INDIAN POINT NUCLEAR GENERATING UNIT NO. 2

(Docket No. 50-247)

INSERVICE TESTING PROGRAM SUMMARY

for the interval

JULY 1, 1984, through JUNE 30, 1994

Consolidated Edison Company of New York, Inc.

January 1984

8402220068 840216
PDR ADOCK 05000247
P PDR

Indian Point Nuclear Generating Unit No. 2
Inservice Testing Program

Introduction

The inservice testing program described herein has been developed as required by Section 50.55a of 10 CFR Part 50 to implement the requirements of the ASME B&PV Code Section XI to the extent practical.

Applicability

Consistent with Section 50.55a of 10 CFR Part 50, this program is applicable to the inservice testing of pumps and valves required for safety for the unit's second ten-year interval (July 1, 1984, through June 30, 1994). Implementation of this program will commence following start-up from the unit's sixth refueling outage (the final refueling outage of the first ten-year interval). In certain instances implementation of this program may commence prior to the start of the sixth refueling outage as implementing procedures are developed and approved.

Applicable Codes

In accordance with Section 50.55a(g) of 10 CFR Part 50, the applicable ASME B&PV Code Section XI, Division I edition and addenda for the interval described above, is the 1980 edition with addenda through Winter 1981.

Program Description

Enclosure 1 identifies the Indian Point Unit No. 2 plant specific systems subject to the inservice testing requirements of ASME B&PV Code Section XI, Subsection IWP and IWV. This listing has been developed in consideration of the appropriate NRC regulatory guidance, Exhibit A to Con Edison Corporate Instruction 240-1, QA Program for Operating Nuclear Plants (list of Class A systems), and the Indian Point Unit No. 2 Technical Specifications.

Enclosures 2 and 3 identify the pumps and valves to be tested in accordance with subsections IWP and IWV, respectively. The pumps and valves are listed in tabular format followed by both general and specific relief requests where it has been found that the testing requirements for that pump or valve are impractical. In such instances any appropriate alternative testing provisions have been identified. General relief requests are used when the impractability of a particular test requirement applies to more than one pump or more than one valve. Specific relief request are unique to a particular pump or valve. It should be noted that not every pump or valve in systems identified in Enclosure 1 will be identified for testing in Enclosures 2 and 3. This is due to the provisions of the ASME B&PV Code Section XI that limit the applicability of the testing requirements to pumps and valves of certain types performing certain functions.

The testing program outlined in the enclosures has been developed following a design review. Should certain ASME B&PV Code Section XI requirements prove to be impractical due to unforeseen circumstances, subsequent relief from that requirement will be requested.

ENCLOSURE TABULATION

ENCLOSURE	DESCRIPTION	TAB IDENTIFICATION
1	Systems Subject to Inservice Testing	1
2	Inservice Testing Program for Pumps	2
	Pump Tabulation	2A
	Pump Relief Requests	2B
	Relief Request 1	2B.1
	Relief Request 2	2B.2
	Relief Request 3	2B.3
	Relief Request 4	2B.4
	Relief Request 5	2B.5
	Relief Request 6	2B.6
	Relief Request 7	2B.7
	Relief Request 8	2B.8
	Relief Request 9	2B.9
	Notes	2B.N
3	Inservice Testing Program for Valves	3
	Valve Tabulation	3A
	Table Legend	3A.1
	Air Conditioning to CCR	3A.2
	Air Ejector to Containment	3A.3
	Auxiliary Coolant System	3A.4
	Auxiliary Steam System	3A.5
	Boiler Feedwater	3A.6
	Chemical Volume and Control System	3A.7
	City Water to Containment	3A.8
	Condensate and Boiler Feed Pump	3A.9
	Containment Purge	3A.10
	Containment Radiation Monitors	3A.11
	Fan Cooler Filter Units	3A.12
	Fuel Oil to Diesel Generators	3A.13
	Hydrogen Recombiner	3A.14

Instrument Air	3A.15
Isolation Valve Seal Water System	3A.16
Jacket Water to Diesel Generators	3A.17
Main Steam System	3A.18
Penetration and Liner Weld Joint Channel System	3A.19
Personnel Airlock	3A.20
Post Accident Containment Air Sampling System	3A.21
Post Accident Containment Vent	3A.22
Reactor Coolant System	3A.23
Safety Injection	3A.24
Sampling System	3A.25
Service Water	3A.26
Starting Air to Diesels	3A.27
Station Air	3A.28
Steam Generator Blowdown	3A.29
Waste Disposal System	3A.30
Valve Relief Requests	3B
Air Conditioning to CCR	3B.1
Auxiliary Coolant System	3B.2
Auxiliary Steam System	3B.3
Boiler Feedwater	3B.4
Chemical Volume and Control System	3B.5
City Water to Containment	3B.6
Condensate and Boiler Feed Pump	3B.7
Containment Purge	3B.8
Hydrogen Recombiner	3B.9
Instrument Air	3B.10
Isolation Valve Seal Water System	3B.11
Jacket Water to Diesel Generators	3B.12
Main Steam System	3B.13
Penetration and Liner Weld Joint Channel System	3B.14
Personnel Airlock	3B.15
Reactor Coolant System	3B.16
Safety Injection	3B.17

Service Water 3B.18
Station Air 3B.19
Waste Disposal 3B.20

General Relief Requests 3B.G

Enclosure 1

Systems Subject to Inservice Testing

Indian Point Unit No. 2

January 1984

Enclosure 1

List of Systems Subject to Inservice Testing

The following list represents the systems included in this IST Program. To obtain the list, CI-240-1 was reviewed against the NRC Draft Regulatory Guide entitled "Identification of Valves for Inclusion in Inservice Testing Programs." In addition, the Technical Specifications were reviewed to ensure that all containment isolation valves and their respective systems were included.

	GENERIC	INDIAN POINT UNIT 2	DRAWINGS
1.1	Reactor Coolant System and any proposed path for establishing natural circulation	Reactor Coolant System PRT, Pressurizer System, Relief Valves, Main and Auxiliary Feed Systems	9321-F-2738-40
1.2	Portions of Main Steam	Main Steam System	9321-F-2017-27
1.3	High Pressure Coolant Injection (HPCI)	Safety Injection (HPCI)	9321-F-2735-49
1.4	Low Pressure Injection	Safety Injection (RHR) includes LPCI, External/ Internal Recirculation, Containment Sump	(See 1.3)
1.5	Accumulator System	Safety Injection (SI)	(See 1.3)
1.6	Containment Spray System	Safety Injection-Containment Spray	(See 1.3)
1.7	Primary and Secondary System Safety and Relief Valves and Atmospheric Relief Valves	RCS, Main Steam	(See 1.1 and 1.2) 9321-F-4061-9
1.8	Portions of Main Feedwater System	Boiler Feedwater, Condensate and Boiler Feedpump	9321-F-2019-31 9321-F-2018-28
1.9	Auxiliary Feedwater System	Auxiliary Feedwater System	(See 1.8)
1.10	Residual Heat Removal System (shutdown cooling)	RHR System	(See 1.4)
1.11	Component Cooling Water System	Component and Auxiliary Component Cooling Water Systems	9321-F-2720-39 A227781-0

Enclosure 1 (continued)

GENERIC	INDIAN POINT UNIT 2	DRAWINGS
1.12 Service Water Systems Ultimate Heat Sink	Service Water System	9321-F-2722-35 A209762 Rev 4 9321-F-4050
1.13 Containment Isolation Valves	Includes Various Systems	
	1. Auxiliary Steam	9321-F-2027-11
	2. Air Ejector To Containment	9321-F-2025-14
	3. Containment Pressure Sensing	9321-F-2735-49
	4. City Water to Containment	9321-F-2678-35
	5. S/G Blowdown	9321-F-2729-18
	6. Containment Purge and Pressure Relief	9321-F-4022-18 9321-F-2726-22
	7. Containment Rad. Monitors	9321-F-7045-8
1.14 Chemical Volume and Control System (CVCS)	CVCS	9321-F-2736-31 A208168-2
1.15 Ventilation Systems that perform a function important to safety	Post Accident Containment Venting	9321-F-4061-10 and B208879
	Containment Recirculation Fans	9321-F-4022-18
	Post Accident Containment Air Sampling	A208479-2
	Air Ejector to Containment	9321-F-2025-14
1.16 Instrument Air System	Instrument Air Station Air	9321-F-2036-15 9321-F-2035-12
1.17 PORV and Block Valves	Reactor Coolant System	9321-F-2738-37
1.18 Closure Head Vent System	RCS Head Vent System	(See 1.1)
1.19 EDG Auxiliary System		
a. Air Starting System	EDG Air Start System	9321-H-2029-7
b. Cooling Water System	Service Water System - EDG Cooling Portion	(See 1.12)
	Jacket Water to Diesel Generator	9321-H-2028-6
c. Fuel Oil Storage and Transfer System	Fuel Oil to Diesel Generators	9321-F-2030-9

Additional systems and portions of systems to be included in the program include the following:

GENERIC	SYSTEM (IP2)	DRAWINGS
None	H_2 Recombiner System	9321-F-2727-8
None None	Waste Disposal System (CIVs only)	9321-F-2719-44
None None	Sampling System (primarily CIVs)	9321-F-2745-20 and A227178-1
None None	Personnel Air Lock (CIVs only)	9321-F-7052-9
None	Reactor Coolant Pump Seal Water	(See 1.14)
None	Isolation Valve Seal Water	9321-F-2746-17
None	Containment Penetration and Weld Channel Pressurization	9321-F-7052-10

Enclosure 2

Inservice Testing Program Summary for Pumps

Indian Point Unit No. 2

January 1984

Indian Point Nuclear Generating Unit No. 2

Inservice Test Program - Quality Group A, B, and C Pumps

1.0 PUMPS SUBJECT TO THE TESTING REQUIREMENTS OF ASME CODE SECTION XI, ARTICLE IWP:

Safety Injection Pumps 21, 22 and 23
Containment Spray Pumps 21 and 22
Recirculation Pumps 21 and 22.
Service Water Pumps 21, 22, 23, 24, 25 and 26.
Residual Heat Removal Pumps 21 and 22
Component Cooling Pumps 21, 22 and 23.
Auxiliary Component Cooling Pumps 21 and 22
Auxiliary Boiler Feedwater Pumps 21, 22 and 23.
Boric Acid Transfer Pumps 21 and 22.
Charging Pumps 21, 22 and 23.

2.0 PROGRAM DESCRIPTION:

The following tabulation lists the pump identification, diagram number and coordinates, quality group, parameters to be measured or observed, and the test frequency. Requests for relief (R-R) numbers have been noted in the appropriate parameter columns followed by the Section XI Article numbers from which the reliefs are requested in the Section XI Code Relief Request column. In addition, a reference to explanatory notes has been made in the applicable parameter columns.

The detailed description of the requests for relief, containing the basis for relief and alternate testing, and the explanatory notes follow the program tabulation.

INDIAN POINT NUCLEAR GENERATING UNIT NO. 2
INSERVICE TEST PROGRAM
QUALITY GROUP A, B AND C PUMPS

PUMP IDENTIFICATION & DIAGRAM NO.	COORDINATES	QUALITY GROUP	PARAMETERS MEASURED/OBSERVED AT FREQUENCY SPECIFIED								SECTION CODE RELIEF
			Speed (if variable)	Inlet Pressure (P_i)	Outlet Pressure (P_o)	Differential Pressure (P_o-P_i)	Flow Rate Q	Vibration Amplitude (V)	Lubricant Level or Pressure	Bearing Temp. (T_b)	
Safety Injection Pump #21 9321-F-2735-46	A2	B	N/A Note(a)	Q R-R(2)	Q R-R(2)	Q R-R(2)	Q R-R(2)	Q R-R(2)	Q R-R(2)	Y R-R(3)	IWP-3100 IWP-3500(b)
Safety Injection Pump #22 9321-F-2755-46	A2	B	N/A Note(a)	Q R-R(2)	Q R-R(2)	Q R-R(2)	Q R-R(2)	Q R-R(2)	Q R-R(2)	Y R-R(3)	IWP-3100 IWP-3500(b)
Safety Injection Pump #23 9321-F-2735-46	A1	B	N/A Note(a)	Q R-R(2)	Q R-R(2)	Q R-R(2)	Q R-R(2)	Q R-R(2)	Q R-R(2)	Y R-R(3)	IWP-3100 IWP-3500(b)
Containment Spray Pump #21 9321-F-2735-46	E2	B	N/A Note(a)	Q	Q	Q	Q	Q	Q	Y R-R(3)	IWP-3500(b)

Q - Quarterly
Y - Yearly
R - Refuelings
R-R( ) - Requests for Relief (Number)
N/A - Not Applicable
N/R - Not Recorded

INDIAN POINT NUCLEAR GENERATING UNIT NO. 2
INSERVICE TEST PROGRAM
QUALITY GROUP A, B AND C PUMPS

PUMP IDENTIFICATION & DIAGRAM NO.	COORDINATES	QUALITY GROUP	PARAMETERS MEASURED/OBSERVED AT FREQUENCY SPECIFIED								SECTION CODE RELIEF
			Speed (if variable)	Inlet Pressure (P_i)	Outlet Pressure (P_o)	Differential Pressure (P_o-P_i)	Flow Rate Q	Vibration Amplitude (V)	Lubricant Level or Pressure	Bearing Temp. (T_b)	
Containment Spray Pump #22 9321-F-2735-46	E2	B	N/A Note(a)	Q	Q	Q	Q	Q	Q	Y R-R(3)	IWP-3500(b)
Recirculation Pump #21 9321-F-2755-46	F4	B	N/A Note(a)	R R-R(1)	R R-R(1)	R R-R(1)	N/A	R R-R(1)	N/A R-R(4)	R R-R(6)	IWP-3400 IWP-3500(b) IWP-3100
Recirculation Pump #22 9321-F-2735-46	G4	B	N/A Note(a)	R R-R(1)	R R-R(1)	R R-R(1)	N/A	R R-R(1)	N/A R-R(4)	N/R R-R(6)	IWP-3400 IWP-3500(b) IWP-3100
Service Water Pump #21 9321-F-2722-32	D2	C	N/A Note(a)	Q Note(f)	Q	Q	Q	Q	N/A R-R(4)	N/R R-R(5)	IWP-4200 IWP-3100-1

Q - Quarterly
Y - Yearly
R - Refuelings
R-R( ) - Requests for Relief (Number)
N/A - Not Applicable
N/R - Not Recorded

INDIAN POINT NUCLEAR GENERATING UNIT NO. 2
INSERVICE TEST PROGRAM
QUALITY GROUP A, B AND C PUMPS

PUMP IDENTIFICATION & DIAGRAM NO.	COORDINATES	QUALITY GROUP	PARAMETERS MEASURED/OBSERVED AT FREQUENCY SPECIFIED								SECTION CODE RELIEF
			Speed (if variable)	Inlet Pressure (P_i)	Outlet Pressure (P_o)	Differential Pressure (P_o-P_i)	Flow Rate Q	Vibration Amplitude (V)	Lubricant Level or Pressure	Bearing Temp. (T_b)	
Service Water Pump #22 9321-F-2722-32	D2	C	N/A Note(a)	Q Note(f)	Q	Q	Q	Q	N/A R-R(4)	N/R R-R(5)	IWP-3100-a
Service Water Pump #23 9321-F-2722-32	C2	C	N/A Note(a)	Q Note(f)	Q	Q	Q	Q	N/A R-R(4)	N/R R-R(5)	IWP-3100-1
Service Water Pump #24 9321-F-2722-32	C2	C	N/A Note(a)	Q Note(f)	Q	Q	Q	Q	N/A R-R(4)	N/R R-R(5)	IWP-3100-1
Service Water Pump #25 9321-F-2722-32	B2	C	N/A Note(a)	Q Note(f)	Q	Q	Q	Q	N/A R-R(4)	N/R R-R(5)	IWP-3100-1

Q - Quarterly
Y - Yearly
R - Refuelings
R-R( ) - Requests for Relief (Number)
N/A - Not Applicable
N/R - Not Recorded

INDIAN POINT NUCLEAR GENERATING UNIT NO. 2
INSERVICE TEST PROGRAM
QUALITY GROUP A, B AND C PUMPS

PUMP IDENTIFICATION & DIAGRAM NO.	COORDINATES	QUALITY GROUP	PARAMETERS MEASURED/OBSERVED AT FREQUENCY SPECIFIED								SECTION CODE RELIEF
			Speed (if variable)	Inlet Pressure (P_i)	Outlet Pressure (P_o)	Differential Pressure (P_o-P_i)	Flow Rate Q	Vibration Amplitude (V)	Lubricant Level or Pressure	Bearing Temp. (T_b)	
Service Water Pump #26 9321-F-2722-32	B2	C	N/A Note(a)	Q Note(f)	Q	Q	Q	Q	N/A R-R(4)	N/R R-R(5)	IWP-3100-1
Residual Heat Removal Pump #21 9321-F-2720-36 9321-F-2735-46	E4 G3	B	N/A Note(a)	Q	Q	Q	Q	Q	N/A R-R(4)	Y R-R(3)	IWP-3500(b) IWP-3100-2 IWP-3100-1
Residual Heat Removal Pump #22 9321-F-2720-36 9321-F-2735-46	E4 G3	B	N/A	Q	Q	Q	Q	Q	N/A R-R(4)	Y R-R(3)	IWP-3100-2 IWP-3500(b) IWP-3100-1
Component Cooling Pump #21 9321-F-2720-36	C3	C	N/A Note(a)	Q	Q	Q	Q	Q	Q	Y R-R(3)	IWP-3500(b)

Q - Quarterly
Y - Yearly
R - Refuelings
R-R( ) - Requests for Relief (Number)
N/A - Not Applicable
N/R - Not Recorded

INDIAN POINT NUCLEAR GENERATING UNIT NO. 2
INSERVICE TEST PROGRAM
QUALITY GROUP A, B AND C PUMPS

PUMP IDENTIFICATION & DIAGRAM NO.	COORDINATES	QUALITY GROUP	PARAMETERS MEASURED/OBSERVED AT FREQUENCY SPECIFIED								SECTION CODE RELIEF
			Speed (if variable)	Inlet Pressure (P_i)	Outlet Pressure (P_o)	Differential Pressure (P_o-P_i)	Flow Rate Q	Vibration Amplitude (V)	Lubricant Level or Pressure	Bearing Temp. (T_b)	
Component Cooling Pump #22 9321-F-2720-36	D4	C	N/A Note(a)	Q	Q	Q	Q	Q	Q	Y R-R(3)	IWP-3500(b)
Component Cooling Pump #23 #239321-F-2720-36	D4	C	N/A Note(a)	Q	Q	Q	Q	Q	Q	Y R-R(3)	IWP-3500(b)
Auxiliary Component Cooling Pump #21 3321-F-2720-36	F3 F3	C C	N/A Note(a)	Q	Q	Q	Q	Q	N/A R-R(4)	Y R-R(3)	IWP-3100-1 IWP-3500(b)
Auxiliary Component Cooling Pump #22 9321-F-2720-36	F3	C	N/A Note(a)	Q	Q	Q	Q	Q	N/A R-R(4)	Y R-R(3)	IWP-3100-1 IWP-3500(b)

Q - Quarterly
Y - Yearly
R - Refuelings
R-R( ) - Requests for Relief (Number)
N/A - Not Applicable
N/R - Not Recorded

INDIAN POINT NUCLEAR GENERATING UNIT NO. 2
INSERVICE TEST PROGRAM
QUALITY GROUP A, B AND C PUMPS

PUMP IDENTIFICATION & DIAGRAM NO.	COORDINATES	QUALITY GROUP	PARAMETERS MEASURED/OBSERVED AT FREQUENCY SPECIFIED								SECTION CODE RELIEF
			Speed (if variable)	Inlet Pressure (P_i)	Outlet Pressure (P_o)	Differential Pressure (P_o-P_i)	Flow Rate Q	Vibration Amplitude (V)	Lubricant Level or Pressure	Bearing Temp. (T_b)	
Auxiliary Boiler Feedwater Pump #21 9321-F-2019-27	G1	C	N/A Note(a)	Q R-R(2)	Q R-R(2)	Q R-R(2)	N/A	Q R-R(2)	Q R-R(2)	Y R-R(3)	IWP-3100 IWP-3500(b)
Auxiliary Boiler Feedwater Pump #22 9321-F-2019-27	G2	C	Q	Q R-R(2)	Q R-R(2)	Q R-R(2)	N/A R-R(9)	Q	Q R-R(2)	Y R-R(3)	IWP-3100 IWP-3500(b)
Auxiliary Boiler Feedwater Pump #23 9321-F-2019-27	G2	C	N/A Note(a)	Q R-R(2)	Q R-R(2)	Q R-R(2)	N/A	Q R-R(2)	Q R-R(2)	Y R-R(3)	IWP-3100 IWP-3500(b)

Q - Quarterly
Y - Yearly
R - Refuelings
R-R( ) - Requests for Relief (Number)
N/A - Not Applicable
N/R - Not Recorded

INDIAN POINT NUCLEAR GENERATING UNIT NO. 2
INSERVICE TEST PROGRAM
QUALITY GROUP A, B AND C PUMPS

PUMP IDENTIFICATION & DIAGRAM NO.	COORDINATES	QUALITY GROUP	PARAMETERS MEASURED/OBSERVED AT FREQUENCY SPECIFIED								SECTION CODE RELIEF
			Speed (if variable)	Inlet Pressure (P_i)	Outlet Pressure (P_o)	Differential Pressure (P_o-P_i)	Flow Rate Q	Vibration Amplitude (V)	Lubricant Level or Pressure	Bearing Temp. (T_b)	
Charging Pump #21 A206745	B3	B	Q R-R(8)	Q R-R(8) Note(d)	Q R-R(8)	N/A Note(c)	Q R-R(8)	Q R-R(8)	Q	Y R-R(8) R-R(3)	IWP-3100 IWP-3500(b)
Charging Pump #22 A206745	B3	B	Q R-R(8)	Q R-R(8) Note(d)	Q R-R(8)	N/A Note(c)	Q R-R(8)	Q R-R(8)	Q	Y R-R(8) R-R(3)	IWP-3100 IWP-3500(b)
Charging Pump #23 A206745	B3	B	Q R-R(8)	Q R-R(8) Note(d)	Q R-R(8)	N/A Note(c)	Q R-R(8)	Q R-R(8)	Q	Y R-R(8) R-R(3)	IWP-3100 IWP-3500(b)

Q - Quarterly
Y - Yearly
R - Refuelings
R-R( ) - Requests for Relief (Number)
N/A - Not Applicable
N/R - Not Recorded

INDIAN POINT NUCLEAR GENERATING UNIT NO. 2
INSERVICE TEST PROGRAM
QUALITY GROUP A, B AND C PUMPS

PUMP IDENTIFICATION & DIAGRAM NO.	COORDINATES	QUALITY GROUP	PARAMETERS MEASURED/OBSERVED AT FREQUENCY SPECIFIED								SECTION CODE RELIEF
			Speed (if variable)	Inlet Pressure (P_i)	Outlet Pressure (P_o)	Differential Pressure (P_o-P_i)	Flow Rate Q	Vibration Amplitude (V)	Lubricant Level or Pressure	Bearing Temp. (T_b)	
Fuel Oil Transfer Pump #21	A6	N/A	N/A Note(a)	Q Note(e)	Q	Q	R-R(9)	Q R-R(7)	N/A R-R(4)	R-R(7)	IWP-3100
Fuel Oil Transfer Pump #22	A3	N/A	N/A Note(a)	Q Note(e)	Q	Q	R-R(9)	Q R-R(7)	N/A R-R(4)	R-R(7)	IWP-3100
Fuel Oil Transfer Pump #23	A1	N/A	N/A Note(a)	Q Note(e)	Q	Q	R-R(9)	Q R-R(7)	N/A R-R(4)	R-R(7)	IWP-3100

Q - Quarterly
Y - Yearly
R - Refuelings
R-R( ) - Requests for Relief (Number)
N/A - Not Applicable
N/R - Not Recorded

INDIAN POINT NUCLEAR GENERATING UNIT NO. 2
INSERVICE TEST PROGRAM
QUALITY GROUP A, B AND C PUMPS

PUMP IDENTIFICATION & DIAGRAM NO.	COORDINATES	QUALITY GROUP	PARAMETERS MEASURED/OBSERVED AT FREQUENCY SPECIFIED								SECTION CODE RELIEF
			Speed (if variable)	Inlet Pressure (P_i)	Outlet Pressure (P_o)	Differential Pressure (P_o-P_i)	Flow Rate Q	Vibration Amplitude (V)	Lubricant Level or Pressure	Bearing Temp. (T_b)	
Boric Acid Transfer Pump #21 A206745-1	G2		N/A Note(a)	Q	Q	Q	R-R(9)	Q	N/A R-R(4)	Y R-R(3)	IWP-3100 IWP-3500(b)
Boric Acid Transfer Pump #22 A206745-1	G2		N/A Note(a)	Q	Q	Q	R-R(9)	Q	N/A R-R(4)	Y R-R(3)	IWP-3100 IWP-3500(b)

Q - Quarterly
Y - Yearly
R - Refuelings
R-R( ) - Requests for Relief (Number)
N/A - Not Applicable
N/R - Not Recorded

Indian Point Unit No. 2

RELIEF REQUEST BASIS

Request for Relief No. 1, R-R (1):

Pumps: Recirculation Pumps 21 & 22

Test Requirement: (IWP-3400[a])

An inservice test shall be run on each pump, approximately each quarter during normal plant operation. It is recommended that this test frequency be maintained during shutdown periods where this can reasonably be accomplished, although this is not mandatory. If it is not tested during plant shutdown, the pump shall be tested within one week after plant is returned to normal operation.

Relief is requested from testing the pumps each quarter.

Basis for Relief:

The Recirculation pumps are located inside containment and are not accessible for testing during normal plant operation. Consequently, relief is requested from testing these pumps at the frequency specified by subsection IWP. The function of these pumps is to permit recirculation of the spilled post-LOCA containment inventory. The pumps are sized such that only one pump is required to maintain long term core cooling. Two external low head injection/ recirculation (Residual Heat Removal) pumps provide additional backup recirculation capability taking suction from a separate sump inside containment. As for the recirculation pumps, only one low head injection/ recirculation (Residual Heat Removal) pump is required to maintain long term core cooling. The redundancy afforded by these two sets of redundant pumps far exceeds the requirements of the appropriate General Design Criteria.

The Recirculation pumps are the vertical centrifugal type, the pumped fluid providing the bearing lubrication/cooling. They are located in a 12,000 gallon capacity sump inside containment. Each pump is rated at 3000 gpm. Because the pumped fluid serves to lubricate/cool the bearings, the manufacturer recommends against running these pumps dry. Pump design is such that no provisions are available to permit the installation of auxiliary bearing water cooling lines thereby precluding testing these pumps dry. Several approaches to testing the Recirculation pumps have been considered. These include full flow at code frequency, part flow at code frequency, full flow at refuelings and part flow at refuelings. Of these, only part flow at refuelings is considered practical.

Following are some of the considerations involved with the less practical of these alternatives.

Full flow at code frequency

Installed recirculation loop piping is sized for minimum flow. A full flow test, therefore, would require the use of the low head injection header to the Reactor Coolant System and a source of water to maintain sump level. Since the Recirculation pumps are low head pumps (250 psig, design discharge pressure), Reactor Coolant System/Recirculation system pressure differential precludes this type of testing.

