDIS-8205	BAY 2 HVAC FAN DP	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-2	H-1-82204	HVACB-PDIS-8301	BAY 3 HVAC FILTER DP	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-2	H-1-82204	HVACB-PDIS-8302	BAY 3 HVAC FILTER DP	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-2	H-1-82204	HVACB-PDIS-8303	BAY 3 HVAC FILTER DP	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-2	H-1-82204	HVACB-PDIS-8305	BAY 3 HVAC FAN DP	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-2	H-1-82204	HVACB-PDIS-8401	BAY 4 HVAC FILTER DP	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-2	H-1-82204	HVACB-PDIS-8402	BAY 4 HVAC FILTER DP	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-2	H-1-82204	HVACB-PDIS-8403	BAY 4 HVAC FILTER DP	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-2	H-1-82204	HVACB-PDIS-8405	BAY 4 HVAC FAN DP	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A

Table A-4. Cold Vacuum Drying Facility - Instrumentation and Control

	Component			Design Criteria			Environmental Qualification			
Sys. No.	P&ID	Component Tag No.	Component Noun Name	Safety Function	Safety Category	NPH and Performance Category	Internal Pressure	Leak Tightness ^b	Seismic	Environ. Cert.
30-2	H-1-82204	HVACB-PDIS-8501	BAY 5 HVAC FILTER DP	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	NA	None	Cond. A
30-2	H-1-82204	HVACB-PDIS-8502	BAY 5 HVAC FILTER DP	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	NA	None	Cond. A
30-2	H-1-82204	HVACB-PDIS-8503	BAY 5 HVAC FILTER DP	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	NA	None	Cond. A
30-2	H-1-82204	HVACB-PDIS-8505	BAY 5 HVAC FAN DP	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	NA	None	Cond. A
30-2	H-1-82204	HVACB-TC8204	BAY HEATER CONTROL	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	NA	None	Cond. A
30-2	H-1-82204	HVACB-TC8304	BAY HEATER CONTROL	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	NA	None	Cond. A
30-2	H-1-82204	HVACB-TC8404	BAY HEATER CONTROL	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	NA	None	Cond. A
30-2	H-1-82204	HVACB-TC8504	BAY HEATER CONTROL	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	NA	None	Cond. A
30-2	H-1-82204	HVACB-TT-8205	BAY SUPPLY PREHEAT SUPPLY	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	NA	None	Cond. A
30-2	H-1-82204	HVACB-TT-8206	BAY 2 HVAC FAN SUPPLY TEMP	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	NA	None	Cond. A
30-2	H-1-82204	HVACB-TT-8305	BAY SUPPLY PREHEAT SUPPLY	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	NA	None	Cond. A
30-2	H-1-82204	HVACB-TT-8306	BAY 3 HVAC FAN SUPPLY TEMP	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	NA	None	Cond. A
30-2	H-1-82204	HVACB-TT-8405	BAY SUPPLY PREHEAT SUPPLY	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	NA	None	Cond. A
30-2	H-1-82204	HVACB-TT-8406	BAY 4 HVAC FAN SUPPLY TEMP	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	NA	None	Cond. A
30-2	H-1-82204	HVACB-TT-8505	BAY SUPPLY PREHEAT SUPPLY	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	NA	None	Cond. A
30-2	H-1-82204	HVACB-TT-8506	BAY 5 HVAC FAN SUPPLY TEMP	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	NA	None	Cond. A
30-2	H-1-82204	HVACB-TV-8203	BAY SUPPLY COOLING VALVE	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	NA	None	Cond. A
30-2	H-1-82204	HVACB-TV-8303	BAY SUPPLY COOLING VALVE	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	NA	None	Cond. A
30-2	H-1-82204	HVACB-TV-8403	BAY SUPPLY COOLING VALVE	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	NA	None	Cond. A
30-2	H-1-82204	HVACB-TV-8503	BAY SUPPLY COOLING VALVE	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	NA	None	Cond. A
30-2	H-1-82204	HVACB-TV8203	BAY CHILLED WATER CONTROL I/P	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	NA	None	Cond. A
30-2	H-1-82204	HVACB-TV8303	BAY CHILLED WATER CONTROL I/P	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	NA	None	Cond. A
30-2	H-1-82204	HVACB-TV8403	BAY CHILLED WATER CONTROL I/P	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	NA	None	Cond. A
30-2	H-1-82204	HVACB-TV8503	BAY CHILLED WATER CONTROL I/P	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	NA	None	Cond. A
30-2	H-1-82204	HVACB-YL-8205	BAY SUPPLY FAN MSTR HCS RUN IND	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	NA	None	Cond. A
30-2	H-1-82204	HVACB-YL-8305	BAY SUPPLY FAN MSTR HCS RUN IND	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	NA	None	Cond. A
30-2	H-1-82204	HVACB-YL-8405	BAY SUPPLY FAN MSTR HCS RUN IND	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	NA	None	Cond. A