Full flow at refuelings

The low head injection header could be utilized with the Reactor Coolant System depressurized. At full flow, one Recirculation pump will empty the recirculation sump in less than four minutes, a duration insufficient to permit the required data gathering. In order to test in this mode, then, a source of makeup to the recirculation pump is required. Since the minimum required RCS shutdown margin must be maintained, a source of borated water of the proper concentration would be required. Although sources are available, there are currently no installed piping systems that would permit making-up borated water of the appropriate concentration at the requisite flow rate (approximately 3000 gpm). Modifications to install such piping require major construction and are ultimately accompanied by an additional contribution to system unreliability and/or risk.

Part flow at code frequency

Part flow recirculation capability vis-a-vis installed recirculation piping and valves is available. The current Technical Specifications, however, preclude reactor operation at recirculation sump levels sufficient to permit Recirculation pump operation. Reactor operation with recirculation sump level below prescribed limits is necessary to maintain margin to the post-LOCA containment flooding level at which safety related equipment not designed or intended for submergence would become submerged. As such, a Technical Specification change would be required to permit such testing during normal reactor operation. Notwithstanding a Technical Specification change, a source of borated water of the proper concentration to fill the recirculation sump would be required as well as a method of pumping the water out of containment after testing is completed. Various methods for obtaining borated water of the proper concentration can be postulated; however, each of these would require manual operations inside containment. No means are available for directly pumping water from the recirculation sump out of containment. Therefore a portable pump and associated hosing would be required to pump water from the recirculation sump to the containment sump where it could then be pumped

out of containment to waste hold up tanks. If testing were performed on a monthly basis as required by code, approximately 144,000 gallons of additional radwaste per year would require processing. The additional personnel exposure associated with entries into containment during power operation to facilitate filling and draining the sump, making valve line-ups before and after testing, obtaining test data and processing large volumes of radwaste would be considerable, and we believe, inconsistent with ALARA guidelines. Finally, we believe that entries to containment during power operation for purposes other than visual observation or inspection renders the plant vulnerable to test or other human error with potential challenges to safety systems a possible result.

In addition to the considerations addressed above, we have considered spin testing at code frequency in conjunction with full code parameter tests at refuelings. As discussed above, the manufacturer recommends against running these pumps dry; therefore, spin testing would again require numerous incontainment manual operations directed at filling and draining the sump. There are no provisions on these pumps that would facilitate the installation of bearing water lube lines. We have further considered rotating the pump shaft manually at code frequency and concluded that any benefits to be derived from such an operation would be minimal since the pump impellers are not accessible for visual observation and no assurance of impeller rotation could be gained.

Finally, the subject of sump cleanliness is relevant. A detailed evaluation of this matter is contained in Consolidated Edison's (O'Toole) June 10, 1980, letter to the NRC (Denton) which provided our response to the 120 day requirements contained in the NRC's Confirmatory Order of February 11, 1980. Specifically, our response to item E.1.a of the order demonstrates that blockage is not likely to occur and that even if postulated, with the circulation pump sump completely blocked and flow to the other sump reduced by 50%, sufficient post-LOCA recirculation flow would continue via a single operating RHR pump.

Based on the substantial redundancy available, the fact that the backup low head injection/recirculation (RHR) pumps will be tested at the appropriate frequency, and the hardships involved in testing the Recirculation pumps at any time other than refuelings, we believe that no substantial safety benefit will be derived from testing at code frequency.

Alternative Testing:

Testing of these pumps will be performed during refueling shutdowns. This is consistent with present Technical Specification requirements for recirculation pump surveillance testing.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

Request for Relief No. 2, R-R (2):

Pumps:

Safety Injection Pumps 21, 22, 23
Auxiliary Boiler Feedwater Pumps 21, 23
Steam Driven Auxiliary Boiler Feedwater Pump 23

Test Requirement: (IWP-3400 [a])

An inservice test shall be run on each pump, approximately each quarter during normal plant operation. It is recommended that this test frequency be maintained during shutdown periods where this can reasonably be accomplished, although this is not mandatory. If it is not tested during plant shutdown, the pump shall be tested within one week after plant is returned to normal operation.

Relief is requested from testing the pumps within one week after the plant is returned to normal operation, if not tested during plant shutdown. It is proposed that full flow tests performed during refuelings serve in lieu of Section XI required recirculation flow tests as credit toward maintaining the test schedule during refuelings.

Basis for Relief:

Present plant Technical Specifications and related commitments require full flow testing of the safety injection and motor driven auxiliary boiler feedwater pumps prior to start-up following each reactor refueling.

These full flow tests differ from the Section XI required tests of these pumps which are performed under minimum flow conditions using recirculation loops. Full flow tests are maximum capability tests and serve to verify pump operability at conditions closely approximating those for which the pumps are designed. It is intended that these full flow tests serve in lieu of the Section XI required recirculation flow tests during refuelings. Subsequent recirculation flow tests will commence three months (+/- 25%) from the corresponding full flow test.

Alternative Testing:

During refuelings the Safety Injection and Auxiliary Boiler Feedwater Pumps will be full flow tested prior to startup in lieu of miniflow testing. Upon resumption of power operation these pumps will be tested quarterly in the miniflow mode with miniflow reference values.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

Request for Relief No. 3, R-R (3):

Pumps:

Safety Injection Pumps 21, 22 & 23
Residual Heat Removal Pumps 21 & 22
Containment Spray Pumps 21 & 22
Auxiliary Component Cooling Pumps 21 & 22
Auxiliary Boiler Feedwater System Pumps 21, 22 & 23
Component Cooling Pumps 21, 22, &23
Boric Acid Transfer Pumps 21 & 22
Charging Pumps 21, 22 & 23

Test Requirement: (IWP-3500 [b])

When measurement of bearing temperature is required, each pump shall be run until the bearing temperatures (IWP-4310) stabilize, and then the quantities specified shall be measured or observed and recorded. A bearing temperature shall be considered stable when three successive readings taken at ten minute intervals do not vary by more than 3%.

Relief is requested from the requirement of IWP-3500 (b) which establishes bearing temperature as stable when three successive readings taken at ten minute intervals do not vary by more than 3%.

Basis for Relief:

Experience indicates bearing temperature to be sufficiently stabilized after fifteen minutes of pump operation. Furthermore, pump operating time for purposes of testing is severely limited by potential pump overheating under the minimum flow condition dictated by the test circuit.

Alternative Testing:

For all pumps, bearing temperature will be measured once after fifteen minutes of pump operation on a yearly schedule.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

Request for Relief No. 4, R-R (4):

Pumps:

Residual Heat Removal Pumps 21 & 22
Auxiliary Component Cooling Pumps 21 & 22
Service Water Pumps 21, 22, 23, 24, 25 & 26
Recirculation Pumps 21 & 22
Fuel Oil Transfer Pumps 21, 22 & 23
Boric Acid Transfer Pumps 21 & 22

Test Requirement: Table IWP-3100-1

Proper lubricant level or pressure shall be observed.

Basis for Relief:

The design of these pumps does not incorporate independent lubrication systems having measurable or observable characteristics. Lubrication is either by sealed grease type bearings or pumped fluid.

The RHR, Service Water, Recirculation, Fuel Oil Transfer and Boric Acid Transfer pumps have bearings lubricated by pumped fluid while the Auxiliary Component Cooling pumps are equipped with bearings that are grease lubricated. For these reasons checking the lubricant level or pressure does not apply.

Alternative Testing: None.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

Request for Relief No. 5, R-R (5):

Pumps:

Service Water Pumps 21, 22, 23, 24, 25 & 26

Test Requirements: (IWP-3100)

"In variable or fixed resistance systems the test quantities shown in table IWP-3100-1 shall then be measured or observed as directed in this Subsection. Each measured test quantity shall then be compared to the reference value of the same quantity."

Relief is requested from the requirements of IWP-3100 with respect to obtaining bearing temperature measurements for comparison with referenced limits.

Basis for Relief:

These pumps are of the semi-submerged vertical centrifugal type. Except for the uppermost bearing, all other pump shaft bearings are submerged. Furthermore all pump shaft bearings (including the uppermost bearing) are enclosed within a cylindrical pipe type housing with no access provisions available to permit direct contact bearing temperature measurements. Since the pump bearings are either submerged or exposed to outdoor ambient conditions, bearing temperatures are subject to relatively large seasonal variations, rendering any comparison with reference bearing temperatures of little practical value. Vibration measurements will provide singularly reliable evidence of pump mechanical condition independent of bearing temperature measurement. These are journal bearings lubricated by pumped fluid and as such were never intended to have temperature measurements taken.

Alternative Testing: None.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

Request for Relief No. 6, R-R (6):

Pumps:

Recirculation Pumps 21 & 22

Test Requirements: (IWP-3100)

"In variable or fixed resistance systems the test quantities shown in table IWP-3100-1 shall then be measured or observed as directed in this Subsection. Each measured test quantity shall then be compared to the reference value of the same quantity."

Relief is requested from the requirements of IWP-3100 with respect to obtaining bearing temperature measurements for comparison with referenced limits.

Basis for Relief:

These pumps are of the semi-submerged vertical centrifugal type. Except for the uppermost bearing, all other pump shaft bearings are submerged. Furthermore all pump shaft bearings (including the uppermost bearing) are cooled by the pumped fluid with no access provisions available to permit direct contact bearing temperature measurements. Since the pump bearings are cooled by the pumped fluid, bearing temperatures are subject to variations due to pump water temperatures, rendering any comparison with reference bearing temperatures of little practical value. Vibration measurements will provide singularly reliable evidence of pump mechanical condition independent of bearing temperature measurement. These journal bearings lubricated by pumped fluid were never intended to have temperature measurements taken.

Alternative Testing: None.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

Request for Relief No. 7, R-R (7):

Pumps:

Fuel Oil Transfer Pumps 21, 22 & 23

Test Requirements: (IWP-3100)

"The resistance of the system shall be varied until either the measured differential pressure or the measured flow rate equals the corresponding reference value. The test quantities shown in table IWP-3100-1 shall then be measured or observed and recorded as directed in this Subsection. Each measured test quantity shall then be compared to the reference value of the same quantity."

Relief is requested from the requirements of IWP-3100 with respect to obtaining bearing temperature and vibration measurements for comparison with referenced limits.

Basis for Relief:

The fuel oil transfer pumps are submerged within the fuel oil storage tanks precluding direct access to the pump bearings for vibration and bearing temperature measurements.

Alternative Testing:

A best effort will be made to obtain vibration measurements off of the pump motor housing. This information is not expected to be repeatable. However an attempt will be made to trend the data.

RELIEF REQUEST BASIS

Request for Relief No. 8, R-R (8):

Pumps:

Charging Pumps 21, 22 & 23

Test Requirements: IWP-3100

"An inservice test shall be conducted with the pump operating at nominal motor nameplate speed for constant speed drives and at a speed adjusted to the reference speed for variable speed drives. The resistance of the system shall then be varied until either the measured differential pressure or the measured flow rate equals the corresponding reference value. . . . Each measured test quantity shall then be compared with the reference value of the same quantity. Any deviations determined shall be compared with the limits given in Table IWP-3100-2 and the specified corrective action taken. . . ."

Basis for Relief:

The charging pumps are positive displacement, variable speed pumps employed in a variable resistance system. They serve to maintain chemistry control, provide reactor pump seal injection flow and reactor coolant pump lower radial bearing cooling flow. They also provide a means of reactivity control for those events requiring boron addition.

There are no instrumented bypass loops available to facilitate quarterly testing of these pumps. The normal flow path precludes adjusting system resistance to a reference value in subsequent quarterly tests due to the varying demands of the reactor coolant pump seals and the normal pressure variations of the reactor coolant system. As such, no comparison to reference values can be made.

Alternative Testing:

The parameters identified in the table will be measured quarterly and trended. A minimum operability criteria of 75 gpm per pump has been established. As experience is gained from data trending consideration will be given to establishing alert and action ranges for these parameters.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

Request for Relief No. 9, R-R (9):

Pumps:

Auxiliary Boiler Feedwater Pump 22 (Turbine Driven)
Boric Acid Transfer Pumps 21 & 22
Fuel Oil Transfer Pumps 21, 22 & 23

Test Requirements: (IWP-3100-1)

"The resistance of the system shall be varied until either the measured differential pressure or the measured flow rate equals the corresponding reference value. The test quantities shown in table IWP-3100-1 shall then be measured or observed and recorded as directed in this Subsection. Each measured test quantity shall then be compared to the reference value of the same quantity."

Relief is requested from the requirements of IWP-3100 with respect to varying system resistance and measuring flow rate.

Basis for Relief:

The tests circuits employed for quarterly testing of these pumps do not incorporate flow measurement instrumentation. Testing of these pumps will be accomplished with all valves in the flow path in the full open position, thereby system resistance will be fixed and test results are expected to be repeatable. Acceptance criteria will be predicated on obtaining acceptable head values at the design minimum flow condition.

Alternative Testing:

These pumps will be tested in a fixed resistance system in lieu of varying system resistance to a specified flow and measuring head for comparison with reference values.

NOTES

(a) These pumps are directly coupled to constant speed induction motors. Consistent with IWP-4400, rotative speed need not be measured.

(c) These pumps are of the positive displacement type. Differential pressure across a positive displacement pump serves no function in determining pump degradation.

(d) There is no instrumentation available for the measurement of inlet pressure. Inlet pressure will be calculated from elevation head and volume control tank gas pressure.

(e) These pumps are submerged within the fuel oil storage tanks. Inlet pressure will be calculated from tank level.

(f) These pumps are wet-pit pumps submerged in the river water. Inlet pressure will be calculated from river water level.

Enclosure 3

Inservice Testing Program Summary for Valves

Indian Point Unit No. 2

January 1984

Indian Point Nuclear Generating Unit No. 2
Inservice Test Program Summary for Valves

1.0 VALVES SUBJECT TO THE TESTING REQUIREMENTS OF ASME B&PV CODE SECTION XI, ARTICLE IWV

In accordance with IWV-1100 the valves subject to these testing requirements include those valves which are required to perform a specific function in shutting down a reactor to the cold shutdown condition or in mitigating the consequences of an accident. Such valves are identified on the following tabulation.

2.0 PROGRAM DESCRIPTION

The following tabulation lists the valve identification number by the system (and drawing number) of which it is a part, the component quality group if applicable, the drawing coordinates, valve category per IWV-2200, valve size and type, actuator type, failure mode, remote position indication and normal valve position. The type of testing required, relief requests, testing alternatives and test frequency are identified as well. Request for relief numbers have been noted in the appropriate parameter columns by either an alpha or numeric designator. An alpha designator refers to a relief request having applicability to more than one valve. A numeric designator refers to a relief request unique to a specific valve. A legend identifying the symbols appearing in the tabulation has been provided.

The detailed description of the requests for relief, containing the basis for relief and alternate testing follow the tabulation.

3.0 VALVE TEST FREQUENCY

Quarterly

All valves required to be tested quarterly shall be aggregated and tested within each 92-day period of unit on-line operation. The

maximum allowable extension to the quarterly test interval shall not exceed 25%. The total maximum combined time for three consecutive quarterly test intervals shall not exceed 299 days (3.25 times the quarterly test interval). Individual valves may be tested at any time within each 92-day period of unit on-line operation to permit testing to coincide with requisite plant conditions and schedule constraints. Each should be stroked at approximately equal intervals of unit on-line operation. Valves required to be stroked during unit on-line operation need not be stroked during periods of plant off-line operation. In such instances the test schedule shall be resumed at the point it was interrupted following the commencement of plant on-line operation.

Cold Shutdown

The inservice valve testing program for valves required to be tested at cold shutdowns must commence no later than 48 hours after each cold shutdown and shall continue until complete or the plant is ready to commence start-up. Completion of all inservice valve testing for valves required to be tested at cold shutdown is not a prerequisite to plant start-up. Any testing not completed at one cold shutdown should be performed during subsequent cold shutdowns. To permit cold shutdown testing of valves to proceed in an orderly manner, the number of valves to be tested at each cold shutdown should be determined as follows: the estimated duration of the outage divided by 92 days times the number of valves required to be tested at cold shutdown equals the target number of valves to be tested. At each successive cold shutdown the next group of valves should be tested until all valves in the program have been tested, at which time the cold shutdown valve testing program shall be reinitialized.

Refuelings

Inservice valve testing of valves required to be tested at refuelings shall be tested at each refueling not to exceed intervals greater than 2 years.

4.0 DIRECT OBSERVATION

The requirement for direct observation of valve position indication has not been incorporated in the following tables. This requirement will be satisfied by a separate test performed at two year intervals.

TABLE LEGEND

KEY TO TEST REQUIREMENTS

L - Category A valve leak rate test per Section XI, Article IWV-3420.

S - Category A & B exercising test per Section XI, Article IWV-3410.

SC - Category C exercising test per Section XI, Aritlce IWV-3520.

T - Category A & B stroke time measurement test per Section XI, Article IWV-3413.

F - Category A & B valve fail safe tests per Section XI, Article IWV-3415.

R - Category C (safety/relief) valve tests per Section XI, Article IWV-3510.

PV - Valve position verification as recommended by the NRC for B passive or locked position valves.

BT - Bench Test relief and safety valves.

NTR - No testing required per Section XI, Article IWV-3700 for passive valves.

Note: There are no Category D valves at Indian Point 2.

KEY TO TESTING ALTERNATIVES

1 - Leak test per Appendix J.

2 - Full-stroke exercise during refueling outages.

3 - Full-stroke exercise during cold shutdowns.

4 - Part-stroke tested quarterly during RHR SI (etc.) pump test.

5 - Part-stroke exercise during cold shutdowns.

6 - Part-stroke exercise during refueling outages.

7 - In accordance with IWV-3510 at refuelings.

8 - In accordance with IWV-3420 at refuelings.

9 - During containment spray nozzle air test--every 5 years.

KEY TO TESTING FREQUENCY

Q - Quarterly.

CS - Cold Shutdowns.

R - Refuelings.

OS - At a frequency specified by the owner.

KEY TO NORMAL POSITION

O - Open

C - Closed

V - Variable - depends on system lineup (i.e., open or closed)

T - Throttled

Abbreviations

SC - Stop Check Valve
CK - Check Valve
GA - Gate Valve
GL - Globe Valve
RE - Relief Valve
B - Butterfly Valve
T - Throttle

M - Manual Valve
SA - Self Actuating Valve
MO - Motor Operated Valve
AO - Air Operated Valve
SO - Solenoid Operated Valve
AN - Angle Valve

O - Open
LO - Locked Open
C - Closed
LC - Locked Closed

AI - As Is
(Note: All MOVs fail as is unless otherwise stated)
FC - Fail Closed
FO - Fail Open

Key to Relief Requests

1. Letters refer to a general relief request.

2. Numbers refer to a specific relief request for a given valve in its respective system. The relief requests have been numerically sequenced for each system.

SYSTEM NAME AIR CONDITIONING TO CCR P&ID NO. 9321-F-4050 PAGE 1 of 1

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
WRV-1				X				1-1/4	GL	M	O	AI		S	1	3	CS	
														NTR			None	
WRV-2				X				1-1/4	GL	M	O	AI		S	1	3	CS	
														NTR			None	

SYSTEM NAME AIR EJECTOR TO CONTAINMENT P&ID NO. 9321-F-2025-14 PAGE 1 of 1

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
PCV-1229			X					4	GA	AO	O	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	PT-R11 - PTR27A
														F			Q	
PCV-1230			X					4	GA	AO	O	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	PT-R11 - PTR27A
														F			Q	
PCV-1167				X				2	GA	AO	O*	FC*	Yes	S			Q	*Opens to vent to
														T			Q	atmosphere - fails to
														F			Q	vent to containment
PCV-1168				X				2	GA	AO	O*	FC*	Yes	S			Q	
														T			Q	
														F			Q	
PCV-1169				X				2	GA	AO	O*	FC*	Yes	S			Q	
														T			Q	
														F			Q	
CV-5					X			2	NE*	M	T			NTR			None	*Needle valve

SYSTEM NAME AUXILIARY COOLANT SYSTEM P&ID NO. A227781-0

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
744	B	G6	X					12	GA	MO	LO	AI	Yes	S	2	2	R	
														T	2	2	R	
														L	A	1	R	
														NTR			None	
784	C	G2	X					6	GA	MO	O	AI	Yes	S	1	3	CS	
														T	1	3	CS	
														L	A	1	R	
732	B	G6	X					14	GA	M	LC			L	A	1	R	A-passive
														NTR			None	
														S	3	3	CS	
791	C	G2	X					3	DIA	AO	O	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
793	C	F2	X					3	DIA	AO	O	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	

SYSTEM NAME AUXILIARY COOLANT SYSTEM P&ID NO. A227781-0

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
796	C	G2	X					3	DIA	AO	O	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
798	C	G2	X					3	DIA	AO	O	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
797	C	F2	X					6	GA	MO	O	AI	Yes	S	1	3	CS	
														T	1	3	CS	
														L	A	1	R	
FCV-625	C	G2	X					3	GA	MO	O	AI	Yes	S	1	3	CS	
														T	1	3	CS	
														L	A	1	R	
743	B	F5	X					3	GL	MO	LO	AI	Yes	S	7	3	CS	
														T	7	3	CS	
														L	A	1	R	
														NTR			None	

SYSTEM NAME AUXILIARY COOLANT SYSTEM P&ID NO. A227781-0

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
1870	B	F5	X					3	GL	MO	LO	AI	Yes	S	7	3	CS	
														T	7	3	CS	
														L	A	1	R	
														NTR			None	
769	C	E2		X				6	GA	MO	O	AI	Yes	S	6	3	CS	
														T	6	3	CS	
786	C	G2		X				6	GA	MO	O	AI	Yes	S	6	3	CS	
														T	6	3	CS	
789	C	F2		X				6	GA	MO	O	AI	Yes	S	6	3	CS	
														T	6	3	CS	
755A	C	F3				X		3	CK	SA	C			SC			Q	
755B	C	F2				X		3	CK	SA	C			SC			Q	
755	C	F3				X		2	CK	SA	O			SC			Q	
761A	C	C4				X		10	CK	SA	O			SC			Q	(position during
761B	C	C4				X		10	CK	SA	O			SC			Q	operation depends
761C	C	C3				X		10	CK	SA	O			SC			Q	on pump alignment)
738A	B	F4				X		12	CK	SA	C			SC	8	2, 4	R	
738B	B	F5				X		12	CK	SA	C			SC	8	2, 4	R	

SYSTEM NAME AUXILIARY COOLANT SYSTEM P&ID NO. A227781-0

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
750A	C	E3				X		1	CK	SA	C			SC			Q	during SI pump test
750B	C	E3				X		1	CK	SA	C			SC			Q	but one at a time
750C	C	D3				X		1	CK	SA	C			SC			Q	
735A		F4			X			10	GA	M	LO			NTR			None	
735B		F5			X			10	GA	M	LO			NTR			None	
736A		F4			X			1	GL	M	O			NTR			None	
736B		F5			X			1	GL	M	O			NTR			None	
737A		F4			X			1	GL	M	O			NTR			None	
737B		F5			X			1	GL	M	O			NTR			None	
777A		F5			X			3/4	GL	M	O			NTR			None	
777B		G5			X			3/4	GL	M	O			NTR			None	
777C		F4			X			3/4	GL	M	O			NTR			None	
777D		G4			X			3/4	GL	M	O			NTR			None	
739A		F4			X			8	GA	M	LO			NTR			None	
739B		F5			X			8	GA	M	LO			NTR			None	
753B		E2			X			3	GA	M	O			NTR			None	
753C		E3			X			3	GA	M	O			NTR			None	
753D		E3			X			3	GA	M	O			NTR			None	
753E		F3			X			3	GA	M	O			NTR			None	
753F		F2			X			3	GA	M	O			NTR			None	

SYSTEM NAME AUXILIARY COOLANT SYSTEM P&ID NO. A227781-0

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
753H		G2			X			3	GA	M	O			NTR			None	
760A		B4			X			12	GA	M	O			NTR			None	
760B		B4			X			12	GA	M	O			NTR			None	
760C		B4			X			12	GA	M	O			NTR			None	
765A	C	D4			X			14	GA	M	O			NTR			None	
765B	C	D4			X			14	GA	M	O			NTR			None	
766A	C	E4			X			14	GA	M	O			NTR			None	
766B	C	E4			X			14	GA	M	O			NTR			None	
832	C	E5			X			4	GA	M	O			NTR			None	

SYSTEM NAME AUXILIARY COOLANT SYSTEM P&ID NO. 9321-F-2720-39

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
741A	B	A6	X			X		12	CK	SA	C			SC	4	3	CS	
														L	A	1	R	
730	A	A6	X					14	GA	MO	O	AI	Yes	S	11	3	CS	
														L			R	
731	A	A6	X					14	GA	MO	O	AI	Yes	S	11	3	CS	
														L			R	
745A	B	C4		X				8	GA	MO	O	AI	Yes	S			Q	
														T			Q	
745B	B	B4		X				8	GA	MO	O	AI	Yes	S			Q	
														T			Q	
746	B	E4		X				8	GA	MO	O	AI	Yes	S	9	3	CS	
														T	9	3	CS	
747	B	F4		X				8	GA	MO	O	AI	Yes	S	9	3	CS	
														T	9	3	CS	
822A	C	D4		X				12	GA	MO	C	AI	Yes	S	5	3	CS	
														T	5	3	CS	
822B	C	D4		X				12	GA	MO	C	AI	Yes	S	5	3	CS	
														T	5	3	CS	
HCV-638	B	F4		X				8	BU	MO	O	AI	Yes	S			Q	
														T			Q	

SYSTEM NAME AUXILIARY COOLANT SYSTEM P&ID NO. 9321-F-2720-39

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
HCV-640	B	E4		X				8	BU	MO	O	AI	Yes	S			Q	
														T			Q	
774A		C2				X		1-1/2	CK	SA	O			SC	10	*		*verified continuously
774B		D2				X		1-1/2	CK	SA	O			SC	10	*		during normal operations
774C		E2				X		1-1/2	CK	SA	O			SC	10	*		
774D		F2				X		1-1/2	CK	SA	O			SC	10	*		
770	C	C3				X		6	CK	SA	O			SC	10	*		
742	B	C5			X			8	GA	M	LO			NTR			None	
751A	B	A4			X			2	GL	M	O			NTR			None	
751B	B	A5			X			2	GL	M	O			NTR			None	
752A	B	A4			X			2	GL	M	O			NTR			None	
752B	B	A5			X			2	GL	M	O			NTR			None	
771A	C	C3			X			3	GA	M	O			NTR			None	
771B	C	D3			X			3	GA	M	O			NTR			None	
771C	C	E3			X			3	GA	M	O			NTR			None	
771D	C	F3			X			3	GA	M	O			NTR			None	
772A	C	C2			X			3	GA	M	O			NTR			None	
772B	C	D2			X			3	GA	M	O			NTR			None	
772C	C	E2			X			3	GA	M	O			NTR			None	
772D	C	F2			X			3	GA	M	O			NTR			None	