Sys. No.	P&ID	Component		Safety Function	Design Criteria			Environmental Qualification				
		Component Tag No.	Component Noun Name		Safety Category Designation	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic	Environ. Cert.	Environ. Cond.
30-2	H-1-82204	HVACB-YL-8505	BAY SUPPLY FAN MSTR HCS RUN IND	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-2	H-1-82204	HVACB-ZS-8201	BAY 2 HVAC INTAKE DAMPER	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-2	H-1-82204	HVACB-ZS-8301	BAY 3 HVAC INTAKE DAMPER	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-2	H-1-82204	HVACB-ZS-8401	BAY 4 HVAC INTAKE DAMPER	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-2	H-1-82204	HVACB-ZS-8501	BAY 5 HVAC INTAKE DAMPER	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-3	HVAC-C System [Process Bay Local Exhaust] and Process Vent System (Sys. 30-3)											
30-3	H-1-82206	HVACC-FS-8207	BAY 2 LOCAL EXHAUST SUPPLY FLOW SWITCH	Notification of loss of HVAC for Hydrogen Explosion	SS	PC-2	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	3/1	None	Cond. A
30-3	H-1-82206	HVACC-FS-8307	BAY 3 LOCAL EXHAUST SUPPLY FLOW SWITCH	Notification of loss of HVAC for Hydrogen Explosion	SS	PC-2	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	3/1	None	Cond. A
30-3	H-1-82206	HVACC-FS-8407	BAY 4 LOCAL EXHAUST SUPPLY FLOW SWITCH	Notification of loss of HVAC for Hydrogen Explosion	SS	PC-2	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	3/1	None	Cond. A
30-3	H-1-82206	HVACC-FS-8507	BAY 5 LOCAL EXHAUST SUPPLY FLOW SWITCH	Notification of loss of HVAC for Hydrogen Explosion	SS	PC-2	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	3/1	None	Cond. A
30-3	H-1-82206	HVACC-FIC-8044	EXH FAN 3&4 VSD SET POINT	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-3	H-1-82206	HVACC-FTT-8044	GEN EXHAUST FLOW	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-3	H-1-82206	HVACC-HS-8027	EXHAUST FAN MSTR HCS CONTROL	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-3	H-1-82206	HVACC-HS-8047	EXHAUST FAN MSTR HCS CONTROL	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-3	H-1-82206	HVACC-PDIS-8041	LOC EXH FILTER DP HI	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-3	H-1-82206	HVACC-PDIS-8042	LOC EXH FILTER DP HI	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-3	H-1-82206	HVACC-PDIS-8043	LOC EXH FILTER DP HI	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-3	H-1-82206	HVACC-PDIS-8045	LOC EXH FILTER DP HI	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-3	H-1-82206	HVACC-PDIS-8047	LOC EXH FILTER DP HI	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-3	H-1-82206	HVACC-PSL-8049	LOC EXH FAN INTAKE PRES LO	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-3	H-1-82206	HVACC-XS-8040	LOCAL EXH INLET HIGH TEMP	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-3	H-1-82206	HVACC-YL-8045	EXHAUST FAN MSTR HCS RUN IND	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-3	H-1-82206	HVACC-YL-8047	EXHAUST FAN MSTR HCS RUN IND	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-3	H-1-82206	HVACC-ZS-8046	LOC EXH LEAD DAMPER	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-3	H-1-82206	HVACC-ZS-8048	LOC EXH STBY DAMPER	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-4	HVAC-D System [Process General Supply/Exhaust] (Sys. 30-4)											
30-4	H-1-82206	HVACD-PDIS-8022	GENERAL EXH 1 HEPA FILTER DP	Confinement	SS	PC-2	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-4	H-1-82206	HVACD-PDIS-8042	LOCAL EXH 1 HEPA FILTER DP	Confinement	SS	PC-2	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A

Table A-4, Cold Vacuum Drying Facility - Instrumentation and Control

Sys. No.	P&ID	Component		Safety Function	Design Criteria			Environmental Qualification				
		Component Tag No.	Component Noun Name		Safety Category Designation	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic	Environ. Cert.	Environ. Cond.
30-4	H-1-82206	HVACD-PDIS-8043	LOCAL EXH 2 HEPA FILTER DP	Confinement	SS	PC-2	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-4	H-1-82206	HVACD-FIC-8024	EXH FAN 1&2 VSD SET POINT	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-4	H-1-82205	HVACD-FIT-8007	GEN SUPPLY FLOW	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-4	H-1-82206	HVACD-FIT-8024	GEN EXHAUST FLOW	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-4	H-1-82205	HVACD-HS-8005	GEN SUPPLY FAN MSTR HCS CONTROL	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-4	H-1-82206	HVACD-HS-8025	EXHAUST FAN MSTR HCS CONTROL	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-4	H-1-82206	HVACD-HS-8045	EXHAUST FAN MSTR HCS CONTROL	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-4	H-1-82205	HVACD-PDIS-8001	AIR HANDLING UNIT PREFILTER DP	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-4	H-1-82205	HVACD-PDIS-8002	AIR HANDLING UNIT FILTER DP	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-4	H-1-82206	HVACD-PDIS-8021	GENERAL EXH 1 HEPA FILTER DP	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-4	H-1-82206	HVACD-PDIS-8027	GEN EXH STDY FAN DP HI	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-4	H-1-82206	HVACD-PSL-8029	GEN EXH FAN INTAKE PRES LO	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-4	H-1-82205	HVACD-TC-8010	MECH RM 210 HEAT CONTROL	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-4	H-1-82205	HVACD-TC-8011	MECH RM 207 HEAT CONTROL	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-4	H-1-82205	HVACD-TC-8012	XFER CORR. RMS HEAT CONTROL	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-4	H-1-82205	HVACD-TC-8013	XFER CORR. HEAT CONTROL	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-4	H-1-82205	HVACD-TC-8014	LW TK RM 133 HEAT CONTROL	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-4	H-1-82205	HVACD-TS-8005	GEN SUPPLY FREEZE PROTECTION THERM.	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-4	H-1-82205	HVACD-TT-8001	INLET TEMPERATURE	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-4	H-1-82205	HVACD-TT-8003	GEN SUPPLY PRE HT COIL EX TMP	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-4	H-1-82205	HVACD-TT-8006	GEN SUPPLY TEMP	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-4	H-1-82205	HVACD-TV-8004	Noun Name TBD	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-4	H-1-82205	HVACD-TY-8004	GEN SUPPLY CHILLED WATER CONTROL I/P	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-4	H-1-82206	HVACD-XS-8020	GEN EXH INLET HIGH TEMP	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-4	H-1-82205	HVACD-YL-8005	GEN SUPPLY FAN MSTR HCS RUN IND	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-4	H-1-82206	HVACD-YL-8025	EXHAUST FAN MSTR HCS RUN IND	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-4	H-1-82206	HVACD-YL-8027	EXHAUST FAN MSTR HCS RUN IND	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A

Table A-4. Cold Vacuum Drying Facility - Instrumentation and Control

Component				Design Criteria				Environmental Qualification			
Sys. No.	P&ID	Component Tag No.	Component Noun Name	Safety Function	Safety Category	NPH and Performance Category	Codes & Standards	Internal Pressure	Tightness ^b	Seismic	Environ. Cert.
30-4	H-1-82205	HVACD-ZS-8001	GEN SUPPLY IN ISO DAMPER	None	GS	PC-1	ISA-SS-1,-SS-4,-S18.1,-S20	None	NA	None	Cond. A
30-4	H-1-82205	HVACD-ZS-8015	XFER CORR ISO DAMPER	None	GS	PC-1	ISA-SS-1,-SS-4,-S18.1,-S20	None	NA	None	Cond. A
30-4	H-1-82205	HVACD-ZS-8016	FUME HOOD ISO DAMPER	None	GS	PC-1	ISA-SS-1,-SS-4,-S18.1,-S20	None	NA	None	Cond. A
30-4	H-1-82205	HVACD-ZS-8017	LW ROOM DAMPER	None	GS	PC-1	ISA-SS-1,-SS-4,-S18.1,-S20	None	NA	None	Cond. A
30-4	H-1-82205	HVACD-ZS-8018	MECH RM ISO DAMPER	None	GS	PC-1	ISA-SS-1,-SS-4,-S18.1,-S20	None	NA	None	Cond. A
30-4	H-1-82205	HVACD-ZS-8019	MECH RM ISO DAMPER	None	GS	PC-1	ISA-SS-1,-SS-4,-S18.1,-S20	None	NA	None	Cond. A
30-4	H-1-82206	HVACD-ZS-8026	GEN EXH LEAD DAMPER	None	GS	PC-1	ISA-SS-1,-SS-4,-S18.1,-S20	None	NA	None	Cond. A
30-4	H-1-82206	HVACD-ZS-8028	GEN EXH STBY DAMPER	None	GS	PC-1	ISA-SS-1,-SS-4,-S18.1,-S20	None	NA	None	Cond. A
30-4	H-1-82205	HVACD-ZS-8035	LW TK ISO DAMPER	None	GS	PC-1	ISA-SS-1,-SS-4,-S18.1,-S20	None	NA	None	Cond. A
30-4	H-1-82206	HVACD-ZS-8060	EXH STACK ISO DAMPER	None	GS	PC-1	ISA-SS-1,-SS-4,-S18.1,-S20	None	NA	None	Cond. A
30-4	H-1-82205	HVACD-ZS-8102	SPARE BAY ISO DAMPER	None	GS	PC-1	ISA-SS-1,-SS-4,-S18.1,-S20	None	NA	None	Cond. A
30-4	H-1-82205	HVACD-ZS-8202	BAY2 ISO DAMPER	None	GS	PC-1	ISA-SS-1,-SS-4,-S18.1,-S20	None	NA	None	Cond. A
30-4	H-1-82205	HVACD-ZS-8203	BAY2 LOC ISO DAMPER	None	GS	PC-1	ISA-SS-1,-SS-4,-S18.1,-S20	None	NA	None	Cond. A
30-4	H-1-82205	HVACD-ZS-8302	BAY3 ISO DAMPER	None	GS	PC-1	ISA-SS-1,-SS-4,-S18.1,-S20	None	NA	None	Cond. A
30-4	H-1-82205	HVACD-ZS-8303	BAY3 LOC ISO DAMPER	None	GS	PC-1	ISA-SS-1,-SS-4,-S18.1,-S20	None	NA	None	Cond. A
30-4	H-1-82205	HVACD-ZS-8402	BAY4 ISO DAMPER	None	GS	PC-1	ISA-SS-1,-SS-4,-S18.1,-S20	None	NA	None	Cond. A
30-4	H-1-82205	HVACD-ZS-8403	BAY4 LOC ISO DAMPER	None	GS	PC-1	ISA-SS-1,-SS-4,-S18.1,-S20	None	NA	None	Cond. A
30-4	H-1-82205	HVACD-ZS-8502	BAY5 ISO DAMPER	None	GS	PC-1	ISA-SS-1,-SS-4,-S18.1,-S20	None	NA	None	Cond. A
30-4	H-1-82205	HVACD-ZS-8503	BAY5 LOC ISO DAMPER	None	GS	PC-1	ISA-SS-1,-SS-4,-S18.1,-S20	None	NA	None	Cond. A
30-5	Reference air system (Sys. 30-5)										
30-5	H-1-82207	RA-PDIS-8080		CONFINEMENT	SS	PC-2	ISA-SS-1,-SS-4,-S18.1,-S20	None	NA	None	Cond. A
30-5	H-1-82207	RA-PDIS-8220	BAY 2 PRESSURE	CONFINEMENT	SS	PC-2	ISA-SS-1,-SS-4,-S18.1,-S20	None	NA	None	Cond. A
30-5	H-1-82207	RA-PDIS-8320	BAY 3 PRESSURE	CONFINEMENT	SS	PC-2	ISA-SS-1,-SS-4,-S18.1,-S20	None	NA	None	Cond. A
30-5	H-1-82207	RA-PDIS-8420	BAY 4 PRESSURE	CONFINEMENT	SS	PC-2	ISA-SS-1,-SS-4,-S18.1,-S20	None	NA	None	Cond. A
30-5	H-1-82207	RA-PDIS-8520	BAY 5 PRESSURE	CONFINEMENT	SS	PC-2	ISA-SS-1,-SS-4,-S18.1,-S20	None	NA	None	Cond. A
30-5	H-1-82207	RA-PDT-8080	TANK RM PRESSURE (NEGATIVE)	CONFINEMENT	SS	PC-2	ISA-SS-1,-SS-4,-S18.1,-S20	None	NA	None	Cond. A
30-5	H-1-82207	RA-PDT-8220	BAY 2 PRESSURE (NEGATIVE)	CONFINEMENT	SS	PC-2	ISA-SS-1,-SS-4,-S18.1,-S20	None	NA	None	Cond. A