SYSTEM NAME AUXILIARY COOLANT SYSTEM P&ID NO. 9321-F-2720-39

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
773A	C	C2			X			1	GL	M	O			NTR			None	
773B	C	D2			X			1	GL	M	O			NTR			None	
773C	C	E2			X			1	GL	M	O			NTR			None	
773D	C	F2			X			1	GL	M	O			NTR			None	
775A	C	D2			X			1	GL	M	O			NTR			None	
775B	C	E2			X			1	GL	M	O			NTR			None	
775C	C	F2			X			1	GL	M	O			NTR			None	
775D	C	G2			X			1	GL	M	O			NTR			None	
776A	C	D2			X			1	GL	M	O			NTR			None	
776B	C	E2			X			1	GL	M	O			NTR			None	
776C	C	F2			X			1	GL	M	O			NTR			None	
776D	C	G2			X			1	GL	M	O			NTR			None	
780A	C	D3			X			3	GA	M	O			NTR			None	
780B	C	E3			X			3	GA	M	O			NTR			None	
780C	C	F3			X			3	GA	M	O			NTR			None	
780D	C	G3			X			3	GA	M	O			NTR			None	
781A	C	D3			X			1-1/2	GL	M	O			NTR			None	
782B	C	E3			X			1-1/2	GL	M	O			NTR			None	
783C	C	F3			X			1-1/2	GL	M	O			NTR			None	
783D	C	G3			X			1-1/2	GL	M	O			NTR			None	

SYSTEM NAME AUXILIARY COOLANT SYSTEM P&ID NO. 9321-F-2720-39

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
818A	C	D5			X			12	GA	M	O			NTR			None	
818B	C	D5			X			12	GA	M	O			NTR			None	

SYSTEM NAME AUXILIARY STEAM SYSTEM P&ID NO. 9321-F-2027-11

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
UH-43	A	A5	X					3	GA	M	LC			S	1	None	N/A	A-passive
														L	A	1	R	
														NTR			None	
UH-44	A	A5	X					3	GA	M	LC			S	1	None	N/A	A-passive
														L	A	1	R	
														NTR			None	

SYSTEM NAME BOILER FEEDWATER P&ID NO. 9321-F-2019-31 PAGE 1 of 6

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
BFD-74	C	F3		X				1	GL	M	C			S			Q	
FCV-417	C	D2		X				18	GA	AO	O	FC	Yes	S	2	3	CS	
														T	2	3	CS	
														F	2	3	CS	
FCV-427	C	D3		X				18	GA	AO	O	FC	Yes	S	2	3	CS	
														T	2	3	CS	
														F	2	3	CS	
FCV-437	C	D4		X				18	GA	AO	O	FC	Yes	S	2	3	CS	
														T	2	3	CS	
														F	2	3	CS	
FCV-447	C	D5		X				18	GA	AO	O	FC	Yes	S	2	3	CS	
														T	2	3	CS	
														F	2	3	CS	
FCV-417L	C	D2		X				6	GA	AO	O	FC	Yes	S	1	3	CS	
														T	1	3	CS	
														F	1	3	CS	
FCV-427L	C	D3		X				6	GA	AO	O	FC	Yes	S	1	3	CS	
														T	1	3	CS	
														F	1	3	CS	
FCV-437L	C	D4		X				6	GA	AO	O	FC	Yes	S	1	3	CS	

SYSTEM NAME BOILER FEEDWATER P&ID NO. 9321-F-2019-31 PAGE 2 of 6

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
FCV-437L														T	1	3	CS	
(continued)														F	1	3	CS	
FCV-447L	C	D5		X				6	GA	AO	O	FC	Yes	S	1	3	CS	
														T	1	3	CS	
														F	1	3	CS	
BFD-2-21	C	G5		X				20	GA	MO	O	AI	Yes	S	6	3	CS	
														T	6	3	CS	
BFD-2-22	C	G4		X				20	GA	MO	O	AI	Yes	S	6	3	CS	
														T	6	3	CS	
PCV-1213	C	F3		X				1	GA	AO	C	FO	Yes	S			Q	Q13
														F			Q	
FCV-1121	C	G2		X				2	GA	AO	C	FO	Yes	S			Q	Q13
														T			Q	
														F			Q	
FCV-1123	C	G1		X				2	GA	AO	C	FO	Yes	S			Q	Q13
														T			Q	
														F			Q	
FCV-405A	C	D1		X				2	GA	AO	O	FO	Yes	S			Q	Q13
														T	7	None		
														F			Q	

SYSTEM NAME BOILER FEEDWATER P&ID NO. 9321-F-2019-31 PAGE 3 of 6

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
FCV-405B	C	D2		X				2	GA	AO	O	FO	Yes	S			Q	
														T	7	None		
														F			Q	
FCV-405C	C	D3		X				2	GA	AO	O	FO	Yes	S			Q	
														T	7	None		
														F			Q	
FCV-405D	C	D4		X				2	GA	AO	O	FO	Yes	S			Q	
														T	7	None		
														F			Q	
FCV-406A	C	B1		X				2	GA	AO	O	FO	Yes	S			Q	
														T	7	None		
														F			Q	
FCV-406B	C	B2		X				2	GA	AO	O	FO	Yes	S			Q	
														T	7	None		
														F			Q	
FCV-406C	C	B3		X				2	GA	AO	O	FO	Yes	S			Q	
														T	7	None		
														F			Q	

SYSTEM NAME BOILER FEEDWATER P&ID NO. 9321-F-2019-31 PAGE 4 of 6

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
FCV-406D	C	B4		X				2	GA	AO	O	FO	Yes	S			Q	
														T	7	None		
														F			Q	
BFD-36		B2			X			3	GA	M	O			NTR			None	
BFD-38		B1			X			3	GA	M	O			NTR			None	
BFD-62		B2			X			3	GA	M	O			NTR			None	
BFD-62-1		B1			X			3	GA	M	O			NTR			None	
BFD-48		E1			X			3	GA	M	O			NTR			None	
BFD-48-1		B1			X			3	GA	M	O			NTR			None	
BFD-48-2		E2			X			3	GA	M	O			NTR			None	
BFD-48-3		B2			X			3	GA	M	O			NTR			None	
BFD-48-4		E3			X			3	GA	M	O			NTR			None	
BFD-48-5		B3			X			3	GA	M	O			NTR			None	
BFD-48-6		E4			X			3	GA	M	O			NTR			None	
BFD-48-7		B4			X			3	GA	M	O			NTR			None	
BFD-51		H3			X			3	GL	M	O			NTR			None	
BFD-53		H2			X			2	GL	M	O			NTR			None	
BFD-55		H1			X			2	GL	M	O			NTR			None	
BFD-41		B4			X			3	GA	M	O			NTR			None	
BFD-43		B3			X			3	GA	M	O			NTR			None	

SYSTEM NAME BOILER FEEDWATER P&ID NO. 9321-F-2019-31

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
BFD-62-2		B4			X			3	GA	M	O			NTR			None	
BFD-62-3		B3			X			3	GA	M	O			NTR			None	
BFD-67		G3			X			3/4	GL	M	O			NTR			None	
BFD-70		G3			X			3/4	GL	M	O			NTR			None	
BFD-70-1		G3			X			3/4	GL	M	O			NTR			None	
BFD-77		G2			X			1-1/2	AN	M	LC			NTR			None	
BFD-78		G1			X			1-1/2	AN	M	LC			NTR			None	
BFD-31	C	F2				X		4	CK	SA	C		No	S	5	2	R	
BFD-34	C	F1				X		4	CK	SA	C		No	S	4	2, 5	R	Part Stroke at C.S.
BFD-35	B	B2				X		3	CK	SA	C		No	S	4	2, 5	R	Part Stroke at C.S.
BFD-37	B	B1				X		3	CK	SA	C		No	S	4	2, 5	R	Part Stroke at C.S.
BFD-39	C	F2				X		4	CK	SA	C		No	S	4	2, 5	R	Part Stroke at C.S.
BFD-40	B	B4				X		3	CK	SA	C		No	S	4	2, 5	R	Part Stroke at C.S.
BFD-42	B	B3				X		3	CK	SA	C		No	S	4	2, 5	R	Part Stroke at C.S.
BFD-47	B	C1				X		3	CK	SA	C		No	S	5	2	R	
BFD-47-1	B	C2				X		3	CK	SA	C		No	S	5	2	R	
BFD-47-2	B	C3				X		3	CK	SA	C		No	S	5	2	R	
BFD-47-3	B	C4				X		3	CK	SA	C		No	S	5	2	R	
BFD-52	C	H2				X		2	CK	SA	C		No	S			Q	
BFD-54	C	H1				X		2	CK	SA	C		No	S			Q	

SYSTEM NAME BOILER FEEDWATER P&ID NO. 9321-F-2019-31

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
BFD-68	C	H2				X		3	CK	SA	C		No	S			Q	
BFD-50	C	H3				X		3	CK	SA	C		No	S			Q	
BFD-79	B	B1				X		4	CK	SA	C		No	S	3	2, 5	R	Part Stroke at C.S.
BFD-79-1	B	B2				X		4	CK	SA	C		No	S	3	2, 5	R	Part Stroke at C.S.
BFD-79-2	B	B3				X		4	CK	SA	C		No	S	3	2, 5	R	Part Stroke at C.S.
BFD-79-3	B	B4				X		4	CK	SA	C		No	S	3	2, 5	R	Part Stroke at C.S.
IIP-500			X					1/4	GL	M	C	AI	No	L	A	1	R	(FP S/G level
														NTR			None	transmitters
IIP-501			X					1/4	GL	M	C	AI	No	L	A	1	R	A-passive)
														NTR			None	
IIP-502			X					1/4	GL	M	C	AI	No	L	A	1	R	
														NTR			None	
IIP-503			X					1/4	GL	M	C	AI	No	L	A	1	R	
														NTR			None	

SYSTEM NAME CHEMICAL VOLUME AND CONTROL SYSTEM P&ID NO. 9321-F-2736-31 Sheet 1

Valve Number	Quality Group	Coordinates	Valve Category A	B	BP	C	D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
201	B	C6	X					2	GA	AO	O	FC	Yes	S	2	3	CS	
														T	2	3	CS	
														L	A	1	R	
														F	2	3	CS	
202	B	C6	X					2	GL	AO	O	FC	Yes	S	2	3	CS	
														T	2	3	CS	
														L	A	1	R	
														F	2	3	CS	
205	B	C5	X					3	GA	MO	O	AI	Yes	S	3	3	CS	
														T	3	3	CS	
														L	A	1	R	
227	B	C5	X					3	GL	MO	C	AI	Yes	S	1	None*	N/A	*A-passive
														T	1	None*	N/A	*A-passive
														L	A	1	R	
226	B	C5	X					3	GL	MO	O	AI	Yes	S	3	3	CS	
														T	3	3	CS	
														L	A	1	R	
222	B	C3	X					4	GA	MO	O	AI	Yes	S	4	3	CS	
														T	4	3	CS	
														L	A	1	R	

SYSTEM NAME CHEMICAL VOLUME AND CONTROL SYSTEM P&ID NO. 9321-F-2736-31 Sheet 1

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
250A	B	B6	X					2	GL	MO	O	AI	Yes	S	5	3	CS	V24
														T	5	3	CS	V24
														L	A	1	R	
250B	B	B6	X					2	GL	MO	O	AI	Yes	S	5	3	CS	V24
														T	5	3	CS	V24
														L	A	1	R	
250C	B	B6	X					2	GL	MO	O	AI	Yes	S	5	3	CS	V24
														T	5	3	CS	V24
														L	A	1	R	
250D	B	B5	X					2	GL	MO	O	AI	Yes	S	5	3	CS	V24
														T	5	3	CS	V24
														L	A	1	R	
4925	B	B6	X					1	GA	MO	O	AI	Yes	S	5	3	CS	V24
														T	5	3	CS	V24
														L	A	1	R	
4926	B	B6	X					1	GA	MO	O	AI	Yes	S	5	3	CS	V24
														T	5	3	CS	V24
														L	A	1	R	
4927	B	B6	X					1	GA	MO	O	AI	Yes	S	5	3	CS	V24
														T	5	3	CS	V24

SYSTEM NAME CHEMICAL VOLUME AND CONTROL SYSTEM P&ID NO. 9321-F-2736-31 Sheet 1

Valve Number	Quality Group	Coordinates	Valve Category A	B	BP	C	D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
4927														L	A	1	R	
(continued)																		
4928	B	B5	X					1	GA	MO	O	AI	Yes	S	5	3	CS	V24
														T	5	3	CS	V24
														L	A	1	R	
333	B	E1		X				2	GL	MO	C	AI	Yes	S	7	3	CS	V24
														T	7	3	CS	
LCV-112B	B	E2		X				4	BU	AO	C	FC	Yes	S	8	3	CS	V24
														T	8	3	CS	
														F	8	3	CS	
LCV-112C	B	D4		X				4	GA	MO	O	AI	Yes	S	9	3	CS	
														T	9	3	CS	
290	B	E2				X		4	CK	SA	C			SC	10	2	R	
292	B	D3				X		4	CK	SA	O			SC	11	2	R	
332	B	E2				X		2	CK	SA	C			SC	12	3	CS	
362A	C	G2				X		2	CK	SA	C			SC	13	None	Q	
362B	C	G2				X		2	CK	SA	C			SC	13	None	Q	
4000	B	A3				X		3	CK	SA	O*			SC	14	None	Q*	
4001	B	A3				X		3	CK	SA	O*			SC	14	None	Q*	*Open when charging
4002	B	A2				X		3	CK	SA	O*			SC	14	None	Q*	pump is running

SYSTEM NAME CHEMICAL VOLUME AND CONTROL SYSTEM P&ID NO. 9321-F-2736-31 Sheet 1

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
4003	B	A2				X		3	CK	SA	O*			SC	14	None	Q*	*Open when charging
4004	B	A1				X		3	CK	SA	O*			SC	14	None	Q*	pump is running
4005	B	A1				X		3	CK	SA	O*			SC	14	None	Q*	
4924	B	E2				X		2	CK	SA	C			SC	15	3	CS	
223	B	D3			X			4	DIA	M	O			NTR			None	
225	B	D3			X			4	DIA	M	O			NTR			None	
228	B	C5			X			3	GL	M	O			NTR			None	
230	B	A3			X			3	GL	M	O			NTR			None	
235	B	A2			X			3	GL	M	O			NTR			None	
236	B	A1			X			3	GL	M	O			NTR			None	
232	B	A3			X			3	GL	M	O			NTR			None	
233	B	A2			X			3	GL	M	O			NTR			None	
238	B	A1			X			3	GL	M	O			NTR			None	
240A	B	A5			X			2	GL	M	O			NTR			None	
240B	B	A4			X			2	GL	M	O			NTR			None	
240C	B	B5			X			2	GL	M	O			NTR			None	
240D	B	B4			X			2	GL	M	O			NTR			None	
241A	B	B6			X			1	GA	M	T*			NTR			None	*T = throttled
241B	B	B6			X			1	GA	M	T*			NTR			None	
241C	B	B5			X			1	GA	M	T*			NTR			None	

SYSTEM NAME CHEMICAL VOLUME AND CONTROL SYSTEM P&ID NO. 9321-F-2736-31 Sheet 1

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
241D	B	B5			X			1	GA	M	T*			NTR			None	
272A	B	D3			X			4	DIA	M	O			NTR			None	
272B	B	D3			X			4	DIA	M	O			NTR			None	
278	B	D2			X			4	BU	M	O			NTR			None	
283	B	D2			X			4	BU	M	O			NTR			None	
284	B	D1			X			4	BU	M	O			NTR			None	
289	B	D2			X			4	BU	M	O			NTR			None	
334	C	F2			X			2	DIA	M	O			NTR			None	
336	C	F2			X			2	DIA	M	O			NTR			None	
337	C	F3			X			2	DIA	M	O			NTR			None	
360	C	F3			X			2	DIA	M	O			NTR			None	
370	C	G3			X			2	DIA	M	O			NTR			None	
373	C	G3			X			2	DIA	M	O			NTR			None	
364	C	F1			X			2	DIA	M	O			NTR			None	
366	C	G1			X			2	DIA	M	O			NTR			None	
367E	C	F1			X			2	DIA	M	O			NTR			None	
367F	C	G1			X			2	DIA	M	O			NTR			None	
406	B	C4			X			3	GL	M	O			NTR			None	
HCV-142	B	C5			X			3	GL	AO	O	FO	Yes	NTR			None	
														F			Q	

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
251A	A		X			X		2	CK	SA	O			SC	16	None		
														L	17	None	R	
251B	A		X			X		2	CK	SA	O			SC	16	None		
														L	17	None	R	
251C	A		X			X		2	CK	SA	O			SC	16	None		
														L	17	None	R	
251D	A		X			X		2	CK	SA	O			SC	16	None		
														L	17	None	R	
251E	A		X			X		2	CK	SA	O			SC	16	None		
														L	17	None	R	
251F	A		X			X		2	CK	SA	O			SC	16	None		
														L	17	None	R	
251G	A		X			X		2	CK	SA	O			SC	16	None		
														L	17	None	R	
251H	A		X			X		2	CK	SA	O			SC	16	None		
														L	17	None	R	
200A	A			X				2	GL	AO	C	FC	Yes	S			Q	Q13
														T			Q	Q13
														F			Q	Q13
200B	A			X				2	GL	AO	O	FC	Yes	S			Q	Q13

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
200B														T			Q	
(continued)														F			Q	
200C	A			X				2	GL	AO	O	FC	Yes	S			Q	
														T			Q	
														F			Q	
204A	A			X				3	GL	AO	C	FO	Yes	S	18	3	CS	
														T	18	3	CS	
														F	18	3	CS	
204B	A			X				3	GL	AO	O	FO	Yes	S	18	3	CS	
														T	18	3	CS	
														F	18	3	CS	
210A	A					X		3	CK	SA	C			SC	19	3	CS	
210B	A					X		3	CK	SA	O			SC	19	3	CS	

SYSTEM NAME CHEMICAL VOLUME AND CONTROL SYSTEM FSAR FIGURE A208168-2

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
374	A					X		3	CK	SA	O			SC			Q	on-line
244A	B				X			2	GL	M	O			NTR			None	
244B	B				X			2	GL	M	O			NTR			None	
244C	B				X			2	GL	M	O			NTR			None	
244D	B				X			2	GL	M	O			NTR			None	
257A	A				X			3/4	GL	M	O			NTR			None	
257B	A				X			3/4	GL	M	O			NTR			None	
257C	A				X			3/4	GL	M	O			NTR			None	
257D	A				X			3/4	GL	M	O			NTR			None	
258A	B				X			3/4	GL	M	O			NTR			None	
258B	B				X			3/4	GL	M	O			NTR			None	
258C	B				X			3/4	GL	M	O			NTR			None	
258D	B				X			3/4	GL	M	O			NTR			None	
261A	B				X			2	GL	M	O			NTR			None	
261B	B				X			2	GL	M	O			NTR			None	
261C	B				X			2	GL	M	O			NTR			None	
261D	B				X			2	GL	M	O			NTR			None	
262A	B				X			2	GL	AO	O			NTR			None	
262B	B				X			2	GL	AO	O			NTR			None	
																		* See Drawing A206745-1

SYSTEM NAME CHEMICAL VOLUME AND CONTROL SYSTEM FSAR FIGURE A208168-2

Valve Number	*Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
262C	B				X			2	GL	AO	O			NTR			None	
262D	B				X			2	GL	AO	O			NTR			None	
																		* See Drawing A206745-1

SYSTEM NAME CITY WATER TO CONTAINMENT P&ID NO. 9321-F-2678-35 PAGE 1 of 1

Valve Number	Quality Group	Coordinates	Valve Category A	B	BP	C	D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
MW-17			X						GA	M	LC			S	1	None		A-passive
														L	A	1	R	
														NTR			None	
MW-17			X						GA	M	LC			S	1	None		A-passive
														L	A	1	R	
														NTR			None	

SYSTEM NAME CONDENSATE AND BOILER FEED PUMP P&ID NO. 9321-F-2018-28 PAGE 1 of 2

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
PCV-1187	C	B5		X				6	GA	AO	C	FO	Yes	S			Q	
														T			Q	
														F			Q	
PCV-1188	C	B5		X				8	GA	AO	C	FO	Yes	S			Q	
														T			Q	
														F			Q	
PCV-1189	C	B4		X				6	GA	AO	C	FO	Yes	S			Q	
														T			Q	
														F			Q	
LCV-1158	C	B4		X				12	BU	AO	O	FC	Yes	S			Q	
														T			Q	
														F			Q	
CT-6	C	B6			X			12	BU	M	O			NTR			None	
CT-33	C	B4			X			6	GA	M	O			NTR			None	
CT-27	C	B5			X			6	GA	M	O			NTR			None	
CT-30	C	B5			X			8	GA	M	O			NTR			None	
FCV-1205A	C	B6			X			8	GL	AO	C	FO	Yes	S			Q	
														T			Q	
														F			Q	
														NTR			None	

SYSTEM NAME CONDENSATE AND BOILER FEED PUMP P&ID NO. 9321-F-2018-28

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
CT-49		B6			X			8	GA	M	O			NTR			None	
CT-64		B4			X			8	GA	M	O			NTR			None	
CT-29		B5				X		8	CK	SA	C		No	SC	1	4,2	R	
CT-26		B5				X		6	CK	SA	C		No	SC	1	4,2	R	Part Stroke during C.S.
CT-25		B4				X		6	CK	SA	C		No	SC	2	2	R	
CT-28		B5				X		6	CK	SA	C		No	SC	2	2	R	
CT-31		B5				X		6	CK	SA	C		No	SC	2	2	R	
CT-32		B4				X		6	CK	SA	C		No	SC	1	4,2	R	Part Stroke during C.S.

SYSTEM NAME CONTAINMENT PURGE P&ID NO. 9321-F-4022-18 9321-F-2726-22 PAGE 1 of 1

Valve Number	Quality Group	Coordinates	Valve Category A	B	BP	C	D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
1170		B4	X					36	BU	AO	C	FC	Yes	S	1	3	CS	
														L	A	1	R	
1171		B4	X					36	BU	AO	C	FC	Yes	S	1	3	CS	
														L	A	1	R	
1172		B3	X					36	BU	AO	C	FC	Yes	S	1	3	CS	
														L	A	1	R	
1173		B3	X					36	BU	AO	C	FC	Yes	S	1	3	CS	
														L	A	1	R	
1190		B3	X					10	BU	AO	C	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
1191		B3	X					10	BU	AO	C	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
1192		B3	X					10	BU	AO	C	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	

SYSTEM NAME CONTAINMENT-RADIATION MONITORS R-11 & R-12 SUPPLY/RETURN P&ID NO. 9321-F-7045-8 9321-F-2726

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
1234		B1	X					1	GA	AO	C	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
1235		B1	X					1	GA	AO	C	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
1236		B2	X					1	GA	AO	C	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
1237		B2	X					1	GA	AO	C	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	

SYSTEM NAME FAN COOLER FILTER UNITS P&ID NO. 9321-F-4022-18

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
FCV-21-1				X				48	BU	AO	C	FO	Yes	S			Q	
														T			Q	
														F			Q	
FCV-21-2				X				48	BU	AO	C	FO	Yes	S			Q	
														T			Q	
														F			Q	
FCV-21-3				X				48	BU	AO	O	FO	Yes	S			Q	
														T			Q	
														F			Q	
FCV-22-4				X				48	BU	AO	O	FO	Yes	S			Q	
														T			Q	
														F			Q	
FCV-22-5				X				48	BU	AO	C	FO	Yes	S			Q	
														T			Q	
														F			Q	
FCV-22-6				X				48	BU	AO	C	FO	Yes	S			Q	
														T			Q	
														F			Q	
FCV-23-7				X				48	BU	AO	O	FO	Yes	S			Q	
														T			Q	

SYSTEM NAME FAN COOLER FILTER UNITS P&ID NO. 9321-F-4022-18 PAGE 2 of 3

Valve Number	Quality Group	Coordinates	Valve Category A	B	BP	C	D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
FCV-23-7				X				48	BU	AO	O	FO	Yes	F			Q	
(continued)																		
FCV-23-8				X				48	BU	AO	C	FO	Yes	S			Q	
														T			Q	
														F			Q	
FCV-23-9				X				48	BU	AO	C	FO	Yes	S			Q	
														T			Q	
														F			Q	
FCV-24-10				X				48	BU	AO	O	FO	Yes	S			Q	
														T			Q	
														F			Q	
FCV-24-11				X				48	BU	AO	C	FO	Yes	S			Q	
														T			Q	
														F			Q	
FCV-24-12				X				48	BU	AO	C	FO	Yes	S			Q	
														T			Q	
														F			Q	
FCV-25-13				X				48	BU	AO	O	FO	Yes	S			Q	
														T			Q	
														F			Q	

SYSTEM NAME FAN COOLER FILTER UNITS P&ID NO. 9321-F-4022-18

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
FCV-25-14				X				48	BU	AO	C	FO	Yes	S	1	2	Q	
														T	1	2	Q	
														F	1	2	Q	
FCV-25-15				X				48	BU	AO	C	FO	Yes	S	1	2	Q	
														T	1	2	Q	
														F	1	2	Q	

SYSTEM NAME FUEL OIL TO DIESEL GENERATOR P&ID NO. 9321-F-2030-9

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
LCV-1207				X				1-1/2	GA	EH	O	FO	Yes	S			Q	
														F			Q	
LCV-1207A				X				1-1/2	GA	EH	O	FO	Yes	S			Q	
														F			Q	
LCV-1208				X				1-1/2	GA	EH	O	FO	Yes	S			Q	
														F			Q	
LCV-1208A				X				1-1/2	GA	EH	O	FO	Yes	S			Q	
														F			Q	
LCV-1209				X				1-1/2	GA	EH	O	FO	Yes	S			Q	
														F			Q	
LCV-1209A				X				1-1/2	GA	EH	O	FO	Yes	S			Q	
														F			Q	
DF-3						X		1-1/2	CK	SA	C			SC			Q	
DF-3-1						X		1-1/2	CK	SA	C			SC			Q	*During EDG test
DF-3-2						X		1-1/2	CK	SA	C			SC			Q	
DF-8					X			1-1/2	GA	M	C			NTR			None	
DF-8-1					X			1-1/2	GA	M	C			NTR			None	
DF-9					X			1-1/2	GA	M	O			NTR			None	
DF-9-1					X			1-1/2	GA	M	O			NTR			None	
DF-11					X			1-1/2	GA	M	C			NTR			None	

SYSTEM NAME FUEL OIL TO DIESEL GENERATOR P&ID NO. 9321-F-2030-9

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
DF-12					X			1-1/2	GA	M	O			NTR			None	
DF-18					X			1-1/2	GA	M	O			NTR			None	
DF-18-1					X			1-1/2	GA	M	O			NTR			None	
DF-18-2					X			1-1/2	GA	M	O			NTR			None	
PCV-1247					X			1/2	PCV	DIA	T			NTR			None	
PCV-1248					X			1/2	PCV	DIA	T			NTR			None	
PCV-1249					X			1/2	PCV	DIA	T			NTR			None	

SYSTEM NAME HYDROGEN RECOMBINER P&ID NO. 9321-F-2727-8

Valve Number	Quality Group	Coordinates	Valve Category A	B	BP	C	D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
3420	B	F5	X					3/4	GA	SO	C	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
3421	B	F4	X					1-1/4	GA	SO	C	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
3422	B	F2	X					3/4	GA	SO	C	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
3423	B	F2	X					1-1/4	GA	SO	C	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
IV-1A	B	E6	X					1	GA	SO	C	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	