Table A-4, Cold Vacuum Drying Facility - Instrumentation and Control

Sys. No.	P&ID	Component Tag No.	Component Noun Name	Safety Function	Design Criteria			Environmental Qualification				
					Safety Category Designation	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Selenic	Environ. Cert.	Environ. Cond.
30-5	H-1-82207	RA-PDT-8320	BAY 3 PRESSURE (NEGATIVE)	CONFINEMENT	SS	PC-2	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	3/1	None	Cond. A
30-5	H-1-82207	RA-PDT-8420	BAY 4 PRESSURE (NEGATIVE)	CONFINEMENT	SS	PC-2	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	3/1	None	Cond. A
30-5	H-1-82207	RA-PDT-8520	BAY 5 PRESSURE (NEGATIVE)	CONFINEMENT	SS	PC-2	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	3/1	None	Cond. A
30-5	H-1-82207	RA-PDIT-8070	MECHANICAL ROOM 210 PRESS		GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-5	H-1-82207	RA-PDIT-8073	TRANSFER CORRIDOR PRESSURE		GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-5	H-1-82207	RA-PDIT-8074	CHANGE ROOM 130 PRESSURE		GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-5	H-1-82207	RA-PDIT-8075	CHANGE ROOM 127 PRESSURE		GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-5	H-1-82207	RA-PDIT-8076	CHANGE ROOM 124 PRESSURE		GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-5	H-1-82207	RA-PDIT-8077	CHANGE ROOM 121 PRESSURE		GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-5	H-1-82207	RA-PDIT-8078	CHANGE ROOM 118 PRESSURE		GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-5	H-1-82207	RA-PDIT-8079	CORRIDOR AREA PRESSURE		GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-5	H-1-82207	RA-TC-8003	GEN SUPPLY HEATER CONTROL		GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-5	H-1-82207	RA-TT-8010	MECH RM 210 TEMP		GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-5	H-1-82207	RA-TT-8011	MECH RM 207 TEMP		GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-5	H-1-82207	RA-TT-8012	CHANGE RM 121 TEMP		GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-5	H-1-82207	RA-TT-8013	TRANSFER CORRIDOR TEMP		GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-5	H-1-82207	RA-TT-8014	LW STORAGE RM TEMP		GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-5	H-1-82207	RA-TT-8204	BAY TEMPERATURE		GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-5	H-1-82207	RA-TT-8204	BAY 2 TEMPERATURE		GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-5	H-1-82207	RA-TT-8304	BAY TEMPERATURE		GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-5	H-1-82207	RA-TT-8304	BAY 3 TEMPERATURE		GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-5	H-1-82207	RA-TT-8404	BAY TEMPERATURE		GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-5	H-1-82207	RA-TT-8404	BAY 4 TEMPERATURE		GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-5	H-1-82207	RA-TT-8504	BAY TEMPERATURE		GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
30-5	H-1-82207	RA-TT-8504	BAY 5 TEMPERATURE		GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	None	Cond. A
46	Process water conditioning system (Sys. 46)											
46-1	Process water conditioning system (Sys. 46-1)											
46-1	H-1-82164	PWC-FE-4037	CIRC-PUMP-DISCH-FLOW-FLW		GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	150 psig	MSLD ^a	None	None	Cond. A