SYSTEM NAME HYDROGEN RECOMBINER P&ID NO. 9321-F-2727-8

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
IV-1B		F5	X					1	GA	SO	C	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
IV-2A	B	F6	X					1	GA	SO	C	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
IV-2B	B	F5	X					1	GA	SO	C	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
IV-3A	B	F4	X					3/4	GA	SO	C	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
IV-3B	B	F3	X					3/4	GA	SO	C	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	

SYSTEM NAME HYDROGEN RECOMBINER P&ID NO. 9321-F-2727-8

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
IV-5A	B	F4	X					2	GA	SO	C	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
IV-5B	B	F2	X					2	GA	SO	C	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
PCV-3A*		D4		X				3/4	GA	PRV	T	FO	No	PV	1		R	*Self-Contained Pressure
																	R	Regulating Valves
PCV-3B*		D3		X				3/4	GA	PRV	T	FO	No	PV	1		R	
																	R	
PCV-2*		B3		X				3/4	GA	PRV	T	FO	No	PV	1		R	
																	R	
FCV-2A				X				1-1/2	GA	AO			Yes	S			Q	
														F			Q	
FCV-2B				X				1-1/2	GA	AO			Yes	S			Q	
														F			Q	

SYSTEM NAME HYDROGEN RECOMBINER P&ID NO. 9321-F-2727-8

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
BV-5A		E4		X				3/4	GA	SO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	
BV-5B		E3		X				3/4	GA	SO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	
BV-8A		E4		X				3/4	GA	SO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	
BV-8B		E3		X				3/4	GA	SO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	
BV-9A		E4		X				1-1/4	GA	SO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	
BV-9B		E3		X				1-1/4	GA	SO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	
BV-6A		F4		X				3/4	GA	SO	O	FO	Yes	S			Q	
														T			Q	

SYSTEM NAME HYDROGEN RECOMBINER P&ID NO. 9321-F-2727-8

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
BV-6A		F4		X				3/4	GA	SO	O	FO	Yes	F			Q	
(continued)																		
BV-6B		F3		X				3/4	GA	SO	O	FO	Yes	S			Q	
														T			Q	
														F			Q	
BV-7A		F4		X				3/4	GA	SO	O	FO	Yes	S			Q	
														T			Q	
														F			Q	
BV-7B		F3		X				3/4	GA	SO	O	FO	Yes	S			Q	
														T			Q	
														F			Q	
BV-10A		F4		X				3/4	GA	SO	O	FO	Yes	S			Q	
														T			Q	
														F			Q	
BV-10B		F2		X				3/4	GA	SO	O	FO	Yes	S			Q	
														T			Q	
														F			Q	
BV-11A		F4		X				3/4	GA	SO	O	FO	Yes	S			Q	
														T			Q	
														F			Q	

SYSTEM NAME HYDROGEN RECOMBINER P&ID NO. 9321-F-2727-8

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
BV-11B		F2		X				3/4	GA	SO	O	FO	Yes	S			Q	
														T			Q	
														F			Q	
BV-12A		E4		X				1-1/4	GA	SO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	
BV-12B		E3		X				1-1/4	GA	SO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	
PCV-941*		A5		X				3/4	GA	PRV	C		No	PV	1		R	*Self-Contained Pressure
																	See	Control Valve
																	PCV-	(downstream P)
																	2A	
PCV-1*		B5		X				3/4	GA	PRV	C		No	PV	1		R	
FCV-1A		F6		X				3/4	GA	AO	C	FC	Yes	S			Q	
														F			Q	
FCV-1B		F5		X				3/4	GA	AO	C	FC	Yes	S			Q	
														F			Q	
1881A		B2				X		3/4	CK	SA	C			SC	3		R	During recombiner test

SYSTEM NAME HYDROGEN RECOMBINER P&ID NO. 9321-F-2727-8

Valve Number	Quality Group	Coordinates	Valve Category A	B	BP	C	D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
1881C		A4				X		3/4	CK	SA	C			SC	3		R	During recombiner test
1881D		A2				X		3/4	CK	SA	C			SC	3		R	During system test
1879A		G4				X		3/4	CK	SA	C			SC	2		R	During system test
1879B		G2				X		3/4	CK	SA	C			SC	2		R	During system test
1880A		G4				X		3/4	CK	SA	C			SC	2		R	During system test
1880B		G2				X		3/4	CK	SA	C			SC	2		R	During system test
M20		C6			X			3/4	DIA	M				NTR			None	
M21		C4			X			3/4	DIA	M				NTR			None	
M24		C6			X			3/4	DIA	M				NTR			None	
M25		C4			X			3/4	DIA	M				NTR			None	
M35		C3			X			1-1/2	GA	M				NTR			None	
M51		C3			X			1-1/2	GA	M				NTR			None	
M1		B5			X			1	GA	M				NTR			None	
M2		B5			X			1	GA	M				NTR			None	
M4		C6			X			1	GA	M	O			NTR			None	
M5		C4			X			1	GA	M	O			NTR			None	
1887B		B2			X			1	DIA	M				NTR			None	
4429		F4			X				DIA	M	LO	AI		NTR			None	
4430		F2			X				DIA	M	LO	AI		NTR			None	
4431		F3			X				DIA	M	LO	AI		NTR			None	

SYSTEM NAME HYDROGEN RECOMBINER P&ID NO. 9321-F-2727-8 PAGE 8 of 8

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
4432		F2			X			2	DIA	M	LO	AI		NTR			None	
1882A		F6			X			1	GA	M	LO	AI		NTR			None	
1878		F6				X		1	CK	SA	C	AI		SC*			R	*During system test

SYSTEM NAME INSTRUMENT AIR P&ID NO. 9321-F-2036-15 PAGE 1 of 1

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
IA-39		B5	X			X		2	CK	SA				SC	2	8	R	
														L	A	1	R	
PCV-1228		B5	X					2	GL	AO	O	FC	Yes	S	1	2	R	
														T	1	2	R	
														L	A	1	R	
														F	1	2	R	

SYSTEM NAME ISOLATION VALVE SEAL WATER SYSTEM P&ID NO. 9321-F-2746-17

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
1410		E2		X				3/8	GL	AO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	
1413		E2		X				3/8	GL	AO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	
3500		A3		X				3/8	GL	SO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	
3501		F4		X				3/8	GL	SO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	
3502		G2		X				3/8	GL	SO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	
3503		F2		X				3/8	GL	SO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	

SYSTEM NAME ISOLATION VALVE SEAL WATER SYSTEM P&ID NO. 9321-F-2746-17

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
3504		F3		X				3/8	GL	SO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	
3505		B6		X				3/8	GL	SO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	
3506		B5		X				3/8	GL	SO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	
3507		B3		X				3/8	GL	SO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	
3508		B4		X				3/8	GL	SO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	
3509		A5		X				3/8	GL	SO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	

SYSTEM NAME ISOLATION VALVE SEAL WATER SYSTEM P&ID NO. 9321-F-2746-17

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
3510		A4		X				3/8	GL	SO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	
3511		G3		X				3/8	GL	SO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	
3512		G1		X				3/8	GL	SO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	
3513		F1		X				3/8	GL	SO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	
3514		F5		X				3/8	GL	SO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	
3515		G5		X				3/8	GL	SO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	

SYSTEM NAME ISOLATION VALVE SEAL WATER SYSTEM P&ID NO. 9321-F-2746-17

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
3516		G4		X				3/8	GL	SO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	
3517		F6		X				3/8	GL	SO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	
3518		E3		X				3/8	GL	SO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	
3519		E3		X				3/8	GL	SO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	
PCV-1076		B2		X				3/4	GL	PRV	T			S	2	None		
														NTR			None	
PCV-1090*		A2		X				3/8	GL	PRV	T			S	2	None		*proper operation
														NTR			None	verified by maintaining
1500		C1				X		3/8	CK	SA	C			SC	1		R	proper downstream
1501		A3				X		3/8	CK	SA	C			SC	1		R	pressure during normal
1502		F4				X		3/8	CK	SA	C			SC	1		R	operations
1503		G2				X		3/8	CK	SA	C			SC	1		R	

SYSTEM NAME ISOLATION VALVE SEAL WATER SYSTEM P&ID NO. 9321-F-2746-17

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
1504		F2				X		3/8	CK	SA	C			SC	1		R	
1505		F3				X		3/8	CK	SA	C			SC	1		R	
1506		C4				X		3/8	CK	SA	C			SC	1		R	
1507		C4				X		3/8	CK	SA	C			SC	1		R	
1508		C4				X		3/8	CK	SA	C			SC	1		R	
1509		C4				X		3/8	CK	SA	C			SC	1		R	
1510		C4				X		3/8	CK	SA	C			SC	1		R	
1511		C4				X		3/8	CK	SA	C			SC	1		R	
		C4				X		3/8	CK	SA	C			SC	1		R	
1512		D4				X		3/8	CK	SA	C			SC	1		R	
1513		D4				X		3/8	CK	SA	C			SC	1		R	
1514		D4				X		3/8	CK	SA	C			SC	1		R	
1515		D4				X		3/8	CK	SA	C			SC	1		R	
1516		D5				X		3/8	CK	SA	C			SC	1		R	
1517		D5				X		3/8	CK	SA	C			SC	1		R	
1518		D5				X		3/8	CK	SA	C			SC	1		R	
1519		C6				X		3/8	CK	SA	C			SC	1		R	
1520		D6				X		3/8	CK	SA	C			SC	1		R	
1521		D5				X		3/8	CK	SA	C			SC	1		R	
1522		A5				X		3/8	CK	SA	C			SC	1		R	

SYSTEM NAME ISOLATION VALVE SEAL WATER SYSTEM P&ID NO. 9321-F-2746-17

Valve Number	Quality Group	Coordinates	Valve Category A	B	BP	C	D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
1523		B6				X		3/8	CK	SA	C			SC	1		R	
1524		D6				X		3/8	CK	SA	C			SC	1		R	
1525		C5				X		3/8	CK	SA	C			SC	1		R	
1526		C6				X		3/8	CK	SA	C			SC	1		R	
1527		C6				X		3/8	CK	SA	C			SC	1		R	
1528		C6				X		3/8	CK	SA	C			SC	1		R	
1529		C5				X		3/8	CK	SA	C			SC	1		R	
1530		C5				X		3/8	CK	SA	C			SC	1		R	
1531		D5				X		3/8	CK	SA	C			SC	1		R	
1532		D5				X		3/8	CK	SA	C			SC	1		R	
1533		B2				X		3/8	CK	SA	C			SC	1		R	
1534		B5				X		3/8	CK	SA	C			SC	1		R	
1535		B3				X		3/8	CK	SA	C			SC	1		R	
1536		B4				X		3/8	CK	SA	C			SC	1		R	
1537		G3				X		3/8	CK	SA	C			SC	1		R	
1538		G1				X		3/8	CK	SA	C			SC	1		R	
1539		F1				X		3/8	CK	SA	C			SC	1		R	
1540		F5				X		3/8	CK	SA	C			SC	1		R	
1541		G5				X		3/8	CK	SA	C			SC	1		R	
1542		G4				X		3/8	CK	SA	C			SC	1		R	

SYSTEM NAME ISOLATION VALVE SEAL WATER SYSTEM P&ID NO. 9321-F-2746-17

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
1543		F6				X		3/8	CK	SA	C			SC	1		R	
1545		B3				X		3/8	CK	SA	C			SC	1		R	
1546		C3				X		3/8	CK	SA	C			SC	1		R	
1547		C3				X		3/8	CK	SA	C			SC	1		R	
1548		C3				X		3/8	CK	SA	C			SC	1		R	
1549		C5				X		3/8	CK	SA	C			SC	1		R	
1550		A4				X		3/8	CK	SA	C			SC	1		R	
5602		E6				X		3/8	CK	SA	C			SC	1		R	
1454		C1				X		3/4	CK	SA	C			SC	1		R	
1406		C1				X		3/4	CK	SA	C			SC	1		R	
1400		D1			X			3/8	GL	M	O			NTR			None	
1401		A3			X			3/8	GL	M	C			NTR			None	
1402		F4			X			3/8	GL	M	C			NTR			None	
1403		G2			X			3/8	GL	M	C			NTR			None	
1404		F2			X			3/8	GL	M	C			NTR			None	
1405		F3			X			3/8	GL	M	C			NTR			None	
1420		B6			X			3/8	GL	M	C			NTR			None	
1463		G3			X			3/8	GL	M	C			NTR			None	
1464		G1			X			3/8	GL	M	C			NTR			None	
1465		F1			X			3/8	GL	M	C			NTR			None	

SYSTEM NAME ISOLATION VALVE SEAL WATER SYSTEM P&ID NO. 9321-F-2746-17

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
1466		F5				X		3/8	GL	M	C			NTR			None	
1467		G5				X		3/8	GL	M	C			NTR			None	
1468		G4				X		3/8	GL	M	C			NTR			None	
1469		F6				X		3/8	GL	M	C			NTR			None	
1436		A1				X		3/8	GL	M	O			NTR			None	
1437		A1				X		3/8	GL	M	O			NTR			None	
1446		B5				X		3/8	GL	M	C			NTR			None	
1447		B3				X		3/8	GL	M	C			NTR			None	
1448		B4				X		3/8	GL	M	C			NTR			None	
1449		A5				X		3/8	GL	M	C			NTR			None	
1450		A4				X		3/8	GL	M	C			NTR			None	
1435		A1				X		3/8	GL	M	O			NTR			None	
1438		A2				X		3/8	GL	M	O			NTR			None	
1439		A3				X		3/8	GL	M	O			NTR			None	
1440		B2				X		3/8	GL	M	C			NTR			None	
1441		B3				X		3/8	GL	M	C			NTR			None	
1442		A2				X		3/8	GL	M	O			NTR			None	
1443		A2				X		3/8	GL	M	O			NTR			None	
1444		A2				X		3/8	GL	M	C			NTR			None	
4564		B6				X		3/8	GL	M	O			NTR			None	

SYSTEM NAME ISOLATION VALVE SEAL WATER SYSTEM P&ID NO. 9321-F-2746-17

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
4565		B6			X			3/8	GL	M	O			NTR			None	
4566		A5			X			3/8	GL	M	O			NTR			None	
4567		A5			X			3/8	GL	M	O			NTR			None	
4568		B5			X			3/8	GL	M	O			NTR			None	
4569		B5			X			3/8	GL	M	O			NTR			None	
4570		A4			X			3/8	GL	M	O			NTR			None	
4571		A4			X			3/8	GL	M	O			NTR			None	
4572		B4			X			3/8	GL	M	O			NTR			None	
4573		B4			X			3/8	GL	M	O			NTR			None	
4574		A3			X			3/8	GL	M	O			NTR			None	
4575		A3			X			3/8	GL	M	O			NTR			None	
4576		B3			X			3/8	GL	M	O			NTR			None	
4577		B3			X			3/8	GL	M	O			NTR			None	
4578		F6			X			3/8	GL	M	O			NTR			None	
4579		F6			X			3/8	GL	M	O			NTR			None	
4580		G5			X			3/8	GL	M	O			NTR			None	
4581		G5			X			3/8	GL	M	O			NTR			None	
4582		F5			X			3/8	GL	M	O			NTR			None	
4583		F5			X			3/8	GL	M	O			NTR			None	
4584		G4			X			3/8	GL	M	O			NTR			None	

SYSTEM NAME ISOLATION VALVE SEAL WATER SYSTEM P&ID NO. 9321-F-2746-17

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
4585		G4			X			3/8	GL	M	C			NTR			None	
4586		F4			X			3/8	GL	M	C			NTR			None	
4587		F4			X			3/8	GL	M	C			NTR			None	
4588		G3			X			3/8	GL	M	C			NTR			None	
4589		G3			X			3/8	GL	M	C			NTR			None	
4590		F3			X			3/8	GL	M	C			NTR			None	
4591		F3			X			3/8	GL	M	C			NTR			None	
4592		G2			X			3/8	GL	M	C			NTR			None	
4593		G2			X			3/8	GL	M	C			NTR			None	
4594		F2			X			3/8	GL	M	C			NTR			None	
4595		F2			X			3/8	GL	M	C			NTR			None	
4596		G1			X			3/8	GL	M	C			NTR			None	
4597		G1			X			3/8	GL	M	C			NTR			None	
4598		F1			X			3/8	GL	M	C			NTR			None	
4599		F1			X			3/8	GL	M	C			NTR			None	
1409		D2			X			3/8	GL	M	LO			NTR			None	
1411		E2			X			3/8	GL	M	LO			NTR			None	
1412		D2			X			3/8	GL	M	LO			NTR			None	
1414		E2			X			3/8	GL	M	LO			NTR			None	

SYSTEM NAME ISOLATION VALVE SEAL WATER SYSTEM P&ID NO. 9321-F-2746-17

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
5619		D3			X			3/8	GL	M	LO			NTR			None	
5620		D3			X			3/8	GL	M	LO			NTR			None	
5621		D3			X			3/8	GL	M	LO			NTR			None	
5622		D3			X			3/8	GL	M	LO			NTR			None	
1415		D3			X			3/8	GL	M	C			NTR			None	
1406		D6			X			3/8	GL	M	LO			NTR			None	
1407		D5			X			3/8	GL	M	LO			NTR			None	
1408		D4			X			3/8	GL	M	LO			NTR			None	
1416		D5			X			3/8	GL	M	LO			NTR			None	
1417		D5			X			3/8	GL	M	LO			NTR			None	
1418		D5			X			3/8	GL	M	LO			NTR			None	
1419		D5			X			3/8	GL	M	LO			NTR			None	
1421		D5			X			3/8	GL	M	LO			NTR			None	
1476		C4			X			3/8	GL	M	LO			NTR			None	
1477		C4			X			3/8	GL	M	LO			NTR			None	
1478		C4			X			3/8	GL	M	LO			NTR			None	
1455		B1			X			3/4	DIA	M	C			NTR			None	
4563		E6			X			3/8	GL	M	O			NTR			None	
5618		D3			X			3/8	GL	M	C			NTR			None	
1456		C1				X		3/4	CK	SA	O			SC				

SYSTEM NAME JACKET WATER TO DIESEL GENERATORS P&ID NO. 9321-H-2028-6 PAGE 1 of 1

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
JW-9				X				5	TRV	*	T			S	1	None	Q	*Temperature regulated
JW-9-1				X				5	TRV	*	T			S	1	None	Q	valve
JW-9-2				X				5	TRV	*	T			S	1	None	Q	
JW-1					X			1	GA	M	O			NTR			None	
JW-1-1					X			1	GA	M	O			NTR			None	
JW-1-2					X			1	GA	M	O			NTR			None	
JW-4					X			3/4	GA	M	O			NTR			None	
JW-4-1					X			3/4	GA	M	O			NTR			None	
JW-4-2					X			3/4	GA	M	O			NTR			None	
MW-14					X			3/4	GA	M	O			NTR			None	
MW-14-1					X			3/4	GA	M	O			NTR			None	
MW-14-2					X			3/4	GA	M	O			NTR			None	

SYSTEM NAME MAIN STEAM SYSTEM P&ID NO. 9321-F-2017-27

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
MS-1-21	B	E4		X		X		28	SC	AO	O	FC	Yes	S	1	2	R	(Note: Tech Specs 4.7)
														T	1	2	R	
														F	1	2	R	
MS-1-22	B	E5		X		X		28	SC	AO	O	FC	Yes	S	1	2	R	
														T	1	2	R	
														F	1	2	R	
MS-1-23	B	E3		X		X		28	SC	AO	O	FC	Yes	S	1	2	R	
														T	1	2	R	
														F	1	2	R	
MS-1-24	B	E2		X		X		28	SC	AO	O	FC	Yes	S	1	2	R	
														T	1	2	R	
														F	1	2	R	
MS-41	B	B4		X		X		4	SC	M	O			SC			Q	
MS-42	B	B4		X		X		4	SC	M	O			SC			Q	
PCV-1310A	C	G5		X				4	GA	AO	O	FO	Yes	S			Q	
														T			Q	
														F			Q	
PCV-1310B	C	G5		X				4	GA	AO	O	FO	Yes	S			Q	
														T			Q	
														F			Q	

SYSTEM NAME MAIN STEAM SYSTEM P&ID NO. 9321-F-2017-27

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
PCV-1139	C	H6		X				2-1/2	GA	AO	C	FO	Yes	S			Q	
														T			Q	
														F			Q	
HCV-1118*	C			X					T	AO	C	FC	Yes	S			Q	*9321-F-2019-27
														F			Q	
PCV-1134	B	D4		X				6	AN	AO	C		Yes	S	2	3	CS	
														F	2	3	CS	
PCV-1135	B	D5		X				6	AN	AO	C		Yes	S	2	3	CS	
														F	2	3	CS	
PCV-1136	B	D3		X				6	AN	AO	C		Yes	S	2	3	CS	
														F	2	3	CS	
PCV-1137	B	D2		X				6	AN	AO	C		Yes	S	2	3	CS	
														F	2	3	CS	
PCV-1133	C	H2		X				6	GA	AO	O	FC	Yes	S	3	3	CS	
														T	3	3	CS	
														F	3	3	CS	
MS-45A	B	C4				X		8	RE	SA	C			BT	4		R	
MS-45B	B	C6				X		8	RE	SA	C			BT	4		R	
MS-45C	B	C3				X		8	RE	SA	C			BT	4		R	
MS-45D	B	C2				X		8	RE	SA	C			BT	4		R	

SYSTEM NAME MAIN STEAM SYSTEM P&ID NO. 9321-F-2017-27

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
MS-46A	B	D4				X		10	RE	SA	C			BT	4		R	
MS-46B	B	D6				X		10	RE	SA	C			BT	4		R	
MS-46C	B	D3				X		10	RE	SA	C			BT	4		R	
MS-46D	B	D2				X		10	RE	SA	C			BT	4		R	
MS-47A	B	D4				X		10	RE	SA	C			BT	4		R	
MS-47B	B	D6				X		10	RE	SA	C			BT	4		R	
MS-47C	B	D3				X		10	RE	SA	C			BT	4		R	
MS-47D	B	D2				X		10	RE	SA	C			BT	4		R	
MS-48A	B	E4				X		10	RE	SA	C			BT	4		R	
MS-48B	B	D6				X		10	RE	SA	C			BT	4		R	
MS-48C	B	D3				X		10	RE	SA	C			BT	4		R	
MS-48D	B	D2				X		10	RE	SA	C			BT	4		R	
MS-49A	B	E4				X		10	RE	SA	C			BT	4		R	
MS-49B	B	D6				X		10	RE	SA	C			BT	4		R	
MS-49C	B	D3				X		10	RE	SA	C			BT			R	
MS-49D	B	D2				X		10	RE	SA	C			BT			R	
MS-52	C	H6				X		4	RE	SA	C			BT			R	
MS-54	C	I6			X			4	GA	M	O			NTR			None	
MS-577	C	I6			X			3	AN	M	O			NTR			None	
MS-55A	B	E4			X			3	GA	M	C			NTR			None	

SYSTEM NAME MAIN STEAM SYSTEM P&ID NO. 9321-F-2017-27

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
MS-55B	B	E5			X			3	GA	M	C			NTR			None	
MS-55C	B	E3			X			3	GA	M	C			NTR			None	
MS-55D	B	E2			X			3	GA	M	C			NTR			None	
MS-3A	B	D4			X			3	GA	M	C			NTR			None	
MS-3B	B	D5			X			3	GA	M	C			NTR			None	
MS-3C	B	D3			X			3	GA	M	C			NTR			None	
MS-3D	B	D2			X			3	GA	M	C			NTR			None	

SYSTEM NAME PENETRATION AND LINER WELD JOINT CHANNEL SYSTEM P&ID NO. 9321-F-7052-10

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
FCV-1177-1		G6				X		1	CK	SA	O			SC	1*	None		
FCV-1177-2		G4				X		1	CK	SA	O			SC	1*	None		
FCV-1177-3		G3				X		1	CK	SA	O			SC	1*	None		
FCV-1177-4		G2				X		1	CK	SA	O			SC	1*	None		
FCV-1178-1		F5				X		1	CK	SA	O			SC	1*	None		
FCV-1178-2		F4				X		1	CK	SA	O			SC	1*	None		
FCV-1178-3		F3				X		1	CK	SA	O			SC	1*	None		
FCV-1178-4		F2				X		1	CK	SA	O			SC	1*	None		*verified continuously during normal operation.
PCV-1193		E5		X				1	PCV	AO	O			NTR	2*	None		
PCV-1195		E4		X				1	PCV	AO	O			NTR	2*	None		

SYSTEM NAME PENETRATION AND LINER WELD JOINT CHANNEL SYSTEM P&ID NO. 9321-F-7052-10

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
PCV-1197		E3		X				1	PCV	AO	O			NTR	2*	None		
PCV-1199		E2		X				1	PCV	AO	O			NTR	2*	None		
PCV-1194		E5		X				1	PCV	AO	O			NTR	2*	None		
PCV-1196		E4		X				1	PCV	AO	O			NTR	2*	None		
PCV-1198		E2		X				1	PCV	AO	O			NTR	2*	None		
PCV-1200		E1		X				1	PCV	AO	O			NTR	2*	None		
PCV-1201		E5		X				1	GL	AO	O			NTR	2*	None		
PCV-1202		E4		X				1	GL	AO	O			NTR	2*	None		
PCV-1203		E2		X				1	GL	AO	O			NTR	2*	None		
PCV-1204		E1		X				1	GL	AO	O			NTR	2*	None		

SYSTEM NAME PENETRATION AND LINER WELD JOINT CHANNEL SYSTEM P&ID NO. 9321-F-7052-10

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
IA-31-1		G5			X			1.5	GA	M	O			NTR			None	
IA-31-2		G4			X			1.5	GA	M	O			NTR			None	
IA-31-3		G3			X			1.5	GA	M	O			NTR			None	
IA-31-4		G2			X			1.5	GA	M	O			NTR			None	
WCP-100		E6			X			1	GA	M	O			NTR			None	
WCP-101		E6			X			1	GA	M	O			NTR			None	
WCP-104		E4			X			1	GA	M	O			NTR			None	
WCP-105		E4			X			1	GA	M	O			NTR			None	
WCP-108		E3			X			1	GA	M	O			NTR			None	
WCP-109		E3			X			1	GA	M	O			NTR			None	

SYSTEM NAME PENETRATION AND LINER WELD JOINT CHANNEL SYSTEM P&ID NO. 9321-F-7052-10

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
WCP-112		E2			X			1	GA	M	O			NTR			None	
WCP-113		E2			X			1	GA	M	O			NTR			None	
PCV-1101-1		F6			X			1/4	GL	M				NTR			None	
PCV-1101-2		F4			X			1/4	GL	M				NTR			None	
PCV-1101-3		F3			X			1/4	GL	M				NTR			None	
PCV-1101-4		F2			X			1/4	GL	M				NTR			None	
PCV-1110-22		F6			X			1	GA	M				NTR			None	
PCV-1110-23		E6			X			1	GA	M				NTR			None	
PCV-1110-24		F4			X			1	GA	M				NTR			None	
PCV-1110-25		E4			X			1	GA	M				NTR			None	