Component													Design Criteria	NPH and Performance Category	Safety Category	Safety Function	Component Noun Name	Component Tag No.	Sys. No.	P&ID	Component Tag No.	Component Noun Name	Safety Function	Safety Category	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic	Environ. Cert.	Environ. Cond.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
Cooling water system (Sys. 47)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															

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Table A-4, Cold Vacuum Drying Facility - Instrumentation and Control

Sys. No.	P&ID	Component Tag No.	Component Noun Name	Safety Function	Design Criteria		Environmental Qualification				
					Safety Category	NPH and Performance Category	Codes & Standards	Internal Pressure	Tightness ^a	Seismic	Environ. Cert.
47-1	H-1-82161	TW-LG-1*24	TW-ANNULUS-LV-L-GAGE-OUT	Accident Monitoring of Cask Annulus water level for Runaway Reaction Prevention (part of level alarm function for LSH 1*24, required for non-DBA seismic events)	SC	PC-3	IEEE 344, IEEE 627 603, IEEE 379, IEEE 627	150 psig	Hydrotest	Seis Cond A	Cond. B
47-1	H-1-82161	TW-LG-1*25	TW-ANNULUS-LV-L-SWT-IN	Accident Monitoring of Cask Annulus water level for Runaway Reaction Prevention (part of level alarm function for LSH 1*25, required for non-DBA seismic events)	SC	PC-3	IEEE 344, IEEE 627 603, IEEE 379, IEEE 627	150 psig	Hydrotest	Seis Cond A	Cond. B
47-1	H-1-82161	TW-LSL-1*24	TW-ANNULUS-LV-L-SWT-OUT	Alarm indication for Runaway Reaction Prevention For Non-Seismic Events	SC	PC-3	IEEE 379, IEEE 384, IEEE 603, IEEE 627	150 psig	Hydrotest	NA	Cond. B
47-1	H-1-82161	TW-ANNULUS-LV-L-SWT-IN	Alarm indication for Runaway Reaction Prevention For Non-Seismic Events	Alarm indication for Runaway Reaction Prevention For Non-Seismic Events	SC	PC-3	IEEE 379, IEEE 384, IEEE 603, IEEE 627	150 psig	Hydrotest	NA	Cond. B
47-1	H-1-82161	TW-TSH-1*28	TW-ANNULUS-INLET-TEMP-SWITCH	TW Isolation for H2 Explosion prevention; Runaway Reaction Prevention (seismic provided by seismic monitoring eq.)	SC	PC-1	IEEE 379, IEEE 384, IEEE 603, IEEE 627	None	NA	NA	Cond. B
47-1	H-1-82161	TW-TSH-1*29	TW-ANNULUS-INLET-TEMP-SWITCH	TW Isolation for H2 Explosion prevention; Runaway Reaction Prevention (seismic provided by seismic monitoring eq.)	SC	PC-1	IEEE 379, IEEE 384, IEEE 603, IEEE 627	None	NA	NA	Cond. B
47-1	H-1-82163	TW-FE-3*16	TW-CASK-INLET-FLO-ELE	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	Cond. A
47-1	H-1-82163	TW-FIT-3*16	TW-CASK-INLET-FLO-ELE-XMITTR	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	Cond. A
47-1	H-1-82163	TW-LE-3*04	TW-HLD-TK-LV-ELE	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	Cond. A
47-1	H-1-82163	TW-LIT-3*04	TW-HLD-TK-LV-XMITTR	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	MLSD ^b	None	Cond. A
47-1	H-1-82163	TW-LSH-3*06	TW-HLD-TK-LV-XMITTR	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	10 psig	MLSD ^b	None	Cond. A
47-1	H-1-82163	TW-PIT-3*08	TW-PUMP-DISCH-PRES-XMITTR	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	150 psig	MLSD ^b	None	Cond. A
47-1	H-1-82163	TW-TC-3*05	TW-HTR-TEMP-CTR	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	Cond. A
47-1	H-1-82163	TW-TIT-3*05	TW-THR-INLET-TEMP-XMITTR	OCRWM Indication Used For Verification Of TW Temperature	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	Cond. A
47-1	H-1-82163	TW-TIT-3*12	TW-ANNULUS-OUTLET-TEMP-XMITTR	OCRWM Indication Used For Verification Of TW Temperature	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	Cond. A
47-1	H-1-82163	TW-TIT-3*13	TW-CLR-OUTLET-TEMP-XMITTR	Provide 3/1 protection for adjacent SC and SS SSCs	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	Cond. A
47-1	H-1-82161	TW-ZS-1*14	TW-GOV-1*14 POS-SW	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	Cond. A
47-1	H-1-82163	TW-ZS-3*14	TW-GOV-1*14 POS-SW	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	Cond. A
47-2	Tempered water cooling system (Sys. 47-2)										
47-2	H-1-82224	TWC-FIT-7053	TWC Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	Cond. A
47-2	H-1-82224	TWC-PI-7051	TWC Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	Cond. A
47-2	H-1-82224	TWC-PI-7052	TWC Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	Cond. A
47-2	H-1-82224	TWC-PI-7061	TWC Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	Cond. A
47-2	H-1-82224	TWC-PI-7060	TWC Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	Cond. A
47-2	H-1-82224	TWC-TT-7054	TWC Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1, -S20	None	NA	None	Cond. A