SYSTEM NAME PENETRATION AND LINER WELD JOINT CHANNEL SYSTEM P&ID NO. 9321-F-7052-10

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
PCV-1110-26		F3			X			1	GA	M				NTR			None	
PCV-1110-27		E3			X			1	GA	M				NTR			None	
PCV-1110-28		F2			X			1	GA	M				NTR			None	
PCV-1110-29		E2			X			1	GA	M				NTR			None	
PCV-1229		D2			X			1	GA	M				NTR			None	
PCV-1230		D2			X			1	GA	M				NTR			None	
PCV-1231		C2			X			1	GA	M				NTR			None	
PCV-1233		C1			X			1	GA	M				NTR			None	

SYSTEM NAME PERSONNEL AIRLOCK P&ID NO. 9321-F-7052-9 PAGE 1 of 1

Valve Number	Quality Group	Coordinates	Valve Category A	B	BP	C	D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
85A			X			X			CK	SP*				SC	1	1	R	
														L	A	1	R	
85B			X			X			CK	SP*				SC	1	1	R	
														L	A	1	R	
85C			X						BL**	M				S	2	1	R	
														L	A	1	R	
85D			X						BL**	M				S	2	1	R	
														L	A	1	R	
95A			X			X			CK	SP*				SC	1	1	R	
														L	A	1	R	
95B			X			X			CK	SP*				SC	1	1	R	
														L	A	1	R	
95C			X						BL**	M				S	2	1	R	
														L	A	1	R	
95D			X						BL**	M				S	2	1	R	
														L	A	1	R	
																		*Spring-loaded check
																		valve
																		**Equalizing ball valve

SYSTEM NAME POST ACCIDENT CONTAINMENT AIR SAMPLING SYSTEM P&ID NO. A208479-2

Valve Number	Quality Group	Coordinates	Valve Category A	B	BP	C	D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
5018		B5	X					3/8	GA	SO	C	FC	Yes	S	B	*	Q	*physical verification
														T			Q	of valve position will
														L	A	1	R	occur during Appendix J
														F			Q	testing at refuelings.
5019		C5	X					3/8	GA	SO	C	FC	Yes	S	B	*	Q	
														T			Q	
														L	A	1	R	
														F			Q	
5020		B3	X					3/8	GA	SO	C	FC	Yes	S	B	*	Q	
														T			Q	
														L	A	1	R	
														F			Q	
5021		C3	X					3/8	GA	SO	C	FC	Yes	S	B	*	Q	
														T			Q	
														L	A	1	R	
														F			Q	
5022		B2	X					3/8	GA	SO	C	FC	Yes	S	B	*	Q	
														T			Q	
														L	A	1	R	
														F			Q	

SYSTEM NAME POST ACCIDENT CONTAINMENT AIR SAMPLING SYSTEM P&ID NO. A208479-2

Valve Number	Quality Group	Coordinates	Valve Category A	B	BP	C	D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
5023		C2	X					3/8	GA	SO	C	FC	Yes	S	B	*	Q	*physical verification
														T			Q	of valve position will
														L	A	1	R	occur during Appendix J
														F			Q	testing during refuel-
5024		B1	X					3/8	GA	SO	C	FC	Yes	S	B	*	Q	ings.
														T			Q	
														L	A	1	R	
														F			Q	
5025		C1	X					3/8	GA	SO	C	FC	Yes	S	B	*	Q	
														T				
														L	A	1	R	
														F				
1875A					X			3/4	DIA	M	LO	AI	No	NTR			None	
1875B					X			3/4	DIA	M	LO	AI	No	NTR			None	
1875C					X			3/4	DIA	M	LO	AI	No	NTR			None	
1875D					X			3/4	DIA	M	LO	AI	No	NTR			None	
1875E					X			3/4	DIA	M	LO	AI	No	NTR			None	
1875F					X			3/4	DIA	M	LO	AI	No	NTR			None	
1875G					X			3/4	DIA	M	LO	AI	No	NTR			None	
1875H					X			3/4	DIA	M	LO	AI	No	NTR			None	

SYSTEM NAME POST ACCIDENT CONTAINMENT AIR SAMPLING SYSTEM P&ID NO. A208479-2

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
1875I					X			3/4	DIA	M	LO	AI	No	NTR			None	
1875J					X			3/4	DIA	M	LO	AI	No	NTR			None	

SYSTEM NAME POST-ACCIDENT CONTAINMENT VENTING P&ID NO. B208879 9321-F-4061-10 PAGE 1 of 2

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
E-1		B3	X					3	DIA	AO	C	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
E-2		B3	X					3	DIA	AO	C	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
E-3		B2	X					3	DIA	AO	C	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
E-5		B2	X					3	DIA	AO	C	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
EA-1		A4		X				2	DIA	AO	C	FC	Yes	S			Q	
														T			Q	
FCV-1308		D3		X				3	DIA	AO	C	FC	Yes	S			Q	
														T			Q	

SYSTEM NAME POST-ACCIDENT CONTAINMENT VENTING P&ID NO. B208879 9321-F-4061-10 PAGE 2 of 2

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
FCV-1309		D2		X				3	DIA	AO	C	FC	Yes	S			Q	
														T			Q	

SYSTEM NAME REACTOR COOLANT SYSTEM P&ID NO. 9321-F-2738-40

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
519	C	A5	X					3	DIA	AO	C	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
548	C	A6	X					3/8	GL	AO	O	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
549	C	A6	X					3/8	GL	AO	O	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
552	C	B5	X					3	GL	AO	O	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
SOV-3418	C	A5	X					3/4	GL	SO	O	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	

SYSTEM NAME REACTOR COOLANT SYSTEM P&ID NO. 9321-F-2738-40

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
SOV-3419	C	A5	X					3/4	GA	SO	O	FC	Yes	S			Q	Q13
														T			Q	
														L	A	1	R	
														F			Q	
4136	C	A5	X					3/4	DIA	M	C		No	L	A	1	R	A-passive
580A	A	I5	X					1/8	NE	M	LC		No	S	2	None		A-passive
														L	A	1	R	
580B	A	I5	X					1/8	NE	M	LC		No	S	2	None		A-passive
														L	A	1	R	
518	C	B5	X			X		3/4	CK	SA	C		No	L			R	A-passive
														S	1	None		
535	A	I6		X				3	GA	MO	O	AI	Yes	S	3	3	CS	
														T	3	3	CS	
536	A	I6		X				3	GA	MO	O	AI	Yes	S	3	3	CS	
														T	3	3	CS	
PCV-455C	A	I6		X				3	GL	AO	C	FC	Yes	S	3	3	CS	
														T	3	3	CS	
														F	3	3	CS	

SYSTEM NAME REACTOR COOLANT SYSTEM P&ID NO. 9321-F-2738-40

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
PCV-456	A	I6		X				3	GL	AO	C	FC	Yes	S	3	3	CS	
														T	3	3	CS	
														F	3	3	CS	
HCV-3100		E5		X				3/4	GA	MO	C	AI	Yes	S	4	3	CS	
														T	4	3	CS	
HCV-3101		E5		X				3/4	GA	MO	C	AI	Yes	S	4	3	CS	
														T	4	3	CS	
500	A	E3			X			3/4	GL	M	LO		No	NTR			None	BP = B-Passive
PCV-464	A	H6				X		4	R	SP	C		Yes	BT			R	IAW-IWV-3510-1
PCV-466	A	G6				X		4	R	SP	C		Yes	BT			R	IAW-IWV-3510-1
PCV-468	A	F6				X		4	R	SP	C		Yes	BT			R	IAW-IWV-3510-1
IIP-504			X					1/4	GL	M	C	AI	No	L	A	1	R	(FP Przr Press. and
														NTR			None	level transmitters
IIP-505			X					1/4	GL	M	C	AI	No	L	A	1	R	A-passive)
														NTR			None	
IIP-506			X					1/4	GL	M	C	AI	No	L	A	1	R	
														NTR			None	
IIP-507			X					1/4	GL	M	C	AI	No	L	A	1	R	
														NTR			None	

SYSTEM NAME SAFETY INJECTION P&ID NO. 9321-F-2735-49

Valve Number	Quality Group	Coordinates	Valve Category A	B	BP	C	D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
851A	B	A2	X					4	GA	MO	O	AI	Yes	S			Q	
														T			Q	
														L	A	1	R	
851B	B	A2	X					4	GA	MO	O	AI	Yes	S			Q	
														T			Q	
														L	A	1	R	
863*	B	A5	X					1	GL	AO	O	FC	Yes	S	1	None		*A-passive
														T	1	None		
														L	A	1	R	
														F	1	None		
869A	B	D3	X					8	GA	MO	O	AI	Yes	S			Q	with CS pump test
														T			Q	
														L	A	1	R	
869B	B	F3	X					8	GA	MO	O	AI	Yes	S			Q	with CS pump test
														T			Q	
														L	A	1	R	
885A	B	F3	X					14	GA	MO	C	AI	Yes	S			Q	
														T			Q	
														L	A	1	R	

SYSTEM NAME SAFETY INJECTION P&ID NO. 9321-F-2735-49

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
885B	B	F3	X					14	GA	MO	C	AI	Yes	S			Q	
														T			Q	
														L	A	1	R	
888A		C2	X					6	GA	MO	O	AI	Yes	S			Q	
														T			Q	
														L	A	1	R	
888B		C2	X					6	GA	MO	O	AI	Yes	S			Q	
														T			Q	
														L	A	1	R	
850A	B	A2	X					4	GA	MO	LO	AI	Yes	S			Q	
														T			Q	
														L	A	1	R	
														NTR			None	
850B	B	A1	X					4	GA	MO	LO	AI	Yes	S			Q	
														T			Q	
														L	A	1	R	
														NTR			None	
859A	B	B2	X					3/4	GL	M	LC	AI	No	L	A	1	R	
														NTR			None	
														S	3	None		A-passive

SYSTEM NAME SAFETY INJECTION P&ID NO. 9321-F-2735-49

Valve Number	Quality Group	Coordinates	Valve Category A	B	BP	C	D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
859C	B	B2	X					3/4	GL	M	LC	AI	No	S	3	None		A-passive
														L	A	1	R	
														NTR			None	
878A	B	D3	X					3/4	GL	M	LC	AI	No	L	A	1	R	A-passive
														NTR			None	
838A	A	B4	X			X		6	CK	SA	C	N/A	No	SC	2	3*	CS	*When RHR is operating
														L			R	
838B	A	C4	X			X		6	CK	SA	C	N/A	No	SC	2	3*	CS	
														L			R	
838C	A	D4	X			X		6	CK	SA	C	N/A	No	SC	2	3*	CS	
														L			R	
838D	A	D4	X			X		6	CK	SA	C	N/A	No	SC	2	3*	CS	
														L			R	
839H	A	B4	X					3/4	GL	AO	C	FC		L			R	(A-passive)
839B	A	B4	X					3/4	GL	AO	C	FC		L			R	(A-passive)
839D	A	B3	X					3/4	GL	AO	C	FC		L			R	(A-passive)
839F	A	B3	X					3/4	GL	AO	C	FC		L			R	(A-passive)
857A	A	B3	X			X		2	CK	SA	C	N/A	No	SC	12	2	R	
														L			R	

SYSTEM NAME SAFETY INJECTION P&ID NO. 9321-F-2735-49

Valve Number	Quality Group	Coordinates	Valve Category A	B	BP	C	D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
857B	A	B3	X			X		2	CK	SA	C	N/A	No	SC	12	2	R	
														L			R	
857C	A	B3	X			X		2	CK	SA	C	N/A	No	SC	12	2	R	
														L			R	
857D	A	B3	X			X		2	CK	SA	C	N/A	No	SC	12	2	R	
														L			R	
857F	A	B3	X			X		2	CK	SA	C	N/A	No	SC	12	2	R	
														L			R	
857G	A	B3	X			X		2	CK	SA	C	N/A	No	SC	12	2	R	
														L			R	
857H	A	B3	X			X		2	CK	SA	C	N/A	No	SC	12	2	R	
														L			R	
857J	A	B3	X			X		2	CK	SA	C	N/A	No	SC	13	2	R	
														L			R	
857K	A	B3	X			X		2	CK	SA	C	N/A	No	SC	13	2	R	
														L			R	
857M	A	B3	X			X		2	CK	SA	C	N/A	No	SC	12	2	R	
														L			R	
867A	B	D2	X			X		8	CK	SA	C	N/A	No	SC	4	4, 2	R	
														L	A	1	R	

SYSTEM NAME SAFETY INJECTION P&ID NO. 9321-F-2735-49

Valve Number	Quality Group	Coordinates	Valve Category A	B	BP	C	D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
867B	B	E3	X			X		8	CK	SA	C	N/A	No	SC	5	2	R	
														L	A	1	R	
895A	A	B4	X			X		10	CK	SA	C	N/A	No	SC	19	6*	R	*Part stroke at
														L			R	refuelings
895B	A	C4	X			X		10	CK	SA	C	N/A	No	SC	19	6*	R	
														L			R	
895C	A	D4	X			X		10	CK	SA	C	N/A	No	SC	19	6*	R	
														L			R	
895D	A	D4	X			X		10	CK	SA	C	N/A	No	SC	19	6*	R	
														L			R	
4312	B	B5	X			X		1	CK	SA	C	N/A	No	SC	1	None		AC-passive
														L	A	1	R	
897A	A	A4	X			X		10	CK	SA	C	N/A	No	SC	2	3	CS	
														L			R	
897B	A	A4	X			X		10	CK	SA	C	N/A	No	SC	2	3	CS	
														L			R	
897C	A	A3	X			X		10	CK	SA	C	N/A	No	SC	2	3	CS	
														L			R	
897D	A	A3	X			X		10	CK	SA	C	N/A	No	SC	2	3	CS	
														L			R	

SYSTEM NAME SAFETY INJECTION P&ID NO. 9321-F-2735-49

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
842		G2		X				2	GL	MO	LO	AI	Yes	S	10	3	CS	
														T	10	3	CS	
														NTR			None	
843		G2		X				2	GL	MO	LO	AI	Yes	S	10	3	CS	
														T	10	3	CS	
														NTR			None	
856A	B	B3		X				2	GA	MO	O	AI	Yes	S	9	3	CS	
														T	9	3	CS	
856B	B	B3		X				2	GA	MO	LC	AI	Yes	S	6	3	CS	
														T	6	3	CS	
														NTR			None	
856C	B	B3		X				2	GA	MO	O	AI	Yes	S	9	3	CS	
														T	9	3	CS	
856D	B	B3		X				2	GA	MO	O	AI	Yes	S	9	3	CS	
														T	9	3	CS	
856E	B	B3		X				2	GA	MO	O	AI	Yes	S	9	3	CS	
														T	9	3	CS	
856F	B	B3		X				2	GA	MO	LC	AI	Yes	S	6	3	CS	
														T	6	3	CS	
														NTR			None	

SYSTEM NAME SAFETY INJECTION P&ID NO. 9321-F-2735-49

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
866A	B	E2		X				8	GA	MO	C	AI	Yes	S			Q	
														T			Q	
866B	B	E2		X				8	GA	MO	C	AI	Yes	S			Q	
														T			Q	
866C	B	E2		X				8	GA	MO	C	AI	Yes	S			Q	
														T			Q	
866D	B	E2		X				8	GA	MO	C	AI	Yes	S			Q	
														T			Q	
876A	C	F1		X				3	GA	AO	C	FO	Yes	S			Q	
														T			Q	
														F			Q	
876B	C	F1		X				3	GA	AO	C	FO	Yes	S			Q	
														T			Q	
														F			Q	
880A	B	B6		X				2	GL	MO	C	AI	Yes	S			Q	
														T			Q	
880B	B	C6		X				2	GL	MO	C	AI	Yes	S			Q	
														T			Q	
880C	B	C6		X				2	GL	MO	C	AI	Yes	S			Q	
														T			Q	

SYSTEM NAME SAFETY INJECTION P&ID NO. 9321-F-2735-49 PAGE 8 of 11

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
880D	B	C6		X				2	GL	MO	C	AI	Yes	S			Q	
														T			Q	
880E	B	C6		X				2	GL	MO	C	AI	Yes	S			Q	
														T			Q	
880F	B	C6		X				2	GL	MO	C	AI	Yes	S			Q	
														T			Q	
880G	B	D6		X				2	GL	MO	C	AI	Yes	S			Q	
														T			Q	
880H	B	D6		X				2	GL	MO	C	AI	Yes	S			Q	
														T			Q	
880J	B	D6		X				2	GL	MO	C	AI	Yes	S			Q	
														T			Q	
880K	B	D6		X				2	GL	MO	C	AI	Yes	S			Q	
														T			Q	
882	B	G3		X				12	GA	MO	O	AI	Yes	S	21	3	CS	
														T	21	3	CS	
887A	B	B2		X				6	GA	MO	O	AI	Yes	S			Q	
														T			Q	
887B	B	B2		X				6	GA	MO	O	AI	Yes	S			Q	
														T			Q	

SYSTEM NAME SAFETY INJECTION P&ID NO. 9321-F-2735-49

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
889A	B	G6		X				8	GA	MO	C	AI	Yes	S			Q	
														T			Q	
889B	B	G6		X				8	GA	MO	C	AI	Yes	S			Q	
														T			Q	
898	B	G2		X				6	GA	M	C	AI	No	S			Q	
1802A	B	H4		X				10	GA	MO	C	AI	Yes	S	23	2	R	
														T			R	
1802B	B	H4		X				10	GA	MO	C	AI	Yes	S	23	2	R	
														T			R	
1810	B	G2		X				3	GA	MO	LO	AI	Yes	S	22	3	CS	
														T	22	3	CS	
1821	B	D1		X				6	GA	MO	O	AI	Yes	S	7	3	CS	
														T	7	3	CS	
1831	B	D1		X				6	GA	MO	O	AI	Yes	S	7	3	CS	
														T	7	3	CS	
1822A	B	D1		X				6	GA	MO	C	AI	Yes	S	8	3	CS	
														T	8	3	CS	
1822B	B	D1		X				6	GA	MO	C	AI	Yes	S	8	3	CS	
														T	8	3	CS	
846	B	H3			X			14	GA	M	LO	AI	No	NTR			None	

SYSTEM NAME SAFETY INJECTION P&ID NO. 9321-F-2735-49

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
848A	B	B2			X			6	GA	M	LO	AI	No	NTR			None	
848B	B	B1			X			6	GA	M	LO	AI	No	NTR			None	
865A	B	F2			X			10	GA	M	LO	AI	No	NTR			None	
865B	B	F2			X			10	GA	M	LO	AI	No	NTR			None	
894A	B	B5			X			10	GA	MO	LO	AI	Yes	NTR			None	
894B	B	C4			X			10	GA	MO	LO	AI	Yes	NTR			None	
894C	B	D4			X			10	GA	MO	LO	AI	Yes	NTR			None	
894D	B	D4			X			10	GA	MO	LO	AI	Yes	NTR			None	
1841	C	F1			X			3	DIA	M	LO	AI	No	NTR			None	
1807A	B	A2			X			3/4	GL	M	LO	AI	No	NTR			None	
1807B	B	A2			X			3/4	GL	M	LO	AI	No	NTR			None	
1807C	B	A2			X			3/4	GL	M	LO	AI	No	NTR			None	
1839A	C	F2			X			3	DIA	M	LO	AI	No	NTR			None	
1839B	C	F2			X			3	DIA	M	LO	AI	No	NTR			None	
847	B	B1				X		8	CK	SA	C	N/A	No	SC	17	2, 4*	R	*Part stroke quarterly
849A	B	A2				X		4	CK	SA	C	N/A	No	SC	18	2	R	
849B	B	A1				X		4	CK	SA	C	N/A	No	SC	18	2	R	Only full stroke
852A	B	A2				X		4	CK	SA	C	N/A	No	SC	18	2	R	at refueling
852B	B	A1				X		4	CK	SA	C	N/A	No	SC	18	2	R	
857E	B	B3				X		2	CK	SA	C	N/A	No	SC	14	2	R	

SYSTEM NAME SAFETY INJECTION P&ID NO. 9321-F-2735-49 PAGE 11 of 11

Valve Number	Quality Group	Coordinates	Valve Category A	B	BP	C	D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
857L	B	G3				X		2	CK	SA	C	N/A	No	SC	14	2	R	
881	B	G3				X		12	CK	SA	C	N/A	No	SC	16	2	R	
884A	B	A2				X		3/4	CK	SA	C	N/A	No	SC			Q	
884B	B	A2				X		3/4	CK	SA	C	N/A	No	SC			Q	
884C	B	A2				X		3/4	CK	SA	C	N/A	No	SC			Q	
879A	B	D3				X		2	CK	SA	C	N/A	No	SC	20	**		**Design modification
879B	B	E6				X		2	CK	SA	C	N/A	No	SC	20	**		evaluation underway
886A	B	F4				X		8	CK	SA	C	N/A	No	SC	15	6*	R	*Part stroke only
886B	B	G4				X		8	CK	SA	C	N/A	No	SC	15	6*	R	
1838A	B	F2				X		3	CK	SA	C	N/A	No	SC	11	4	Q*	*Part stroke during
1838B	B	F2				X		3	CK	SA	C	N/A	No	SC	11	4	Q*	cont. spray pump test
1814A		H4	X					3/4	GL	M	LO	AI	No	L			R	A-Passive
														NTR			None	
1814B		H4	X					3/4	GL	M	LO	AI	No	L			R	A-Passive
														NTR			None	
1814C		H4	X					3/4	GL	M	LO	AI	No	L			R	A-Passive
														NTR			None	

SYSTEM NAME SAMPLING SYSTEM P&ID NO. A227178-1 9321-F-2745-20 PAGE 1 of 4

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
956A	A	B5	X					3/8	GL	AO	O	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
956B	A	B5	X					3/8	GL	AO	O	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
956C	A	B5	X					3/8	GL	AO	O	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
956D	A	B5	X					3/8	GL	AO	O	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
956E	A	B4	X					3/8	GL	MO	O	AI	Yes	S			Q	
														T			Q	
														L	A	1	R	

SYSTEM NAME SAMPLING SYSTEM P&ID NO. A227178-1 9321-F-2745-20 PAGE 2 of 4

Valve Number	Quality Group	Coordinates	Valve Category A	B	BP	C	D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
956F	A	B4	X					3/8	GL	AO	O	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
956G	A	B6	X					3/8	GL	AO	O	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
956H	A	B6	X					3/8	GL	AO	O	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
958	B	C4	X					3/4	GL	MO	O	AI	Yes	S			Q	
														T			Q	
														L	A	1	R	
959	B	C4	X					3/4	GL	MO	C	AI	Yes	S			Q	
														T			Q	
														L	A	1	R	
990A	B	B4	X					3/4	GL	MO	C	AI	Yes	S			Q	
														T			Q	

SYSTEM NAME SAMPLING SYSTEM P&ID NO. A227178-1 9321-F-2745-20 PAGE 3 of 4

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
990A	B	B4	X					3/4	GL	MO	C	AI	Yes	L	A	1	R	
(continued)																		
990B	B	B4	X					3/4	GL	MO	C	AI	Yes	S			Q	
														T			Q	
														L	A	1	R	
990D	B	C4	X					3/4	GL	M	C		No	S			Q	
														L	A	1	R	
4399		B1	X					3/4	GL	MO	O	AI	Yes	S			Q	
														T			Q	
														L	A	1	R	
5132		A1	X					3/4	GL	MO	O	AI	Yes	S			Q	
														T			Q	
														L	A	1	R	
5153		C5		X				3/4	GL	MO	O	AI	Yes	S			Q	
														T			Q	
5154		C4		X				3/4	GL	MO	O	AI	Yes	S			Q	
														T			Q	
951	A	B5		X				3/8	GL	AO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	

SYSTEM NAME SAMPLING SYSTEM P&ID NO. A227178-1 9321-F-2745-20 PAGE 4 of 4

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
953	A	B5		X				3/8	GL	AO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	
955A	A	A5		X				3/4	GL	MO	C	AI	Yes	S			Q	
														T			Q	
955B	A	A6		X				3/4	GL	MO	C	AI	Yes	S			Q	
														T			Q	

SYSTEM NAME SERVICE WATER P&ID NO. A209762-4 PAGE 1 of 9

Valve Number	Quality Group	Coordinates	Valve Category A	B	BP	C	D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
SWN-41-1A	C	C1	X					10	GA	MO	O	AI	Yes	S			Q	
														T			Q	
														L	A	1	R	
SWN-41-2A	C	D1	X					10	GA	MO	O	AI	Yes	S			Q	
														T			Q	
														L	A	1	R	
SWN-41-3A	C	B1	X					10	GA	MO	O	AI	Yes	S			Q	
														T			Q	
														L	A	1	R	
SWN-41-4A	C	A1	X					10	GA	MO	O	AI	Yes	S			Q	
														T			Q	
														L	A	1	R	
SWN-41-5A	C	E1	X					10	GA	MO	O	AI	Yes	S			Q	
														T			Q	
														L	A	1	R	
SWN-43-1	C	D2	X					1	GA	M	C			L	A	1	R	
SWN-43-2	C	E2	X					1	GA	M	C			L	A	1	R	
SWN-43-3	C	C2	X					1	GA	M	C			L	A	1	R	
SWN-43-4	C	A2	X					1	GA	M	C			L	A	1	R	
SWN-43-5	C	F2	X					1	GA	M	C			L	A	1	R	

SYSTEM NAME SERVICE WATER P&ID NO. A209762-4 PAGE 2 of 9

Valve Number	Quality Group	Coordinates	Valve Category A	B	BP	C	D	Size (Inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
SWN-71-1A	C	D4	X					2	GA	MO	O	AI	Yes	S			Q	
														T			Q	
														L	A	1	R	
SWN-71-2A	C	F4	X					2	GA	MO	O	AI	Yes	S			Q	
														T			Q	
														L	A	1	R	
SWN-71-3A	C	C4	X					2	GA	MO	O	AI	Yes	S			Q	
														T			Q	
														L	A	1	R	
SWN-71-4A	C	B4	X					2	GA	MO	O	AI	Yes	S			Q	
														T			Q	
														L	A	1	R	
SWN-71-5A	C	E4	X					2	GA	MO	O	AI	Yes	S			Q	
														T			Q	
														L	A	1	R	
SWN-42	C	D2	X			X		1-1/2	SR	SA	C	O	No	L	1	1	R	
SWN-42-1	C	C2	X			X		1-1/2	SR	SA	C	O	No	L	1	1	R	
SWN-42-2	C	B2	X			X		1-1/2	SR	SA	C	O	No	L	1	1	R	
SWN-42-3	C	A2	X			X		1-1/2	SR	SA	C	O	No	L	1	1	R	
SWN-42-4	C	E2	X			X		1-1/2	SR	SA	C	O	No	L	1	1	R	

SYSTEM NAME SERVICE WATER P&ID NO. A209762-4

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
SWN-41-1B	C	C1		X				10	GA	MO	O	AI	Yes	S			Q	
														T			Q	
SWN-41-2B	C	D1		X				10	GA	MO	O	AI	Yes	S			Q	
														T			Q	
SWN-41-3B	C	B1		X				10	GA	MO	O	AI	Yes	S			Q	
														T			Q	
SWN-41-4B	C	A1		X				10	GA	MO	O	AI	Yes	S			Q	
														T			Q	
SWN-41-5B	C	E1		X				10	GA	MO	O	AI	Yes	S			Q	
														T			Q	
SWN-44-1A	C	C4	X					10	GA	MO	O	AI	Yes	S			Q	
														T			Q	
														L	A	1	R	
SWN-44-2A	C	D4	X					10	GA	MO	O	AI	Yes	S			Q	
														T			Q	
														L	A	1	R	
SWN-44-3A	C	B4	X					10	GA	MO	O	AI	Yes	S			Q	
														T			Q	
														L	A	1	R	

SYSTEM NAME SERVICE WATER P&ID NO. A209762-4 PAGE 4 of 9

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
SWN-44-4A	C	A4	X					10	GA	MO	O	AI	Yes	S			Q	
														T			Q	
														L	A	1	R	
SWN-44-5A	C	F4	X					10	GA	MO	O	AI	Yes	S			Q	
														T			Q	
														L	A	1	R	
SWN-44-1B	C	C4		X				10	GA	MO	O	AI	Yes	S			Q	
														T			Q	
SWN-44-2B	C	D4		X				10	GA	MO	O	AI	Yes	S			Q	
														T			Q	
SWN-44-3B	C	B4		X				10	GA	MO	O	AI	Yes	S			Q	
														T			Q	
SWN-44-4B	C	A4		X				10	GA	MO	O	AI	Yes	S			Q	
														T			Q	
SWN-44-5B	C	F4		X				10	GA	MO	O	AI	Yes	S			Q	
														T			Q	
SWN-51-1	C	D4		X				1	GA	MO	O	AI	Yes	S			Q	
														T			Q	
SWN-51-2	C	E4		X				1	GA	MO	O	AI	Yes	S			Q	
														T			Q	

SYSTEM NAME SERVICE WATER P&ID NO. A209762-4

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
SWN-51-3	C	C4		X				1	GA	MO	O	AI	Yes	S			Q	
														T			Q	
SWN-51-4	C	B4		X				1	GA	MO	O	AI	Yes	S			Q	
														T			Q	
SWN-51-5	C	G4		X				1	GA	MO	O	AI	Yes	S			Q	
														T			Q	
SWN-71-1B	C	D4		X				2	GA	MO	O	AI	Yes	S			Q	
														T			Q	
SWN-71-2B	C	F4		X				2	GA	MO	O	AI	Yes	S			Q	
														T			Q	
SWN-71-3B	C	C4		X				2	GA	MO	O	AI	Yes	S			Q	
														T			Q	
SWN-71-4B	C	B4		X				2	GA	MO	O	AI	Yes	S			Q	
														T			Q	
SWN-71-5B	C	E4		X				2	GA	MO	O	AI	Yes	S			Q	
														T			Q	
TCV-1104	C	G6		X or X				18	BU	AO	O/C	FO	Yes	S*	3		Q	*when operated
														T	3		Q	in the normally
														F	3		Q	closed mode

SYSTEM NAME SERVICE WATER P&ID NO. A209762-4

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
TCV-1105	C	G6		X or X				18	BU	AO	O/C	FO	Yes	S*	3		Q	*when operated
														T	3		Q	in the normally
														F	3		Q	closed mode
SWN-29	C	D1			X			10	BU	M	V	AI	No	NTR			None	
SWN-30	C	D1			X			10	BU	M	V	AI	No	NTR			None	
SWN-31	C	F1			X			20	BU	M	V	AI	No	NTR			None	
SWN-31-1	C	F1			X			18	BU	M	O	AI	No	NTR			None	
SWN-32	C	F1			X			20	BU	M	V	AI	No	NTR			None	
SWN-33	C	F1			X			18	BU	M	O	AI	No	NTR			None	
SWN-34	C	G2			X			18	BU	M	O	AI	No	NTR			None	
SWN-34-1	C	G3			X			18	BU	M	O	AI	No	NTR			None	
SWN-35	C	G2			X			18	BU	M	O	AI	No	NTR			None	
SWN-35-1	C	G3			X			18	BU	M	O	AI	No	NTR			None	
SWN-38	C	C1			X			18	BU	M	V	AI	No	NTR			None	
SWN-39	C	D1			X			18	BU	M	V	AI	No	NTR			None	
SWN-40	C	C1			X			18	BU	M	O	AI	No	NTR			None	
SWN-40-1	C	C1			X			18	BU	M	O	AI	No	NTR			None	
SWN-44-1C	C	C4			X			10	GL	M	T	AI	No	NTR			None	
SWN-44-2C	C	D4			X			10	GL	M	T	AI	No	NTR			None	
SWN-44-3C	C	B4			X			10	GL	M	T	AI	No	NTR			None	

SYSTEM NAME SERVICE WATER P&ID NO. A209762-4

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
SWN-44-4C	C	A4			X			10	GL	M	T	AI	No	NTR			None	
SWN-44-5C	C	F4			X			10	GL	M	T	AI	No	NTR			None	
SWN-56	C	C1			X			2	GL	M	O	AI	No	NTR			None	
SWN-60	C	D1			X			2	GL	M	O	AI	No	NTR			None	

SYSTEM NAME SERVICE WATER P&ID NO. 9321-F-2722-35 PAGE 8 of 9

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
FCV-1111	C	C4		X				16	BU	M	V*	AI	Yes	S	2	3	CS	
FCV-1112	C	C4		X				16	BU	M	V*	AI	Yes	S	2	3	CS	
FCV-1176	C	G3		X				6	BU	AO	T	O	Yes	S			Q	
														T			Q	
														F			Q	
FCV-1176A	C	G4		X				6	BU	AO	T	O	Yes	S			Q	
														T			Q	
														F			Q	
SWN-2	C	E2				X		14	BU	M	O		No	NTR			None	
SWN-2-1	C	D2				X		14	BU	M	O		No	NTR			None	
SWN-2-2	C	D2				X		14	BU	M	O		No	NTR			None	
SWN-2-3	C	C2				X		14	BU	M	O		No	NTR			None	
SWN-2-4	C	B2				X		14	BU	M	O		No	NTR			None	
SWN-2-5	C	B2				X		14	BU	M	O		No	NTR			None	
SWN-62	C	E5				X		4	GA	M	O		No	NTR			None	
SWN-62-1	C	E5				X		4	GA	M	O		No	NTR			None	
SWN-62-2	C	E4			X			4	GA	M	O		No	NTR			None	
SWN-62-3	C	E5			X			4	GA	M	O		No	NTR			None	
SWN-62-4	C	E4			X			4	GA	M	O		No	NTR			None	
																		*V = Variable

SYSTEM NAME SERVICE WATER P&ID NO. 9321-F-2722-35 PAGE 9 of 9

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
SWN-62-5	C	E4			X			4	GA	M	O		No	NTR			None	
SWN-67	C	E6			X			4	GA	M	O		No	NTR			None	
SWN-67-1	C	E5			X			4	GA	M	O		No	NTR			None	
SWN-67-2	C	E4			X			4	GA	M	O		No	NTR			None	
SWN-1	C	1E				X		14	CK	SA	O		No	SC			Q	
SWN-1-1	C	1D				X		14	CK	SA	O		No	SC			Q	
SWN-1-2	C	1C				X		14	CK	SA	O		No	SC			Q	
SWN-1-3	C	1C				X		14	CK	SA	O		No	SC			Q	
SWN-1-4	C	1B				X		14	CK	SA	O		No	SC			Q	
SWN-1-5	C	1A				X		14	CK	SA	O		No	SC			Q	

SYSTEM NAME STARTING AIR TO DIESELS P&ID NO. 9321-H-2029-7 PAGE 1 of 2

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
DA-24		H3		X				1-1/2	GA	SO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	
DA-24-1		G3		X				1-1/2	GA	SO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	
DA-24-2		E3		X				1-1/2	GA	SO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	
DA-24-3		D3		X				1-1/2	GA	SO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	
DA-24-4		C3		X				1-1/2	GA	SO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	
DA-24-5		B3		X				1-1/2	GA	SO	C	FC	Yes	S			Q	
														T			Q	
														F			Q	
DA-9		H6			X			1-1/2	GA	M	O			NTR			None	
DA-9-1		F6			X			1-1/2	GA	M	O			NTR			None	

SYSTEM NAME STARTING AIR TO DIESELS P&ID NO. 9321-H-2029-7

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
DA-9-2		C6			X			1-1/2	GA	M	O			NTR			None	
DA-10		H6			X			1-1/2	GA	M	O			NTR			None	
DA-10-1		F6			X			1-1/2	GA	M	O			NTR			None	
DA-10-2		C6			X			1-1/2	GA	M	O			NTR			None	
DA-11		G3			X			1-1/2	GA	M	O			NTR			None	
DA-11-1		D3			X			1-1/2	GA	M	O			NTR			None	
DA-11-2		B3			X			1-1/2	GA	M	O			NTR			None	
DA-14		H3			X			1-1/2	GA	M	O			NTR			None	
DA-14-1		F3			X			1-1/2	GA	M	O			NTR			None	
DA-14-2		C3			X			1-1/2	GA	M	O			NTR			None	
PCV-5003*		G3			X			1-1/2	PCV	M	T			NTR			None	*Manually set at
PCV-5004*		H3			X			1-1/2	PCV	M	T			NTR			None	desired pressure
PCV-5005*		D3			X			1-1/2	PCV	M	T			NTR			None	
PCV-5006*		F3			X			1-1/2	PCV	M	T			NTR			None	
PCV-5007*		B3			X			1-1/2	PCV	M	T			NTR			None	
PCV-5008*		C3			X			1-1/2	PCV	M	T			NTR			None	

SYSTEM NAME STATION AIR P&ID NO. 9321-F-2035-12 PAGE 1 of 1

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
SA-24		C5	X					2	GA	M	LC	AI	No	S	1	None		A-Passive
														L	A	1	R	
														NTR			None	
SA-24-1		C5	X					2	GA	M	LC	AI	No	S	1	None		
														L	A	1	R	
														NTR			None	

SYSTEM NAME STEAM GENERATOR BLOWDOWN P&ID NO. 9321-F-2729-18 PAGE 1 of 2

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
PCV-1214	B	E4	X					2	GL	AO	C	C	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
PCV-1215	B	E3	X					2	GL	AO	C	C	Yes	S			Q	
														T			Q	
														F			Q	
														L	A	1	R	
PCV-1216	B	E4	X					2	GL	AO	C	C	Yes	S			Q	
														T			Q	
														F			Q	
														L	A	1	R	
PCV-1217	B	E4	X					2	GL	AO	C	C	Yes	S			Q	
														T			Q	
														F			Q	
														L	A	1	R	
PCV-1214A	B	F4	X					2	GL	AO	C	C	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	

SYSTEM NAME STEAM GENERATOR BLOWDOWN P&ID NO. 9321-F-2729-18 PAGE 2 of 2

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
PCV-1215A	B	F3	X					2	GL	AO	C	C	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
PCV-1216A	B	F4	X					2	GL	AO	C	C	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
PCV-1217A	B	F4	X					2	GL	AO	C	C	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	

SYSTEM NAME WASTE DISPOSAL SYSTEM P&ID NO. 9321-F-2719-44

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
1616	C	C4	X			X		1	CK	SA	O			SC	1	None		
														L	A	1	R	A-Passive
1702	C	C2	X					3	DIA	AO	O	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
1705	C	C2	X					3	DIA	AO	O	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
1723	C	C1	X					2	DIA	AO	O	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
1728	C	C1	X					2	DIA	AO	O	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
1786	C	B3	X					1	DIA	AO	O	FC	Yes	S			Q	
														T			Q	

SYSTEM NAME WASTE DISPOSAL SYSTEM P&ID NO. 9321-F-2719-44

Valve Number	Quality Group	Coordinates	Valve Category A	Valve Category B	Valve Category BP	Valve Category C	Valve Category D	Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
1786	C	B3	X					1	DIA	AO	O	FC	Yes	L	A	1	R	
(continued)														F			Q	
1787	C	B3	X					1	DIA	AO	O	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
1788	C	B3	X					1	DIA	AO	O	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
1789	C	B3	X					1	DIA	AO	O	FC	Yes	S			Q	
														T			Q	
														L	A	1	R	
														F			Q	
3416	C	B4	X					1	GA	SO	O	FC	Yes	S	B	*	Q	*Remote position
														T	B	*	Q	indicators checked
														L	A	1	R	during Leak Rate Test
														F	B	*	Q	
3417	C	B4	X					1	GA	SO	O	FC	Yes	S	B	*	Q	
														T	B	*	Q	

SYSTEM NAME WASTE DISPOSAL SYSTEM P&ID NO. 9321-F-2719-44

Valve Number	Quality Group	Coordinates	Valve Category					Size (inches)	Valve Type	Actuator Type	Normal Position	Failure Mode	Remote Position Indication	Test Requirements	Relief Requests	Alternate Testing	Test Frequency	REMARKS (Not to be used for relief basis)
			A	B	BP	C	D											
3417	C	B4	X					1	GA	SO	O	FC	Yes	L	A	1	R	
(continued)														F	B	*	Q	*Remote position
5459	C	B4	X					1	DIA	M	C			L	A	1	R	indications checked
																		during Leak Rate Test

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Air Conditioning to CCR

Relief Request No. 1

Valves: WRV-1 and WRV-2
Category: B
Quality Group:

Function:

These valves regulate amount of cooling water flow to the control room air conditioning units.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

Both units are normally running during normal plant operations. Stroking these valves during normal operation would require shutting down the air conditioning units and then reestablishing the operation of the unit and proper flow to the coolers.

Alternative Testing:

These valves will be full-stroke exercised at cold shutdowns.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Auxiliary Coolant

Relief Request No. 1

Valves: 797, 784 and FCV-625
Category: A
Quality Group: C

Function:

Valves 797, 784 and FCV-625 are all containment isolation valves in the component cooling system that supplies cooling water to the reactor coolant pumps bearing oil coolers and thermal barriers. Valve 797 is a CIV and allows cooling water to flow to the bearing oil coolers and thermal barriers. Valve 784 is a CIV in the return leg from the RC pump motor bearing cooler. Valve FCV-625 is a CIV in the return leg from the thermal barriers. All these valves are normally open during plant operation and have an emergency function to close upon receipt of a containment isolation signal.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

These valves are open or closed only valves; therefore, part-stroke testing of these valves is impractical. Also, full-stroke exercising these valves quarterly while the plant is at normal operating power is impractical because this would isolate cooling water to the RC pumps.

Alternative Testing:

These valves will be full-stroke exercised at cold shutdowns when the RC pumps are not in use.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

System: Auxiliary Coolant

Relief Request No. 2

Valve: 744
Category: A
Quality Group: B

Function:

Valve 744 is a non-redundant valve in the LPSI/RHR pump discharge header. It is a CIV and is normally open during plant operation. The valve also has a safety function to close following the termination of the LPSI mode of operation of the RHR system.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

Full-stroke testing of the valve quarterly is impractical in that a failure of the valve in the closed position nullifies the function of the RHR pumps in the LPSI mode should an emergency occur concurrent with the valve failure. The valve cannot be exercised at cold shutdowns because closing the valve will terminate the normal RHR cooling mode (required to maintain cold shutdown). It is also impractical to part-stroke exercise the valve since this valve is an open or closed only valve.

Alternative Testing:

This valve will be full-stroke exercised at refueling outages.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Auxiliary Coolant

Relief Request No. 3

Valve: 732
Category: A
Quality Group: B

Function:

Valve 732 is a locked closed CIV in the line leading to the steam generator in the hot leg of RCS loop 2. This valve is normally closed and has a safety function to close.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

Since valve 732 is a normally closed, locked closed, CIV, it can be considered a Passive Valve. Therefore, the operability of this valve is inconsequential to the safety function which it performs. In accordaqnce with NRC guidance and the above supporting evidence, it is deemed that quarterly exercising of these valves is not necessary. This valve is stroked open upon entry and stroked closed upon exit from the RHR mode of plant operation at each cold shutdown.

Alternative Testing:

None.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Auxiliary Coolant

Relief Request No. 4

Valve: 741A
Category: AC
Quality Group: B

Function:

Valve 741A is a check valve and functions as a containment isolation valve in the outlet line from the RHR pumps. This valve is normally closed and opens when the RHR pumps are used in the LPSI mode of emergency cooling.

Test Requirement: IWV-3410, IWV-3520 (Exercise)

Basis for Relief:

Full-stroke testing of the valve quarterly during normal power operations is impractical because the LPSI mode of emergency cooling would have to be initiated to do so. Part-stroke exercising the valve quarterly is also impractical because this valve is downstream of the miniflow test line for the RHR pumps and would not be exercised during the pump test.

Alternative Testing:

This valve will be full-stroke exercised at cold shutdowns, during the normal shutdown cooling mode of operation of the RHR pumps.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Auxiliary Coolant

Relief Request No. 5

Valves: 822A and 822B
Category: B
Quality Group: C

Function:

Valves 822A and 822B are flow isolation valves in the component cooling system on the return leg from the residual heat exchangers. The valves are normally closed and have an emergency function to open and allow the flow of component cooling water to the residual heat exchangers.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

Full-stroke testing of these valves during normal plant operation may divert flow from the component cooling system via the 12" return lines. This could result in reduced cooling flow to the RC pump coolers and thermal barriers which could create a potential for overheating and damage to the RC pumps.

Alternative Testing:

These valves will be full-stroke exercised at cold shutdowns when the RC pumps are not in use.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Auxiliary Coolant

Relief Request No. 6

Valves: 769, 786, 789
Category: B
Quality Group: C

Function:

These valves are isolation valves in the component cooling system that supplies water to the RC pumps bearing oil coolers and thermal barriers. Valve 769 is in the supply header leading to the RC pumps. Valve 786 is in the return header leading from the RC pump bearing oil coolers. Valve 789 is in the return header leading from the RC pumps thermal barriers. These valves are open or closed only valves and are normally open valves. They also receive a safety signal.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

Full-stroke testing of these valves quarterly during normal plant operation would cause a loss of cooling water to the RC pumps bearing oil coolers or the thermal barriers or both and would damage the RC pumps. Part-stroke testing is also impractical because these are open or closed only valves.

Alternative Testing:

These valves will be full-stroke exercised during cold shutdowns when the RC pumps are not in use.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Auxiliary Coolant

Relief Request No. 7

Valves: 743 and 1870
Category: A
Quality Group: B

Function:

These valves are Containment Isolation Valves in the mini-flow test line of the RHR pumps. These valves are motor operated and are locked open during normal plant operation. They are remote manually shut at some time (long-term) following accident initiation.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

These valves are open or closed only valves; therefore, part-stroke exercising of these valves is impractical. Full-stroke exercising these valves quarterly during normal plant operation is impractical because if the valves were closed and the RHR pumps were needed to start, they would start against a dead head and possibly damage the pumps. Also these valves are locked open valves and are required to be open during an accident.

Alternative Testing:

These valves will be full-stroke exercised at cold shutdowns.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Auxiliary Coolant

Relief Request No. 8

Valves: 738A and 738B
Category: C
Quality Group: B

Function:

Valves 738A and 738B are check valves. Their functions are to prevent backflow from the operating RHR loop to non-operating one.

Test Requirement: IWV-3520 (Exercise)

Basis for Relief:

Full-stroke testing of these valves during normal operation is impractical as it would require full flow test of the RHR pumps through the SI system. This is not done as it would require safety injection to the RCS.

Alternative Testing:

These valves will be part-stroke exercised quarterly during the RHR pump mini-flow test and full-stroke exercised during refueling outages.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Auxiliary Coolant

Relief Request No. 9

Valves: 746 and 747
Category: B
Quality Group: B

Function:

Valves 746 and 747 are motor operated valves in the LHSI/RHR lines and are downstream of the RHR heat exchangers. These are normally closed valves and receive engineered safeguard signal to open for LHSI/RHR operation.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

Valves 746 and 747 are only capable of being full-stroke exercised. Full-stroke exercising these valves quarterly during normal plant operations would be inconsistent with NRC guidelines for excluding valves from cycling tests in that cycling these valves could subject the LHSI/RHR system to pressures in excess of their design pressure. It is assumed for purposes of a cycling test that one or more of the upstream check valves has failed. No positive methods are available for determining the pressure or lack thereof on the high pressure side of the valve to be cycled.

Alternative Testing:

These valves will be full-stroke exercised at cold shutdowns.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Auxiliary Coolant

Relief Request No. 10

Valves: 770, 774A, 774B, 774C and 774D
Category: C
Quality Group: C

Function:

Valves 770, 774A, 774B, 774C and 774D are check valves in the component cooling water supply lines to RCPs. Fuctionally these valves remain open during RCP operation.

Test Requirement: IWV-3520 (Exercise)

Basis for Relief:

Stroke exercising these valves will interrupt RCP cooling. They are continuously verified open during normal plant operation.

Alternative Testing:

None.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Auxiliary Coolant

Relief Request No. 11

Valves: 730, 731
Category: A
Quality Group: B

Function:

Valves 730 and 731 are pressure isolation valves between the Reactor Coolant System and RHR system. They are normally closed and have a safety function to open in order to reach cold shutdown for most non-LOCA design basis events.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

These valves are interlocked to prevent their opening at RCS pressures in excess of RHR entry conditions.

Alternative Testing:

These valves will be full-stroke exercised at cold shutdowns.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Auxiliary Steam

Relief Request No. 1

Valves: UH-43, UH-44
Category: A
Quality Group:

Function:

These valves are passive CIVs in the auxiliary steam system and are locked closed during power operation. They also have a safety function to close.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

Since these valves are locked closed during power operations and have a safety function to close, they can be considered as passive isolation valves. The operability of these valves is inconsequential with regard to the safety function which they perform; therefore, in accordance with NRC guidelines, they are not required to be stroked.

Alternative Testing:

None.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Boiler Feedwater System

Relief Request No. 1

Valves: FCV-427L, 437L, 417L, 447L
Category: B
Quality Group: C

Function:

These valves are main feedwater regulating valves in the feedwater regulator bypass lines (low flow control path).

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

These valves are normally closed during normal plant operations. They are used during initial start-up of the secondary steam generating system. Exercising these valves quarterly is impractical because the increased flow caused by the opening of the valve would cause a feedwater flow/steam generator level mismatch and cause an unnecessary oscillation in the flow control network and steam generator water level and potential plant trip. Exercising the valve by first isolating the regulating valve by shutting the motor operated isolation valves would cause a feedwater pump trip.

Alternative Testing:

These valves will be full-stroke exercised at cold shutdowns.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Boiler Feedwater System

Relief Request No. 2

Valves: FCV-417, 427, 437, 447
Category: B
Quality Group: C

Function:

These valves are the main feedwater regulators which are open during power operations to control the main feedwater supply to the steam generators.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

Exercising these valves quarterly is impractical during power operation in that it would shut off the feedwater to the steam generator, which could result in a reactor trip condition.

Alternative Testing:

These valves will be full-stroke exercised at cold shutdowns.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Boiler Feedwater System

Relief Request No. 3

Valves: BFD-79, 79-1, 79-2, 79-3
Category: C
Quality Group: B

Function:

These valves are check valves in the auxiliary feedwater lines at the interface of the main feedwater line. Their emergency function is to open when the auxiliary feedpumps are activated to supply emergency feedwater from the Condensate Storage Tank.

Test Requirement: IWV-3520 (Exercise)

Basis for Relief:

Exercising these check valves quarterly during normal operation is impractical since the auxiliary feedwater pumps must be activated to flow ambient temperature water from the CST to the SG which can result in thermal shocking of the SG tube sheet.

Full-stroke exercising at cold shutdown is impractical because the high flow rates required for full-stroke exercising make it difficult to control water levels in the SG. Excessively high water levels in the SG can result in water in the steamlines, and can lead to turbine damage when power operations are resumed.

Alternative Testing:

These valves will be part-stroke exercised at cold shutdowns during operation of the auxiliary feedwater pumps and full-stroke exercised at refuelings in conjunction with the full flow test of the auxiliary feedwater pumps.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Boiler Feedwater System

Relief Request No. 4

Valves: BFD-39, BFD-34, BFD-37, BFD-35, BFD-42, BFD-40
Category: C
Quality Group: B

Function:

BFD-39 and BFD-34 are auxiliary feedwater pumps (motor driven) discharge check valves. BFD-35, 37, 40 and 42 are check valves in the auxiliary feedwater supply lines leading from the motor driven auxiliary feedwater pumps and act as redundant isolation valves in series with check valves BFD-79, 79-1, 79-2 and 79-3.

Test Requirement: IWV-3520 (Exercise)

Basis for Relief:

These check valves are normally closed and have an emergency function to open when the AFW pumps (motor driven) are activated to provide condensate storage tank water to the steam generator. BFD-39 and BFD-34 are downstream of the AFW pump test recirculation lines thus precluding any exercising during monthly pump tests.

Part-stroke testing at cold shutdowns and full-stroke exercising at refueling outages is justified based upon the reasons given for the BFD-79 series valves.

Alternative Testing:

Part-stroke exercise the valves at cold shutdowns during operation of the auxiliary feedwater pumps. Full-stroke exercise the valves during refueling outages in conjunction with full flow test of the auxiliary feedwater pumps.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Boiler Feedwater System

Relief Request No. 5

Valves: BFD-31, BFD-47, 47-1, 47-2, 47-3
Category: C
Quality Group: B

Function:

Valve BFD-31 is an Auxiliary Feedwater (AFW) pump (turbine driven) discharge check valve. The BFD-47 series valves are in the AFW supply line from the turbine driven pump and are redundant isolation valves in series with the BFD-79 series valves. The valves are normally closed and have an emergency function to open when the turbine driven AFW pump is activated to provide condensate storage tank water to the steam generators.

Test Requirements: IWV-3520 (Exercise)

Basis for Relief:

Exercising these valves quarterly during normal operation is impractical for the reasons given for the BFD-79 series valves (i.e. thermal shocking of the SG tube sheet).

Full or part-stroke exercising of these valves at cold shutdowns is impractical because there is no steam present to run the turbine driven AFW pumps.

Alternative Testing:

These valves will be full-stroke exercised during refueling outages in conjunction with the full flow test of the turbine driven auxiliary feedwater pumps.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Boiler Feedwater System

Relief Request No. 6

Valves: BFD-2-21 and BFD-2-22
Category: B
Quality Group: C

Function:

These are motor operated valves in the boiler feedwater pump discharge lines. They are open during power operations to supply feedwater to steam generators.

Test Requirements: IWV-3410 (Exercise)

Basis for Relief:

Exercising these valves quarterly is impractical during power operation as it would shut off the feedwater to steam generators and trip the plant

Alternative Testing:

These valves will be full-stroke exercised at cold shutdowns.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Boiler Feedwater System

Relief Request No. 7

Valves: FCV-405A, FCV-405B, FCV-405C and FCV-405D
FCV-406A, FCV-406B, FCV-406C and FCV-406D
Category: B
Quality Group: C

Function:

These are flow control valves in the lines to the steam generators from the auxiliary feedwater pump discharge. They are normally open and fail-open valves. Their function is to remain open during the auxiliary feedwater to steam generator operation.

Test Requirements: IWV-3413 (Stroke Time)

Basis for Relief:

As stated above, these are normally open and fail-open valves. Their stroke time is manually adjustable in the control room. As such, the stroke-time testing is of no consequence.