Table A-4. Cold Vacuum Drying Facility - Instrumentation and Control

Sys. No.	P&ID	Component		Safety Function	Design Criteria			Environmental Qualification				
		Component Tag No.	Component Noun Name		Safety Category Designation	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic	Environ. Cert.	Environ. Cond.
47-2	H-1-82224	TWC-TI-7062	TWC Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1,-	None	NA	None	None	Cond. A
47-2	H-1-82163	TWC-ZS-3*01	TWC-CLR-3*10 Isolation Valve Position Switch	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1,-	None	NA	None	None	Cond. A
47-3	Chilled water system (Sys. 47-3)											
47-3	H-1-82201	CHW-FS-7002	CHW Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1,-	None	NA	None	None	Cond. A
47-3	H-1-82201	CHW-FS-7012	CHW Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1,-	None	NA	None	None	Cond. A
47-3	H-1-82201	CHW-FS-7035	CHW Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1,-	None	NA	None	None	Cond. A
47-3	H-1-82201	CHW-PI-7008	CHW Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1,-	None	NA	None	None	Cond. A
47-3	H-1-82201	CHW-PI-7003	CHW Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1,-	None	NA	None	None	Cond. A
47-3	H-1-82201	CHW-PI-7004	CHW Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1,-	None	NA	None	None	Cond. A
47-3	H-1-82201	CHW-PI-7006	CHW Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1,-	None	NA	None	None	Cond. A
47-3	H-1-82201	CHW-PI-7013	CHW Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1,-	None	NA	None	None	Cond. A
47-3	H-1-82201	CHW-PI-7014	CHW Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1,-	None	NA	None	None	Cond. A
47-3	H-1-82201	CHW-PI-7016	CHW Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1,-	None	NA	None	None	Cond. A
47-3	H-1-82201	CHW-PI-7018	CHW Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1,-	None	NA	None	None	Cond. A
47-3	H-1-82201	CHW-PI-7031	CHW Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1,-	None	NA	None	None	Cond. A
47-3	H-1-82201	CHW-PI-7032	CHW Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1,-	None	NA	None	None	Cond. A
47-3	H-1-82201	CHW-PI-7041	CHW Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1,-	None	NA	None	None	Cond. A
47-3	H-1-82201	CHW-PI-7042	CHW Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1,-	None	NA	None	None	Cond. A
47-3	H-1-82201	CHW-TE-7020	CHW Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1,-	None	NA	None	None	Cond. A
47-3	H-1-82201	CHW-TE-7021	CHW Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1,-	None	NA	None	None	Cond. A
47-3	H-1-82201	CHW-TE-7022	CHW Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1,-	None	NA	None	None	Cond. A
47-3	H-1-82201	CHW-TE-7023	CHW Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1,-	None	NA	None	None	Cond. A
47-3	H-1-82201	CHW-TE-7024	CHW Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1,-	None	NA	None	None	Cond. A
47-3	H-1-82201	CHW-TI-7005	CHW Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1,-	None	NA	None	None	Cond. A
47-3	H-1-82201	CHW-TI-7007	CHW Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1,-	None	NA	None	None	Cond. A
47-3	H-1-82201	CHW-TI-7015	CHW Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1,-	None	NA	None	None	Cond. A
47-3	H-1-82201	CHW-TI-7017	CHW Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -S5.4, -S18.1,-	None	NA	None	None	Cond. A