Alternative Testing:

None.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Chemical and Volume Control System (CVCS)

Relief Request No. 1

Valve: 227
Category: A
Quality Group: B

Function:

Valve 227 is a CIV in the hot leg charging line to the RCS. This valve is closed during normal plant operation and has a safety function to close during an accident condition.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

Valve 227 is a passive CIV and is normally closed and is required to close during an accident condition. The operability of this valve is inconsequential with regard to the safety function which it performs; therefore, in accordance with NRC guidelines it is not required to be stroked.

Alternative Testing:

None.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Chemical and Volume Control System (CVCS)

Relief Request No. 2

Valves: 201 and 202
Category: A
Quality Group: B

Function:

Valves 201 and 202 are containment isolation valves and function as remote manual letdown flow isolation valves in the letdown line to the nonregenerative heat exchanger.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

Part-stroke exercising of these valves is impractical since these are open or close only valves. Full-stroke exercising of these valves is also impractical during normal plant operation because it would inhibit the control of the reactor coolant level control system.

Alternative Testing:

These valves will be full-stroke exercised at cold shutdowns.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Chemical and Volume Control System (CVCS)

Relief Request No. 3

Valves: 205 and 226
Category: A
Quality Group:

Function:

Valves 205 and 226 are remote manual flow isolation valves in the charging line leading to the regenerative heat exchangers.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

Part-stroke exercising of these valves is impractical because they are open or closed only valves. Full-stroke exercising of these valves quarterly during normal plant operation is impractical because it would inhibit the control of the reactor coolant level control system. Closing these valves at any time during normal plant operation would shut down the charging flow creating a potential for a low level reactor trip.

Alternative Testing:

These valves will be full-stroke exercised at cold shutdowns.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Chemical and Volume Control System (CVCS)

Relief Request No. 4

Valve: 222
Category: A
Quality Group: B

Function:

Valve 222 is a flow shutoff valve in the RC pump seal water return line.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

Valve 222 is an open or closed only valve; therefore, part-stroke testing of this valve is impractical. This valve cannot be full-stroke exercised during normal plant operation because a loss of RC pump seal water flow would result, damaging the RC pumps.

Alternative Testing:

This valve will be full-stroke exercised at those cold shutdowns when the RC pumps are not in use.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Chemical and Volume Control System (CVCS)

Relief Request No. 5

Valves: 4925, 4926, 4927, 4928, 250A, 250B, 250C, 250D
Category: A
Quality Group: B

Function:

These valves are flow isolation valves in the charging lines to the RC pump seals. They are normally open valves during normal plant operation.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

Because these valves are open and close only valves it is impractical to part-stroke these valves. Full-stroke exercising the valves quarterly during normal plant operation is also impractical since this action would perturb RC pump seal water flow and thus damage the seals as a result.

Alternative Testing:

These valves will be full-stroke exercised at those cold shutdowns when the RC pumps are not in use.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Chemical and Volume Control System (CVCS)

Relief Request No. 7

Valves: 333
Category: B
Quality Group: B

Function:

Valve 333 is a motor-operated valve in the emergency boration line at the suction side of charging pumps. Its opening allows boric acid addition to the reactor coolant system, at the maximum rate available, if a reactivity excursion occurs.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

Exercising this valve during normal plant operations will result in boric acid addition to the reactor coolant system and upset the plant operating conditions.

Alternative Testing:

This valve will be full-stroke exercised during cold shutdowns.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Chemical and Volume Control System (CVCS)

Relief Request No. 8

Valves: LCV-112B
Category: B
Quality Group: B

Function:

Valve LCV-112B is a normally closed air-operated valve in the refueling water supply line to the charging pump suction. Its opening may be necessary to allow refueling water supply to the reactor coolant in certain emergency conditions per Emergency Procedure E-2.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

Exercising this valve during normal plant operations will allow refueling water addition to the reactor coolant system and upset the normal plant conditions.

Alternative Testing:

This valve will be full-stroke exercised during cold shutdowns.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Chemical and Volume Control System (CVCS)

Relief Request No. 9

Valves: LCV-112C
Category: B
Quality Group: B

Function:

Valve LCV-112C is a normally open motor-operated valve at the suction of charging pumps from volume control tank. It is also required to remain open following engineered safeguards actuation and closes during the switchover of charging pump suction to RWST.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

Exercising this valve during normal plant operations will interrupt charging pump operation and seal water to reactor coolant pumps.

Alternative Testing:

This valve will be full-stroke exercised during cold shutdowns.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Chemical and Volume Control System (CVCS)

Relief Request No. 10

Valves: 290
Category: C
Quality Group: B

Function:

The function of check valve 290 is to open whenever LCV-112B is open to supply refueling water to charging pumps suction. This occurs only during certain emergency operations.

Test Requirement: IWV-3520 (Exercise)

Basis for Relief:

LCV-112B can not be opened during plant operations to allow exercise test of valve 290 as it would upset the normal plant operating conditions. Also, valve 290 can not be exercised without operating the charging pumps with suction from refueling water storage tank.

Alternative Testing:

Valve 290 will be exercised during refuelings.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Chemical and Volume Control System (CVCS)

Relief Request No. 11

Valves: 292
Category: C
Quality Group: B

Function:

Check valve 292 is located in the suction line to charging pumps from volume control tank. Its function is to remain open during normal plant operation and to close for preventing backflow to volume control tank from emergency boration or refueling water paths.

Test Requirement: IWV-3520 (Exercise)

Basis for Relief:

Exercising of valve 292 will interrupt charging pump operation during normal plant operations.

Alternative Testing:

Valve 292 will be exercised during cold shutdowns.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Chemical and Volume Control System (CVCS)

Relief Request No. 12

Valves: 332
Category: C
Quality Group: B

Function:

Check valve 332 is located downstream of motor-operated valve 333 at the suction side of charging pumps. Its function is to open during emergency boration and to remain closed during other plant operating modes.

Test Requirement: IWV-3520 (Exercise)

Basis for Relief:

Valve 332 can not be exercised unless valve 333 is open and emergency boration line is in operation.

Alternative Testing:

Valve 332 will be exercised at those cold shutdowns when the emergency boration line is in operation but not less than once every two years.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Chemical and Volume Control System (CVCS)

Relief Request No. 13

Valves: 362A and 362B
Category: C
Quality Group: C

Function:

362A and 362B are check valves at the discharge of the boric acid transfer pumps. Their function is to open during the associated pump operation. The check valve at the non-operating pump discharge closes to prevent backflow form the operating pump.

Test Requirement: IWV-3520 (Exercise)

Basis for Relief:

The check valve is continuously verifed during the operation of the pumps. One pump is always in operation. In addition, these pumps are jogged when on standby during which the check valve operation is verified.

Alternative Testing:

None.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Chemical and Volume Control System (CVCS)

Relief Request No. 14

Valves: 4000, 4001, 4002, 4003, 4004, and 4005
Category: C
Quality Group: B

Function:

These are check valves in the discharge lines of charging pumps. Their function is to remain open when the associated pump is in operation and to remain closed when any charging pump is not operating to prevent backflow through the idle pump.

Test Requirement: IWV-3520 (Exercise)

Basis for Relief:

The check valve operation is continuously verified open during the charging pump operations. At least one charging pump is always in operation. Operating other charging pumps specifically to exercise the check valves will upset the system operation.

Alternative Testing:

None required.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Chemical and Volume Control System (CVCS)

Relief Request No. 15

Valves: 4924
Category: C
Quality Group: B

Function:

Check valve 4924 is located in the emergency boration line to the suction of charging pumps. Its function is to open during the emergency boration operation through charging pumps.

Test Requirement: IWV-3520 (Exercise)

Basis for Relief:

This check valve can only be exercised when the emergency boration is performed through charging pumps.

Alternative Testing:

Exercised at cold shutdowns when emergency boration line is in service but not less than once every two years.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Chemical and Volume Control System (CVCS)

Relief Request No. 16

Valves: 251A, 251B, 251C, 251D, 251E, 251F, 251G, and 251H
Category: AC
Quality Group: A

Function:

These valves are normally open check valves in the lines leading to RCP seal injection. Their function is to remain open during RC pump operation. These valves also are pressure isolation valves due to piping classification.

Test Requirement: IWV-3520 (Exercise)

Basis for Relief:

These check valves are continuously verified open during normal plant operation when RCPs are operating.

Alternative Testing:

None.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Chemical and Volume Control System (CVCS)

Relief Request No. 17

Valves: 251A through 251H
Category: AC
Quality Group: A

Function:

These valves are normally open check valves in the lines leading to RCP seal injection. Their function is to remain open during RC pump operation. These valves also are pressure isolation valves due to piping classification.

Test Requirement: IWV-3420 (Leak Test)

Basis for Relief:

Con Edison is currently evaluating methods of performing leak testing at refueling.

Alternative Testing:

None.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Chemical and Volume Control System (CVCS)

Relief Request No. 18

Valves: 204A through 204B
Category: B
Quality Group: A

Function:

These air-operated valves are located in the charging line to RCS loops and are downstream of regenerative heat exchangers. Their safety functions are to open during emergency boration operation.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

Exercising these valves during normal plant operation will upset the seal injection to RCPs from charging pumps.

Alternative Testing:

These valves will be full-stroke exercised during cold shutdowns.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Chemical and Volume Control System (CVCS)

Relief Request No. 19

Valves: 210A and 210B
Category: C
Quality Group: A

Function:

These check valves are located in the charging line to RCS loops and are downstream of the regenerative heat exchanger. Their safety function is to open during emergency boration operation and to close in the unlikely event of a charging line break to prevent backflow.

Test Requirement: IWV-3520 (Exercise)

Basis for Relief:

These valves can not be exercised without the charging line in operation. One charging line is normally in service, thus the valve in that line is normally open.

Alternative Testing:

These valves will be exercised during cold shutdowns.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: City Water to Containment

Relief Request No. 1

Valve: MW-17 (two valves)
Category: A
Quality Group:

Function:

These valves are passive series CIVs in the city water supply to the containment building and are locked during power operation. They have a safety function to close.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

Since these valves are locked closed during power operations and have a safety function to close, they can be considered as passive isolation valves. The operability of these valves is inconsequential with regard to the safety function which they perform; therefore, in accordance with NRC guidelines, they are not requred to be stroked.

Alternative Testing:

None.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Condensate and Boiler Feed Pump

Relief Request No. 1

Valve: CT-26, CT-29, CT-32
Category: C
Quality Group:

Function:

These valves are check valves in the suction lines of each of the auxiliary feedwater pumps. These suction lines connect to the main header leading from the condensate storage tank. Their function is to open when the auxiliary feed pumps operate either during normal start-up and shutdown of the reactor plant or following an accident requiring the use of the auxiliary feedwater system.

Test Requirement: IWV-3520 (Exercise)

Basis for Relief:

These valves are part-stroke exercised during start-up and shutdown of the reactor plants and are therefore part-stroke exercised during cold shutdown.

Full flow testing of the auxiliary feedwater pumps is conducted during refuelings. The pump suction check valves must necessarily be full-stroke exercised during this test. Because full flow testing of the pumps and therefore full-stroke exercising of the check valves is impractical during normal operations or start-up and shut-down of the reactor plant, it is proposed that check valves be full-stroke exercised during refuelings.

Alternative Testing:

The three check valves will be part-stroke exercised during cold shutdown (i.e., start-up or cooldown of the reactor plant) and full-stroke exercised during the full-flow pump test at refuelings.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Condensate and Boiler Feed Pump

Relief Request No. 2

Valve: CT-25, CT-28, CT-31
Category: C
Quality Group:

Function:

These check valves must open when water from the city water system is required to allow continued emergency operation of the auxiliary feedwater system for plant cooldown should the condensate storage tank go empty.

Test Requirement: IWV-3520 (Exercise)

Basis for Relief:

It is impractical to flow test the operability of this valve at any time due to the stringent chemistry requirements of the boiler feedwater system. Allowing city water to flow past these valves would contaminate the boiler feedwater system and steam generators.

Con Edison is presently reviewing alternative modifications to this portion of the system to allow exercising of these valves.

Alternative Testing:

To be determined following completion of the evaluation of alternative modifications. This system is an alternative-backup system to the condensate stroage tank supply which is the primary source for auxiliary feedwater supply.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Containment Purge System

Relief Request No. 1

Valves: FCV-1170, 1171, 1172, 1173
Category: A
Quality Group:

Function:

These valves are containment isolation valves in the containment purge system.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

These valves are normally closed during power operation and have a safety function to close; therefore, they are generally considered passive valves. An administrative goal will be established to limit the amount of time these valves may be open during plant operation. As such exercising will be accomplished at cold shutdowns.

Alternative Testing:

These valves will be full-stroke exercised at cold shutdowns.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Hydrogen Recombiner

Relief Request No. 1

Valve: PCV-2, PCV-3A, PCV-3B, PCV-941, PCV-1
Category: B
Quality Group:

Function:

These valves are self contained pressure regulating valves and are preset to regulate downstream pressures around a specified value.

Test Requirement: Exempt

Basis for Relief:

These valves are internally regulated about a preset point to limit downstream pressure at a specified value. Because of this there is no convenient way to exercise the valve or time it. Its function does not require that it open or shut but only regulate for proper operation of the system.

Alternative Testing:

The proper operation of these valves is verified during the recombiner test, PT-R15 which is conducted at refuelings. The proper position (setpoint) is verified at this time. Therefore, the position verification of these valves will occur during refuelings when PT-R15 is conducted.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Hydrogen Recombiner

Relief Request No. 2

Valve: 1880A, 1880B, 1879A, 1879B
Category: C
Quality Group:

Function:

These valves are check valves in the lines leading to the nozzles of the two hydrogen recombiners. These valves have a safety function to open when the system is placed into operation.

Test Requirement: IWV-3520 (Exercising)

Basis for Relief:

These valves are located inside containment. The capability of these valves to function is normally checked by proper operation of the recombiner. It is impractical to test these valves during normal operations because they are inside containment and the recombiner is not tested during plant operation. Although the valves could be tested during cold shutdown the frequency of the recombiner test (i.e., at refuelings) precludes testing the valves during this period also.

Alternative Testing:

These valves will be exercised during the hydrogen recombiner tests (PT-R15) at refuelings.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Hydrogen Recombiner

Relief Request No. 3

Valve: 1881C, 1881A, 1881D
Category: C
Quality Group:

Function:

These valves are check valves in the lines leading from the oxygen, hydrogen and nitrogen supply lines, respectively. The oxygen and hydrogen are necessary for proper recombiner operation. The nitrogen is used to test the system flow paths and to purge the system after use. These valves must open when the system is in operation.

Test Requirement: IWV-3520 (Exercising)

Basis for Relief:

As in Relief Request No. 2 for this system, these lines are brought into service only during operation of the hydrogen recombiner. This test is conducted during refuelings and proper operation (i.e., pressures) ensures the functioning of these check valves.

Alternative Testing:

These valves will be exercised during the hydrogen recombiner tests (PT-R15) at refuelings.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Instrument Air System

Relief Request No. 1

Valve: PCV-1228
Category: A
Quality Group: A

Function:

PCV-1228 is a CIV in the Instrument Air System (Post Accident Venting Supply). This valve is normally open during power operation.

Testing Requirement: IWV-3410 (Exercise)

Basis for Relief:

This valve is an open or close only valve so that part-stroke exercising is impractical. Full-stroke exercising the valve quarterly during power operations or at cold shutdowns is also impractical because it shuts off the operating air supply to the valves inside containment that may be required to function during both power and cold shutdown operations.

Alternative Testing:

This valve will be full-stroke exercised at refueling outages.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Instrument Air System

Relief Request No. 2

Valve: IA-39
Category: AC
Quality Group: A

Function:

IA-39 is a CIV (check valve) in the Instrument Air System (Post Accident Venting Supply) leading to the containment building. This valve is normally open.

Test Requirement: IWV-3410, IWV-3520 (Exercise)

Basis for Relief:

Exercising the valve closed would require securing the operating air supply to the other valves in the containment which are required to be operational during power and cold shutdown operations. Also, existing plant design and construction provides no means for indication or verification of check valve disk motion in either direction. The proper position for satisfying the containment isolation function is confirmed by acceptable Category A valve leak rate testing results. Relief from full-stroke exercising of this valve is therefore requested.

Alternative Testing:

Verification of proper valve operation will be made during Category A leak testing requirements of IWV-3420.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Isolation Valve Seal Water System

Relief Request No. 1

Valve: 1500-1543, 1545-1550, 5602, 1454, 1406
Category: C
Quality Group: N/A

Function:

These valves are check valves in the lines leading to the various CIVs. Their function is to open following a system initiation signal to provide a pressurized water or nitrogen seal between the containment isolation valves.

Testing Requirement: IWV-3520

Basis for Relief:

At present their is no method of obtaining positive verification of check valve stroke. Con Edison is presently evaluating proposed design modification to check the operation (exercise) of these valves. A new relief request will be submitted as necessary to support the conclusion of the evaluation.

Alternative Testing:

Pending completion of the above evaluation.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Isolation Valve Seal Water System

Relief Request No. 2

Valve: PCV-1076, PCV-1090
Category: B
Quality Group: N/A

Function:

Valve PCV-1076 regulates the Seal Water Tank. PCV-1090 regulates downstream nitrogem pressure leading to the various solenoid valves.

Testing Requirement: IWV-3410

Basis for Relief:

The function of these valves is to regulate pressure about a set-point and not to go fully open or shut. The proper operation of these valves is monitored daily during normal operations by recording of proper pressures in this system. Therefeore, exercising in accordance with Section XI is not required.

Alternative Testing:

None.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Jacket Water to Diesel Generators

Relief Request No. 1

Valve: JW-9, 9-1, 9-2
Category: B
Quality Group: N/A

Function:

These valves regulate the amount of cooling water flow to the jacket water coolers of the emergency diesel generators. They work automatically through temperature control. They allow flow from one-half bypass flow to total flow to the cooler.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

These valves cannot be full-stroked exercised due to the nature of the control circuit. Proper operation of this valve is verified during the EDG tests.

Alternative Testing:

In lieu of exercising these valves quarterly proper operation of these valves will be determined by successful completion of the EDG tests.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Main Steam

Relief Request No. 1

Valves: MS-1-21, 22, 23, 24
Category: BC
Quality Group:

Function:

These valves are stop check valves with the pneumatic operators holding the valve disks out of the main steam flow path.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

These MSIV's cannot be full-stroke or part-stroke exercised quarterly because to do so would cause a reactor trip. The reactor trip would be caused by the turbine tripping off line. The turbine trip is caused by a Valve Position Change Signal.

In addition, per Technical Specification requirements these valves are full-stroke tested and timed to their safe position during refuelings. Due to the startup and shutdown requirements of the plant it is not practical to full-stroke exercise these valves following cold shutdown periods.

Alternative Testing:

These valves will be full-stroke exercised at refuelings.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Main Steam

Relief Request No. 2

Valve: PCV-1134, 1135, 1136, 1137
Category: B (active)
Quality Group: B

Function:

These valves are atmospheric steam dump valves and are located outside of containment. They are used to manually control reactor cooldown and are used during the natural circulation mode of reactor cooldown.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

These valves are remote manual rheostat controlled valves and are operated from the control room. It is impractical to exercise these valves during normal plant operations due to the steam flow that would ensue. It is impractical to time these valves because they can act as throttle valves and are fully opened or closed only by operator action. Due to the rheostat control of these valves reproducible times would not generally be obtainable.

Alternative Testing:

These valves will be full-stroke exercised during cold shutdowns. These valves will not be timed during this exercise test.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Main Steam

Relief Request No. 3

Valves: PCV-1133
Category: B
Quality Group: C

Function:

This valve is a pressure control valve in the main steam line leading to the priming ejectors. This valve has an emergency function to close on high radiation.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

Exercising this valve during normal operations is impractical because it would require securing the priming ejectors during the test or disrupting steam flow should the valve fail to reopen. Due to the function of the valve (i.e., pressure regulation) it is part-stroked at indeterminate times during normal operation.

Alternative Testing:

This valve will be full-stroke exercised and timed at cold shutdowns.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Main Steam

Relief Request No. 4

Valves: MS-45A-D, 46A-D, 47A-D, 48A-D, 49A-D
Category: C (Relief Valves)
Quality Group: B

Function:

These valves are required to operate and relieve steam pressure when the pressure exceeds their predetermined setpoint.

Test Requirement: IWV-3510

Basis for Relief:

These valves are welded in place and it is impractical to take them out of the system and bench test them at a periodicity defined by IWV-3510-1.

Alternative Testing:

These valves are pop-tested in place and their setpoint checked at refuelings (PTR-6).

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Penetration and Liner Weld Joint Press

Relief Request No. 1

Valve: FCV-1177-1 through 4, FCV-1178-1 through 4
Category: C
Quality Group: N/A

Function:

These valves are check valves on the upstream and downstream side of the air receiver in each zone. Their function is to open following a demand for containment isolation to pressurize and maintain pressure between certain closed containment isolation valves.

Test Requirement: IWV-3520 (Exercise)

Basis for Relief:

As the system is in operation continuously during normal plant operation, these valves are considered passively open and therefore no exercising need be required. Pressure and system flow indication serve to verify operability.

Alternative Testing:

None.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Penetration and Liner Weld Joint Press

Relief Request No. 2

Valve: FCV-1193 through FCV-1204
Category: B
Quality Group: N/A

Function:

These valves are pressure regulating valves in the main and back-up pressurization supplies to the weld channels and CIV interspaces.

Test Requirement: General regulatory guidance.

Basis for Relief:

Zone pressure indication permits continuous verification of valve operability.

Alternative Testing:

None.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Personnel Airlock

Relief Request No. 1

Valve: 85A, 85B, 95A, 95B
Category: AC
Quality Group: N/A

Function:

These check valves function as CIVs for the airlocks.

Test Requirement: IWV-3520 (Exercise)

Basis for Relief:

There are no positive means available for exercising these valves. Proper operation may be deduced when making periodic entries to containment. In addition the Appendix J tests for leak rate serve to verify the operability of these valves.

Alternative Testing:

Leak test per Appendix J.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Personnel Airlock

Relief Request No. 2

Valve: 85C, 85D, 95C, 95D
Category: A
Quality Group: N/A

Function:

These equalizing ball valves function as CIVs for the airlocks.

Test Requirement: IWV-3520 (Exercise)

Basis for Relief:

There are no positive means available for exercising these valves. Proper operation may be deduced when making periodic entries to containment. In addition the Appendix J tests for leak rate serve to verify the operability of these valves.

Alternative Testing:

Leak test per Appendix J.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Reactor Coolant System

Relief Request No. 1

Valve: 518
Category: AC
Quality Group: C

Function:

Valve 518 is a containment isolation check valve located in the nitrogen supply manifold of the waste disposal system to the pressurizer relief tank. It is normally closed and its function is to close.

Test Requirement: IWV-3520 (Exercise)

Basis for Relief:

Valve 518 is considered a passive valve. This valve is normally closed. It is not required that this valve change position to perform its safety function. Therefore, the operability of this valve is inconsequential with regard to the safety function which it performs. In accordance with NRC guidance and the above supporting necessary evidence, it is deemed that quarterly exercising of these valves is not necessary.

Alternative Testing:

None.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Reactor Coolant System

Relief Request No. 2

Valves: 580A and 580B
Category: A
Quality Group: A

Function:

These valves are manual containment isolation valves in the dead weight tester system. They are normally locked closed valves whose function is to close.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

These valves are considered passive valves. They are normally locked closed and it is not necessary that they change position to perform their safety function. The operability of these valves is inconsequential with regard to the safety function which they perform. In accordance with NRC guidance and the above supporting evidence it is deemed that quarterly exercising of these valves is not necessary.

Alternative Testing:

None.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Reactor Coolant System

Relief Request No. 3

Valves: 535, 536, PCV-456, PCV-455C
Category: B
Quality Group: A

Function:

These valves function as part of the low temperature over-pressurization protection system. They also operate during power operation to limit any pressure excursion and thus limit the operation of the spring loaded pressurizer safety valves. Valves 535 and 536 are normally open block valves and PCV-456 and PCV-455C are normally shut pressure relief valves.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

Valves 535, 536 are motor operated block valves and are normally open. They are closed when excessive leakage from the downstream power operated relief valves (PCV-456, 455C) exists. These valves are required to function, as part of the overpressure protection system, and as part of the RCS vent system, post-accident.

Part-stroke exercising these valves at any time is impractical because these are open or close only valves. Consistent with the criteria contained in NRC's SER for the Remote Reactor Head Vent (NRC, Varga to Con Ed, O'Toole, dated September 9, 1983) these valves will be exercised at cold shutdowns.

Alternative Testing:

These valves will be full-stroke exercised at cold shutdowns.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Reactor Coolant System

Relief Request No. 4

Valves: HCV-3100, 3101
Category: B
Quality Group:

Function:

These valves are motor operated pressure isolation valves in the reactor coolant system, and act as part of the vessel head vent portion. These valves are normally closed during normal plant operation. These valves are opened when it is necessary to vent the reactor vessel head.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

These valves were installed as part of the TMI action items and are required to be operable during normal plant operations. Consistent with NRC's SER for this system (NRC, Varga to Con Ed, O'Toole, dated September 9, 1983) these valves will be stroked at cold shutdowns.

Alternative Testing:

These valves will be full-stroke exercised at cold shutdowns.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Safety Injection

Relief Request No. 1

Valves: 863 and 4312
Category: 863-A, 4312-AC
Quality Group: B

Function:

Valves 863 and 4312 are containment isolation valves in the N_2 supply line to the accumulators. They are normally closed and their function is to remain closed.

Test Requirement: 863-IWV-3410 (Exercise)
4312-IWV-3520

Basis for Relief:

These valves are normally closed and are considered passive valves. The operability of these valves is inconsequential with regard to the safety function which they perform; therefore, in accordance with NRC guidelines, they are not required to be stroked.

Alternative Testing:

None.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Safety Injection

Relief Request No. 2

Valves: 897A, 897B, 897C and 897D
838A, 838B, 838C and 838D
Category: AC
Quality Group: A

Function:

Valves 897A through 897D are pressure isolation check valves in the cold leg injection lines to the Reactor Coolant System (RCS) and are at the interface of the RCS and the Safety Injection System (SIS). Their emergency function is to open to permit flow from the SIS into the RCS following a LOCA.

Valves 838A, 838B, 838C and 838D are pressure isolation valves in the cold leg injection lines from the recirculation pumps and Residual Heat Removal pumps whose function is to open to permit flow from these pumps in the LPSI mode following a LOCA.

Test Requirement: IWV-3520 (Exercise)

Basis for Relief:

Valves 897A and 897C are in the flowpaths from the High Pressure Safety Injection (HPSI) pumps, and valves 897A through 897D are in the flowpaths from the recirculation pumps, RHR pumps and from their respective accumulators. The system configuration is such that the only practical way the valves can be exercised is by putting flow through them from one of the SI pumps or accumulators.

During normal power operations, the RCS pressure is approximately 2200 psig. None of the SI pumps or accumulators have the pressure capability to overcome the RCS pressure in order to establish flow through the check valves. Valves 838A through 838D are in series with 897A through 897D respectively, and therefore the same basis for relief applies.

Alternative Testing:

All eight check valves will be full-stroke exercised during cold shutdowns when the RHR mode of cooling is in progress.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Safety Injection

Relief Request No. 3

Valves: 859A and 859C
Category: AE
Quality Group: B

Function:

Valves 859A and 859C are manual, locked closed Containment Isolation Valves in the Safety Injection pump test circuit and their function is to remain closed.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

These valves are normally closed and are considered passive valves. The operability of these valves is inconsequential with regard to the safety function which they perform; therefore, in accordance with the NRC guidelines, they are not required to be stroked.

Alternative Testing: None

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Safety Injection

Relief Request No. 4

Valve: 867A
Category: AC
Quality Group: B

Function:

Valve 867A is a Containment Spray discharge check valve in the line leading to the containment spray headers. This valve is closed during plant operation and is required to open when the containment spray pumps are activated to supply refueling water storage tank (RWST) water/spray additive to the containment spray headers.

Test Requirement: IWV-3520 (Exercise)

Basis for Relief:

This valve will be part stroke exercised during the quarterly mini-flow test of the containment spray pumps. Full-stroke exercising this valve at any time other than at refuelings is impractical because it would require activating the containment spray pumps and spray down of the containment. The full flow pump test can be conducted at refuelings however, because of a disconnect line that allows for operations other than containment spray. This line separates the containment spray header from the discharge line.

Alternative Testing:

Valve 867A will be part-stroke exercised quarterly during the containment spray pump mini-flow test and will be full-stroke exercised during refueling outages.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Safety Injection

Relief Request No. 5

Valve: 867B
Category: AC
Quality Group: B

Function:

Valve 867B is a Containment Spray discharge check valve in the line leading to the containment spray headers. This valve is closed during plant operation and is required to open when the containment spray pumps are activated to supply refueling water storage tank (RWST) water/spray additive to the containment spray headers.

Test Requirement: IWV-3520 (Exercise)

Basis for Relief:

This valve is located downstream of the containment spray pump mini-flow test line and because of this cannot be part-stroke exercised quarterly during the mini-flow test of the containment spray pumps. This valve can be full-stroke exercised at refuelings as explained in the relief request for valve 867A (R-R No. 4).

Alternative Testing:

This valve will be full-stroke exercised at refueling outages.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Safety Injection

Relief Request No. 6

Valves: 856B and 856F
Category: B
Quality Group: B

Function:

These are shutoff valves in the Safety Injection lines leading to the hot legs of the Reactor Coolant System. They are normally closed and have a safety function to open approximately 24 hours after the cold leg injection has been initiated.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

Valves 856B and 856F are only capable of being full-stroke exercised. Full-stroke exercising these valves quarterly during normal plant operation would be impractical in that a failure of these valves concurrent with a loss of coolant accident (LOCA) can result in a steam binding effect which would prevent adequate cooling water from reaching the core.

Alternative Testing:

These valves will be full-stroke exercised at cold shutdowns.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Safety Injection

Relief Request No. 7

Valves: 1831 and 1821
Category: B
Quality Group: B

Function:

Valves 1831 and 1821 are the Boron Injection Tank (BIT) outlet isolation valves. The valves are normally open and have a safety function to close upon the initiation of a BIT low level signal.

Test Requirement: IWV-3410

Basis for Relief:

These valves are open or closed only, motor operated gate valves; therefore, part-stroke exercising these valves is impractical. Full-stroke exercising these valves quarterly would place the BIT system in a nonconservative condition (i.e., the failure of the valves in a closed position nullifies the availability of the BIT system in the event of a concurrent emergency situation).

Alternative Testing:

These valves will be full-stroke exercised at cold shutdowns.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Safety Injection

Relief Request No. 8

Valves: 1822A and 1822B
Category: B
Quality Group: B

Function:

Valves 1822A and 1822B are isolation valves in the Boron Injection Tank (BIT) outlet lines. They are normally closed, motor operated gate valves and have a safety function to open on initiation of SI.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

These valves are open or closed only valves; therefore, part-stroke exercising is impractical. Full-stroke exercising these valves quarterly is also impractical because valves 1831 and 1821 must first be shut to ensure no concentrated boron solution flows into the downstream piping. By shutting valves 1831 and 1821, the BIT is placed in a nonconservative condition as explained in the Basis for Relief for these two valves.

Alternative Testing:

The valves will be full-stroke exercised at cold shutdowns.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Safety Injection

Relief Request No. 9

Valves: 856A, 856C, 856D, 856E
Category: B
Quality Group: B

Function:

These valves are flow isolation valves in the SI lines leading to the cold legs of the Reactor Coolant System. These valves are normally open and have a function to close when hot leg safety injection, during the recirculation phase of Safety Injection, is required.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

These valves are open or closed only valves; therefore, part-stroke exercising these valves is impractical. Full-stroke exercising these valves quarterly during normal plant operations is impractical because these valves are normally locked open and are required to be open during an emergency situation utilizing the SI system. Failure of one of these valves in the closed position will place the plant in a less conservative condition that may eventually cause plant shutdown.

Alternative Testing:

These valves will be full-stroke exercised during cold shutdowns.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Safety Injection

Relief Request No. 10

Valves: 842 and 843
Category: B (passive)
Quality Group: B

Function:

These valves are located in the mini-flow return line from the discharge of the safety injection pumps to the RWST. They are motor operated valves and are locked open during normal plant operation. They have a function to close at some time after initiation of SI.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

These valves are open or closed only valves; therefore, part-stroke exercising them is impractical. Full-stroke exercising the valves quarterly could compromise the SI pump operation if the valves were in a closed position. If the valves were in the closed position and the pumps were started, the result would be a dead head condition which most likely would cause damage to the pumps.

Alternative Testing:

These valves will be full-stroke exercised at cold shutdowns.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Safety Injection

Relief Request No. 11

Valves: 1838A and 1838B
Category: C
Quality Group: B

Function:

These valves are check valves in the lines from the spray additive tank to the eductors of the containment spray pumps. These valves are normally closed and have an emergency function to open when the containment spray pumps are activated and sodium hydroxide addition is called for.

Test Requirement: IWV-3520 (Exercise)

Basis for Relief:

Full-stroke testing these valves is impractical because to do so would require a full flow test of the containment spray system with the spray additive tank on line. This is not done because to do so would require spraying down the containment with a highly corrosive chemical. However, part-stroke exercising of these valves quarterly during the containment mini-flow test can be accomplished. It is expected that a 40 gpm to 50 gpm flow rate will be established through these check valves. Normal flow is approximately 65 gpm.

Alternative Testing:

These valves will be part-stroke exercised quarterly during the containment spray pump mini-flow test.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Safety Injection

Relief Request No. 12

Valves: 857A, 857B, 857C, 857D, 857G, 857H, 857M, 857F
Category: AC
Quality Group: A

Function:

Valves 857A, 857B, 857C and 857D are pressure isolation check valves in the injection lines to the RCS and are at the interface of the RCS and the Safety Injection system. Valves 857M, 857F, 857G, and 857H are upstream and in series with 857A, 857B, 857C and 857D, respectively. All valves have the function of opening in order to permit flow from the High Pressure Safety Injection (HPSI) pumps into the RCS following a LOCA.

Test Requirement: IWV-3520 (Exercise)

Basis for Relief:

During normal plant operation, valves 857A, 857B, 857C and 857D are held closed by RCS pressure of approximately 2200 psig. The HPSI pumps do not have the pressure capability (design discharge pressure approximately 1700 psig) to overcome the RCS pressure and establish flow through the check valves. In addition, during cold shutdowns, part of the temperature and overpressure protection requirements provides that HPSI pumps be deactivated when the RCS is pressurized and below 1900 psig. This is to prevent an inadvertent pressurization of the RCS by HPSI pumps at this time. Therefore, flow cannot be established through the check valves by the HPSI pumps during these cold shutdowns. Since valves 857M, 857F, 857G and 857H are upstream and in series with 857A, 857B, 857C and 857D, respectively, the same basis for relief applies.

Alternative Testing:

Valves 857A, 857B, 857C, 857D, 857M, 857F, 857G and 857H will be full-stroke exercised at refuelings.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Safety Injection

Relief Request No. 13

Valves: 857J, 857K
Category: AC
Quality Group: A

Function:

Valves 857J and K are pressure isolation check valves in the cold leg injection lines from the HPSI pumps. They are closed during normal plant operation and their emergency function is to open to permit flow from the HPSI pumps to the RCS following a LOCA.

Test Requirement: IWV-3520 (Exercise)

Basis for Relief:

The SIS configuration is such that the only practical way the valves can be exercised is by activating the HPSI pumps and establishing flow through the valves. During normal plant operation, the RCS pressure is approximately 2200 psig. The HPSI pumps do not have the pressure capability (design discharge pressure approximately 1700 psig) to overcome the RCS pressure and establish flow through the check valves. In addition, part of the temperature over pressure protection requirements at cold shutdowns is such that the HPSI pumps be deactivated when the RCS is pressurized and below 1900 psig. This is to prevent an inadvertent pressurization of the RCS by the HPSI pumps at this time. Therefore, flow cannot be established through the check valves by the HPSI pumps during cold shutdowns.

Alternative Testing:

Valves 857J and 857K will be full-stroke exercised at refuelings.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Safety Injection

Relief Request No. 14

Valves: 857E, 857L
Category: C
Quality Group: B

Function:

Valves 857E and L are check valves in the cold leg injection lines from the HPSI pumps. They are closed during normal plant operation and their emergency function is to open to permit flow from the HPSI pumps to the RCS following a LOCA.

Test Requirement: IWV-3520 (Exercise)

Basis for Relief:

The SIS configuration is such that the only practical way the valves can be exercised is by activating the HPSI pumps and establishing flow through the valves. During normal plant operation, the RCS pressure is approximately 2200 psig. The HPSI pumps do not have the pressure capability (design discharge pressure approximately 1700 psig) to overcome the RCS pressure and establish flow through the check valves. In addition, part of the temperature over pressure protection requirements at cold shutdowns is such that the HPSI pumps be deactivated when the RCS is pressurized and below 1900 psig. This is to prevent an inadvertent pressurization of the RCS by the HPSI pumps at this time. Therefore, flow cannot be established through the check valves by the HPSI pumps during cold shutdowns.

Alternative Testing:

Valves 857E and 857L will be full-stroke exercised at refuelings.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Safety Injection

Relief Request No. 15

Valves: 886A and 886B
Category: C
Quality Group: B

Function:

These valves are recirculation outlet check valves from the recirculation pumps of the SIS. They are normally closed and have a function of opening when the recirculation pumps are activated.

Test Requirement: IWV-3520 (Exercise)

Basis for Relief:

When the recirculation pumps are activated, the recirculation mode from the recirculation sump to the RCS, is established. Valves 886A and 886B are located inside containment, therefore, the only means of exercising them is by activating the recirculation pumps.

Full-stroke exercising these valves quarterly during normal plant operations or during any other condition is impractical since the recirculation pumps are in a normally dry recirculation sump. Operation of these pumps in a dry condition will damage the pumps and is not done. Filling the sump for full flow pump operation requires approximately 6000 gallons which creates a radioactive waste problem and is not done. Part-stroke exercising during the mini-flow test of the recirculation pumps is the only practical means of exercising these valves.

Alternative Testing:

Valves 886A and 886B will be part-stroke exercised at refuelings when the mini-flow test of the recirculation pumps is accomplished.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Safety Injection

Relief Request No. 16

Valve: 881
Category: C
Quality Group: B

Function:

Valve 881 is a recirculation inlet line check valve to the RHR pumps from the Refueling Water Storage Tank. The valve is normally closed and has the function of opening when the RHR pumps are used in the LPSI mode.

Test Requirement: IWV-3520 (Exercise)

Basis for Relief:

This valve cannot be part-stroke exercised quarterly during the RHR pump mini-flow test because the test line taps in downstream of this valve. Although an 8 inch bypass line is provided around the RHR pumps for the purpose of pumping refueling water back to the RWST following refueling operations, its use during normal operations would render both RHR pumps inoperable in the LPSI mode. This line could potentially serve to permit part-stroke exercising of valve 881 during cold shutdowns when RHR pump operability is not required by Tech. Specs., however, the duration of a typical cold shutdown is such that the decay heat load is sufficiently large so as to preclude diverting any significant flow from the discharge header.

Alternative Testing:

Valve 881 will be exercised (nominally full-stroked)at refuelings using the RHR pumps to refill the primary system.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Safety Injection

Relief Request No. 17

Valve: 847
Category: C
Quality Group: B

Function:

Valve 847 is a check valve located at the inlet to the Safety Injection pumps from the Refueling Water Storage Tank (RWST) whose function is to open upon activation of the safety injection pumps.

Test Requirement: IWV-3520 (Exercise)

Basis for Relief:

The only practical means to exercise this check valve is to activate the Safety Injection pumps and flow water from the RWST to the Reactor Coolant System (RCS). Full-stroke exercising the valve quarterly while the plant is at normal operating power is impractical in that the RCS pressure is at approximately 2250 psig and this pressure locks out the check valve at the RCS/SIS interface that is downstream and in series with the subject check valve. The head available from the SI pumps is not enough to overcome the RCS pressure, thereby preventing flow. It is also impractical to exercise the valve at cold shutdowns. The SI pumps are deactivated when the RCS pressure goes below 1900 psig as part of the overpressure protection requirements.

Alternative Testing:

Valve 847 will be part-stroke exercised quarterly during SI pump tests and will be full-stroke exercised at refueling outages.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Safety Injection

Relief Request No. 18

Valves: 849A, 849B, 852A, 852B
Category: C
Quality Group: B

Function:

These valves are check valves located at the outlet of the SI pumps. They are normally closed and have a function of opening upon actuation of the Safety Injection pumps.

Test Requirement: IWV-3520 (Exercise)

Basis for Relief:

Full-stroke exercising these valves quarterly while the plant is at normal operating power is impractical in that the RCS pressure is at approximately 2250 psig. This pressure locks out these check valves at the RCS/SIS interface that is downstream and in series with the subject check valves. The head available from the Safety Injection pumps is not great enough to overcome the RCS pressure, thereby preventing flow. It is also impractical to exercise these valves at cold shutdowns since the SI pumps are deactivated when the RCS pressure goes below 1900 psig as part of the low temperature over-pressurization protection requirements.

Alternative Testing:

Valves 849A, 849B, 852A and 852B will be full-stroke exercised at refueling outages.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Safety Injection

Relief Request No. 19

Valves: 895A, 895B, 895C, 895D
Category: C
Quality Group: A

Function:

These valves are pressure isolation check valves in the outlet lines from the accumulators (one per accumulator). They are closed during normal plant operation, and their emergency function is to open following a LOCA (RCS pressure drops below approximately 650 psig) to allow water from the accumulators to transfer to the RCS.

Test Requirement: IWV-3520 (Exercise)

Basis for Relief:

The SIS configuration is such that the only practical way the valves can be exercised is by blowing down water from the accumulators to the RCS. 895A through 895D are upstream and in series with 897A through 897D which are held closed at this condition by a differential pressure of about 1550 psig (RCS at 2200 psig vs. accumulators at 640 psig). Therefore, flow cannot be established from the accumulators during normal power conditions.

Part of the low temperature over-pressurization protection requirements at cold shutdowns are that MOV's 894A through 894D be closed when the RCS pressure is reduced below 1000 psig. These MOV's are in the accumulator outlet lines and are upstream and in series with the subject check valves; therefore, flow cannot be established from the accumulators during these cold shutdown conditions.

Alternative Testing:

These valves will be part-stroke exercised at refueling outages.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Safety Injection

Relief Request No. 20

Valves: 879A and 879B
Category: C
Quality Group: B

Function:

These valves are check valves in the lines leading from the containment spray pumps to the charcoal filter fire protection nozzles. Their function is to open when filter dousing is initiated because of a high temperature alarm in a filter unit. These valves are normally closed.

Test Requirement: IWV-3520 (Exercise)

Basis for Relief:

The only function of these valves is to open in the extremely unlikely event that a charcoal filter fire occurs. Because of their position in the containment spray system, it is impossible to operationally full-stroke these valves except by the initiation of containment spray, which is not done. Also, these valves cannot be part-stroke exercised during the CS pump mini-flow test. In addition, exercising these valves by operation of the system would require opening the downstream isolation valves and dousing the charcoal filter with water.

Alternative Testing:

Con Edison is presently evaluating the feasibility of design modifications to allow exercising these valves during refuelings.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Safety Injection

Relief Request No. 21

Valves: 882
Category: B
Quality Group: B

Function:

This valve is located in the supply line from the RWST to the RHR pumps. The valve is normally deenergized open to ensure flow to the RHR pumps during low-level SI. The valve must close during recirculation from the containment pump to the RHR pumps.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

This valve is deenergized open during normal plant operations to ensure proper operability of the RHR system following an accident. Failure of this valve in the closed position during normal operations would preclude the proper operation of the system.

Alternative Testing:

This valve will be full-stroke exercised at cold shutdowns.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Safety Injection

Relief Request No. 22

Valves: 1810
Category: B
Quality Group: B

Function:

This valve is located in the water supply leading to the SI pumps from the RWST. It is normally deenergized open, however, following an accident where the SI piping is broken downstream of valves 888A and B; this valve is required to shut and valve 898 manually opened.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

This valve is required by procedure to be deenergized open during normal plant operations to ensure water flow from the RWST to the SI pumps. Because it is a single valve in this line, failure of this valve in the shut position would cause the failure of the SI system and cause the plant to shutdown.

Alternative Testing:

This valve will be full-stroke exercised at cold shutdowns.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Safety Injection

Relief Request No. 23

Valves: 1802A, 1802B
Category: B
Quality Group: B

Function:

These valves are redundant parallel valves on the discharge of the containment internal recirculation pumps. They are normally closed and have a safety function to open when the recirculation pumps are put into service during the recirculation phase of a loss of coolant accident. The recirculation pump header is provided with a normally open test and recirculation line back to the sump to prevent dead heading the pumps. The elevation and piping arrangement from the RWST is such that with either valve 1802A or 1802B open the RWST will drain to the recirculation sump via the open test line with the potential for flooding the containment.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

Opening either valve during normal plant operation will cause the RWST to drain to containment. They only time the RWST is drained sufficiently to permit stroking 1802A and 1802B is at refuelings.

Alternative Testing:

These valves will be full-stroke exercised at refuelings.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Service Water

Relief Request No. 1

Valves: SWN-42-1, 42-2, 42-3, 42-4, 42-5

Category: AC
Quality Group: C

Function:

These valves are relief valves that serve as containment isolation valves. They are normally closed and have a safety function to remain closed.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

These valves are normally closed during normal operation and have a safety function to close. They are therefore passive valves. The operability of these valves is inconsequential with regard to the safety function which they perform; therefore, in accordance with NRC guidelines, they are not required to be stroked.

Alternative Testing:

These valves are tested in accordance with 10 CFR 50 Appendix J (Type C) Leak Test.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Service Water

Relief Request No. 2

Valves: FCV-1111 and FCV-1112
Category: B
Quality Group: C

Function:

These valves are manual flow isolation valves in the normal service water supply to the conventional plant equipment.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

One of these valves is normally open during normal plant operation and the other normally closed. The open valve is closed at some time following an accident condition. Full or part-stroke exercising the open valve during normal plant operation is impractical because doing so would reduce or secure flow to plant equipment requiring this cooling water. This could cause damage to this plant equipment (e.g. turbine hydrogen coolers).

Alternative Testing:

These valves will be full-stroke exercised at those cold shutdowns when the conventional plant equipment is not in use. In addition these valves may be stroked during plant operation during those infrequent instances when it becomes necessary to realign service water system headers.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Service Water

Relief Request No. 3

Valves: TCV-1104, TCV-1105
Category: B or BP depending on normal position
Quality Group: C

Function:

These valves are flow control valves for the service flow through the containment fan coolers. The original system configuration maintained these valves in the normally closed position and provided a safety injection signal to open these valves fully in the event of an accident. Experience with the system has demonstrated the desirability of maintaining these valves open during open during normal operation, maximizing system flow in order to minimize material degradation due to the brackish water being pumped.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

When operated normally closed, these valves will be exercised quarterly. However, when operated normally open these valves are considered passive as their safety function is to open. Therefore, when operated normally open, no valve exercising need be required.

Alternative Testing:

As described above.

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Station Air

Relief Request No. 1

Valves: SA-24, SA-24-1
Category: A
Quality Group: A

Function:

These valves are containment isolation valves in the inlet line of the station air system leading to the containment building. They are normally closed during power operations and have a safety function to close.

Test Requirement: IWV-3410 (Exercise)

Basis for Relief:

These valves are normally closed valves during power operations and have a safety function to close. They can, therefore, be considered as passive valves. The operability of these valves is inconsequential with regard to the safety function which they perform; therefore, in accordance with NRC guidelines, they are not required to be stroked.

Alternative Testing: None

Indian Point Unit No. 2

RELIEF REQUEST BASIS

SYSTEM: Waste Disposal

Relief Request No. 1

Valves: 1616
Category: AC
Quality Group: C

Function:

Valve 1616 is a Containment Isolation Check Valve and is located in the nitrogen supply manifold of the waste disposal system to the pressure relief tank. This is a normally closed valve whose safety function is to close.

Test Requirement: IWV-3520, IWV-3410 (Exercise)

Basis for Relief:

This valve is a Passive CIV and is normally closed and is required to be closed during an accident condition. The operability of this valve is inconsequential with regard to the safety function which it performs; therefore, in accordance with NRC guidelines, it is not required to be stroked.

Alternative Testing: None

Indian Point Unit No. 2

GENERAL RELIEF REQUEST

SYSTEMS: Safety Injection, Auxiliary Coolant, Chemical and Volume Control, Reactor Coolant, Service Water, Sampling, Post Accident Containment Air Sampling, Hydrogen Recombiner, Steam Generator Blowdown and Sampling, Waste Disposal and some Miscellaneous CIVs.

General Relief Request--A

Valves:

o Safety Injection System

867A	851A	888A
867B	851B	888B
869A	859A	863
869B	859C	4312
850A	885A	
850B	885B	
878A		

o Auxiliary Coolant System

744	784	798	743
741A	FCV-625	791	1870
732	796	797	
793			

o Chemical and Volume Control System

222	4925	250A
226	4926	250B
205	4927	250C
201	4928	250D
202	227	

o Reactor Coolant System

548	518	580A	3419
549	519	580B	4136
	552	3418	

- Service Water System

SWN-41-1-A	SWN-42-1	SWN-43-1
SWN-41-2-A	SWN-42-2	SWN-43-2
SWN-41-3-A	SWN-42-3	SWN-43-3
SWN-41-4-A	SWN-42-4	SWN-43-4
SWN-41-5-A	SWN-42-5	SWN-43-5
SWN-44-1-A	SWN-71-1-A	
SWN-44-2-A	SWN-71-2-A	
SWN-44-3-A	SWN-71-3-A	
SWN-44-4-A	SWN-71-4-A	
SWN-44-5-A	SWN-71-5-A	

- Sampling System

956A	5132
956B	958
956C	959
956D	990A
956E	990B
956F	990D
956G	4399
956H	

- Post Accident Containment Air Sampling System

5018	5021	5024
5019	5022	5025
5020	5023	

- Hydrogen Recombiner System

IV-1A	IV-5B
IV-1B	IV-3B
3420	IV-5A
3421	IV-3A
3422	IV-2B
3423	IV-2A

- Steam Generator Blowdown and Sampling System

PCV-1214	PCV-1216
PCV-1214A	PCV-1216A
PCV-1215	PCV-1217
PCV-1215A	PCV-1217A

o Waste Disposal System

1786	1789	3416
1787	1702	3417
5459	1705	1788
1616	1728	1723

o Miscellaneous CIV's

PCV-1190	E5	85D	IIP 500
PCV-1191	IA-39	95A	IIP 501
PCV-1192	PCV-1234	95B	IIP 502
FCV-1170	PCV-1235	95C	IIP 503
FCV-1171	PCV-1236	95D	IIP 504
FCV-1172	PCV-1237	1814A	IIP 505
FCV-1173	SA-24	1814B	IIP 506
PCV-1228	SA-24-1	1814C	IIP 507
PCV-1229	MW-17	UH-43	
PCV-1230	(two valves)	UH-44	
E1	85A		
E2	85B		
E3	85C		

Category: A
Quality Group: Various
Function:

All valves listed are Containment Isolation Valves and as such must function to isolate the primary containment.

Test Requirement: IWV-3420 (Valve Leak Rate Test)

Basis for Relief:

The NRC staff has concluded that the Category A valve leak rate test requirements of IWV-3420 (a-e) for Containment Isolation Valves have been superseded by Appendix J Type C requirements. In addition it is our belief that The Consolidated Edison Co. meets the intent of Sections f and g of IWV-3420 and thus fulfills the remaining requirements of the ASME Section.

Alternative Testing:

All Category A valves listed will meet 10 CFR 50 Appendix J (Type C) leak testing requirements in lieu of Section XI requirements.

Indian Point Unit No. 2

GENERAL RELIEF REQUEST

SYSTEMS: Post Accident Containment Air Sampling; Reactor Coolant, Waste Disposal.

General Relief Request--B

Valves:

o Post Accident Containment Air Sampling

5018	5021	5024
5019	5022	5025
5020	5023	

o Reactor Coolant System

3418
3419

o Waste Disposal System

3416
3417

Category: A
Quality Group: Various
Function:

All valves listed are Containment Isolation Valves and as such must function to isolate the primary containment.

Test Requirement: IWV-3300 (Valve Position Indicator Check).

Basis for Relief:

All the valves listed are Valcor Solenoid Valves. The valves are totally sealed making a visual, physical verification of valve position impossible. However, all valves have remote position indication. This indication together with the Leak Rate Test conducted in accordance with Appendix J will allow for actual valve position verification.

Alternative Testing:

These valves will have their remote position indicators verified correct during the 10 CFR 50 Appendix J (Type C) leak testing requirements.

Attachment B

Update of the May 5, 1977
Technical Specification Page Revisions
concerning
Inservice Inspection and Testing

Consolidated Edison Company of New York, Inc.
Indian Point Unit No. 2
Docket No. 50-247
February, 1984

4.2 Inservice Inspection and Testing

Applicability

Applies to the inservice inspection of Quality Groups* A,B and C components and the inservice testing of pumps and valves whose function is required for safety.

Objective

To provide assurance of the continued integrity and/or operability of those structures, systems, and components to which this specification is applicable.

Specification

4.2.1 Inservice inspection of Quality Group* A, B, and C components shall be performed in accordance with the applicable edition and addenda of Section XI of the ASME Boiler and Pressure Vessel Code as required by 10 CFR 50, Section 50.55a(g), except where specific written relief has been requested pursuant to 10 CFR 50, Section 50.55a(g)(5).

4.2.2 Inservice testing of pumps and valves whose function is required for safety shall be performed in accordance with the applicable edition and addenda of Section XI of the ASME Boiler and Pressure Vessel Code as required by 10 CFR 50, Section 50.55a(g), except where specific written relief has been requested pursuant to 10 CFR 50, Section 50.55a(g)(5).

*Quality Group classification is in accordance with Revision 3 of Regulatory Guide 1.26.

References

(1) Letter from Robert W. Reid of NRC to William J. Cahill of Consolidated Edison dated April 22, 1976

(2) Letter from Robert W. Reid of NRC to William J. Cahill of Consolidated Edison dated November 17, 1976

(3) Letter from William J. Cahill of Consolidated Edision to Robert W. Reid of NRC dated May 27, 1976