Table A-4: Cold Vacuum Drying Facility - Instrumentation and Control

		Component			Design Criteria			Environmental Qualification				
Sys. No.	P&ID	Component Tag No.	Component Noun Name	Safety Function	Safety Category	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic	Environ. Cert.	Environ. Cond.
47-3	H-1-83768	CHW-CP-7003	CHW Sequencing Control Panel	None	GS	PC-1	ISA-S5.1, -SS.4, -S18.1, -S20	None	NA	None	None	Cond. A
47-3	H-1-83768	CHW-UCM-7002	CHW Local Chiller Control Panel	None	GS	PC-1	ISA-S5.1, -SS.4, -S18.1, -S20	None	NA	None	None	Cond. A
47-3	H-1-83768	CHW-UCM-7012	CHW Local Chiller Control Panel	None	GS	PC-1	ISA-S5.1, -SS.4, -S18.1, -S20	None	NA	None	None	Cond. A
47-4	H-1-82224	VPSCHW-FE-7078	VPSCHW Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -SS.4, -S18.1, -S20	None	NA	None	None	Cond. A
47-4	H-1-82224	VPSCHW-FT-7078	VPSCHW Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -SS.4, -S18.1, -S20	None	NA	None	None	Cond. A
47-4	H-1-82224	VPSCHW-PT-7076	VPSCHW Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -SS.4, -S18.1, -S20	None	NA	None	None	Cond. A
47-4	H-1-82224	VPSCHW-PT-7079	VPSCHW Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -SS.4, -S18.1, -S20	None	NA	None	None	Cond. A
47-4	H-1-82224	VPSCHW-TF-7080	VPSCHW Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -SS.4, -S18.1, -S20	None	NA	None	None	Cond. A
47-4	H-1-82162	VPSCHW-TIT-2*35	VPSCHW Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -SS.4, -S18.1, -S20	None	NA	None	None	Cond. A
47-4	H-1-82162	VPSCHW-TIT-2*36	VPSCHW-COND-OUTLET-TEMP-XITMR	None	GS	PC-1	ISA-S5.1, -SS.4, -S18.1, -S20	None	NA	None	None	Cond. A
47-4	H-1-82224	VPSCHW-TT-7077	VPSCHW Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -SS.4, -S18.1, -S20	None	NA	None	None	Cond. A
50	H-1-82209	SM	Stack Monitoring Balance of Plant I&C	None	GS	PC-1	ISA-S5.1, -SS.4, -S18.1, -S20	None	NA	None	None	Cond. A
93-2	Safety class I&C system (Sys. 93-2)											
H-1-82161 H-1-82165	Bay 2 through 5 SCIC SYSTEM LOGIC TRAIN A and B panels	TRAIN A and B panels	H2 Explosion prevention; Runaway Reaction Prevention	SC	PC-3	IEEB 344, IEEB 379, IEEB 384, IEEB 603, IEEB 627, NEMA ICS 6	None	NA	Seis Cond A	Cond. B	Cond. B	
H-1-82161 H-1-82165	Bay 2 through 5 SCIC TWT LOGIC TRAIN A and B panels	SC Wiring, conduit and supports	NA	H2 Explosion prevention; Runaway Reaction Prevention	SC	PC-3	IEEB 344, IEEB 379, IEEB 384, IEEB 603, IEEB 627, NEMA ICS 6	None	NA	Seis Cond A	Cond. B	Cond. B
H-1-82161 H-1-82165	SCIC Annunciator Cabinet	SCIC Mode Switch Cabinet (Train A and B)	H2 Explosion prevention (SC); Runaway Reaction Prevention (SC) and PWC Purge Alarms (SS) (non-seismic)	SC/SS	PC-1	IEEB 379, IEEB 384, IEEB 603, IEEB 627, ISA-S18.1, NEMA ICS 6	None	NA	None	Cond. A	Cond. A	
H-1-82161 H-1-82165	SCIC Mode Switch Cabinet (Train A and B)	H2 Explosion prevention; Runaway Reaction Prevention (non-seismic)	SC	PC-1	IEEB 379, IEEB 384, IEEB 603, IEEB 627, ISA-S18.1, NEMA ICS 6	None	NA	None	None	Cond. A	Cond. A	
H-1-82161 H-1-82165	SCIC trip for H2 Explosion prevention; Runaway Reaction Prevention	SC	SC	PC-3	IEEB 344, IEEB 379, IEEB 384, IEEB 603, IEEB 627, NEMA ICS 6	None	NA	None	None	Cond. B	Cond. B	
H-1-82161 H-1-82165	SCIC-ATR-5436	SCIC trip for H2 Explosion prevention; Runaway Reaction Prevention	SC	PC-3	IEEB 344, IEEB 379, IEEB 384, IEEB 603, IEEB 627, NEMA ICS 6	None	NA	None	None	Cond. B	Cond. B	
H-1-82161 H-1-82165	SCIC-ATR-5335	SCIC trip for H2 Explosion prevention; Runaway Reaction Prevention	SC	PC-3	IEEB 344, IEEB 379, IEEB 384, IEEB 603, IEEB 627, NEMA ICS 6	None	NA	None	None	Cond. B	Cond. B	
H-1-82161 H-1-82165	SCIC-ATR-5537	SCIC trip for H2 Explosion prevention; Runaway Reaction Prevention	SC	PC-3	IEEB 344, IEEB 379, IEEB 384, IEEB 603, IEEB 627, NEMA ICS 6	None	NA	None	None	Cond. B	Cond. B	

Component		Design Criteria		Environmental Qualification									
Sys. No.	P&ID	Component Tag No.	Component Noun Name	Safety Function	Safety Category	Design Category	NPH and Performance Category	Codes & Standards	Internal Pressure	Leak Tightness ^b	Seismic	Environ. Cert.	Environ. Cond.
93-2	H-1-82161 H-1-82165	SCIC-AY-5238	CP-120	Seismic trip for H2 Explosion prevention; Runaway Reaction Prevention	SC	PC-3	NEMA ICS 6	IEEB 344, IEEB 379, IEEB 384, IEEB 603, IEEB 627,	None	NA	Seis Cond A	Cond. B	Cond. B
93-2	H-1-82161 H-1-82165	SCIC-AY-5239	CP-121	Seismic trip for H2 Explosion prevention; Runaway Reaction Prevention	SC	PC-3	NEMA ICS 6	IEEB 344, IEEB 379, IEEB 384, IEEB 603, IEEB 627,	None	NA	Seis Cond A	Cond. B	Cond. B
93-2	H-1-82161	SCIC-TSH-1*38	AMBIENT-BAY-TEMP-HIGH-A	Function not used by SCIC system, part of TSHH-1*38 (non-seismic)	SC	PC-1	IEEB 379, IEEB 384, IEEB 603, IEEB 627	IEEB 379, IEEB 384, IEEB 603, IEEB 627	None	NA	NA	Cond. B	Cond. B
93-2	H-1-82161	SCIC-TSH-1*39	AMBIENT-BAY-TEMP-HIGH-B	Function not used by SCIC system, part of TSHH-1*39 (non-seismic)	SC	PC-1	IEEB 379, IEEB 384, IEEB 603, IEEB 627	IEEB 379, IEEB 384, IEEB 603, IEEB 627	None	NA	NA	Cond. B	Cond. B
93-2	H-1-82161	SCIC-TSHH-1*38	AMBIENT-BAY-TEMP-HIGH-A	SCIC and Instrument Environ Monitoring (temperature) for H2 Explosion prevention (non-seismic)	SC	PC-1	IEEB 379, IEEB 384, IEEB 603, IEEB 627	IEEB 379, IEEB 384, IEEB 603, IEEB 627	None	NA	NA	Cond. B	Cond. B
93-2	H-1-82161	SCIC-TSHH-1*39	AMBIENT-BAY-TEMP-HIGH-B	SCIC and Instrument Environ Monitoring (temperature) for H2 Explosion prevention (non-seismic)	SC	PC-1	IEEB 379, IEEB 384, IEEB 603, IEEB 627	IEEB 379, IEEB 384, IEEB 603, IEEB 627	None	NA	NA	Cond. B	Cond. B
93-2	H-1-82161 H-1-82165	CP-516	TRAIN A and B BUFFER / RELAY PANEL	H2 Explosion prevention; Runaway Reaction Prevention	SC	PC-3	NEMA ICS 6	IEEB 344, IEEB 379, IEEB 384, IEEB 603, IEEB 627,	None	NA	Seis Cond A	Cond. B	Cond. B

^a Seismic 3/1 Evaluations shall be performed on SC, SS or GS SSCs for potential impact to SS and SC SSCs

^b MSD (Mass Spectrometer Leak Detection) as specified in ASTM E498 or equivalent. Component must pass leak detection test.

^c Seismic Qualification Conditions (Refer to Hanford document HNF-PRO-097) :

Condition A : Maintain critical function during and after Seismic event (Certification to DOE-STD-1020-94 or IEEB 344-1987 or equivalent). Confinement defined as 1XE-4 sec/min or less.

Condition B : Maintain pressure boundary during and after Seismic event (Certification to DOE-STD-1020-94 or IEEB 344-1987 or equivalent). Component function or operation is not required.

Condition 3/1 : GS, SS or SC component cannot impact a Seismic event (Certification to WHC-SD-GN-DGS-30006)

^d Environmental Conditions: Note: The CVDF is a mild environment as defined in IEEB-323

Condition A: 60 °F @ 40 RH, 75° F @ 25% RH

Condition B: 40 °F @ 60 RH, 115° F @ 22% RH

^a Seismic 3/1 Evaluations shall be performed on SC, SS or GS SSCs for potential impact to SS and SC SSCs

^b MSLD (Mass Spectrometer Leak Detection) as specified in ASTM E498 or equivalent. Component must pass leak detection test.

^c Seismic Qualification Conditions (Refer to Hanford document HNF-PRO-097) :

Condition A : Maintain critical function during and after Seismic event (Certification to DOE-STD-1020-94 or IEEB 344-1987 or equivalent). Confinement defined as 1XE-4 scfm/in or less.

Condition B : Maintain pressure boundary during and after Seismic event (Certification to DOE-STD-1020-94 or IEEB 344-1987 or equivalent). Component function or operation is not required.

Condition 3/1 : GS, SS or SC component cannot impact a SC component during a Seismic event (Certification to WHC-SD-GN-DGS-30006)

^d Environmental Conditions: Note: The CVDF is a mild environment as defined in IEEB-323

Condition A: 60 °F @ 40 RH, 75° F @ 25% RH

Condition B: 40 °F @ 60 RH, 115° F @ 22% RH